



**WD 13A:  
Public Open Space  
Landscape Design  
Specification**

**2016**

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## **1. Scope**

1.1 The work to be executed under this specification consists of the design of landscape in Public Open Space (POS). This specification outlines the standards that have been traditionally used in landscape design within the City of Wanneroo. Should applicants wish to submit designs with alternative specifications, they should clearly demonstrate that the design will satisfy acceptable industry standards under the following criteria:

- Technical Standards (compliance with Australian Standards & Industry Guidelines)
- Safety
- Environmental compatibility
- Amenity
- Accessibility and convenience
- Economy (Efficient capital development that can be accommodated within City of Wanneroo budgets, effective asset management & maintenance)

## **2. Objectives**

2.1 The intention of this Specification is to provide Developers, Landscape Architects and Landscape Designers with guidance regarding City of Wanneroo's compliance standards concerning POS landscape design. There may be additional requirements of a more site-specific nature which are not covered in this specification. It is recommended that the City of Wanneroo is contacted at concept design stage to discuss the various conditions which may form part of the approval process.

## **3. Reference and Source Documents**

3.1 This specification shall be read in conjunction with the following documents:

- IPWEA - Local Government Guidelines for Subdivisional Development
- City of Wanneroo District Planning Scheme No. 2
- City of Wanneroo Local Planning Policy 4.3: Public Open Space
- City of Wanneroo Local Planning Policy 4.1: Wetlands
- City of Wanneroo Local Planning Policy: Signs
- City of Wanneroo Local Planning Policy 4.8: Tree Preservation Policy
- City of Wanneroo Street Tree Masterplan
- City of Wanneroo Verge Treatment Guidelines
- City of Wanneroo Design Specification WD5: Stormwater Drainage Design

- City of Wanneroo Design Specification WD6: Site Regrading
- City of Wanneroo Design Specification WD9: Cycle and Pathway Design
- City of Wanneroo Design Specification WD10: Bushfire Protection
- City of Wanneroo Design Specification WD15: Property Development Design
- City of Wanneroo Standard Irrigation Specifications
- City of Wanneroo Standard Drawings
- City of Wanneroo Local Biodiversity Strategy
- City of Wanneroo Irrigation Specification
- City of Wanneroo Style Guide 9.9
- City of Wanneroo and Department of Water North West Corridor Water Supply Strategy
- Utility Providers Code of Practice for WA (MainRoads and WAPC)
- Liveable Neighbourhoods (DoP and WAPC)
- Australian Standards
- Austroads Guides
- Public Parkland Planning and Design Guide (Department of Sport and Recreation, WA 2014)
- Cultural Heritage Due Diligence Guidelines (Department of Aboriginal Affairs, WA 2013)
- Planning and Design for Pedestrians” (WALGA, DoT, DoP, PTA, MainRoads, IPWEA, DSC & RAC, WA version 5, 2012)

#### 4. General

- 4.1 Compliance with the Australian Standards is a City of Wanneroo requirement; however, this does not guarantee approval as acceptance of any items is at the City's discretion.
- 4.2 The following temporary items are not permitted:
- Irrigated soft-landscaping
  - Hard-landscaping
  - Play equipment and exercise equipment
  - Structures or built elements
- 4.3 Temporary soft-landscaping can be considered for stabilization provided the following criteria are met:
- planting shall be unirrigated
  - the installation would not form part of the required developer two year maintenance period (this would commence once the permanent planting is installed)
  - 'temporary planting' signage to the City's approval would need to be installed
- 4.4 Please refer to Local Planning Policy 4.3 (LPP4.3) to determine the type of park.
- 4.5 Please refer to LPP4.3 to determine the appropriate installations for the park type.

## 5. Trees

5.1 Trees shall be set back a minimum of:

- Offset from road as per Liveable Neighbourhoods
- 1m from footpath mow strip/garden edging and paved surfaces
- 1.5m from crossovers
- 2.5m from structures including (but not limited to) walls, built elements, signs and streetlights

Where this cannot be achieved, the City of Wanneroo shall be contacted to discuss alternatives.

