# Table of Contents

1 INTRODUCTION .................................................................................................................................1

2 LANDSCAPE DESIGN CONSIDERATIONS ..............................................................................................2
   2.1 USE OF GARDEN BEDS ......................................................................................................................2
   2.2 ENVIRONMENTALLY SENSITIVE AND NATURAL LANDSCAPES .........................................................3
   2.3 WATER FEATURES AND WETLANDS ....................................................................................................4
   2.4 TURF TREATMENTS ...........................................................................................................................6
   2.5 ROAD RESERVES AND TRAFFIC TREATMENTS .................................................................................6
   2.6 BUILT SPACE/FACILITY SURROUNDS ..................................................................................................8

3 LANDSCAPE TREATMENTS AND MAINTENANCE GUIDELINES ..........................................................9
   3.1 FORMAL LANDSCAPE TREATMENTS ..................................................................................................9
   3.2 INFORMAL LANDSCAPE TREATMENTS .............................................................................................11
   3.3 TREES ................................................................................................................................................15
   3.4 TURF ..................................................................................................................................................18

4 SPECIES SELECTION CRITERIA ............................................................................................................21
   4.1 BIOLOGICAL CRITERIA .......................................................................................................................21
   4.2 FUNCTIONAL CRITERIA .......................................................................................................................21
   4.3 AESTHETIC CRITERIA ..........................................................................................................................21

5 PREPARATION AND PLANTING OF GARDEN BEDS ...........................................................................23
   5.1 GARDEN BED AND TURF AREA PREPARATION ...............................................................................23
   5.2 PLANT MATERIALS ............................................................................................................................23
   5.3 FERTILISER .........................................................................................................................................23
   5.4 MULCH ..............................................................................................................................................24
   5.5 TREE STAKES AND TIES ...................................................................................................................24
   5.6 PLANT INSTALLATION ........................................................................................................................25

6 IRRIGATION............................................................................................................................................26
   6.1 IRRIGATION SPECIFICATION REQUIREMENTS ..................................................................................26

7 KICKABOUT AREA CONSTRUCTION ..................................................................................................29

8 PLAYSPACE DESIGN ..........................................................................................................................30
   8.1 MINIMUM FACILITY REQUIREMENTS FOR EACH CATEGORY OF PLAYSPACE .................................30
   8.2 GENERAL PLAYSPACE DESIGN REQUIREMENTS .............................................................................30
   8.3 SUBMITTING PLAYSPACE PROPOSALS FOR APPROVAL ..................................................................31
   8.4 PLAYSPACE DESIGN CHECKLIST .....................................................................................................32
   8.5 MAINTENANCE PROGRAM REQUIREMENTS ....................................................................................32
   8.6 HANDOVER INFORMATION ................................................................................................................32

9 PATHS AND BICYCLE FACILITIES ..................................................................................................33

10 BOLLARDS AND FENCING .................................................................................................................34
1 INTRODUCTION

This document, Design Details and Technical Notes for Open Space, has been prepared to provide guidance for developers, and all those associated with the design and construction of open space in Hume City. It sets standards for the design and construction of all elements of landscaping and infrastructure in open space.

There are forty-three individual design details included in the document, as well as design criteria and technical notes for a range of elements. Each of the design details can be used directly, or alternatives can be proposed based on the design guidelines and standards.

Developers submitting plans that incorporate elements that differ from these guidelines and standards, will need to demonstrate:

- The need for the element
- The benefit to the wider community
- That inclusion of the element will not result in high maintenance costs to Council

This document should be read in conjunction with its companion, Guidelines for the Planning and Provision of Open Space in Hume City. The Guidelines detail what infrastructure and landscape treatments are appropriate for each type of open space, and this document show how it should be done.

Innovation in design is encouraged to develop unique neighborhood character, and to achieve diversity in open space throughout the municipality.

Developers are required to prepare and submit to Council for approval, design concepts for corridors or networks of open spaces. Proposals must demonstrate that they meet the design criteria and standards outlined in this document, and the principles, guidelines and standards presented in the Guidelines for the Planning and Provision of Open Space in Hume City.

Any such proposal must include, as a minimum:

- Statement of design intent
- Details of all soft and hard landscaping elements, with reference to Council standards
- Construction specifications
- Schedule of maintenance requirements and costings

The following are key considerations that will be used to assess proposals that vary from Council’s standard details:

- Safety
- Ability and cost to maintain
- Environmentally sustainable design and construction
- Durability
- Creativity
- Contribution to a desirable local character
2 LANDSCAPE DESIGN CONSIDERATIONS

2.1 Use of Garden Beds

- Priority for placement of garden beds should be to enhance activity nodes, to highlight entrances or gateways, and to create focal points.
- Placement and design of garden beds must consider:
  - The need to maintain a mown area between garden beds and adjacent residences (3 metre minimum).
  - The need to maintain a mown firebreak in locations such as creek reserves (10 metre minimum).
  - Preserving desirable views and vistas through the landscape.
  - Surveillance of open space to reduce vandalism.
  - Maintaining visibility within open space to ensure user safety.
  - Screening of undesirable views.
- Where garden beds are placed at entrances and path junctions, only low shrubs (<1 metre) or groundcover plants should be used, so as to maintain views into the open space.
- Garden beds should generally be restricted to a width of 3m for ease of maintenance and to reduce maintenance costs.
- Implications for ongoing maintenance need to be considered when designing the shape of garden beds. E.g. Fluid lines or elliptical island beds will allow for greater ease of maintenance of surrounding turf.
- All garden beds adjacent to turf must be edged with plinth board to facilitate ease of bed edge maintenance through herbicide use.
- Plantings of single species in massed blocks will create a stronger visual effect and are simpler to maintain.
- Year round attractiveness achieved through foliage texture and colour.
- Various species can be used in blocks to create textural and colour contrast and interest with an overall planting design.
- Species which have complementary growth habits and will not invade adjacent species should be used in combinations to reduce the overall maintenance of interfaces between species in plantings.
- Plantings should aim to achieve 100% canopy closure within two years, reducing maintenance involved with weed control, mulching and watering regimes.
- Mulching materials should be clean, safe, obtained from sustainable sources, and should not decompose quickly.
- Gravel mulches may be used to provide textural and colour interest in conjunction with plant materials as a low maintenance alternative.

Figure 1 Contrasting foliage
2.2 Environmentally sensitive and natural landscapes

- The use of plant materials is restricted to indigenous species in all bushland and environmentally sensitive areas.
- Species of local provenances should be used, either through collection of local propagation material or through a reputable supplier of local indigenous plant material. It is recommended that developers enter into contracts to grow plants that meet their requirements, well in advance of their supply needs. See Appendix 14 for list of indigenous plant suppliers.
- Where there is an interface between a more formal park environment and remnant bushland, indigenous plants should be used in a more formal, architectural style to integrate the two landscapes.
- The use of continuous jutemat densely planted with indigenous species, is recommended as a landscape treatment along flood zones in creek corridors and on drainage lines. This treatment is also recommended in minor erosion control works along creek corridors.
- Discrete indigenous tree and shrub plantings along creek corridors should be planted in areas that have been sprayed, into pinned individual jutemat squares, staked and guarded.
- In other areas, indigenous materials should be planted in well prepared mulched beds. Plants should be staked and guarded if rabbits are present.
- All indigenous plant materials should be planted in well prepared mulched beds. Plants should be staked and guarded if rabbits are present.
- All indigenous plant materials should be planted as tubestock, at a density of one plant per 2m² for trees, 1 m² for shrubs and 0.4 – 0.5m² for grasses.
- Cells, enviro-cells and speedlings may be used as a low cost alternative to tubestock where appropriate.
- Timing of plantings in bushland environments should be limited to Autumn and early Spring to ensure optimum survival and establishment rates.
- Steep and rocky areas should be sprayed, mulched and planted into in order to minimise maintenance.
- Rabbits should be eradicated and harbour removed to reduce the likelihood of reinvasion.

