

Division 15—Earthworks Code (including Lot Filling)

12.15.1 Earthworks Code

- (1) The provisions in this division comprise the Earthworks Code.
- (2) They are—
- compliance with the Earthworks Code (Section 12.15.2);
 - overall outcomes for the Earthworks Code (Section 12.15.3); and
 - specific outcomes and probable solutions as follows—
 - effects of development – general (section 12.15.4).

- (vi) that land or water is not contaminated;
- (vii) that the site is stable;
- (viii) appropriate site access is provided from the road reserve to existing or future building envelopes; and
- (ix) there is no environmental harm or nuisance created by way of the release of air pollutants, noise or removal of significant vegetation.

12.15.2 Compliance with the Earthworks Code

Development that, in the local government's opinion is consistent with the specific outcomes in section 12.15.4 complies with the Earthworks Code.

12.15.3 Overall Outcomes for the Earthworks Code

- (1) The overall outcomes are the purpose of the Earthworks Code.

NOTE 12.15.3A

Sub-section (1) provides the link between the overall outcomes sought for the code and the IPA code assessment rules which refer to the 'purpose' of the code [see IPA s.3.5.13(2)].

- (2) The overall outcomes sought for the Earthworks Code are the following—
- (a) Earthworks ensure—
 - (i) there is no adverse impact to adjoining properties;
 - (ii) there is no adverse impact on flooding of upstream, downstream and adjoining land;
 - (iii) the visual character and amenity of the site and the surrounding area is not adversely affected;
 - (iv) there is no adverse impact to infrastructure or public utilities easements;
 - (v) natural landforms and drainage lines are maintained, where possible;

12.15.4 Effects of Development - General

NOTE 12.15.4A

The specific outcomes which are sought to apply generally to Earthworks are set out below.

Effects on Surrounding Land

Specific Outcomes

- (1)
- (a) Earthworks do not have an adverse impact on the visual amenity or privacy of surrounding land.
 - (b) Earthworks are appropriately placed, retained and treated.
 - (c) Earthwork activity does not cause vibrations which could damage nearby structures whether directly (owing to vibration transmitted to the structure), or indirectly (e.g. by causing settlement of the foundations).
 - (d) Retaining structures are constructed of materials that are of a high quality appearance and compatible with that of surrounding uses and works.
 - (e) Where fencing occurs above the retaining structure, it is designed where possible, to—
 - (i) reduce the bulk of the entire structure; and
 - (ii) use appropriate materials and colours to provide visual compatibility.
 - (f) Earthworks do not extend onto adjoining land or a road reserve, unless the prior approval of the respective owner or responsible government entity has been obtained.



Stability of Land

- (2) **Specific Outcomes**
- (a) Batters are provided to ensure the stability of the earthworks.
 - (b) Retaining structures are stable and structurally sound.
- (3) **Probable Solutions – for sub-section (2)**
- (a) The proposed cut or fill is no deeper than 1m in relation to natural ground level.
 - (b) Any cut embankment is no steeper than—
 - (i) for sand – 2 horizontal to 1 vertical;
 - (ii) for silt – 4 horizontal to 1 vertical;
 - (iii) for firm clay – 1 horizontal to 1 vertical; or
 - (iv) for soft clay – 3 horizontal to 2 vertical.
 - (c) Any fill embankment is no steeper than 4 horizontal to 1 vertical.
 - (d) Any compacted fill embankment is no steeper than—
 - (i) for sand – 3 horizontal to 2 vertical;
 - (ii) for silt – 4 horizontal to 1 vertical; or
 - (iii) for firm clay – 2 horizontal to 1 vertical.
 - (e) Where earthworks involve cut or fill deeper than 1.0m, a retaining structure is provided, in accordance with the requirements of the Standard Building Regulation.
 - (f) If the earthworks include a retaining wall greater than 1000mm in height, the retaining wall is to be certified by a Registered Professional Engineer as being structurally sound.

NOTE 12.15.4B

- (1) In some cases, further information such as a geotechnical report will need to be submitted to the local government for consideration as part of the development assessment process.
- (2) Further information on the requirements for the specific technical assessments are contained in Planning Scheme Policy 2—Information Local Government May Request.

