# 9.4.3 Earthworks Code

## 9.4.3.1 Application

(1) This code applies to assessable development for which the Earthworks Code is identified in the 'Assessment Benchmarks and Required Outcomes' column in Part 5 — Tables of Assessment /Categorisation Tables.

(2) When using this code, reference should be made to Section 5.3.2 — Determining the category of development and category of assessment and, where applicable, Section 5.3.3 — Determining the requirements for accepted development and assessment benchmarks and other matters for assessable development located in Part 5 — Tables of assessment.

## 9.4.3.2 Purpose and Overall Outcomes

(1) The purpose of the Earthworks Code is to ensure that earthworks:
a. result in finished works that are designed and constructed to an appropriate standard;
b. do not adversely impact existing or planned future infrastructure;
c. are confined to the site and do not materially impact other properties;
d. do not unreasonably impact visual amenity; and
e. protect and preserve the natural environment beyond the site.

(2) The purpose of this code will be achieved through the following overall outcomes:
a. earthworks are carried out to provide a change in level of the site from an existing ground (substrate) that:
   i. is suitable for filling, by using only solid clean fill;
   ii. if filled, is stable and provides a modified surface suitable for its intended purposes; and
   iii. does not impact adjoining property, unless consent from the owner of that property is sought and obtained;
b. works ensure the protection of existing and future planned infrastructure;
c. stormwater flows resulting from the work do not increase or concentrate from the pre-development flows;
d. existing natural flow paths are considered in the design of earthworks;
e. water leaving the site does not cause erosion or allow sediments to leave the site;
f. earthworks do not have an adverse impact on a floodplain and its management;
g. the use of retaining walls and batters is minimised, and where retaining walls or batters are used, the resulting impact on adjoining properties, streets and surrounding areas is minimised; and
h. disruption to surrounding premises and the environment are minimised, and air and acoustic amenity is maintained during construction.

## 9.4.2.3 Specific Benchmarks for Assessment

**Table 9.4.2.3.1 – Benchmarks for Accepted Development Subject to Requirements**

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| **Minor Earth Works** | **RO1**<br>Do not exceed any of the following:<br>a. 1000m$^2$ in area or 20 m$^3$ in volume;<br>b. depth of 500mm or a maximum depth of 800mm;<br>c. batters with a slope greater than 1 in 8;<br>d. a retaining wall height of 1m at any point; and / or<br>e. a continuous retaining wall length of 20 metres. |
| | **RO2**<br>Are not located or undertaken:<br>a. across property boundaries;<br>b. do not interfere with, concentrate or redirect the natural flow of stormwater;<br>c. in a natural gully or overland flow path or below the adopted flood level;<br>d. within a public utilities easement;<br>e. within 3 metres of a boundary with an adjoining property;<br>f. within 3 metres of or on top of local government or public utility infrastructure; and / or<br>g. within a road reserve, or drainage reserve (other than for government purposes) |

**Table 9.4.2.3.2 — Benchmarks for Assessable Development**

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| **1**<br>**General Provisions** |

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| **PO1.1**<br>Earthworks are designed and constructed in accordance with relevant standards. | **AO1.1**<br>Development for earthworks is designed and constructed in accordance with the standards in the SC6.2 General Works and Infrastructure Planning Scheme Policy. |
| **PO1.2**<br>The development and maintenance of earthworks ensures the preservation of health and safety and maintains the integrity of adjacent premises, infrastructure and the natural environment.<br><br>Note: A construction works management plan addressing the requirements of Part 5 — Standards for the Provisions of Earthworks of the General Works and Infrastructure Planning Scheme Policy (SC6.2) will assist in addressing this performance outcome. | **AO1.2**<br>No accepted outcome provided. |
| **PO1.3**<br>Hours of construction are limited to minimise adverse impacts during earthworks. | **AO1.3**<br>Earthworks only occurs between 6:30am and 6:30pm Monday to Saturday, excluding public holidays, unless varied by a development approval. |
| **PO1.4**<br>All earthworks and retaining structures, and all activity related to the development of earthworks are contained within the site. | **AO1.4**<br>No accepted outcome provided. |
| **PO1.5**<br>Earthworks are designed to minimise adverse impacts in natural hazard areas, avoid waterway corridors and wetlands and ensure the preservation of biodiversity.<br><br>Note: Where earthworks are intended adjacent to these areas, an analysis in the form of a plan identifying the location of the hazard, waterway or biodiversity area will assist in addressing this performance outcome. Where earthworks are planned within these areas, the relevant overlay code will apply. | **AO1.5**<br>No accepted outcome provided. |
| **2**<br>**Geotechnical** | |
| **PO2.1**<br>Where earthworks are proposed, the existing ground (substrate) is stable and suitable for fill. | **AO2.1**<br>The site:<br>a. does not have compressible soils (e.g. soft clays underneath the site); or<br>b. where the site is underlain by compressible soils, a site specific geotechnical assessment is provided demonstrating the proposed treatment of compressible soils so they are able to provide sufficient support for future structures.<br><br>Note: A geotechnical assessment report addressing the requirements of Part 5 — Standards for the Provisions of Earthworks of the General Works and Infrastructure Policy, prepared in the last five years and certified by an RPEQ* qualified engineer experienced in civil works, is the preferred method for addressing this performance outcome.<br>* Engineer registered by the Board of Professional Engineers Queensland. |
| **PO2.2**<br>Appropriate material is used for fill and is sufficiently compacted to support future development. | **AO2.2**<br>Only clean, geotechnically suitable fill is used, and it is compacted and shaped in accordance with the standards outlined in Part 5 — Standards for the Provisions of Earthworks of the General Works and Infrastructure Planning Scheme Policy.<br><br>Note: Section 5.1.2 Materials for Filling of the General Works and Infrastructure Policy outlines the requirements for suitable fill and its uses. |