5.2 Alternate offsets for tree species which cause infrastructure and private property damage. The following offsets are required from property boundaries, dual use paths, footpaths, walls, structures and paving:

- Araucarias – 10m
- Ficus hillii – 7m
- Ficus macrophylla – 15m
- Ficus rubiginosa – 7m

5.3 A minimum of 150 trees per hectare is required for POS.

5.4 POS trees to be a minimum of 70% native with appropriate species.

5.5 The selection and placement of trees species should take into account:

- Perth's annual coastal plain rainfall (700mm per year) in areas with temporary or no irrigation (trees with higher water demands will not survive)
- Adjacent private property's access to natural light
- The crown of the tree at maturity should not overhang private property (preventing leaf and fruit/nut drop into private property)
- The crown of a nut drop/fruit fall tree at maturity should not overhang onto paved areas, footpaths and dual use paths (trip/slip hazard) offset to City of Wanneroo assets and private property

5.6 Trees should be planted on the east, north and west sides of play and picnic areas to ensure full shading of the area and equipment once trees reach maturity, taking tree failure into account.

5.7 Retained trees shall be protected during construction as per AS 4970-2009.

5.8 Mature, transplanted trees shall be accompanied with a temporary watering license that is valid for five years.

## 6. Turf

- 6.1 Acceptance of turf shall be in accordance with Clause 5.2 of LPP4.3.
- 6.2 The City of Wanneroo's approved turf species is *Pennisetum clandestinum* (Kikuyu).
- 6.3 A minimum 2m clearance is required between all elements in all turf areas (e.g. walls, trees bowls, mowing strips, bollards etc.) to allow for mower access.
- 6.4 Turf and garden beds shall be separated by a 32MPa concrete mowing strip or flush limestone block edge.

## 7. Planting

- 7.1 Planting shall comprise of water-wise, robust species with good longevity.
- 7.2 Planting shall be mulched with a 75mm thick bark/wood mulch layer.
- 7.3 Native planting species are encouraged.
- 7.4 Minimum planting density is 3 plants per square meter for flat areas and slopes up to (but not including 1:4).
- 7.5 1:3 and 1:4 slopes are to have a minimum planting density of 6 plants per square meter.
- 7.6 The maximum allowable planting slope is 1:4 (1:6 is preferred), unless Engineering approvals allow for 1:3 slopes.
- 7.7 No slopes may be steeper than 1:4, unless Engineering approvals allows for 1:3 slopes. Terracing shall be used on steeper grades to ensure this requirement is met.
- 7.8 Retained areas of vegetation to have initial weeding prior to practical completion, then seasonal spraying or manual removal (where spraying is not feasible) through the Developer maintenance period as per the City's standard maintenance regime.
- 7.9 Manual removal should be undertaken when:
  - weed species occur within 10cm of planted tubestock or retained vegetation
  - weed species are about to go to seed
- 7.10 Planting to create habitat in POS for local fauna species in developments is a requirement.

## **8. Drainage Management Areas**

- 8.1 If permitted as per Local Planning Policy 4.3 (LPP4.3) and Specification WD5, biofilters for small rainfall event runoff conveyed via pipes to POS should be planted in accordance with the City of Wanneroo Biofilter Plant List, based on Vegetation Guidelines for Stormwater Biofilters in the South-west of Western Australia.
- 8.2 Small rainfall event treatment areas should be designed as biofilters unless the contributing catchment is limited to less than 1000sqm.
- 8.3 Small rainfall event areas (if permitted as per LPP4.3 and Specification WD5), shall have:
- a planting density of 6 to 8 plants per sqm, or
  - an alternative density design may be proposed based on the type of management system, plant type and species, stormwater quality and aesthetic. Should the alternative design be proposed, supporting documentation shall be submitted to confirm biofiltration erosion control and 90% plant coverage
- 8.4 Inorganic mulch will be accepted on the base of drainage treatment areas, provided the mulch is set back a minimum of 600mm from roads, paths and paved areas.
- 8.5 Major and minor event drainage areas shall have 100% dryland planting species.
- 8.6 As per LPP 4.3, drainage is not permitted in Conservation/Bush Forever areas.

## **9. Irrigation**

- 9.1 The total irrigated area and average irrigation rate of the POS shall be in accordance with schedule 6 of LPP4.3 and the City of Wanneroo and the Department of Water North West Corridor Water Supply Strategy.
- 9.2 Irrigation design and installation is to comply with the City of Wanneroo Irrigation Specification.
- 9.3 To facilitate planting establishment, any dry-planting should take place in late autumn/early winter and supplementary infill planting shall be undertaken the following year in late autumn/early winter.

