INTRODUCTION

This technical manual was first produced in 2009 as a response to the major planning initiative for the Blue Mountains – *A Map for Action 2000-2005: Towards a More Sustainable Blue Mountains*. The map for Action sets the direction for the Blue Mountains until 2025. Prominent in its themes is the emphasis on better quality design: “*Innovative urban design promotes sustainable living and creates inspiring places that enhance the distinctive qualities of Blue Mountains towns and villages*”.

This Manual – a series of product and construction details - has been developed as a tool to aid BMCC fulfill the Map’s targets and manage the city’s many and varied physical assets across the towns and natural areas of the local government area by:

- Establishing product and construction standards for the public domain
- Limiting and coordinating the range of assets to achieve a better balance of unity and diversity, and a higher urban design standard across the city
- Improving robustness and durability of both products and materials
- Improving efficiency in the upholding of maintenance standards.

This fourth edition of the Technical Manual demonstrates a change of format to a loose-leaf folder arrangement in order to more easily manage additions to the manual. Regular users who have hard copy should verify their edition against the table of contents in the on-line version (which can be accessed [here](#)).

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Sheet Format:

The Public Domain technical sheets are provided in a consistent graphic format to aid use and interpretation:

**Guideline Reference Number:**
- P – Pavement guideline
- 4 – Number four guideline for pavements

**Guideline Name**

**Representative Image:**
Image of the recommended treatment in a similar application provided as a broad reference.

**General Plan Information:**
Key design principles are provided in plan form. They serve as an example for site-specific design.

**Location:**
Appropriate locations and settings for use of the specific guideline treatment.

**Principles:**
Summary of key principles important for application in design development and implementation.

**Materials:**
Summary of main materials components including supply details where applicable.

**General Technical Information:**
General application of key installation requirements for preparation, installation, fixing and finishing. Provided as an example for site specific application.
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**New to this edition**

- Introduction
- Standard Format

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June 2015
### Part 2: Natural Areas, Parks and Reserves

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Public Domain Technical Manual

Part 1: Town & Village Centres
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P6 Shared Standard Footpath
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P8 Asphalt Path
P9* Standard Concrete Path – Town Centre
PAVEMENTS

Stretcher Bond
- Commonly used to footpath situations where length exceeds width
- Lay perpendicular to direction of pedestrian flow

Basket Weave
- Often used to more open areas to paving to avoid direction emphasis
- Enhances visual detail and interest
- Useful where paving needs to turn corners

Herringbone
- Often used to more open areas of paving to avoid directional emphasis
- Enhances visual detail and interest
- Useful where paving needs to turn corners

Kerb
- Single Header Course
- Brick paving pattern as applicable
- Double header course adjoining shop front to maintain constant alignment

Principles:
- Small format paving provides different identity to metropolitan town centres
- Earth tones of quality dark paver complement bushland setting
- Potential to use design layout variations for design effect
- Brick paving not to be used to gradients over 1:v:14[h] – use brick header course and asphalt pavement infill in these situations [refer P3]

Materials:
- 230x110x50mm “Blue” paver

CLAY BRICK PAVEMENT

Location:
To main street footpaths of Village Centres

Principles:
- Small format paving provides different identity to metropolitan town centres
- Earth tones of quality dark paver complement bushland setting
- Potential to use design layout variations for design effect
- Brick paving not to be used to gradients over 1:v:14[h] – use brick header course and asphalt pavement infill in these situations [refer P3]

Materials:
- 230x110x50mm “Blue” paver
PAVEMENTS

300x300 Sandstone Flag
600x300 Sandstone Flag

Typical Plan
Provide joint sealant to match sandstone over flexible jointing material
Kerb, wall or where no restraint provided provide edge thickening to slab

Nominal Gang Sawn
300x300 - 600x75mm
Sandstone flag laid in Flemish Bond
Mortar bedding course
Butt joints between paving units

Typical Cross Section
Reinforced concrete slab thickened at all pavement edges not contained by walling

SANDSTONE P2 PAVEMENT

Location:
* To new public spaces of high public domain significance
* Avoid use adjoining food provision or other uses generally where spillages and food waste occurs

Principles:
* Quality pavement treatment with strong contextual link to geology and early pavement treatments to sites

Location:
* 300 x 300 x 600 x 75mm Sandstone flags
* Gang Sawn Unbanded Stone, Eg. "Piles Creek", Pyrmont, "Yellow Block", Capricorn Gem
PAVEMENTS

ASPHALT P3
PAVER WITH CLAY BRICK HEADER COURSE

Location:
To main street footpaths of secondary villages, and secondary main streets in town centres

Principles:
- Cost effective pavement treatment
- Thematic link to fully paved streets through clay brick edging
- Quality asphalt finish through AC5 wearing course and concrete sub-base [to prevent settlement]
- Apply merit based assessment and according to engineer’s design

Materials:
- AC5 wearing course with 5% Carborundum additive
- Concrete sub-base
- 230x110x50mm “Blue” paver
PERMEABLE P5 PEDESTRIAN FOOTPATH
over structural soil (open graded asphalt)

Locations:
In town centres where Tree planting is adjacent

Principles:
- Must consider existing subsurface strata & hydrology
- Must be designed in conjunction with sub-surface drainage system
- Use in locations where appropriate tree planting (or other landscape treatment) may be used to polish stormwater.