![Figure 2 Mass planting of Lomandra longifolia](image-url)
• The installation of silt barriers is required before construction begins on sites adjacent to conservation areas
• Existing and emerging environmental and noxious weeds are to be removed before construction and throughout the maintenance period

2.3 Water Features and Wetlands

• Large water features and wetlands are only to be constructed in open space, where they are associated with a drainage function, and where practical maybe used as sources for irrigation water
• All water features and wetlands must be designed to address public safety and Melbourne Water guidelines
• Council may require a risk and safety assessment to be undertaken of wetlands, lakes and water features before submission to Council for approval
• Council may require management plans, including schedules of maintenance for wetlands, lakes and water features
• Wetlands and open water features shall have shallow benches on all edges for a minimum width of 2 metres, and gradually fall beyond this point
• Only indigenous wetland and aquatic species to be used (See Appendix 12 – Guide to Revegetation in Hume with Indigenous Species)
• Records of water testing data requirements must be provided to Council at maintenance handover
• Edge treatments are to incorporate strong vertical element wetland plants, (eg sedges and rushes), to prevent windblown rubbish entering the water, and to facilitate stability and ease of edge maintenance
• Access to water should be restricted to open areas which are designed for this specific purpose
• All wetlands must have nominated points designed to allow access for longer term maintenance
• Where feature rockwork adjoins areas of turf, it must be set into compacted granitic sand to provide a clear maintainable interface
• The design and placement of feature rock work should integrate naturally into the landscape and should be discreetly mortared into place
• Pebble beaching should be avoided. If pebble beaching is incorporated into the design, grades should be minimal and large pebbles are preferable. Pebbles should be discreetly mortared into place to avoid slippage, reduce deterioration and deliberate destruction
• Pebble beaching should be designed naturalistically to integrate into the landscape, with small sections that allow access to the water, rather than thin continuous strips
• Formal water features such as fountains, waterfalls, etc. will only be approved where they create key focal points in regional civic spaces
• All formal water features must be fully reticulated and designed for ease of maintenance e.g. Collection of litter, cleaning filters, pump maintenance etc
• Details of construction, provision for water treatment and ongoing maintenance are required before ‘in principle’ approval will be given. All pump systems will require installation and maintenance specifications to be submitted as part of the approval process
• All built structures such as piers and decks must be designed for long term durability and low maintenance. Concrete structures are preferred
• Building permits are required for all built structures, and must be provided to Council at handover
• As per Guidelines for Water Safety in Residential Water Developments, all structures protruding over water require hand rails e.g. decks

Refer to Appendix 10 for Water Feature and Wetland details
2.4 Turf Treatments

- Turf seed mixes should be selected for their suitability to local climatic and soil conditions. Selection of turf seed mixes should also take into consideration features that will reduce ongoing maintenance. This may include selection of turf cultivars that are low biomass and slow growing, particularly on roadside treatments.
- More robust turf mixes, including cultivars with creeping or rhizomatous growth habits, are recommended for areas where turf will be subjected to higher levels of wear.
- Turf treatments should be restricted to sites where slope gradients are not greater than 1:4.
- Hydroseeding is recommended as an establishment technique to achieve an even germination rate and cover.
- Where sites are adjacent to areas of high conservation value, or where soils may be susceptible to erosion, the use of quick growing nurse crops sown in conjunction with slower growing longer lived species is recommended.
- The use of dryland turf mixes, to achieve a continuous green cover in non irrigated sites, is recommended. Refer to Technical Notes Section 3.4.5 for recommended turf seed blends.

2.5 Road Reserves and Traffic Treatments

2.5.1 Entry features

- Land containing entry features will not be counted as part of the development’s open space contribution.
- Entry features will only be approved at the main entrances to estates. Entry features at stage entrances are not acceptable.
- Entry features must be designed for long-term durability, and minimal ongoing maintenance requirements.
- Placement and design of entry features must facilitate the ease of maintenance of the surrounding landscape.

2.5.2 Road reserves

- The use of irrigated turf in road reserves is restricted to high profile sites or nodes on arterial roads only.
- Whilst irrigation may be used to aid in the establishment of turf in any location, irrigation regimes should be gradually reduced and turned off after the initial establishment period. Council will not continue to maintain irrigation regimes or systems post handover (excluding select locations on arterial roads).
- Non irrigated turf seed mixes and dryland turf mixes in road treatments should be selected for their suitability to local climatic and soil conditions. Selection of turf seed mixes should also take into consideration features which will reduce ongoing maintenance. This may include selection of turf cultivars which are low biomass, slow growing and non-creeping in habit. The use of non-creeping species is particularly important in reducing edge trimming or spraying maintenance regimes.
- The use of garden beds should be restricted to small highlight beds which are used to define entrances, gateways or intersections. Trees in mown grass, either in copses or scattered, are a more suitable landscape treatment. Definition can be achieved through the use of different trees species in separate locations.
- Where there is a need for houses to back onto roads (creating road reserves), garden beds should not be used in long, lineal sections but should be used creatively in discrete offset beds. Discrete specimen trees in mown grass are a more suitable method of softening these areas. Trees must be set back from fencelines to allow for turf maintenance and to avoid conflict with residents.
- Refer to Appendix 11 for a list of species suitable for use in road reserves.
• Tree and shrub species in road reserves should be in scale with the environment in which they are placed
• Opportunities for tree planting in suitable unrestricted sites should be maximised where appropriate
• No vegetation treatments (mown turf, garden beds or tree planting) are recommended in any roundabouts or traffic treatments which have a planting area of less than 6m² or for splitter island that are less than 1.5m wide.
• No garden beds should be closer than 1.2m to the running lane on 60km/hr roads, otherwise occupational health and safety requirements will require a road lane to be closed during maintenance.
• Roundabouts on main arterial and collector roads should use different groundcover species or design to aid in driver orientation. Single tree species may be used to create continuity or reinforce a theme
• The use of irrigated turf in roundabouts and traffic treatments should be restricted to high profile sites or nodes on arterial roads only. Whilst irrigation may be used to aid in the establishment of turf in any location, irrigation regimes should be gradually reduced and turned off after the initial establishment period. Council will not continue to maintain irrigation regimes or systems post handover (excluding select locations on arterial roads)
• Non irrigated turf seed mixes in roundabouts and traffic treatments should be selected for their suitability to local climatic and soil conditions. Selection of turf seed mixes should also take into consideration features that will reduce ongoing maintenance. This may include selection of turf cultivars that are low biomass, slow growing and non-creeping in habit. The use on non creeping species is particularly important in reducing edge trimming or spraying maintenance regimes
• The use of granitic sand, brick paving or compacted gravel in narrow median strips as a low maintenance alternative to turf is highly recommended. Suitable plant species may be used in architectural blocks in this treatment to create interest
• The placement and design of garden beds in roundabouts and splitter islands should take into account the likelihood of damage from vehicles mounting the kerb. The use of granitic sand or turf in combination with garden beds is encouraged to avoid repeated damage and the need for replanting. E.g. Craigieburn / Mickleham roads
• Garden beds should not be used as a continuous treatment in long median strips. Turf, granitic sand, paving or a single tree species in turf/granitic sand, are the only suitable landscape treatments for this type of traffic treatment
• Where planting is approved, it should be restricted to either groundcover only or groundcover and trees for all traffic treatments. Groundcovers should be no higher than 600mm from the road surface (typically 400mm from topsoil).
• The use of trees in roundabouts should be restricted to species which have a single trunk and can be pruned to remove branches from the lower 4 metres
• Plantings in traffic treatments should take into account the current VicRoads guidelines
• Refer to Appendix 11 for a list of species suitable for use in roundabouts and traffic treatments
2.6 Built space/facility surrounds

- Garden beds should be used minimally but strategically, to define entrances, to soften built elements or to highlight areas with specific uses, e.g. outdoor eating area
- Plantings should be in scale with the size of the built elements
- Plantings should complement the use of facilities e.g. Incorporation of hard landscaping in high wear areas, provision of adequate grassed areas in childcare facilities, provision of shade in meeting places
- The style of planting should take into account issues of safety, visibility and surveillance where appropriate. Appendix 15 - Landscape Treatments Table gives clear guidelines for appropriate landscapes to be used in facility surrounds
- Landscapes in kindergartens and childcare facilities must conform with guidelines in the Children Services Regulations 1998 - See Appendix 16 for a list of referral documents
- Care should be taken to select plant materials which are free of any toxic, irritating and nuisance parts. The use of low allergy plants is recommended. Appendix 11 provides guidelines for species suitable for use in facility surrounds

Figure 6 A garden bed around a building
3 LANDSCAPE TREATMENTS AND MAINTENANCE GUIDELINES

The following section defines and details the landscape treatments listed in Appendix 15 - the Landscape Treatments Table. The table shows where each treatment is and is not appropriate. Estimates of maintenance requirements are based on horticultural requirements and do not include regular visits required to remove litter and check for vandalism.

3.1 Formal Landscape Treatments

- Formal landscape treatments are suitable for use in high profile civic spaces in Subregional and Regional landscapes. This includes municipal offices, libraries, regional community facilities and Town Parks used for community events.
- Generally these treatments should be limited to locations in regional and sub-regional high profile positions e.g. Entrances, focal points and activity nodes that will be exposed to high levels of pedestrian use.
- Some formal landscape treatments may be used in association with entrances and activity nodes in Neighbourhood formal/ornamental gardens, lakes and facility surrounds.
- These treatments should be designed to make a bold statement that complements the surrounding landscape or associated built assets.
- These treatments will require the highest level of establishment and maintenance inputs.