Nature of Fill

- (4) **Specific Outcome**
- Earthworks do not result in land or water contamination, or the harbourage of vermin.
- (5) **Probable Solution – for sub-section (4)**
- Earthworks involve only the controlled use of clean, dry, solid, inert building material as per Section 4 (Materials) of AS 3798 – 1996, “*Guidelines on earthworks for commercial and residential developments*”.
- NOTE 12.15.4C**

 - (1) In determining if materials such as solid inert building materials are suitable for earthworks, consideration should be given to matters such as compaction levels, the intended use of the filled area, the nature of the receiving environment, and the potential for vermin harbourage.
 - (2) Where the amount of filling exceeds 50 tonnes (in a year) the person carrying out the activity will require an “environmental authority” issued by the Environmental Protection Agency pursuant to the *Environmental Protection Act 1994*.
 - (3) Where the amount of filling is less than 50 tonnes, the issuance of a permit by the local government pursuant to section 118 of the *Environmental Protection Act 1994* is required.
 - (4) The transportation of any waste within the City also requires the approval of the Local Government.

Degree of Compaction

- (6) **Specific Outcome**
- Earthworks are appropriately compacted.
- (7) **Probable Solutions – for sub-section (6)**
- (a) The degree of compaction accords with Section 5 (Compaction Criteria) of AS 3798 – 1996, “*Guidelines on earthworks for commercial and residential developments*”.
 - (b) Geotechnical testing—
 - (i) Commercial, Industrial or Multiple Residential Uses—
 - (A) Geotechnical testing is undertaken in accordance with Appendix B of AS3798.



- (B) If building works are proposed for commercial, industrial or multiple residential uses, geotechnical testing takes place to the equivalent of Level 1, which involves a full-time inspection service and testing of all earthworks by a geotechnical testing authority, including determination of the location and timing of the sampling and testing operations.
- (C) Upon completion, a report is prepared by the testing authority setting out the inspections, location, sampling and testing and the results.
- (D) The testing authority is to provide an opinion in respect to compliance of the earthworks with the specified requirements.
- (ii) Reconfiguration of a Lot for Single Residential, Dual Occupancy or Multiple Residential Uses—
- (A) Geotechnical testing is undertaken to determine a site classification for each lot in accordance with *AS2870- Residential Slabs and Footings – Construction*.
- (B) Site classification in the Category of “E” or “P” (E – Subject to extreme soil movement; P – Problem sites including poorly compacted fill), is generally not acceptable.
- (C) Where such site classification of “E” or “P” occurs, further detailed analysis demonstrating site suitability for the intended use is to be undertaken.
- (D) Controlled filling to satisfy Level 1 testing in accordance with AS3798 may be required in order to achieve an appropriate site classification.
- (iii) Single Residential, Dual Occupancy or Multiple Residential Uses on an Existing Lot—
- (A) Level 1 testing is not required for building works for the purpose of a Single Residential, Dual Occupancy or Multiple Residential use on an existing lot.

NOTE 12.15.4D

This is in recognition of issues associated with the placement of testing equipment on such sites and the cost implications such testing would have, particularly on the development of a single residential use.

- (B) In these situations, where a site classification has not been established at the time of creation of the lot, the site is treated and tested to achieve a site classification of A, S, M or H, in accordance with *AS2870 – Residential Slabs and Footings – Construction*.
- (C) Site classification in the Category of “E” or “P” (E – Subject to extreme soil movement; P – Problem sites including poorly compacted fill) is generally not acceptable.



- (D) Where such site classification of “E” or “P” occurs, further detailed analysis demonstrating site suitability for the intended use is to be undertaken.

NOTE 12.15.4E

- (1) In determining the appropriate degree of compaction in potentially reactive soils or moisture sensitive soils such as clays, moisture content at the time of compaction is relevant.
- (2) Compaction of clays with a low moisture content may result in swelling occurring on rewetting and accordingly, such soils should be placed at close to their optimum moisture content.

Flooding and Drainage

(8) Specific Outcomes

- (a) All earthworks are to comply with any applicable development criteria set out in an approved floodplain management plan.
- (b) Where a floodplain management plan does not exist for the catchment, no earthworks (including filling) is permitted on land below the adopted flood regulation line, unless:
 - (i) the land is located above the 1 in 20 development line; and
 - (ii) an assessment, undertaken by a suitably qualified consultant, demonstrates that the reforming of the land does not negatively impact on the overall hydrology, hydraulics and flood capacity of the waterway, and does not result in the reduction of flood storage capacity on the site, and does not significantly impact on the ecological values of the riparian corridor.
- (c) Earthworks —
 - (i) do not cause any increase in flooding or drainage problems; and
 - (ii) do not cause an impediment to flood waters; and
 - (iii) do not adversely impact adjoining, upstream or down stream properties.
- (d) Earthworks are avoided in natural gullies and overland flow paths.