Materials:
- 300-450mm depth of Benedict Sand & Gravel Structural Soil, or similar;
- 50mm open graded asphalt (no fines) as footpath surface;
- Permeable membrane;
- 10mm diam. Ag. Line with filter sock and 20mm aggregate backfill.

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NB. Structural soil must be installed exactly as per current guidelines/specification for it to be of benefit in reducing soil compaction.

Indicative Permeable Paving & Structural Soil Detail
Section
NTS
**PAVEMENT**

**SHARED STANDARD FOOTPATH**

**Location:**
- Must be considered in context of Strategic Footpath Planning and local Bicycle Network Plan.
- Must be planned from a whole route perspective

**Principles:**
- Refer to Austroads Standards Australia: Part 14 “Bicycles and Best Use Practice Standard”
- Width (2 or 2.5 M depends on funding source)
- Cracking joints spacing 1.5M max, expansion joints spacing 6M max.
- Final detailing will vary from site to site and be influenced by gradient, aspect and climate.
- Section detail will change at vehicular crossings

**Materials:**
- Concrete
- Clean fill
- Expansion joints to specification

2500mm wide RTA funded
2000mm wide BMCC standard

Path 100mm 20mpa concrete with broom finish, 50mm clean compacted subgrade.

Fall path to edges. Within softscape edge conditions install a 500mm rubble soak/ soil mix strip where achievable. Establish vegetation ontop of this.

Share Standard Footpath
Typical Section
NTS

Linear soak strip
Make good/ re establish vegetation/ turf.

Cracking joints spacing 1.5M max, expansion joints spacing 6M max.
PAVEMENTS

Where any disturbance to pavement occurs:
Saw cut along entire length of nearest undisturbed joint to each side of disturbance and remove pavement. Reinstall to match existing surrounding finish.
Where paving, banding or brick kerb is disturbed, remove full width of concrete footing and masonry and sufficient length to replace any affected pavers/bricks. Minimum length of footing and masonry to remove and replace is 800mm. Reinstall to match existing.

EXAMPLE ONLY

Where greater than 800, form additional control joint.

TYPICAL PRIMARY TREATMENT RECTIFICATION PLAN SCALE 1:100

10mm deep grooved control joints formed with standard finishing tool creating approx. 5mm radius edges at 800 centres
460 wide double paver banding laid close butted

10mm Deep control joint formed with standard finishing tool creating approx 5mm radius edges, at 800 centres. Where pavement is to be disturbed, saw cut to full depth at control joints only and reinstall to match original joint finish.

Bullnose brick kerb and header

TYPICAL PRIMARY TREATMENT SECTION SCALE 1:25

Location:
* In major pedestrian nodes. Refer to Katoomba Footpath Kerb and Gutter Treatment Masterplan PP01 for exact locations.

Principles:
* To repair pavements to their original condition and to match surrounding pavement by carrying out repairs in a defined and consistent manner.
* Removal and reinstatement of pavement is to extend to the nearest jointing or change in material in every direction.
* Dimensions, jointing and finish of reinstated pavement is to match original pavement as closely as possible.
* No extra joints are to be formed. Only whole masonry units are to be reinstated, except where replacing a unit previously cut to size.

Materials:
* Integral Coloured Concrete - Concrete Colour Systems 'Sandale' in grey cement. Cove finished with wooden float. Divided into 800mm x 800mm panels with formed control joints.
* Federation Blend standard dry pressed brick.
* Federation Blend bullnose dry pressed brick.
* Federation Red cobble paver.
* All bricks/pavers sourced from Namoi Valley Brickworks P/L.
**PAVEMENT DETAIL**

**ASPHALT FOOTPATH PLAN**  SCALE 1:20

Footpath may butt to natural surface or kerb, depending on site circumstances.

25mm AC7 over 100mm compacted DGB 20

Edging: Hardwood, treated pine, plastic lumber or galvanised metal 10 x 125mm.

**ASPHALT FOOTPATH SECTION**  SCALE 1:20

Footpath may butt to natural surface or kerb, depending on site circumstances.

1200mm wide or variable footpath

Edging: Hardwood, treated pine, plastic lumber or galvanised metal 10 x 125mm.

25mm AC7

Crossfall min. 1% to max. 2.5%

NOTE: On vehicle crossings use 30mm AC7 and 150mm compacted DGB 20.

**ASPHALT FOOTPATH**

**Location:**
- To residential streets and other locations outside centres of major towns.

**Principles:**
- Simple, robust and serviceable footpaths to areas outside major town centres.

**Materials:**
- Asphaltic Concrete 7
- DGB 20
- Edging material where necessary. Consider use of alternative materials such as plastic lumber or galvanised metal edge strips.
TYPICAL TREATMENT DETAIL
Exposed aggregate concrete with 1600mm joints or sawcuts.