3.1.1 Formal annual garden beds

- Uniformly planted annuals which will provide a colourful seasonal display in landscapes associated with regional built space and in regional and sub-regional formal gardens and formally designed regional open parkland only.
- Should be located in positions that are highly visible from surrounding roadsides, should be at entrances, focal points and where people gather.
- Long flowering 12-16 weeks (to be replaced twice a year).
- Planting densities should provide closure at flowering time e.g. within 8-12 weeks.
- Automatic irrigation must be provided to ensure success of plantings and to reduce ongoing maintenance costs.
- Species should be selected to suit scale of landscape e.g. short species for intimate spaces, taller ones for open spaces.
- Should be naturally dense growing and self-supporting e.g. will not require pruning throughout life cycle.
- Large blocks of single species or cultivars should be used to create bold effects. Colour themes should be developed where more than one cultivar or species is used.
- Require high number maintenance visits per year (minimum 26) by the maintenance provider.

3.1.2 Formal perennial plantings

- Plantings of hardy perennials that will singularly or in combination, provide long seasonal floral displays in landscapes associated with regional built space, regional and sub-regional formal gardens, regional and sub-regional formally designed open parkland, regional road reserves and urban arterial roundabouts and traffic treatments.
- May be used in association with entrances and activity nodes in Neighbourhood formal/ornamental gardens and facility surrounds.
- Should be located in positions that are highly visible from surrounding roadsides, should be at entrances, focal points and where people gather.
- Use a composite of species with differing flowering times to extend flowering display.
- Should be planted at densities that allow quick closure and limited weed growth to develop
- Species should be self-supporting and densely growing with many flowering points
- Automatic irrigation must be provided
- Species that do not require high levels of maintenance e.g. regenerative pruning during the growing season or repetitive dead heading
- Species should regenerate well after pruning. Fully deciduous species should be avoided
- Species should be vigorous and maintain their vigour without annual division
- Plantings should generally be evergreen with few if any deciduous species to avoid gaps in canopy or foliage cover throughout the year
- Species that can be regenerated through 3 yearly division are preferable
- Use blocks of single species for bold visual display
- Require 12-15 maintenance visits per year by the maintenance provider

Figure 7 Formal perennial planting of Gazanias
3.1.3 **Formal groundcover, shrub massing or hedging**

- Formal use of blocks of vegetation to provide definition to regional and subregional landscapes associated with built space, formal/ornamental gardens, entrances and activity nodes around lakes, open parkland, outdoor sports facilities and high profile intersections on urban roads of regional significance.
- Some formal landscape treatments may be used in association with entrances and activity nodes in Neighbourhood formal/ornamental gardens, lakes and facility surrounds.
- May be used to create strong vertical and horizontal lines in the landscape.
- May be used to define spaces strongly or create a sense of enclosure where appropriate.
- May be used to create ground pattern and colour.
- May be used to provide seasonal display with foliage, flowers or fruit.
- May be used to provide green buffer year round.
- Species must be long lived and drought tolerant.
- Plantings should be at densities to achieve canopy closure in two years.
- Use single species in blocks to create uniform cover/hedge effect – canopies fusing to form a single sward of foliage.
- Species should have a uniform growth habit and a high shoot density.
- Species should not rely on regular pruning to maintain uniform growth i.e. require maximum once a year pruning.
- Should be able to recover well/quickly from pruning or clipping e.g. Basal, epicormic or adventitious buds (regrowth should be uniform).
- Groundcovers that have a suckering growth habit, (lateral growth which stops once it reaches a hard surface) are highly desirable.
- Hedge species should retain basal foliage at maturity and be genetically uniform.
- Species heights for groundcover massing should be a minimum 150-200 mm.
- Groundcover and shrub massing should be a dense layer of foliage which has a capacity to resist weed invasion, high shoot density in the case of hedging.
- Should tolerate selective grass herbicides (e.g. Fusilade) and pre-emergent herbicides (e.g. Simazine).
- Require twelve maintenance visits per year by the maintenance provider.

### 3.2 **Informal Landscape Treatments**

#### 3.2.1 **Informal shrub massing (indigenous, native and/or exotic)**

- Informal use of blocks of vegetation to provide definition, softening and screening to landscapes associated formal gardens, open parkland, sports facilities, arterial and collector road traffic treatments, (Appendix 15 for Appropriate Landscape Treatments for Neighbourhood, Subregional and Regional Landscape Character Types).
- Use as a screening treatment or as a buffer zone between built environment and open space.
- Use to soften built components in the landscape or around facility surrounds.
- Use for stabilising steep slopes where access for maintenance is difficult.
- May be used to provide seasonal colour with flowers, foliage and fruit.
- Use species that are long lived and drought tolerant.
- Plantings should be at densities to achieve 80% canopy closure in two years.
- In natural environments, indigenous species only to be used.
- Species used should not require formative or other pruning to keep their shape.
- Should retain basal foliage at maturity.
- Should use single species in blocks – facilitate ease of maintenance and visually more effective.
- Overall planting should create a dense layer of foliage which has the capacity to resist weed invasion.
- Species should have pleasing appearance all year.
3.2.2 Informal low planting (perennials, grasses, groundcovers and shrubs)

- Informal use of mass vegetation to provide definition and softening to landscapes associated with built space, formal gardens, open parkland, sports facilities, entrances to paved or grassed access-ways, urban and rural arterial, collector and access roundabouts, (Appendix 15 for Appropriate Landscape Treatments for Neighbourhood, Subregional and Regional Landscape Character Types)
- May also be suitable for ‘nature-like’ landscapes to create a more informal landscape treatment
- Choose robust, hardy, long lived species
- Should be planted at densities that allow closure within 2 years
- Overall planting should create a dense layer of foliage, reach a minimum height of 250 mm and have the capacity to resist weed invasion
- Species should be vigorous and maintain vigour without annual division
- May provide long seasonal flowering displays
- Use a composite of species with differing flowering times to extend flowering display
- Use blocks of single species for bold visual display
- Species should require minimal levels of maintenance e.g. One off regenerative pruning at the end of the growing season, no repetitive dead heading
- Species should regenerate well after pruning
- Species should perform well with low levels of nutrients and water. This will reduce long term maintenance of the landscape
- Species must be self supporting, densely growing and have many growing points (where applicable, also have many flowering points)
- Plantings should preferably be evergreen. Fully deciduous species should be avoided
- Should only require 3-4 maintenance visits per year by the maintenance provider
3.2.3 Indigenous groundcover

- Informal and semi-formal use of mass vegetation to provide definition and softening to landscapes associated with open parkland, sports facilities, bushland reserves, waterways, wetlands, lakes, entrances to paved or grassed access-ways, road reserves and roundabouts, (See Appendix 15 - Landscape Treatments Table)
- Comments here relate to their use in highly contrived landscapes, not where their primary function is to contribute to biodiversity/habitat value
- Most commonly used in natural areas (near remnants, bushland character etc.) but also used in broader landscape to create a permanent green feature
- Species should be indigenous to the Hume area and of local provenance where possible (See Appendix 12 – Guide to Revegetation in Hume with Indigenous Species)
- Species should be robust, long lived and have a uniform growth habit
- Should be planted at densities that allow closure within 2 years
- Overall planting should create a dense layer of foliage, reach a minimum height of 300 mm and have the capacity to resist weed invasion
- Species are suitable for informal ‘nature-like’ landscapes
- Species will establish well without high levels of nutrients and water
- Garden beds are not irrigated
- Use blocks of single species for bold architectural visual display
- Should only require 3-4 maintenance visits per year by the maintenance provider

3.2.4 Indigenous mixed groundcover & shrub massing

- Informal use of mass vegetation to provide definition, softening and screening to landscapes associated with open parkland, regional sports facilities, bushland reserves, native grassland, waterways, wetlands, lakes and road reserves, (See Appendix 15 for Appropriate Landscape Treatments for Neighbourhood, Subregional and Regional Landscape Character Types)
• Use where surveillance/safety is not an issue
• Most commonly used in natural areas (near remnants, bushland character etc.) but also used in broader landscape to create a permanent green feature
• Species should be indigenous to the Hume area (See Appendix 12)
• Should be planted at densities that allow closure within 2 years
• Species should be long lived, robust, have uniform growth habit and retain basal foliage at maturity
• Overall planting should create a dense layer of foliage, reach a minimum height of 300mm and have the capacity to resist weed invasion
• Species will perform well with low levels of nutrients and water
• Garden beds are not irrigated
• Mixed plantings or bold blocks are acceptable, depending on the context of the planting
• Use for stabilising steep and rocky slopes where access for maintenance is difficult
• Should only require 3-4 maintenance visits per year by the maintenance provider

3.2.5 Indigenous shrub and tree massing
• Informal use of mass vegetation to provide definition, softening and screening to landscapes associated with open parkland, outdoor sports facilities, bushland reserves, waterways, wetlands, lakes and road reserves, (See Appendix 15 - Landscape Treatments Table)
• Use where surveillance/safety is not an issue
• Most commonly used in natural areas (near remnants, bushland character etc.) but also used in broader landscape to create a permanent green feature
• Species should be indigenous to the Hume area (see Appendix 12)
• Should be planted at densities that allow quick closure and limit weed growth
• Species should be long lived with uniform growth habit which retain basal foliage at maturity
• Species will perform well with low levels of nutrients and water
• Garden beds are not irrigated
• Mixed plantings or bold blocks are acceptable, depending on the context of the planting. It is, however, desirable to restrict the use of tree species to 1-2 dominants
• Use for stabilising steep slopes where access for maintenance is difficult
• Should only require 1-2 maintenance visits per year by the maintenance provider

