

Prestressed Ground Anchors in Building Works

Permanent ground anchors in time may become defective or damaged. Hence where approval is sought for permanent ground anchors, the authorized person (AP) or registered structural engineer (RSE) will be required to demonstrate that proper consideration has been given to prevent or accommodate corrosion, creep, physical decomposition of grouts and wilful or accidental damage, and all other factors which may affect the durability of the system. The general standard of provision of the anchors should be in accordance with the Geotechnical Control Office "Model Specification for Prestressed Ground Anchors - GEOSPEC 1". Fully documented results of long-term performance tests of the anchor in similar ground material will also be required to be submitted. Each anchor will be required to pass a short term load test and selected anchors will be required to pass a sustained load test. Provision must be made in the permanent works for periodic monitoring of anchor loads to be carried out in accordance with "Model Specification" mentioned above. It will be necessary for the AP or RSE to show, how such monitoring can be achieved during the life of the building, and that all anchors are made accessible.

2. The RSE will be responsible for the design of ground anchors and supervision of all load testing, and will be required to submit plans and sections of the proposed anchor system showing site boundaries and geotechnical information together with his own anchor design calculations. Also to furnish with the submission, plans of all adjacent buried and surface public utility services and adjacent buried and surface structures and to demonstrate that anchors will not cause damage.

3. After installation of any anchor system, the RSE should submit for record purposes to the Buildings Ordinance Office (BOO) an 'as built' location drawing showing the full length and details of each anchor including:

- (a) type of anchor and protection system including materials employed;
- (b) design load;
- (c) total length of anchor;
- (d) bond length;
- (e) free length;
- (f) angle of inclination of anchor;
- (g) descriptions of all strata encountered in drilling;
- (h) quantity of grout injected and pressures used;
- (i) dates of all stages of installation and tests; and
- (j) load test results (load-displacement plots).

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4. In the past, submissions to BOO have sometimes proposed the provision of ground anchors extending into Government Land or adjacent private sites. It is to be noted that ground anchors can give rise to unacceptable consequences such as the obstruction of new works or new public utility services, in addition, their existence could inhibit the development of land. Furthermore, an undesirable situation could result should damage to property or public utility services be caused during installation. Therefore only in **exceptional** circumstances will approval be given to submissions of any new development incorporating ground anchors outside the site boundary.

5. If it is intended to use ground anchors outside the site boundary, application should be made to BOO in the early stages of design. Where it is intended to install anchors in adjacent private sites it is necessary for the APs to furnish with the submission proof that such works have the permission of the adjacent private owners.

A handwritten signature in black ink, appearing to be 'A.G. Eason', with a long, wavy horizontal line extending to the right.

(A.G. Eason)
Building Authority

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