VILLAGE CENTRE FOOTPATHS

Location:
- Centres other than Katoomba & Springwood
- Limited to town and village centre main streets

Principles:
- To provide a robust, slip resistant surface which can be easily repaired
- Rectification of footpaths must be as per P7

Materials:
- Integral Coloured Concrete Systems (CCS) to colour specified by BMCC Urban Designer in consultation with Asset Manager
- Exposed aggregate finish lightly washed or sand blasted.
- Divide into 1600mm x 1600mm saw cut panels as shown
- Aggregate as per specification
- Coordinate saw cuts with expansion joints
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K2  150mm Concrete Kerb and Gutter
K3  Concrete Pram Ramp
K4  Concrete Vehicular Crossing – Commercial & Town Centres
K5  Concrete Vehicular crossing – Residential
K6* Road Threshold Treatment – Town Centre
KERBS AND DRAINAGE

Location:
To all village centres

Principles:
- Provide plain concrete kerbs (no colouring – including white) to applicable streets.
- Hand forming of kerbs is preferred to extruded construction where it is necessary to achieve the preferred kerb profile.
- Ensure square corner at back of kerb with minimum rounding (5mm radius max.)
- Optional use of 200mm wide precast concrete kerb on concrete base (e.g. to heritage precincts).
- Provide site specific installation detail.

Materials:
- Where a decorative finish is required lightly abrasive blast kerb surface to expose aggregate – coordinate with pavement.
- 25 Mpa generally.
KERBS & DRAINAGE

150MM K2 CONCRETE KERB & GUTTER

Location:
To residential areas.

Principles:
Standard concrete kerb treatment

Materials:
Concrete to AS 3600 1994

Typical Cross Section: 150mm Concrete Kerb & Gutter NTS

Typical Cross Section: 150mm Concrete Kerb only NTS
**Principles:**

* Incorporate kerb ramps to streetscapes as warranted and informal pedestrian crossing points
* Kerb ramps to meet disabled access requirements with maximum grade to any pedestrian trafficable surface of 1:8 minimum grade
* Provide color contrast to brick and asphalt pavements

**Materials:**

Broom finished concrete

All concrete works to be in accordance with AS3600 : 1994

**Location:**

* To brick paved or asphalt footpath as applicable
* To crossing points in residential areas
KERBS AND DRAINAGE

ELEVATION

PLAN

SECTION A-A

Note: All commercial and industrial layback crossings to have one layer of F72 reinforcing mesh centrally located.

Concrete strength to be 32 MPa

LOCATION:
* To driveway crossings across footpaths in Town Centres

PRINCIPLES:
* Standard treatment at all driveway crossovers

PRINCIPLES:
* Concrete crossing
* Driveway:
  - To brick paved or asphalt footpath:
    - Interlock pavement as per 3.3 Pavement - Materials Principles
  - To nature strip / concrete paths:
    - Concrete driveway
KERBS AND DRAINAGE

ELEVATION

PLAN

SECTION A-A

CONCRETE VEHICULAR CROSSING - RESIDENTIAL

Location:
- To driveway crossings across footpaths

Principles:
- Standard treatment at all driveway cross overs

Principles:
- Concrete crossing
- Driveway:
  - Brick paved or asphalt footpath:
    - Interlock pavement as per 3.3 Pavement - Materials
  - Concrete driveway

Note: All commercial and industrial layback crossings to have one layer of F72 reinforcing mesh centrally located.

Concrete strength to be 25 MPa

F72 reinforcing mesh for commercial and industrial crossings

150
150
450
450

7.3m for users (adjacent blocks)
5.5m for parks, lanes, rights of way etc.

length = 3m for single user

mastic joint

mastic joint as required

lip of gutter

mastic joint

150
450
150
450

450
450

150
450
150
450

150
450
150
450
Indicative cross section: Stamped asphalt threshold

Notes:

- Each site must be assessed on merit and subject to specific engineering design, as circumstances will vary.
- Each element must be designed for robustness, durability, slip resistance and low maintenance.
- Changes in pattern and material colour will define different areas and edges within the zone.
- Colour coordinate with other elements within the town streetscape.
- Stamping is preferable to stenciling to provide a durable and textured surface that is legible to both drivers and pedestrians.
- Pattern should be simple. Stretcher brick pattern is preferred.

Location:
Shared Zones in town and village centres

Principles:
- Refer to RMS ‘Shared Zone Policy & Guidelines’.
- Pavement surface should highlight that there is a change in road environment.
- Pavement surface must be clearly distinguishable by colour, texture and materials.
- Surface is designed to be robust and durable

Materials:
- Concrete for slab base and edges to relevant standard.
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F10 Flagpole
F11 Major Bus Shelter
F12 Minor Bus Shelter
F13* Street Balustrade
F14* Planter & Seat
FURNITURE

Min. setback from face of kerb for light poles and signage applied consistently to street corridor

Pedestrian street lighting poles where applicable

Tree pits in pavement at 20m nom. centres, refer guideline PL1

Rubbish bin refer guideline F5

Pedestrian street lighting poles where applicable

Min. setback from face of kerb

Pavements refer guidelines P1- P4

Seat furniture refer guideline F3 & F4

Street light

Rubbish bins set back 750mm from face of kerb and 750mm from edge of kerb ramp

GENERAL FURNITURE ARRANGEMENT

Location:
To all Village Centre streets

Principles:
- Placement and spacing of furniture should relate to functional requirements
- Street furniture elements should be set out as part of an integrated streetscape design scheme
- Light poles and signage to have a minimum of 800mm clearance from face of the kerb
- Kerbside furniture elements alignment 750mm from face of kerb
- 2 metre minimum clear line of pedestrian travel preferred along shopfront