3.2.6 Indigenous tree and groundcover massing
• Informal and semi-formal use of mass vegetation to provide definition and softening to landscapes associated with built space, open parkland, sports facilities, bushland reserves, native grassland, waterways, wetlands, lakes, entrances to paved or grassed access-ways, road reserves and roundabouts, (See Appendix 15 - Landscape Treatments Table)
• Use as a landscape feature where surveillance is an issue
• Species should be indigenous to the Hume area (see Appendix 12)
• Species should be robust, long lived and have a uniform growth habit (trees > 20 years)
• Groundcover species should be planted at densities that allow closure within 2 years
• Groundcover species recommendations as for Section 2
• Preferably use 1 dominant tree species per planting and groundcovers in blocks of single species for bold visual display
• More suited for use in more high profile ‘contrived’ landscapes than other indigenous landscape treatments
• Also suitable for semi natural landscapes/near natural areas
• Garden beds are not irrigated
• Should only require 2-4 maintenance visits per year by the maintenance provider
3.3 Trees

3.3.1 Street and reserve trees

Hume City Council’s Street and Reserve Tree Policy 1996, provides clear guidelines for the use of trees in the landscape and should be referred to in any open space development process. See also Appendix 15 for Landscape Treatments Table. In addition, Council would like to emphasise the following points in the use of trees in the landscape:

- All existing trees within an area to be developed are to be retained unless Council approves their removal;
- All retained trees must be fenced at the canopy line and protected from damage and changes to the original soil levels during the construction of the development;
- Existing trees retained for conservation or heritage reasons should be incorporated into the design of open parkland or large tree reserves, and should be a safe distance from roads and a minimum of 3 metres from all fences;
- All trees to be retained must be assessed by a qualified arborist and a report submitted to Council. Council will not accept the retention of mature non-indigenous trees unless they are healthy, structurally sound and have an anticipated aesthetic life expectancy of beyond 10 years;
- To ensure quick and sound establishment of trees, all stock must not exceed a container size if 25 litres.
- Street trees are to be provided at a rate of one per lot frontage and two per lot sideage;
- Size of tree species at maturity should be in scale with the environment in which they are planted;
- Placement of trees along roads should be in an appropriate growing space, where trees will be able to reach full maturity without interference or without causing damage to services
- In car parks, trees should be provided at a ratio of 1 tree per 10 car parking spaces.

Figure 10 Roundabout planting
• Trees should be located so there is a minimum of 3m clearance from the trunk of the tree (at maturity) to the kerb (an absolute minimum of 1m is acceptable for existing trees on 60km/hr roads where there is no possibility of providing a wider clear zone). Refer to the Vicroads Clear-zone guidelines where traffic speed is greater than 60km/hr.

• Naturestrips should be at least 2.4m wide to accommodate the planting of street trees with a trunk diameter of more than 20cm at maturity, and preferably 3m to accommodate trees with very large (more than 80cm) trunks.

• Trees must be at least 6m from an intersection to allow good visibility around corners.

• Single species should be used to create avenues and boulevards on single roads, or to act as a unifying element in the landscape. Diversity of plant material may be achieved through the use of different species in different streets.

• A local precinct approach should be taken with species selection - tree species may be used to create a unique precinct character.

• New tree plantings should integrate with existing distinguishing environmental and cultural features, creating tree reserves where significant or remnant trees exist.

• In conservation areas and along waterways, street trees should be indigenous to the local area.

• Wide naturestrips should be set aside on high profile roads to allow for the creation of significant avenues of trees. This applies to all roadsides where large trees are desirable.

• Exploit opportunities to integrate the design of streetscapes with adjacent open parkland and existing trees to create larger, ‘borrowed landscapes’.

• Planting of large trees, positioned to allow unrestricted full development within open parkland is greatly encouraged.

• Trees should be thoughtfully placed to provide shade for play areas, seats and paths.

• Clearances to allow for motorist and pedestrian vision, street lighting, traffic control devices, telephone cables and service lines need to be considered in tree selection. Further information may be found in the Hume City Council Street and Reserve Tree Policy.

Figure 11 An avenue of street trees
• Trees in roundabouts should be single trunked to at least 4 metres. Species selection and placement should take into account the current VicRoads guidelines.

3.3.2 Indigenous tree massing

• Informal and formal use of mass vegetation to provide definition, softening and screening to landscapes associated with built space, open parkland, sports facilities, bushland reserves, native grassland, waterways, wetlands, lake and road reserves, (See Appendix 15 - Landscape Treatments Table for Neighbourhood)
• This treatment is suitable for use in bold feature plantings, to define entrance ways and at gateways
• May be used as an effective screening or buffer treatment
• Species used should be indigenous to the Hume area (See Appendix 12)
• Indigenous tree massing must be established and maintained in well mulched garden beds
• Species used must be long lived and perform well in the absence of irrigation

3.3.3 Indigenous discrete trees

• Informal and formal use of individual trees to provide definition and softening to landscapes associated with built space, open parkland, sports facilities, bushland reserves, native grassland, waterways, wetlands, lakes, road reserves and roundabouts, (See Appendix 15 - Landscape Treatments Table)
• May be used either as specimen shade trees in parks or as a revegetation treatment in bushland environments
• Species used should be indigenous to the Hume area (See Appendix 12)
• Indigenous trees may be established either as tubestock or as contract grown advanced stock
• Species used should be long lived, not prone to limb shear and perform well in the absence of irrigation
• Where advanced stock is used or where plants will be used in a more formal treatment, plants should be mulched, staked and guarded as per Appendix 1 – Plant Installation Details
• Where this treatment is used in bushland or other very informal settings, tubestock should be used and should be planted in jutemat squares, staked and guarded as per the specifications outlined in Appendix 1 – Plant Installation Details

3.3.4 Non-indigenous advanced canopy trees

• Informal and formal use of individual specimen trees to provide definition and softening to landscapes associated with built space, open parkland, sports facilities, bushland reserves, native grassland, waterways, wetlands, lake, road reserves and roundabouts, (See Appendix 15 - Landscape Treatments Table)
• Species used should be long lived, not prone to limb shear and perform well in the absence of irrigation once established
• Species should be chosen for features such as ability or provide shade, seasonal colour etc.
• Species should be planted as advanced stock and mulched, staked and guarded as per the specifications outlined in Appendix 1 - Plant Installation Details.

3.4 Turf

3.4.1 Irrigated mown turf
• Formal use of highly maintained turf areas, that compliment high profile entrances and activity nodes associated with built space, formal gardens, kindergartens and childcare centres, lakes, open parkland, sports turf, road reserves and traffic treatments, (See Appendix 15 - Landscape Treatments Table for Neighbourhood, Subregional and Regional Landscape Character Types)
• Suitable for use around activity nodes such as barbeques, seating, playgrounds and picnic areas.
• Used to provide a high quality sports playing surface.
• Should provide an even, mown, surface which is green year round.
• Incorporate gypsum into cultivated soil before sowing (minimum rate of 1 tonne per hectare).
• Sward height should be maintained between 5-35 mm.
• Will require approximately 30-40 maintenance visits per year.
• Minimum 90% grass cover should be maintained.
• Maximum 10% broadleaf weeds present in the sward.

3.4.2 Non-irrigated mown turf
• Informal use of turf to soften landscapes associated with built space, open parkland, sports facility surrounds, bushland reserves, formal gardens, waterways, wetland surrounds, lakes grassed access-ways, road reserves and roundabouts, (See Appendix 15 - Landscape Treatments Table)
• Should provide an even surface which is seasonally green.
• Incorporate gypsum into cultivated soil before sowing (minimum rate of 1 tonne per hectare).
• Use dryland turf mixes that are suited to the local climatic and soil conditions.
• Use in all areas where irrigation is not appropriate.
• Use in ‘kick about’ spaces in Neighbourhood parks
• Use slow growing species with low biomass in reserves with an interface with bushland areas and on roadsides
• Use low growing species to create 3 m wide (minimum) firebreaks, along property boundaries in fire-prone areas e.g. all creek reserves;
• Maintain height at 35-100 mm
• Will require approximately 16-20 maintenance visits per year

3.4.3 Differentially mown non-irrigated rough turf
• Extensive areas of turf, managed at different heights according to intended use, to create naturalistic ‘wild’ landscapes and reduce maintenance costs open parkland, bushland reserves, waterways, wetland surrounds and lakes. (See Appendix 15 - Landscape Treatments Table for Neighbourhood, Subregional and Regional Landscape Character Types)
• May be used in open space to create seasonal visual effects
• May be used to protect and manage areas of native grass
• May be used to manage or restrict pedestrian access, particularly through ‘natural’ areas
• May be used to reduce maintenance costs in wide creek corridors
• Eliminate noxious and environmental weeds through ongoing control and monitoring program
• Maintain areas at different heights: 30-100 mm for mown pathways, 50-200 mm for areas adjacent to path system, 75-1000 mm no access areas
• Will require different maintenance rates according to the proposed use of each area, i.e. 4-20 per year