## **10. Hard-landscaping**

- 10.1 Pervious paving is recommended, particularly for large areas of paving, such as plazas and squares.
- 10.2 Loose: gravel/crushed stone/spawl/filter rock/stone mulch and the like is not permitted on verges or medians, in verge and median swales/rain gardens etc or

adjacent to footpaths, cycle paths and dual use paths, however, inorganic mulch will be accepted on the base of small-event drainage treatment areas (refer to 8.4 above).

- 10.3 Crushed/stabilized limestone shall be compacted and cement stabilized to form a completely hard solidified surface.
- 10.4 Concrete garden edging shall be 32MPa on a sub-base compacted to 95% MDD.
- 10.5 Concrete footpaths and dual use paths shall be 32MPa with expansion joints every 5m and contraction joints every 2.5m.
- 10.6 In-situ cast paving shall be 32MPa expansion joints at 3m centers in both directions
- 10.7 Stairs/steps are to have risers between 150mm and 180mm inclusive and treads 300mm minimum.
- 10.8 Step treads and risers shall be parallel.
- 10.9 Rocks shall be mortared in place and shall be set back 1.2m from back of kerb and 0.6m from footpaths and dual use paths.
- 10.10 Tiles and other easily vandalized cladding or capping shall not be permitted.
- 10.11 Consideration should be given to longevity and robust design.

## **11. Universal Access**

- 11.1 Universal accessibility shall be provided to park furniture, play areas and key facilities.
- 11.2 Footpaths are to link to broader path network and allow for universal accessibility via pram ramps (on both sides of the road).

## **12. Maintenance Access**

- 12.1 Vehicular access for parks maintenance trucks shall be provided via a minimum 3m wide reinforced concrete crossover with lockable removable bollards or a lockable chain gate. The crossover is to extend from kerb across the verge footpath or dual use path.
- 12.2 Access within the park is required to all picnic, play equipment, play mulch/sand areas/rubber softfall and bins for maintenance and a reasonable amount of vehicular accessibility for maintenance needs to be provided for within the POS.
- 12.3 Footpath/paving/dual use path crossings shall be reinforced concrete.



- 12.4 Vehicular access to flumes and bubble-ups for drainage maintenance from the road shall be provided as per 12.1. Thereafter the access (if not in a turf area) may be a 3m wide mulch or low groundcover (maximum mature plant height 250mm) track with a maximum grade of 1:6.

### **13. Bins**

- 13.1 Bins should be located to the outer edge of the park for ease of emptying.
- 13.2 Bins (including dog bins) are only required in POS with barbecue (BBQ) and picnic facilities (applicable to local parks and above as required under LPP4.3).
- 13.3 Bins shall be a 240L green wheelie bin with a locking post and chain.
- 13.4 The Developer shall be responsible for the maintenance and emptying of the bins until handover.

### **14. Bollards**

- 14.1 Bollards should only be used as per LPP4.3 for Neighbourhood Sports POS and above and where engineering requirements necessitate their use.
- 14.2 In POS below the size of Neighbourhood Sports, bollards will only be considered where there are no alternatives to deter unauthorised access.
- 14.3 Trees should be used as a substitute for bollards where possible. Where this is not practicable, bollards may be used with the following requirements:
- If located in a footpath or dual use path, they are round profile, treated timber, painted white with a red reflective band at the top (visibility requirement)
  - If they are located outside of a footpath or dual use path, they shall be round profile, unpainted treated timber
- 14.4 Powder coated aluminium bollards may be used in business/retail/commercial centre areas, provided that the safety visibility requirements are met as set out in 14.3 above (first bullet point).
- 14.5 Where possible, planting areas or mulch areas should be located around trees, rocks and bollards (to avoid whipper-snipper maintenance).
- 14.6 Maintenance access is required for pathways with removable bollards or a chain gate. Refer to City of Wanneroo standard drawing TS 01-1.
- 14.7 Removable bollards/chain gate shall be secured by a padlock, keyed to the City of Wanneroo's standard.
- 14.8 Fixed bollards are only to be concreted in on sports POS (sports fields).

## **15. Security Lighting (if required)**

- 15.1 Security lighting (determined on a case-by-case basis where the City deems users may be at risk) shall be located appropriately (near facilities), compatible with City light fittings, locally sourced, vandal resistant, low maintenance, low replacement cost and energy efficient.
- 15.2 Electrical lighting shall be powered from a metered power supply. The developer is responsible for the payment of the electricity account until handover.
- 15.3 Solar lighting is to have the battery located at the top of the light or in a theft-proof box at the base.