Materials:
Refer to individual street furniture guidelines
ON STREET TRADING

Location:
Where appropriate and where on street trading licenses / leases apply

Principles:
- Every situation should be addressed on its merits with flexibility in applying standards where site specific conditions demand
- Trading out to street footpaths limited to maximise consistency of clear path of pedestrian travel
- Footpath outdoor seating areas to maintain 2m minimum width clear path of pedestrian travel between edge of seating areas and alignment of street lighting poles / furniture or kerbline where no vertical obstructions occur

Materials:
Not applicable
FURNITURE

BACKED F3A SEAT ARRANGEMENT

Location:
To village centre footpaths and other central public spaces where a seat style has NOT been selected (refer F3b “Town Seat Schedule”).

Principles:
• Seat style can be a major expression of village identity & diversity. Scope must be allowed for active Village Associations & Chambers of Commerce to select.
• Where there is no village preference for a seat style, the default option from the seat schedule – F3b – is required.
• Install seats to street footpaths in kerbside furniture alignment (750mm from face of kerb)
• Maintain 2 metre min. clearance from building frontage to seat.
• Seats & other furniture to be set out as part of coordinated streetscape design integrated with pavement, crossovers, street trees and lightpoles.
• Do not install seats lengthways to grades over 1[v]:25[h].
• Seats must be installed & fixed to manufacturer’s specification.
• Where the armrest is optional, evaluate on user demographic i.e. high elderly presence.
**FURNITURE**

**Note:** While particular products listed are the preferred models, manual users may find products that are equal or equivalent to those listed – consult with BMCC’s urban designer. Manual users are encouraged to canvass a range of suppliers for best prices.

### TOWN SEAT SCHEDULE

**F3b**

### DEFAULT

For use where communities do NOT have an organized preference for a seat style within a town or village centre. To be coordinated with bench model as needed.

- **SFA Galleria seat ©**
  - Seat Type: CMG101
  - Size: Standard
  - Leg type: Splay
  - Batten: Jarrah
  - Finish: Cast aluminium powder coated black
  - optional arms – angle armrest AM2 - detachable
  - (Note: armrests preferred where an elderly demographic indicates)

### BLACKHEATH

- **Furphy Foundry: Premier Seat © Village name cast into frame**
  - Ends: GOV13E
  - Slats: Hardwood timbers
  - Length: 1.9M
  - Attachment: Boltdown
  - Finish: Powder coat Black
  - Modification: Seat End Strengthener in high vandalism areas
### ECHO POINT

Town & Park Furniture:
- Timber & Aluminium Metro table seat © model TSSD/T
- Slats: Select grade hardwood eco-timber planking
- Attachment: Surface post mounted with bolt-downs

Town & Park Furniture
- SSD/T Metro Seat ©
- Timber & aluminium dual assembly (surface post) with armrests
- Slats: Select grade hardwood eco timber 2000mm long
- Ends: Powder coated silver
- Attachment: Surface mounted, bolt down

### GLENBROOK

Combined seat & planter custom made by BMCC, maintained by Glenbrook Chamber of Commerce

### KATOOMBA

Emerdyn Mall Seat © em001
- Hardwood slats
- Sub surface or in-ground fixing
- Hot dip galv. Steel under-frame powder coated
- Arms optional

### KATOOMBA - CARRINGTON PARK and other formal parks

Botton & Gardiner
- Bench Seat 9 External BS9aX ©
- Cast Aluminium frame
- Powder coat black
- Jarrah slats, exterior oil
- No arms
- Wall mounted
Botton & Gardiner
Bench Seat 9 External BS9aX ©
Cast aluminium frame
Powder coat black
Jarrah slats, exterior oil
With optional arms
Fixing to match existing

Backed seat (optional arms where an elderly demographic supports)
Botton & Gardiner

Product Code:
Size:
Leg Type:
Batten:
Finish:

LAWSO

SFA Galleria seat ©
Seat Type: CMG101
Size: Standard
Leg type: Arch
Batten: Jarrah
Finish: Cast aluminium
optional arms – angle armrest AM2 - detachable
(Note: armrests preferred where an elderly demographic indicates)

LEURA

Emerdyn
Product Code: em009 ©
Size: 1800
Fixture: 4 bolt points
Battens: Jarrah 20mmx25mm
Finish: Hot dip galv. & powder coated
**SPRINGWOOD**

SFA Galleria seat ©
Seat Type: CMG101
Size: Standard
Leg type: Splay
Batten: Jarrah
Finish: Cast aluminium powder coated black
Armrests optional - detachable are strongly preferred

**WENTWORTH FALLS**

Furphy Foundry: Council Seat © Village name plate attached to arm
Ends: GOV3
Slats: Hardwood timbers
Length: 1.8M
Attachment: Boltdown
Finish: Powder coat Claret 32774
Modification: Seat End Strengthener
Indicative Seat Installation
Section NTS

Location
Applies to all seat installations.