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| **PO2.3**<br>Fill is free from contaminants. | **AO2.3**<br>Fill consists of soil, rock or other material excavated from the natural ground and is free from construction or other waste, chemical or liquid waste contamination, and weeds and their seeds.<br><br>Note: Appendix 2 – Declared Plants of SC6.7 Landscape Works Planning Scheme Policy provides further information and references for weed species. |
| **PO2.4**<br>Topsoil that is stockpiled for reuse at the site is contained within the site, and removed vegetation is disposed of responsibly. | **AO2.4**<br>Topsoil and spoil:<br>a. is stockpiled in accordance with an approved erosion and sediment control plan; and<br>b. removed vegetation is either transported off site, or mulched for reuse on site, but is not burned off.<br>Note: Details of the requirements for an Erosion and Sediment Control Plan are outlined in Part 5 – Standards for the Provision of Earthworks of the General Works and Infrastructure Planning Scheme Policy. |
| **PO2.5**<br>Temporary or permanent retention structures used in association with earthworks are designed and constructed to be fit for purpose, and where applied outside the boundary of the property are supported by consent from the affected landowner. | **AO2.5**<br>No accepted outcome provided. |
| **3**<br>**Stormwater and Water Sensitive Urban Design** | |
| **PO3.1**<br>Development does not cause adverse stormwater drainage or water quality impacts on or off the site, meeting the required stormwater quality and quantity objectives including protecting the quality of surface waters, ground waters and the existing natural flow of waterways.<br><br>Note: Requirements for stormwater quality and quantity are outlined in SC6.2 General Works and Infrastructure Planning Scheme Policy (Part 2 – Standard for Design of Stormwater Drainage Works, Part 3 – Stormwater Quantity, Quality and Floodplain Management and Part 8 – Standards for Construction of Stormwater Drainage Works) | **AO3.1**<br>No accepted outcome provided. |
| **PO3.2**<br>During construction, development ensures that erosion is minimised and that sediments do not leave the site. | **AO3.2**<br>An assessment of the potential for erosion during construction is undertaken in accordance with the requirements of the General Works and Infrastructure Planning Scheme Policy to identify the potential for increased suspended solids, turbidity and sedimentation during construction, and the results of this assessment are used to inform an Erosion and Sediment Control Plan ensuring that stormwater quality is maintained at acceptable levels during construction.<br><br>Note: The Erosion and Sediment Control Plan should address the requirements of Part 5 — Standards for Provision of Earthworks (5.1.6 Erosion and Sedimentation Control) and forms part of a Stormwater Management Plan required in Part 3 – Stormwater Quantity, Quality and Floodplain Management (3.5.3 Design). |
| **PO3.3**<br>At all times, there is no ponding at the site. | **AO3.3**<br>No accepted outcome provided. |
| **PO3.4**<br>During earthworks, and maintained after the completion of earthworks, stormwater leaves the site at a lawful point of discharge.<br><br>Note: Discharge to the road reserve provides a lawful point of discharge. | **AO3.4**<br>No accepted outcome provided. |