3.4.4 Rough turf or grassed area
• Informal, uneven turf in extensive grassed areas associated with open parkland, bushland reserves, waterways, wetland surrounds and lakes, (See Appendix 15 - Landscape Treatments Table for Neighbourhood, Subregional and Regional Landscape Character Types)
• Use cultivars which are drought tolerant and slow growing
• May be used to manage or restrict pedestrian access, particularly through ‘natural’ areas
• May be used to reduce maintenance costs in wide creek corridors
• Eliminate noxious and environmental weeds through ongoing control and monitoring program
• May be used along creeks and waterways as a stable cover to prevent erosion and weed infestation
• Used to create slashed fire breaks
• Maintain sward height between 75-1000 mm
• Will require 2-4 maintenance visits per year

3.4.5 Recommended turf seed blends

The suggested turf seed blends listed below, should be used in conjunction with the landscape design considerations for turf treatments outlined in Section 2.4, to guide the design and maintenance of all turf areas. Generally irrigation systems will not be approved for turf, therefore turf seed blends should be selected to suit the local climatic conditions, without the need for additional irrigation

Council’s capacity to irrigate turf areas is likely to diminish, as water becomes less available and more costly over time. It is recommended that open space designers regularly contact specialist turf seed companies for current advances in dryland turf seed research

Irrigate sports turf
• 70% Fine Turf-type Rye varieties x 3
• 20% Creeping Red Fescue
• 10% Couch
**General non-irrigated parkland and naturestrip blend**

- 60% Dwarf Tall Fescue - drought tolerant cultivars
- 20% Perennial Rye - drought tolerant cultivars
- 10% Sheeps Fescue
- 10% Hard Fescue

**Irrigated parkland kickabout areas**

- 40% Perennial Rye
- 40% Fine Turf-type Rye varieties x 2
- 20% Creeping Red Fescue

**Revegetation, erosion control + creek corridors**

This low growing blend requires little maintenance, is drought tolerant and allows native grasses to infiltrate the sward. Native grass seedlings or cells, can also be planted in groups within the sward for revegetation purposes.

- 11kg/ha Tettila Rye (low growing sterile rye)
- 30kg/ha Sheeps Fescue
- 30kg/ha Hard Fescue

**Irrigated high traffic areas in reserves around playgrounds, seats and picnic area etc**

- 40% Fine turf - Type Rye variations x 2
- 40% Creeping Red Fescue
- 20% Couch

**Irrigated high profile roadsides**

- 60% Dwarf tall Fescue
- 30% Creeping Red Fescue
- 10% Couch
4 SPECIES SELECTION CRITERIA

The following Biological, Functional and Aesthetic selection criteria should be used as the basis of species selection for all sites. If it is proposed to vary from the species listed in the appendices, it must be demonstrated that these criterion have been met.

4.1 Biological Criteria

Species should be selected for their tolerance to local soil and climatic conditions. Whilst this may vary slightly between different microclimates throughout the municipality, some generic features can be outlined, including:

- Tolerant of hot and drying winds
- Able to perform well under local rainfall conditions, 350-650mm per annum
- Tolerant of high summer temperatures, up to 40 degrees Celsius
- Tolerant of seasonally waterlogged soils in winter
- Adapted to local precinct soil types
- Not prone to attack from pests and diseases
- Genetically uniform in growth habit
- Require low maintenance inputs
- Indigenous species which match the existing soil and climatic conditions of their natural habitats
- Indigenous species used in the combinations in which they are found in their natural habitats

4.2 Functional Criteria

Functional criteria will be guided by the type of landscape treatment as provided in Section 2.3 of this document. Some functional criteria that plant species must meet include:

- Quick to establish
- Long lived (> 20 years for trees, > 10 years for shrubs, > 7 years for groundcovers)
- Ultimate size of species is suitable for the constraints of the planting site
- Does not have the capacity to become urban, environmental or agricultural weeds
- Does not require high levels of pruning to maintain vigour and habit
- Does not have fruit or leaves likely to become a nuisance
- Provides habitat to indigenous wildlife where possible and appropriate

4.3 Aesthetic Criteria

Aesthetic criteria will be guided by the type of landscape treatment as provided in Section 2.3 of this document. Some generic aesthetic features that plant material should provide include:

- A healthy, vigorous appearance
- Preference is for evergreen species, where display is based on the colour and texture of the foliage, bark pattern and natural form of the species
- Of secondary importance are seasonal displays (foliage, flowers, fruit, bark), to provide interest
- Uniformity in growth habit
Figure 14  Cycling beside a wetland
5 PREPARATION AND PLANTING OF GARDEN BEDS

5.1 Garden Bed and Turf Area Preparation

Council encourages the amelioration of existing indigenous soils with gypsum, organic matter and cultivation, rather than importation of non-indigenous soil material. Where imported soils are necessary, they should be free of weed seeds, storage organs and vegetative parts and pathogens. Where large quantities of imported soil (> 100 cubic metres) are required, soil testing data must be provided before purchasing. Reliable suppliers should be sourced, and blends of different soil types avoided. Developers will be held accountable for any new weeds that emerge on newly developed sites. Commonly, weeds are brought in on machinery and in soil. Developers will be required to treat new emerging weeds until they are eliminated from the area.

5.2 Plant Materials

At time of installation, all plants should meet the following presentation criteria:

5.2.1 Trunks, stems and branches

- Visibly free of pests and pathogens which could, by their presence, induce (or contribute to) the decline of the plant
- Free of conspicuous scarring evidence. No split or broken canes, trunks or branches.
- No dead or dying wood present
- All limbs or trunks to be well formed, sturdy and well rooted; therefore, stable and self supporting in the growing container

5.2.2 Foliage

- Visibly free of pests and pathogens which could, by their presence, induce (or contribute to) the decline of the plant
- Stock must be vigorous health and actively growing
- Colour of foliage must be appropriate for the healthy state of each species
- No stressed plants or plants that have dried out should be used
- Cleaned of all dust and water-born pesticide and fertiliser residue post planting

5.2.3 Root system and soil mass

- Root systems should be well developed, visibly free of pests and/or pathogens
- Roots should be well distributed throughout the container, extending on all sides to the inside face of the growing container
- Conversely, the root formation within the container, should not have developed to the point where it becomes excessive (i.e. ‘pot-bound’) and prevents water from permeating to the fine water-absorbing root hairs

5.3 Fertiliser

- Fertiliser is recommended for use when planting non-indigenous trees and shrubs to assist with initial establishment
- Fertilisers are particularly recommended for use on soils of low fertility. It is recommended that soil testing be carried out to ascertain soil nutrient deficiencies before fertilisers are applied
- Where fertilisers are used, they should be mixed with soil at manufacturer’s recommended rates, and placed at the base of the planting hole before planting, or applied to the soil surface before mulch is laid out
Granular, pelleted and tablet forms of low release fertiliser will provide establishing plants with a controlled supply of nutrients

5.4 Mulch

- Selection of mulching material should consider its ability to suppress weeds, and thus reduce maintenance. Mulch should have the ability to slowly break down over time
- All mulch materials should be aged, to reduce nitrogen depletion from soils due to on site decomposition
- Selection should also consider the site profile in which it is to be used and the aesthetics of the mulch
- Organic mulches that break down rapidly are not suitable
- All mulches must contain less than 0.01% by weight and/or volume of physical impurities including glass, metal, plastics, soil, rock and debris
- Mulch must be free of plant pathogens, growth inhibitors, weeds and syringes
- All organic mulches must be applied at a depth of no less than 100 mm
- Medium to fine milled wood mulches are suitable for general garden bed use
- Mulches derived from recycled wood products (e.g. Mossrock MR12 mulch) are suitable for use on all informal and indigenous plant garden beds, except those in sensitive bushland areas, or on steeper slopes where slippage can occur
- ’Eucamulch’ is suitable for use in bushland environments where mulching materials should integrate into the surrounding environment and on steeper slopes due to its ability for form a ‘thatch’
- Biodegradable Jutemat is suitable for use in revegetation treatments and in erosion control on steeper banks. Continuous jutemat rolls should be secured with 150mm long pins on creek banks and 200mm long pins in flood zones. Pins per square metre will be site specific, but should be sufficient to secure jutemat over a five year period
- Individual jutemat squares should be a minimum of 600mm x 600mm diameter and secured with a minimum of 8 x 150mm long pins if used on creek banks. All jutemat should be a minimum mass of 700 grams/m²
- Innovative use of non-decomposing mulching materials, such as gravels is acceptable. However, gravel mulches should be used minimally in highlight garden beds to provide an alternative textural treatment. The effectiveness of gravel mulches as weed suppressants relies on thorough weed control prior to laying of mulch