Principles
• Comply with all relevant Australian Standards and OH&S Guidelines.
• Make good edges of work to eliminate trip hazards
• Town centre locations must be adapted to maintain continuity of paving

Materials
• Seat selection for circumstances and location
• Seat mounted on concrete slab with trowelled-in oxide colour topping as selected in consultation with Parks Program leader or Urban Designer

FURNITURE

SEATS: 4a
STANDARD INSTALLATION

Finished slab level flush with existing groundline.
If existing groundline on a slope, grade earth evenly to meet proposed slab
Make good existing condition to seat edge
i.e. re-establish existing grass
Seat fixing to manufacturers/engineers specification
100mm overlap of hardstand to back and sides of seat edges
Minimum 600mm hardstand to front edge of seat

Provide arm rests for all installations as a DDA requirement unless seat is used in a table setting
Seat fixing to manufacturers/engineers specification
Select mounting options to suit circumstances and location
Finished seat level to be between 400 & 500mm above slab level
Restore soil level to eliminate trip hazards at slab edges

Fall slab between 1:60 & 1:80 draining to back of the seat
100mm reinforced concrete slab to manufacturer's/engineer's specification, with trowelled-in coloured topping
75mm clean compacted subgrade to specification

Indicative seat placement
Plan NTS
Park Seat
Typical section
NTS

Armrests: Armrests are a DDA requirement unless seat is used to create a table setting.

Leg Support: Cast Aluminium Powder Coated*

Mounting: Surface or Subsurface depending on site

Slab/seat relationship: as per detail F4a. Ensure seat is mounted level.

Location
To areas outside of town centres including high vandalism areas.

Principles
• Maintain 2m minimum radius clearance to other furniture & planting & coordinate locations & orientation in the setting.
• Do not install lengthwise in locations where gradients are greater than 1:35
• Make good to edge of slab to minimize/eliminate trip hazards as per detail F4a

Materials
• Street Furniture Australia PS7-DDA, 1.8M long
• Seat Battens: 85x30mm eco certified oiled h/wood
• Concrete slab base with trowelled-in oxide colour topping as selected in consultation with Parks Program leader or Urban Designer
**Principles:**

- Install bins to street footpaths in kerbside furniture alignment (750mm from face of kerb)
- Maintain 2 metre minimum clearance from building frontage to bin
- Install bins to practical locations to service access junctions and outdoor seating areas in close proximity to maintenance access
- Bins and other furniture to be set out as part of coordinated streetscape design integrated with pavement, crossovers, street trees and light poles
- Gossi Park Bin is preferred model where vandalism is likely to occur

**Materials:**

- Equal or equivalent to Gossi Park Bayside Bin 120L
- Frame Colour: Olive Mist (Gloss enamel)
**FURNITURE**

Colorbond steel sheet of two colours cut so that "Waratah" motif reads as: Flower: top section - Colorbond "Headland" Stems and leaves: lower section - Colorbond "Cottage Green"

NOTE: Apply Dulux Quiet Rust All Metal Primer to manufacturers directions, prior to painting or repair of any metal surfaces.

Retrofitted colorbond steel sheet fixed to inside of panel to strengthen both cutout sides of bin enclosures. Six vandalproof nuts and bolts per panel.

Note : Mounting as per detail F5a

**SIDE ELEVATION**

**RUBBISH BIN RETROFIT**

Location: Katoomba Street

**Principles:**
- To strengthen the cutout side panels of the Katoomba St bins an additional steel panel coloured to enhance the waratah motif will be fixed to the inside of the motif panels

**Materials:**
- Katoomba bin with perforated motif
- Frame - Dulux colorbond - Jasper (Gloss Enamel)
- Internal strengthening sheet of colorbond (2 per bin) in - Headland (Top colour - Gloss Enamel) Cottage Green (Bottom colour - Gloss Enamel)
- Fixing - 6 vandalproof bolts & nuts per panel
FURNITURE

LAWSON RUBBISH BIN

Locations:
Lawson Town Centre

Principles:
- Provide a place specific bin which displays the chosen motif of the town
- Links to existing themes and materials used elsewhere
- Install bins to street footpaths in kerbside furniture alignment (750mm from face of kerb)
- Maintain 2 metre minimum clearance from building frontage to bin
- Install bins to practical locations to service access junctions and outdoor seating areas in close proximity to maintenance access
- Bins and other furniture to be setout as part of coordinated streetscape design integrated with pavement, crossovers, street trees and light poles

Materials:
‘Katoomba’ bin with ‘Lawson’ laser cut motif

Frame- Dulux colourbond- Jasper (Gloss enamel)

Internal strengthening sheet of colourbond (2 per bin) in Charcoal

Fixing- 6 vandalproof nuts & bolts per panel.
**TRADITIONAL BOLLARDS**

**Principles:**
- Install bollards to street footpaths in kerbside furniture alignment (750mm from face of kerb) where applicable
- Provide bollards to reinforce pedestrian holding points at intersections
- Provide bollards to limit / control vehicular access to at grade access areas
- Provide removable bollard fixings to areas as applicable to enable removal for special events
- Provide surface or subsurface fixing as applicable and in a consistent basis across town localities