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| Where discharge to the road reserve is not possible, a lawful point of discharge may also include discharge to land reserved for stormwater purposes or via a stormwater easement, or by direct input into the stormwater management system (see requirements of Part 2 — Standards for Design of Stormwater Drainage Works, Part 3 — Stormwater Quantity, Quality and Floodplain Management and Part 8 - Standards for Construction of Stormwater Drainage Works of SC6.2 General Works and Infrastructure Planning Scheme Policy.<br><br>Note: For large scale development or development adjacent to waterways or wetlands, it may be preferable to reduce discharge to negligible levels by including detention or retention in the stormwater design, and by the re-use of water on site for irrigation or other purposes (see requirements of the Part 4 Stormwater and water sensitive design of SC6.2 General Works and Infrastructure Planning Scheme Policy). | |
| **PO3.5**<br>Earthworks do not have an adverse effect on floodplain management, and are designed to:<br>a. minimise the impact of flooding;<br>b. consider residual flood risks beyond the defined flood event;<br>c. ensure access is maintained during flood events;<br>d. resist damage from flood waters;<br>e. provide effective management of upstream floodwater inputs and downstream floodwater dispersal; and<br>f. retain full functionality during a flood event.<br>Note: Where within or adjacent to a floodplain, earthworks are designed and constructed in accordance with the requirements of SC6.3 Flooding and Overland Flow Planning Scheme Policy. | **AO3.5**<br>No accepted outcome provided. |
| **4**<br>**Retaining Walls and Batters** | |
| **PO4.1**<br>Permanent or temporary retaining walls and batters are designed and constructed using proven methods, materials and technology.<br><br>Note: See Part 5.1.8 – Standards for the Provision of Earthworks (5.1.8 Batters and Earth Retaining Structures) in SC6.2 General Works and Infrastructure Planning Scheme Policy for additional requirements for the placing and construction of retaining walls. | **AO4.1**<br>No accepted outcome provided. |
| **PO4.2**<br>Retaining walls and batters are visually attractive and do not impose a negative visual impact upon neighbouring properties, the street or public spaces, and the impact of retaining walls and batters is softened by terracing and landscaping. | **AO4.2**<br>Development provides retaining walls and batters which are designed and constructed using proven methods, materials and technology and:<br><br>Where residential and commercial:<br>a. unless designed as integral to an overall building design, the maximum height for a single vertical retaining wall is:<br>i. 1m for the front boundary;<br>ii. 1.5m for the side boundary with a minimum 1m setback to the building; and<br>iii. 2.5m for the rear boundary with a minimum 3m setback to the building.<br>b. for the side boundary, where a vertical separation (total height) of greater than 1.5m is required, retaining walls are staggered with a minimum horizontal separation of 1m between the staggered walls to allow for an intermediate landscaped area with a minimum 1m setback from the lower retaining wall to the building;<br>c. the bottom tier of a staggered retaining wall is a maximum of 1m in height, to facilitate the use of the intermediate landscaped area;<br>d. to reduce the impact of overshadowing in residential applications, the combined retaining wall height and fencing (maximum vertical separation) is no greater than |

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| | 3.3m with a single retaining wall or 4.3m with a tiered retaining wall for the side boundary, and 4.3m for the rear boundary;<br>e. all retaining walls must be designed for a minimum design life of 60 years; and<br>f. vegetated batters have a maximum gradient of 1:3 and are appropriately stabilised. Turf batters have a maximum gradient of 1:6.<br>Where industrial:<br>a. unless designed as integral to an overall building design, the maximum height for a single vertical retaining wall is:<br>i. 2m for the front boundary, where above and fronting a road;<br>b. where a vertical separation (total height) of greater than 2m is required on the front, road facing boundary, retaining walls are staggered with a minimum horizontal separation of 1m between the staggered walls to allow for an intermediate landscaped area;<br>c. all retaining walls must be designed for a minimum design life of 60 years; and<br>d. vegetated batters have a maximum gradient of 1:3 and are appropriately stabilised. Turf batters have a maximum gradient of 1:6. |
| **PO4.3**<br>Fencing along the top of retaining walls is minimised to reduce resultant visual and security impacts on surrounding properties and public spaces. | **AO4.3.1**<br>Where a boundary fence is provided adjacent the top of the retaining wall, the maximum height of the fence is 1.8m to reduce the bulk of the entire structure.<br><br>**AO4.3.2**<br>Where between a building and a public space (i.e. street, open space or pathway) and along front boundaries, retaining walls are no more than 1m in height, and where public space is below the building or lot, the maximum height of the fence is a maximum of 1.2m to provide for passive surveillance of the public space. |
| **PO4.4**<br>Retaining walls (with a vertical clearance of greater than 1m) are constructed wholly within the property boundary for ease of access and maintenance. | **AO4.4**<br>Retaining walls do not encroach onto adjoining properties, and where adjoining —<br>a. residential uses, parks, open space or road reserve are a minimum distance of 300mm from the property boundary; and<br>b. industrial or business activities, are wholly within the property boundary. |
| **5**<br>**Infrastructure and Easements** | |
| **PO5.1**<br>Where in potential conflict with services, within a public utilities easement or other easement in favour of Council, or within 1.5m of existing local government infrastructure works earthworks do not:<br>a. damage the infrastructure;<br>b. impede access to the infrastructure for maintenance purposes; or<br>c. prejudice the functioning of the easement for its intended purpose. | **AO5.1**<br>Earthworks are designed and constructed in accordance with:<br>a. the requirements of SC6.2 General Works and Infrastructure Planning Scheme Policy;<br>b. the Queensland Development Code MP1.4 — Building over on or near relevant infrastructure; and<br>c. the standard design specifications of the relevant service authority. |
| **PO5.2**<br>Where future infrastructure has been planned and identified, works are designed and implemented to adequately respond to and accommodate the future infrastructure. | **AO5.2**<br>No accepted outcome provided. |
| **6**<br>**Maintaining Amenity** | |
| **PO6.1** | **AO6.1** |