## **16. Drinking Fountains**

- 16.1 Drinking fountains (if required – see LPP4.3) to be "anti-vandal", City of Wanneroo -approved and have a permanent water meter.
- 16.2 The developer is responsible for the payment of the water account until handover.

## **17. BBQ's**

- 17.1 BBQ (if permitted – see LPP4.3) to be a Western Australian Local Government Association (WALGA) approved make and model and to be approved by City of Wanneroo.
- 17.2 BBQ wiring to be in accordance with AS/NZS 3350.2.78.1996 and AS/NZS 60335.2.78:2005 with internal cables housed within a sealed unit.
- 17.3 BBQ to be powered from a metered power supply.
- 17.4 The Developer is responsible for payment of the electricity account until handover.
- 17.5 BBQ to be keyed to the standard marked SEC 1433 key that is generic for all BBQs.
- 17.6 BBQ, lights, bore and all other electrical items require electrical certification as well as a 6 monthly maintenance record inspection to be provided by the Developer.
- 17.7 The Developer is responsible for all BBQ maintenance until handover.

## 18. Structures and Furniture

- 18.1 Prior to the commencement of works (after Landscape Approval is granted by the City of Wanneroo), building license (as per the Building Act 2011 and Building Regulations 2012) shall be sought for:
- Shelters (larger than 10sqm)
  - Shade sails (larger than 20sqm)
  - Retaining walls (over 0.5m in height)
  - Masonry fences (over 0.75m in height)
  - Any non-masonry fences (over 1.8m in height)
- 18.2 Accessible retaining walls with a height of 1m and greater require a 1m high balustrade.
- 18.3 All masonry furniture/structures, walls and fences, including property boundaries facing the road reserve, public access ways, POS and school site require a non-sacrificial anti graffiti coating application.
- 18.4 Anti-skate nibs shall be placed on walls adjacent to hard-stand areas. A grinding edge will be considered in specific locations.
- 18.5 Steel shall be hot-dip galvanized and un-painted.
- 18.6 Shelters and furniture (to the City of Wanneroo's approval) shall be:
- un-painted hardwood timber
  - un-painted hot-dip galvanized steel, or
  - power-coated aluminium
  - High-density polyethylene (HDPE) (non-structural)
- 18.7 All furniture, play equipment, exercise equipment, structural and architectural elements, shelters etc to be durable, easily maintainable, low-maintenance, readily available for replacement, low-cost, sustainable and robust.
- 18.8 Structures shall be designed in such a way that they do not act as a screen or conceal antisocial behaviour as per Crime Prevention Through Environmental Design recommendations (CPTED).

## 19. POS Sign

- 19.1 As per LPP4.3, the Developer shall supply and install the standard City of Wanneroo POS sign and sign wall to the City's specification and details.

## 20. Play Areas and Play/Exercise Equipment

- 20.1 Proposals for standard/off-the-shelf play equipment must include full details on:
- Length of the warranties for each part making up the piece of equipment (for example a moving part of a piece of play equipment may only have a warranty of one year, whereas, the structural posts may have a warranty of twenty years)
  - Availability of each part making up the piece of equipment (for replacement)
  - Level of service provided by the supplier (for maintenance and spare parts)
- 20.2 Proposals for all play equipment (including off-the-shelf, bespoke, custom and nature-play) must include details on:
- Life expectancy
  - Supply and install costs
- 20.3 The City of Wanneroo will not approve standard/off-the-shelf play equipment where there will be no spare parts or part replacement provided by the supplier.
- 20.4 Playground equipment and soft fall areas to comply with the relevant Australian Standards.
- 20.5 Playground location to have adequate surveillance from surrounding houses / roads / paths / cars headlights.
- 20.6 A risk assessment for the whole playground area is required to be undertaken by an independent risk auditor/assessor of the playground/play area at the Developers cost and issued to the City of Wanneroo for approval where in the City's opinion, the playground design is not covered by the Australian Standards. It is recommended that this is undertaken prior to the POS construction. Should any findings of the risk assessment raise any concerns, then the Developer is to address this at their cost to the City's approval and satisfaction.
- 20.7 A playground equipment audit is required to be conducted by an independent auditor at the Developers cost after the installation of the play equipment, but prior to the practical completion inspection and prior the park opening to the public. Any remediation work required as a consequence of the audit (as deemed by the City) shall be undertaken by the Developer and approved by the City prior to the park opening to the public.
- 20.8 A second playground equipment audit is required to be conducted by an independent auditor at the Developers cost 1 year after practical completion and any remediation work required as a consequence of the audit (as deemed by the City of Wanneroo) shall be undertaken by the Developer and approved by the City.
- 20.9 A third playground equipment audit is required to be conducted by an independent auditor at the Developers cost prior to handover and any remediation work required as a consequence of the audit (as deemed by the City of Wanneroo) shall be undertaken by the Developer and approved by the City.