**Location:**
Village Centres where required

**Materials:**
Street Furniture Australia B4 Bolard or equivalent - Dulux “Charcoal” Powdercoated Aluminium finish

Footing design may vary depending on context

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**Typical Plan : Typical Bollard Provision to Entry Threshold Nts**

**Indicative Bollard Fixing**
**Sub - Surface Mounted Nts**

Chemical anchors to secure bollard with 4 x M 12 with Min penetration to footing 90mm stainless steel domehead nuts secured with "Locktite"

Mass concrete footing to project specific engineering requirements or 500 x 500 x 600mm deep

**Indicative Bollard Fixing**
**Surface Mounted Nts**

Note: In this image installation is adapted to street gradient
Indicative steel bollard detail:

Notes:
Steel finish type to suit setting (see Materials)
Bollard to be concrete filled for heavy duty situations

Location
Village centre carparks where a non-traditional style is required

Principles
- Provide bollards to reinforce pedestrian/vehicle separation at key locations
- Provide bollards to limit/control vehicular access to at-grade pedestrian areas
- Provide removable bollards as applicable to enable removal for special events
- Provide surface or subsurface fixing as applicable
- Reflective strips may be added as required

Materials
Standard pipe bollards, generally 150mm dia. with cap.

Formal settings: Use stainless steel finish.
Town centres: Use brushed steel finish.
Carparks: Use galvanized steel finish
NOTE: Consultation must be undertaken with other internal stakeholders before installation to determine location, spacing and extent.

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RECYCLED PLASTIC BOLLARDS

Location
Out-of-town areas and local parks where required

Principles
- Install to footpaths and parks where separation is required between pedestrians and vehicles
- Provide to limit or control vehicular access to natural areas as required
- Provide surface or subsurface fixing as required

Materials
Replas square grey bollard or equivalent
Reflectors quantity, colour and orientation as required depending on location
FURNITURE

'Cascade Drinking Fountain'—Proprietary item as specified by BMCC

Chemical anchors to secure bubbler with 4 x M12 chemical anchors. Minimum penetration to footing 90mm or as specified by manufacturer. 90mm hot dip galv dome head nuts secured with 'Locitite'

Water inlet to hydraulic engineer/plumber specification

Footing to engineer/manufacturers specification

Location:
To parks where intensity of usage and demographics justify

Principles:
• Wheel chair accessible model generally preferred.
• Optional dog bowl & tap preferred
• Install adequate drainage.
• Locate rubble pits in low or non foot traffic areas well away from bubbler.
• Maintain 2 metres minimum radius clearance to other furniture and planting & co ordinate location and orientation in the setting.
• Do not install in locations where gradients are greater than 1:20

Materials:
Furphy Foundry
GOV64 WCA Wheel Chair Accessible Bubbler © or equivalent
Dog bowl & self-closing tap
Powder coat 'Pale Eucalypt' S4221

BUBBLER F7a

Location:
To parks where intensity of usage and demographics justify

Principles:
• Wheel chair accessible model generally preferred.
• Optional dog bowl & tap preferred
• Install adequate drainage.
• Locate rubble pits in low or non foot traffic areas well away from bubbler.
• Maintain 2 metres minimum radius clearance to other furniture and planting & co ordinate location and orientation in the setting.
• Do not install in locations where gradients are greater than 1:20

Materials:
Furphy Foundry
GOV64 WCA Wheel Chair Accessible Bubbler © or equivalent
Dog bowl & self-closing tap
Powder coat 'Pale Eucalypt' S4221
FURNITURE

BICYCLE RACK F8

Location:
Used at high intensity sites such as rail stations and aquatic centres where multiple racks and longer stays are required.

Principles:
- Must be coordinated with location of other furniture and fittings
- Mounting may vary according to circumstances, but security of mount must be a high priority

Materials:
Securabike © CBR65C or equivalent

Slab should have have a fall between 1: 60 & 1: 80 draining to the back of slab or into existing drain.

Bike rack to be fixed according to manufacturers/ engineers specification
100mm reinforced concrete slab or similar to engineers/ manufacturers specification
75mm clean compacted subgrade to specification

Indicative Bike Rack Rail Placement
Section NTS

Hardstand to extend past the rack by 100mm at the back & both sides.

Finished slab level flush with existing groundline. If existing groundline on a slope, localise mounding adjacent to edge to meet the proposed slab. Make good existing condition to seat edge i.e. re establish existing grass

Bike rack to be fixed according to manufacturers/ engineers specification

Hardstand or similar to proprietors/ engineers standard

NB. Bikerack placement must be carefully coordinated with other street furniture/ fixtures
FURNITURE

BICYCLE HITCHING RAIL

Note: narrow model preferred

Location:
To town and village centres where space is limited. More than one may be used.

Principles:
- Where short to medium term parking is required
- Must be coordinated with location of other furniture and fittings
- Mounting may vary according to circumstances, but security of mount must be a high priority

Materials:
Securabike BR475B or equivalent in stainless steel

Bicycle fixing post to located a minimum of 600mm from built structure or garden bed.