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| Road infrastructure is not adversely affected by haulage, and the impact of haulage activities is minimised along transport routes and at neighbouring properties. | All transport routes are approved:<br>a. for State controlled roads, by the Department of Transport and Main Roads;<br>b. for all other roads, by Council; and<br>c. hours of haulage are between 6:30am to 6:30pm Monday to Saturday excepting public holidays, or as otherwise varied in a development approval. |
| **PO6.2**<br>Development involving filling or excavation does not cause ground-borne vibration beyond the boundary of the site. | **AO6.2**<br>No accepted outcome provided. |
| **PO6.3**<br>The spread of dust to adjacent properties and public places is minimised. | **AO6.3**<br>Dust emissions resulting from works, including vehicles entering and exiting the site, do not extend beyond the site. |
| **PO6.4**<br>Noise emissions are minimised.<br><br>Note: Where there is an expectation that noise levels may be excessive, or where sensitive uses may be affected by the level of noise expected during the proposed earthworks, a noise impact assessment prepared in accordance with the requirements of SC6.9 Noise Impact Assessment Planning Scheme Policy is the preferred method of addressing this Performance Outcome. | **AO6.4**<br>Works are carried out during approved hours. |
| **7**<br>**Landscaping** | |
| **PO7.1**<br>Upon completion of earthworks, surface landscape treatments are used to stabilise soils and prevent erosion. | **AO7.1**<br>Upon completion of the works, the site is planted with approved establishment species to stabilise topsoils and reduce erosion and sedimentation to acceptable levels.<br><br>Note: See Part 3 – Stormwater Quantity, Quality and Floodplain Management in SC6.2 General Works and Infrastructure Planning Scheme Policy for acceptable levels for sedimentation. |
| **8**<br>**Existing Vegetation** | |
| **PO8.1**<br>Where it is possible to preserve existing vegetation such as mature native trees to contribute to future landscaping works, the required existing vegetation is protected during earthworks. | **AO8.1**<br>Earthworks are not carried out within the tree protection zone (TPZ) of trees retained for use in future landscaping works.<br><br>Note: Where work is proposed within a tree protection zone, an arborist report with recommendations for the protection and preservation of the tree during and after excavation may satisfy the requirements of this outcome.<br>Note: this provision does not apply to significant vegetation mapped within areas identified in the Biodiversity overlay. Where vegetation is within these areas, the Biodiversity Overlay Code applies. |
| **9**<br>**Dams** | |
| **PO9.1**<br>The construction or filling of a dam does not adversely affect natural physical processes or ecosystems and creates a safe and stable dam wall surface. | **AO9.1**<br>The dam is constructed in a rural zone and:<br>a. the land has a slope of less than 25% (1:4);<br>b. all earthworks for the dam are set back a minimum of 50m from the property boundary; and<br>c. the size of the lot on which the dam is located is greater than 5 hectares.<br>Note: Dams and levees may be assessable development under the *Water Act 2000*. Where more than two people may be at risk from the failure of the dam, the dam is considered a referable dam. For information on referable dams contact damsafety@dnrme.qld.gov.au.<br>Note: Construction works for dams must be in accordance with Part 5 – |

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| | Standards for the Provision of Earthworks of the SC6.2 General Works and Infrastructure Planning Scheme Policy. |

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