5.5 Tree Stakes and Ties

- Stakes to be durable hard wood, straight, free from knots or twists and pointed at one end
- Stakes should be positioned in place without penetrating the root ball of the tree. Installation numbers to be as follows:

<table>
<thead>
<tr>
<th>Plant Height</th>
<th>Stake Number</th>
<th>Stake Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 3.5m</td>
<td>Minimum 3</td>
<td>50 x 50 x 3000mm</td>
</tr>
<tr>
<td>2.0 – 3.5M</td>
<td>Minimum 2</td>
<td>50 x 50 x 2400mm</td>
</tr>
</tbody>
</table>

- Tree ties to be woven polypropylene webbing (50mm wide), tied in a figure eight.
5.6 Plant Installation

- Plant material should be planted immediately after delivery
- Where this is not possible, ensure plant materials are adequately protected from adverse or damaging climatic conditions
- Plant installation is not to proceed when conditions are adverse to successful plant establishment i.e. When air temperature exceeds 28 degrees Celsius, or when air temperature drops to below 5 degrees Celsius, or in excessively windy weather
- Water plants well immediately before planting
- Before doing any excavation, ascertain location of existing underground services
- Set out plant materials as scheduled to locations and quantities shown on the approved plant layout drawings
- Place containers out on ground in proposed locations of plant pits prior to excavation
- Planting holes for all plants are to be 2 times the width and the same depth as the container
- Incorporate fertiliser and water storing granules into backfill at the manufactures recommended rates
- Remove plant from pot and gently tease out exposed roots. Place plant in planting hole and backfill pit with soil so that plant is planted 40mm below original soil levels in pots
- Gently compact around plant with soil excavated from hole, and remove any debris detrimental to normal plant growth
- For trees, form a bowl around trees by moulding topsoil above finished grade. Bowl must be capable of holding a minimum of 10 litres (2 gal) of clean (potable) water;
- Dispose of any excess excavated soil responsibly
- Water plants well immediately after planting. Stake, tie and mulch plants as detailed above

Refer Appendix 1 - Plant Installation Details

- Detail tubestock planting with continuous jutemat.
- Detail tubestock planting with jutemat squares.
- Detail tubestock planting with guard and plinth edge.
- Detail of evergreen tree planting over 2m tall.
- Detail of evergreen tree planting under 2m tall.
- Detail of shrub planting.
- Detail of Indicative roundabout planting.

Detail of grade requirements for planting and access. Batters and fill - less than 1:4 for grassed areas, 1:3 for vegetated slopes, or if no alternatives are available, are benched with benches no more than 1.2m high and at least 2m wide with a top set back of at least 3m.
6 IRRIGATION

6.1 Irrigation specification requirements

NB: Refer to 2. Landscape treatments and maintenance guidelines for appropriate use of irrigation.

- Prepare 1:500 scale plans for sites/ovals greater than 1 ha area. Submit performance specification of types of sprayheads, valves and controllers and quick coupler valves (QCVs) intended for use
- Prepare 1:100 and 1:250 scale plans for sites under 1 ha area. Submit performance specification of types of sprayheads, valves and controllers intended for use
- Show location and size/type of master valve and backflow prevention device, proposed solenoid valve, lateral and mainline pipework and pipe sizing
- Maximum velocity flow 1.5m/second
- Indicate various regimes of irrigation coverage from pop-up sprayheads, fixed sprayheads, emitters to specific trees/shrubs
- All garden bed areas and lawn areas to be watered from separate solenoid valves
- All irrigation systems are to be automatic, and must incorporate rain and moisture sensors.

6.1.1 Standards

All materials and workmanship shall be the best of their respective kind, complying to the standards:

- A.S. 1477 Parts 1-6 U.P.V.C. pipes and fittings for pressure applications
- A.S. 1462 Methods for testing unplasticised P.V.C. pipe fittings
- A.S. 2032 Code of Practice for installation of P.V.C. pipe systems
- A.S. 3000 S.A.A. Wiring Rules
- A.S.2053 U.P.V.C. wire
- A.S. 3147 Wiring

6.1.2 Water Supply

Determine water supply pressure and flow rate prior to undertaking design. To enable separate control of irrigation system, gate valves are to be placed in position after the water metre, and independent of any building water supply.

6.1.3 Protection of works and safety

Protect works by the erection of all necessary barriers and safety signs to make trenchwork safe.

6.1.4 Controller

Various controllers from solar powered to electromechanical are available. Controller to be compatible with design demands of valves and stations. Nominate controller and station and programming cycle. Preference is for Rainbird ESP and Hunter ICC models. All controllers are to be mounted on external building walls or concrete slabs and must be inside lockable cabinets. 240 volt power is required to operate controllers.

6.1.5 Wiring cable

All wires are to be P.V.C. or poly-sheathed gauge 7/0.050, 1.5 sqmm building wire. An individual station wire is to be installed from each solenoid valve to the appropriate controller location. The common wires for each controller shall be colour coded and station wires coded by colour or number. All wiring details are to be included on the ‘as laid’ drawings. Wire connections are to be made with the use of ‘Dry Splice’, Rain Bird
Snap-Tite connectors provided compatible sealant is used or heat shrink connectors. Sealants that dissolve or melt P.V.C. sheathing would not be acceptable.

6.1.6 Valves

An isolating brass gate valve and double check valve shall be installed at the tapping point.

Valves shall closely match the relevant pipe size and flow rate designated. Only one solenoid valve per controller station shall be wired.

6.1.7 Valve boxes

All valves are to be housed in lockable boxes of sufficient size to allow the valves to be serviced without digging. Place valve boxes on a brick base, backfill with crushed rock and compact around all sides to ensure they will not sink or move with the weight of ride-on mowers. Valve boxes must not be located on playing surfaces or perimeter fencelines.

6.1.8 Sprinklers

All sprinkler heads shall have a discharge of water compatible to the pipe layout and delivery pressure of the tapping point. Make adjustments for throw of individual spray heads prior to commissioning of service and Practical Completion.

Sprinklers must be Hunter or Rainbird, and the one brand of sprinkler is to be used throughout the project. Ensure that sprinklers are set at head to head spacings and compatible spacing to flow rates and pressure. All sprinklers are to be numbered and uniform in sequence. All sprinkler heads to be compatible with all threaded male fittings to have Teflon tape applied as standard.

6.1.9 Risers

Each pop-up sprinkler would be installed on a poly-articulated riser to provide an easy means of height adjustment. Schedule 80 15mm P.V.C. pipe to be used as risers.

6.1.10 Pipework

Class 12 rigid U.P.V.C. solvent welded pipework to be used for all mainline and lateral lines. UPVC pipework is to be installed off the ring main on all ovals. Class 12 polypipe can be used in garden bed locations.

All sprinkler lines and mains shall be installed with a minimum cover of 350mm. Interior of pipes shall be kept free from dirt or debris. Open ends of pipe shall be kept sealed during the laying process. Turn on valves to each station to flush lines out before fitting sprayheads.

6.1.11 Installation testing

Installation of the system shall be completed in full compliance with the appropriate Australian Standards.

At each solenoid assembly, wire of sufficient length will be looped to allow for future maintenance. As shown on the design plan, spare wires are to be left-taped and looped in a valve box.

Risers must be checked to ensure that there are no leaks and all are installed to suit the level of the ground.

Valve box lids are to be installed flush with the finished surface.
Irrigation pipework to be excavated to ensure a cover of 350mm over mainlines and laterals. Trenches are to thoroughly compacted with selected excavated top soil. Should excavated soil be found unsuitable to use as backfill, sand filling of trenches will be required.

Where solid rock is encountered during trench excavation, request an inspection of the open trench. Rock shall be measured in the solid, jointly between representatives of the Irrigation Sub-Contractor and the Superintendent. No allowance will be made for over excavation.

All pipe jointing is to be carried out in accordance with the manufacturer’s recommendation.

Valve wiring is to be taped at three (3) metre intervals and located in the same trench under the pipe.

The system is to be thoroughly flushed before fitting sprinklers which are to be installed and set to suit the finished surface.

6.1.12 As-built drawing

Provide the Council with the instruction manual and copy of the as-built drawing when the system is completed and commissioned. Drawing to clearly show pipe sizes, valve types, locations, fittings, cable routes, sprinkler/dripper spray patterns sprinkler numbering, station numbering and coverage diagrams etc.

6.1.13 Commissioning

Testing of the system will be performed after completion of the installation and any repairs necessary to put the system into proper working order. It is extremely important that any overspray which can be eliminated from paved surfaces is adjusted by PCS screens or if required re-position sprinklers.

All automatic systems must be programmed to run at night or early morning to avoid vandalism and to minimise evaporation.

6.1.14 Maintenance

The period of maintenance and product warranty is to be determined to be consistent with the maintenance handover period for the open space.

Refer Appendix 2 - Irrigation details

- Detail of oval irrigation
- Detail of automatic pop-up sprayhead sprinkler connection
- Detail of Section of valves and valve box
7 KICKABOUT AREA CONSTRUCTION

Kickabout areas are to be provided in most neighbourhood parks. Design of Kickabouts needs to take into consideration appropriate positioning within the reserve, proximity to road, water features, seating, other facilities and site drainage.