Concrete hardstand to extend a minimum of 300mm past post to prevent cracking

Fixing to manufacturers/ engineers specification
100mm reinforced concrete slab or similar to engineers/ manufacturers
75mm clean compacted subgrade to specification

Finished slab level flush with existing groundline. If existing groundline on a slope, localise mounding adjacent to edge to meet the proposed slab. Make good existing condition to slab edge i.e. re establish existing grass

NB In locations where hitching rail is mounted parallel to building frontage etc, make sure the footpath and applicable lines of travel are not obstructed.

Hardstand should extend past hitching rail by 500mm on either side.
FURNITURE

FLAGPOLE F10

Location:
In town & village centres in locations where flags are required for ceremonial purposes and on formal occasions.

Principles:
- Locations need to be carefully coordinated with other fittings and street features
- Allow adequate space for ceremonial occasions around flagpole

Materials:
Tapered aluminum pole with anodized finish, internal and lockable halyard
**MAJOR BUS SHELTER**

**TYPICAL FRONT ELEVATION**

THREE PANEL BUS SHELTER *(no. of glass panels along rear wall)*

- 10mm toughened glass rear wall panels fixed to frame via brackets and patch fixings
- 10mm toughened glass side walls with aluminium “C” channel protection to all edges
- Cross member seat support, 150 x 50 x 6 RHS
- Concrete footings to structural engineer’s certification

**TYPICAL SECTION**

- Rafters, “T” section steel, tapered
- Support fin, angle steel
- 10mm toughened glass end panels, aluminium “C” channel to edges, fixed to support fins via patch fixings
- Timber seat
- Support fin, angle steel
- Top of footing forms pavement surface

**TYPICAL PLAN (3 PANEL)**

- Alucobond © 4mm thick roof sheeting supported on tapered steel rafters
- Concrete footings to structural engineer’s certification

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**Location:**
- In accordance with State Transit “Bus Stop Style Guide”
- In consultation with local bus companies
- In major town centers only
- In areas of excellent night lighting & high surveillance
- Where clear sight lines and minimum vegetation can be maintained, especially at rear

**Principles:**
- Standardized fabrication materials and details for a range of widths.
- Shown here as a “3 panel” shelter. BMCC have detailed drawings for a range of panel widths (2, 3, 6 and 8 panels).
- Standard footing design by structural engineer for all widths, foundation types and wind loads.
- Top of footing is finished floor of shelter where practicable
- No advertising to glass panels
- All glass faces protected by sacrificial clear anti-graffiti film
- Cut out section of film to fix bus timetable information to back face of rear glass panel
- Drain roof water from downpipe to garden bed, turf or street gutter as appropriate. Ensure no water flows onto concrete floor within shelter area.
DETAILS

RANGE OF LENGTHS

2 PANEL  
(length = 2.2m)

3 PANEL  
(length = 3.4m)

6 PANEL  
(length = 7.0m)

8 PANEL  
(length = 9.4m)

Notes:
1. “PANEL NUMBER” (eg, 2, 3, 6 and 8) refers to the number of glass panels along rear wall
2. “LENGTH” is the distance between the inside faces of the corner posts
3. Other lengths can be obtained by adding bays. The maximum length between support posts is 3400mm
4. Full fabrication drawings and specifications for this range of bus shelters and a Small Bus Shelter (see sheet F12) are available from the BMCC Principal Urban Designer

Materials:
- Structural Steel:
- Posts and base plate hot dipped galvanized.
- Remainder of steelwork not galvanized
- Roofing:
- Alucobond © sheet (4mm aluminum composite)
- Glass:
- 10mm toughened glass with beveled edges
- Proprietary stainless steel patch fixing
- All glass panels to be the same dimensions and fixing hole locations
- Clear Anti-Graffiti Film:
- Apply to both sides of glass except where bus timetable information is fixed.
- Glass Scratch Removalists 1300 858 835
- Seats
  Jarrah slats, 70 x 30mm, exterior oil finish
  Cast aluminum seat brackets
- Paint System:
  All steelwork painted with Dulux ACRATHANE ® IF system (High gloss acrylic finish) to Dulux Data Sheet PC218 requirements
- Colour: To match Dulux Charcoal Pearl 18796
- Full fabrication drawings and specifications are available from BMCC Principal Urban Designer
Notes:
1. Detailed drawings and specifications for this small bus shelter and a range of larger bus shelter lengths are available from BMCC Principal Urban Designer.

Location:
- In accordance with State Transit “Bus Stop Style Guide”
- In consultation with local bus companies
- In town and village centers
- In areas of excellent night lighting & high surveillance
- Where clear sight lines and minimum vegetation can be maintained, especially at rear

Principles:
- Standardized fabrication materials and details.
- No advertising to glass panels
- All glass faces protected by sacrificial clear anti-graffiti film
- Cut out section of film to fix bus timetable information to back face of rear glass panel
- Drain roof water from downpipe to garden bed, turf or street gutter as appropriate. Ensure no water flows onto concrete floor within shelter area.