NOTE 12.15.4F

- (1) Council and the community have particular concerns about the cumulative adverse impact of any earthworks undertaken below the adopted flood regulation line.
- (2) Council may consider acceptable tolerances for changes to flood behaviour compared to existing conditions where included in an approved floodplain management plan and in accordance with Implementation Guideline No. 24 - Stormwater Management.
- (3) If any property may be adversely affected in respect to drainage, written notification of the proposal should be given to the affected property owner and written comments from that property owner submitted to the Local Government.
- (4) In some cases, further information such as a hydraulic study will need to be submitted to the Local Government for consideration as part of the development assessment process.
- (5) Further information on the requirements for the specific technical assessments are contained in Planning Scheme Policy 2— Information Local Government May Request and Implementation Guideline No. 24 – Stormwater Management.

Sediment and Erosion Control

Specific Outcome

Earthworks do not result in sediment runoff or erosion of property.

(9)

Probable Solutions – for sub-section (9)

- (a) Drainage, erosion and sedimentation control measures are installed to control erosion and sediment run off from the site (e.g. siltation retention devices such as earth bunds, hay bales and silt fences).
- (b) Earthworks are avoided within 100 metres of any waterway or wetland.

(10)

Site Access

Specific Outcome

The grade of slope between the road reserve and any existing or future building envelope enables convenient physical access to the building envelope.

(11)

Probable Solutions – for sub-section (11)

Where earthworks affect access to the site, the grades of slope between the road reserve and any existing or future building envelope, following the earthworks, do not exceed—

- (a) 1 in 6 (with an absolute maximum of 1 in 4) for residential use; and

(12)



- (b) 1 in 10 (with an absolute maximum of 1 in 6) for commercial or industrial uses.

NOTE 12.15.4G

Scaled drawings or cross-sections demonstrating the grade of slope are to be submitted to the Local Government for consideration in the development assessment process.

Air Pollutants**(13) Specific Outcome**

Air pollutants, particularly dust and odour, do not cause significant environmental harm or nuisance.

Noise Emissions**(14) Specific Outcome**

Noise emissions do not cause significant environmental harm or nuisance.

(15) Probable Solutions – for sub-section (14)

- (a) Hours of construction are Monday to Saturday from 6.30 a.m. to 6.30 p.m.
- (b) Work or business is not conducted from or on the premises outside the above hours or on Sundays or Public Holidays.

Traffic**(16) Specific Outcome**

- (a) Traffic generated by earthworks activity does not adversely affect the amenity of the surrounding area, particularly residences and other sensitive receptors.
- (b) Where possible, trucks avoid residential streets and use major roads.
- (c) Temporary access is provided to the site to avoid residential areas.

NOTE 12.15.4H

The route to be used by heavy vehicles in association with the earthworks is identified in the supporting information submitted with a development application.

Vegetation**(17) Specific Outcomes**

- (a) The location and treatment of earthworks maximises the practicable retention of significant vegetation.
- (b) Cleared vegetation is not burnt on the site and is removed to an approved off-site location.

NOTE 12.15.4I

Reference is required to the clearing of vegetation provisions for the relevant zone in which the site is located to ensure compliance and that required approvals are obtained prior to vegetation removal.

Easements and Infrastructure**Specific Outcomes**

Where earthworks occur—

- (a) within a public utilities easement; or
- (b) within 3 metres of Local Government infrastructure (e.g. stormwater/sewerage/water mains);

it does not—

- (c) cause damage to the integrity of the infrastructure;
- (d) impede access to the infrastructure for maintenance purposes; or
- (e) prejudice the functioning of the easement for its intended purpose.

NOTE 12.15.4J

- (1) The owner/applicant of the site is to ensure that if the site is affected by easements or infrastructure other than Local Government easements or infrastructure, that all appropriate permissions are obtained from the relevant bodies/parties prior to undertaking the earthworks.
- (2) The owner/applicant of the site is also to ensure that appropriate permissions are obtained from the relevant agencies where the earthworks extend onto adjoining land or road reserves.
- (3) Documentary evidence to demonstrate the above permissions is provided to the Local Government.

Notification of Adjoining Owners**Specific Outcome**

Affected property owners are notified in writing if earthworks are—

- (a) within 3 metres of an adjoining property boundary; or
- (b) greater than 2 metres in height; or
- (c) likely to cause drainage or flooding impacts on adjoining land.

NOTE 12.15.4K

Written comments from the affected owner should be submitted to the local government for consideration in the development assessment process.

(18)

(19)