Refer Appendix 3 – Kickabout Construction Detail
8 PLAYSPACE DESIGN

Developers must consider the location and nature of playspaces within the broader open space network. Council will not approve proposed playspaces in neighbourhoods where play provision is already adequately provided for. New playspaces should not be provided within 500 metres of an existing playspace.

Playspaces will not be approved for sites that are less than 0.75 hectares in area, unless they extend to existing sites or create links between communities (a minimum measurement of 70 metres on one side of park boundary is required).

8.1 Minimum facility requirements for each category of playspace

All proposals for new playspaces must identify the population catchment that the playspace is intended to service. As per the Hume Open Space Strategy Plan 1999, each category is defined as:

8.1.1 Neighbourhood
- Serving the immediate area accessible by foot or within 500 metres, and a population up to 5,000 persons or 1,500 households
- Design of neighbourhood playspaces must include paths, provision for shade, rubbish bins, seating, signage and play equipment with a minimum number of 8 activities. One in three sites should include play components that are accessible to people of all abilities.

8.1.2 Sub Regional
- Serving households within the suburb and generally up to about 2.59 square kilometres (1 square mile) in area, and a population of approximately 10,000-15,000 people or 3,000-5,000 households
- Design of sub regional playspaces must include drinking fountain, paths, provision for shade, rubbish bins, seating, signage, shelter, water tap, on-site car park, lighting and irrigation, play equipment with a minimum number of 20 activities with some play components to be accessible for all abilities.

8.1.3 Regional
- Serving a population beyond the local suburb boundaries (may extend beyond the municipality), in excess of 20,000-30,000 people
- Design of regional playspaces must include a range of components to be accessible for all abilities, on-site car parking, drinking fountain, irrigation, lighting, paths, rubbish bins, toilets (for all abilities), water, BBQ, shelter, shade, signage, and access to power. Minimum number of activities to be 50.

8.2 General Playspace Design requirements

Playspaces must provide children and young people with a variety of physical and mental challenges. Council’s emphasis for playspace design is to provide a diverse range of play experiences with opportunity for physical, creative, social/dramatic and cognitive play.

All playspaces must be designed to meet the needs of specified age groups. The following list provides a guide to appropriate equipment and/or experiences for each age group. This is by no means definitive, and Council encourages imagination in the design of all playspaces.

8.2.1 Up to 4 years of age
- Shade and seating
- Double swing
- Small climbing structures with slide
• Social roles of play: small cubbies, boats, trains, steering wheels
• Colourful equipment

8.2.2 4-7 years of age
• Shade and seating
• Double swing
• Climbing structures
• Imaginative playspaces and social roles of play: natural elements
• Mounding hills and landforms
• Bicycle paths and small bike circuits

8.2.3 7 years and up
• Structures
• Paths and facilities for walking, bicycles, skateboards and roller blades
• Courts and rebound walls
• Integration of other park facilities such as hardcourt areas, kickabout and other ball game areas.

8.2.4 Other playspace design considerations and guidelines include:
• Playspaces are to be located on prominent sites with high surveillance, and are not to be located in remote or isolated sites
• Playspaces should be at least 30m from the nearest street or water body.
• Playground swings to support no more than 2 seats per frame
• All playspaces are to include tree planting to provide shade
• Synthetic under surfacing of high use activities within playgrounds (e.g. Swings and slides) maybe required by Council
• The use of sand for undersurfacing is not acceptable
• A combination of ramps and steps should be used on the perimeters of all playspaces to assist with access
• Adequate drainage is required to be provided under all playspaces
• Bins to be located no closer than 5 metres from the playground or seating
• Seats to be undersurface with the same material as the pathway, and linked to the pathway system. Undersurfacing should be extended beyond the seat, to cater for wheelchair and pram access
• All seats to include armrests and backrests
• Playspaces may require fencing or bollards, and defined entry/exit points
• All playgrounds to include an exclusion zone of 10 metres for dogs
• Developers are required to supply a letter guaranteeing the structural integrity of the playground equipment for a minimum of 7 years post installation
• All rebound walls and halfcourts with basketball rings require a building permit
• Halfcourts and multi-purpose hard playing surfaces are to be flexipaved
• Basketball rings are to be mounted on metal posts

8.3 Submitting Playspace Proposals for Approval

Developers are required to submit the following information as part of the playspace approval process:
• Overall locations of play equipment within the reserve/open space
• Intended age range and user group for the playground equipment
• Manufacturer details of all equipment to be supplied and availability of spare parts
• Inventory of all components that make up the play equipment
• Playspace Design Checklist (See Appendix 13)
• Maintenance program. See Section 8.5 and anticipated timing of handover to Council
• Plans of the proposed playground shall include:
- Fall zone measurements
- Fall height measurements
- Orientation of equipment (north indicator)
- Placement of equipment within the playspace, and desired movement through the playground
- Undersurfacings specifications
- Edging construction details and specification
- Details of how access for a range of abilities has been provided
- Colour options for the equipment
- Playspace sub-surface and surrounding reserve drainage plans

**8.4 Playspace Design Checklist**

The checklist (Appendix 4) has been prepared to assist with the development and assessment of playspace designs prepared by contractors to Council and developers. The checklist is to be completed and submitted to Council for approval with any playspace design.

**8.5 Maintenance Program Requirements**

Following the issuing of practical completion for the reserve development, playspaces will be maintained by the developer, for a period of 2 years (or as per planning permit condition for maintenance of open space).

- The developer shall develop and maintain a program of inspections for all items of the playground equipment, based on the manufacturers instructions and local risk factors. **Please note that play equipment that is subject to heavy use may require daily inspections**
- The program shall include the frequency of inspections and the elements to be inspected
- Inspections shall be carried out by competent individuals, and in accordance with the Australian Standards. The table below is a guide to the minimum play equipment inspection requirements:

<table>
<thead>
<tr>
<th>Playspace classification</th>
<th>Routine inspections</th>
<th>Operational inspections</th>
<th>Comprehensive inspections</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regional</td>
<td>3 inspections per week</td>
<td>1 inspection per fortnight</td>
<td>1 inspection per year</td>
</tr>
<tr>
<td>Subregional</td>
<td>1 inspection per week</td>
<td>1 inspection per month</td>
<td>1 inspection per year</td>
</tr>
<tr>
<td>Neighbourhood</td>
<td>1 inspection per fortnight</td>
<td>1 inspection every 2 months</td>
<td>1 inspection per year</td>
</tr>
</tbody>
</table>

**8.6 Handover Information**

The following information is required as part of the playspace handover process:

- Inventory of all playground equipment (including decks and roof structures)
- Area and volume of undersurfacings material
- Linear metres of playground edging materials
- Detailed records of all maintenance inspections, including all component replacements and any changes made to the design of the equipment
- Installation details, including building permit, date of installation, details of manufacturer, manufacturer and installers’ guarantees
9 PATHS AND BICYCLE FACILITIES

Council’s Bicycle Strategy Plan 1996 provides detailed information in relation to the key bicycle links and standards for bicycle facilities.

General design guidelines include:

- All paths within open space developments must be designed to maximise user safety and durability, and to minimise ongoing maintenance requirements.
- Paths within open space reserves should integrate with surrounding path networks and systems throughout the estate or suburb.
- Path systems within reserves should provide access to all the facilities and open spaces within the reserve.
- No paths should be located below the 1 in 10 year flood level.
- Use only one type of paving material throughout a space to create unity in design. Contrasting materials can be used to direct movement through space, or indicate a different usage e.g. Use one type of material for walkways, another for seating areas etc.
- Use of gravel surface adjacent to another hard surface such as paving, should be avoided where the gravel is not sufficiently contained by a plinth border.
- The innovative use of low maintenance hard surfaces, such as coloured or stamped concrete, is encouraged.