- 20.10 Copies of all playground audits and subsequent actions taken shall be provided to the City of Wanneroo at practical completion and at handover.
- 20.11 Playground audits shall be conducted as per the Australian Standards.
- 20.12 Soft fall audits shall be conducted as per the Australian Standards by the same auditor in conjunction with each playground audit.
- 20.13 Playgrounds to be set back a minimum of 9m from roads. Where this cannot be achieved, fencing or barriers should be used to provide enhanced safety for users.
- 20.14 Playgrounds are to accommodate different age groups.
- 20.15 Play equipment/exercise equipment and furniture to be in accordance with LPP4.3 and subject to the City of Wanneroo's approval prior to construction.
- 20.16 In accordance with LPP4.3, the City of Wanneroo requires that consideration is made for the inclusion of Universal Access/All Inclusive play equipment for Neighbourhood passive parks and larger POS.

## **21. Rubber Softfall**

- 21.1 Rubber softfall shall be substituted with sand and mulch softfall where possible.
- 21.2 Where rubber softfall is required (for example for universal access), it shall be limited to the fallzone of the play equipment.
- 21.3 The synthetic surface top layer shall comprise:
- EPDM (Ethylene-Propylene-Diene-Monome rubber)
  - Granules shall be consistently coloured at a ratio of 100%
  - This layer shall be 15mm thick with a seamless surface, level finish and consistent density and thickness
  - Granules shall have a diameter between 1mm and 3mm
  - The layer shall be installed in a continuous manner with no joints (unless there is a colour change), it should have even finish and be free draining
  - Granules shall be bound together with MDI based polyurethane binder
- 21.4 The sub surface cushion layer shall comprise:
- This layer shall be spread across the softfall area with a minimum of 40mm depth
  - Granules shall have a diameter between 6mm and 15mm
  - The layer shall be installed in a continuous manner with no joints, it should have an even finish and be free draining
  - Granules shall be bound together with MDI based polyurethane binder

- 21.5 The sub grade base layer shall comprise:
- This layer shall be minimum of 100mm of granite dust or similar materials to be approved by the City of Wanneroo
  - The sub-grade shall be well compacted to ensure no future subsidence
- 21.6 Care shall be taken to ensure an even surface is achieved, free from cracks and excess particles. Obvious colour differentiation between batches of the same colour shall not be accepted. Obvious attempts to repair cracks will not be accepted, and full panels will be required to be completely replaced. No lifting of the surface will be accepted.
- 21.7 Following installation, the Landscape Architect shall arrange for the softfall to be checked by a qualified safety inspector to ensure that it complies with the relevant Australian Standards (including head-impact testing). Any non-compliant or unsafe softfall shall be replaced with compliant softfall to the satisfaction of the City of Wanneroo.
- 21.8 Following installation, the play audit shall include testing by a qualified inspector in accordance with AS4422-1996 Appendix A to ensure that it complies with AS4422-1996 for G and HIC Values. Any non-compliant or unsafe softfall shall be replaced by the Developer.
- 21.9 Following completion, the Landscape Architect is to arrange a warranty for the softfall installation for submission to the City of Wanneroo.

## **22. Sand and Mulch Softfall**

- 22.1 Sand and Mulch softfall shall be 400mm deep.
- 22.2 Mulch softfall shall be certified play mulch.
- 22.3 Installation and testing shall be in accordance with the Australian Standards (including head impact testing).

## **23. Artwork**

- 23.1 Artworks require a Development Application (prior to the commencement of works) and a Management Plan.
- 23.2 Artwork shall have no movable parts.
- 23.3 Artwork shall be robust, hard-wearing and low-maintenance.