The following table outlines Council’s minimum standards for path design within open space:

<table>
<thead>
<tr>
<th></th>
<th>Neighbourhood Reserve/ Access Way / Linkage / Bicycle or Walking Path</th>
<th>Subregional Reserve/ Access Way / Linkage / Bicycle or Walking Path</th>
<th>Regional Reserve/Access Way / Linkage / Bicycle or Walking Path</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum width</td>
<td>1.5 metres (2.0 metres in designated “Access for All” reserves)</td>
<td>2.5 metres</td>
<td>3.0 metres</td>
</tr>
<tr>
<td>Construction material</td>
<td>Concrete, Asphalt or Stabilized and consolidated gravel or granitic sand</td>
<td>Concrete or Asphalt</td>
<td>Asphalt</td>
</tr>
<tr>
<td>Facilities required in conjunction with path system</td>
<td>Lighting e.g. Access way, seats as appropriate</td>
<td>Drinking fountain, lighting, seats every 250 metres, shade, bicycle racks at activity nodes and signage.</td>
<td>Drinking fountain, lighting, seats every 250 metres, shade, bicycle racks at activity nodes and directional signage</td>
</tr>
</tbody>
</table>

See Appendix 5 - Path construction Details

- Detail of granitic gravel path
- Detail of asphalt footpath with brick swale
- Detail of coloured concrete paving with tile banding
- Detail of joints in concrete paving
10 BOLLARDS AND FENCING

General design guidelines include:

- All reserves are to be designed to prevent unauthorised vehicle access and may use mounding, fencing or bollards etc for this purpose.
- Where lots back directly onto creek reserves, 30% of the lot / reserve fence is required to be transparent.
- Bollard type is to be uniform for the entire reserve, access way and for adjoining reserves etc.
- Fencing and bollards to be no more than 1.2m high.
- Bollards to be spaced a maximum of 1.5m apart, with a minimum set back of 3m from 50Kmph roads.
- Natural plantation hardwood or sturdy recycled materials to be used.
- Pedestrian access points must be provided at least every 100m along continuous fencing.
- A minimum of one maintenance vehicle access point to be provided, via a gate or removable bollard, aligned with street crossover.

See Appendix 6 – Bollard and Fencing details

- Detail of timber bollard and rail barrier.
- Detail of timber bollard and steel rail barrier.
- Detail of gable end bollard.
- Detail of bevel end bollard.
- Detail of removable bollard and square options.
11 PARK FURNITURE

11.1 Park furniture general design guidelines

• All park furniture must be designed for long-term durability and have minimum maintenance requirements
• All powder coated park furniture is to be coloured in the equivalent of one of the following Dulux colours: Indian Red, Teal, Deep Brunswick Green, New England Stone, Terracotta or Black
• All park furniture must be anti-graffiti coated, to facilitate ease of removal of graffiti
• Seats with backrests and arm rests are to be provided.
• Footings for furniture and bike racks must be cast into a concrete slab that is level with surrounding turf, or on existing slab using minimum 50mm dynabolt, with the nuts tack welded for security. See Appendix 7 – Park furniture details
• Rubbish bins are to be provided in reserves with a function that is likely to result in the accumulation of rubbish eg active sports reserves, reserves with barbeques, popular picnic spots, regional and subregional open space. Only 140 and 240 litre wheelie bins are to be installed, and they should be located near vehicles access for ease of maintenance
• BBQ’s are only permitted in subregional and regional parks where toilets and drinking water facilities are provided

See Appendix 7:

• Detail of timber slat bench
• Detail of metal bench seat
• Detail of picnic table with attached seats
• Detail of picnic table with non-attached seats
• Detail of table and seat fixing
• Detail of drinking fountain – standard
• Detail of drinking fountain – accessible
• Detail of rubbish bin enclosure
• Detail of rubbish bin security posts
• Detail of bike rack and footings
• Detail of electric BBQ unit
Figure 16  A durable metal picnic table

Figure 17  Stainless steel topped BBQ
11.2 Lighting

General design guidelines include:

- Light requirements for open space are detailed in Section 3 – Appendix 2 & 3
- Standard lighting is to be VESI approved, 80 watt mercury vapour lamps, poles with a minimum 5.5m mounting height
- Lanterns to be controlled by integral P.E. (photoelectric) cells
- Poles to be steel, hot dipped, galvanized - or coloured to be power coated or using epoxy paint
- Solar powered lights will be considered in areas with good surveillance
- Lighting should be provided to ensure public safety in reserves eg entrances, path intersections, activity nodes, community event gathering points, outdoor sports facilities at key nodes carparks, and entrances on regional and subregional bikepaths.

See Appendix 7 – Park furniture details for detail of pole reserve light
12 SIGNAGE

General design guidelines include:

- Name signs should be provided for all reserves
- Safety and warning signs must be provided wherever risks to public safety are present
- For safety and warning signs use international symbols and clear basic language
- Interpretive signs should be provided for educative purposes at sites with conservation, environmental and historical value

See Appendix 8 - Council’s Signage Guidelines for details of all the requirements and standards for signage in Hume.

- Signage Details: Detail of facility name signage
- Detail of regulatory signage
- Detail of interpretation signage

Figure 18  No swimming sign
13 SHELTERS, GAZEBOS AND OTHER STRUCTURES

Development of new sub-divisions often includes the construction of buildings or structures that add to the practical or visual amenity of the project. Such buildings or structures must be included in the documentation to be approved by Council as part of the sub-divisions planning process.

Because the future maintenance and repair of such buildings or structures invariably becomes the responsibility of the Council, the Council must approve of them before construction commences. Council requires that the design and construction of these buildings and structures is in accordance with Council’s policies for the design and construction of Council facilities and assets. Planning and Building Permits must be issued before construction is to commence. This requirement applies to all types of buildings and structures including:

- Signs, masts, poles, walls, fences, bollards or lighting
- Fountains or water features
- Retaining walls or structures
- Decks, landings, terraces
- Ornamental structures or monoliths
- Bandstands, gazebos, pergolas, stages, platforms, arbors
- Sporting, recreation, athletic or play equipment or facilities,
- Any other building or facility classifiable under the building regulations.

Plans and designs for any such proposed building or structures must be lodged with Council’s City Development Department for written approval, and any required Planning or Building Permits must have been issued prior to commencement of construction. Written consent from the City Development Department must be obtained prior to making any permit applications.

Further enquiries can be made with the relevant Council departments:

- Building Control services 03 9205 2325
- City Development 03 9205 2309
- Asset Development 03 9205 2407

The provision of built structures must be relevant to the nominated function of the open space. The excessive use of built structures, and the use of such structures for purely marketing purposes will not be approved. The emphasis for built structure design must be on durability and low maintenance. Other design considerations include:

- Building permits must be supplied to Council before handover of reserves can occur
- Shelters must be designed to provide the majority of shade between 11am and 3pm
- Shelters and gazebos should be designed to discourage climbing onto roofs
- All structures are to be anti-graffiti coated and preference is for powder coated, all steel construction

See Appendix 9 - Shelters

- Detail of hexagonal picnic pavilion model.
- Detail of square picnic pavilion model.
Figure 19  A Gazebo in a park complemented with garden beds
14 WATER FEATURES / WETLANDS

For more detail in relation to water sensitive urban design and storm water management, refer to Section 1.3 of this document, Council’s Stormwater Management Plan 2001 and Urban Stormwater Best Practice Environmental Management Guidelines, 1999.

See Appendix 10 - Water Features and Wetland details
- Detail of stormwater outlet for large diameter pipes
- Detail of Ephemeral Pond & Settling Pond
- Detail of Permanent Ornamental Pond

Figure 20 All structures over water, need handrails
15 TOILETS

General design guidelines for public toilets include:

- Must meet EPA requirements
- Design must meet Hume City Guidelines and Standards for Building Construction
- Sited and designed to maximise safety and casual surveillance
- Provision of security lighting
- Accessibility for people with access issues
- Must be designed to blend in with the surrounding landscape
- View lines to and from the facility not to be obscured by plantings
- Composting toilets will be considered in suitable, natural environment settings
16 BRIDGES

The construction of bridges over water features is not encouraged. All bridges over waterways must conform to Melbourne Water requirements and be designed for long term durability, minimum maintenance requirements and public safety.

- Preference is for concrete and steel construction
- All surfaces to be anti-graffiti coated

Figure 21 A bridge over a waterway
17 ENTRANCE FEATURES, DECORATIVE ROCK WALLS AND RETAINING WALLS

- The placement of entrance features is restricted to the entrance of each estate. Entrance features are not permitted at the entrance of individual stages.
- Entrance features must be designed for long term durability and low maintenance. Garden beds are to be used minimally.
- All decorative rock walls and retaining walls must be in accordance with current building regulations.
- For decorative and retaining walls requiring building permits, permits must be supplied to Council before handover.
- All decorative and retaining walls must be designed for long term durability and should require no maintenance.
- All retaining walls are to be constructed in rock or concrete. No timber to be used.

Figure 22 Decorative rockwork
18 BUS STOPS

As a minimum all bus stops must have the following:

- Hard surface access and waiting areas
- Pole with bus stop identifying flag
- Information on bus services serving the stop
- Shelter
- Seating
- Lighting
- Be located in a well-lit area with good surveillance
19 APPENDICES

Appendix 1  Plant installation
Appendix 2  Irrigation details
Appendix 3  Kickabout area construction detail
Appendix 4  Playspace design checklist
Appendix 5  Path construction details
Appendix 6  Bollard and fencing details
Appendix 7  Park furniture details
Appendix 8  Signage guidelines
Appendix 9  Shelters and gazebos
Appendix 10  Water features and wetland details
Appendix 11  Recommended species list
Appendix 12  Guide to revegetation in Hume with indigenous species
Appendix 13  New asset inspection sheet
Appendix 14  List of indigenous plant suppliers
Appendix 15  Landscape treatments table
Appendix 16  List of referral documents
Appendix 17  Hume City Council Vegetation Protection Policy