Materials:
- See Major Bus Shelter (F11)
- Full fabrication drawings are available from BMCC Principal Urban Designer
Note: Full fabrication and installation drawings and laser cutting files can be obtained by contacting Council's Urban Designer.

STREET F13
BALUSTRADE

Location
To town and village main streets where control of pedestrian desire lines is a high priority

Principles
• Balustrade design will be specific to individual towns
• Must only be used where control of pedestrian desire lines is a high priority or to quarantine outdoor dining areas from vehicles

Materials
Mild steel post and laser-cut panel, galvanized and powder-coated.
All connections fully welded.

Frames fabricated from mild steel. Top rail from 50x13mm ‘D’ section with D to upside. Side and bottom rails from 40x10mm flat bar

Infill panels in one piece, laser-cut from 8mm mild steel sheet. Minimum variable width of panel profile 25mm. Panel welded to frame.

Support Post Type 2.
50x50x5mm mild steel square section post, 810mm high, mounted on support shoe

Main Support Post Type 3.
150x150x6mm mild steel square section post, 850mm high, mounted on support shoe

Note: All connections fully welded. Panels and posts to be galvanised after fabrication and finished with black powdercoat paint finish. Sharp metal edges to be removed

PANEL ELEVATION
NTS
Location
For village centres and localities where space & gradients permit

Principles
- Gradients must be no more than 1:35
- There must be an identified need for seating and improved amenity

Materials
- Concrete planter by Hanson Concrete or equivalent, light sponge coat finish, colour tba
- Hardwood timber slats, 80mm wide x 40mm (min) deep, fixed to steel angle from below
- Seat supports from galvanized steel angle as shown, fixed to planter via chemical anchors
- Natural stained finish to timber slats
CONTENTS

*New to this edition

Planting – PI

PI1 Street Tree Planting in Pavement
PI2 Street Tree Planting in Linked Pits with Structural Soil
PI3 Street tree Planting in Grass verge
PI4 Street Tree Barrier
PI5 Temporary tree Staking
PI6 Porous Grout Around Trees
PI7 Garden Bed Planting
PI8 Planter Boxes
PI9 Planting mixes, fertilisers & Mulch Schedule
PLANTING

1200mm minimum where services constrain
Pedestrian pavement refer guideline P1-4
Header course edge to tree pit
75mm depth crushed granite gravel mulch surfacing
Staking or street tree barrier if required refer guideline PL4 and PL5
4000mm nominal (1500 min where existing services constrain) - provide link channel where services allow as per guideline PL2
Extant of preferred tree pit excavation 400x2000x1000mm with structural soil - 12 cubic meters, refer PL2

Typical Plan - Kerbside Tree in Clay Brick Paving

Street Tree Planting in Pavement

Location:
Street trees in streets with hard paved footpaths zones where linking pits is not feasible

Principles:
- Street tree planting should adhere to recommendations of Street Tree Masterplan
- Street trees species to be approved by Council
- Continue tree planting along entire street blocks and where applicable integrate with existing planting themes
- Mature existing trees should be subject to a programme of replacement as required due to aboricultural lifespan, to ensure tree canopy to street corridors is maintained

Materials:
Refer to PL3 for structural soils, PL4 for planting mixes and mulches and PL5 for tree guards

Note:
- Structural soils refer PL2 and PL6
- Edge detail will vary according to circumstances - refer to paving detail
PLANTING

STREET TREE PLANTING IN LINKED PITS WITH STRUCTURAL SOIL

Location:
To new street tree planting within paved footpath areas where services allow

Principles:
- Provide structural soil treatment to new planting pits where feasible within paved footpath areas, to overcome limitations of organic mixes to support, pavement above tree pit (paving traditionally limited to outside tree pit opening area)
- Where services allow, connect street tree planting pits with a water permeable channel along the inside of the kerbline (1000x500mm) backfilled with structural soil
- Where services allow deep rip subsoil to sides and bottom of tree pit prior to backfilling with structural soil mix

Materials:
Refer cross section and specification notes this sheet
PLANTING

TYPICAL PLAN:
TREE PLANTING IN GRASS VERGE

- Footpath Pavement
- Concrete kerb and gutter
- 75mm Pine bark mulch
- Note: Tree pit to take up full width of turf
- Staking or guard as necessary - Refer Guideline PL4 or PL5
- Timber edge 50 x 38mm
- Property boundary
- Turf ed verge

Location:
Street trees in residential areas

Principles:
- Street tree planting should adhere to recommendations of Street Tree Masterplan
- Street tree species to be approved by Council
- Continue tree planting along entire street blocks and where applicable integrate with existing planting themes
- Mature existing trees should be subject to a programme of replacement as required due to abiotic/cultural lifespan, to ensure tree canopy to street corridor is maintained.

Materials:
- Refer to PL3 for structural soils, PL4 for planting mixes and mulches and PL5 for tree guards
PLANTING

STREET TREE BARRIER

100 x 100 Hardwood timber post. Top of post to have bevelled edge 10mm

10 mm galvanised steel rod thread to both ends and domed head nut to each end 2 rods per side

75 x 50 Hardwood timber rail partially mortised into post

Painting: Fully sand all exposed surfaces 2 coats of wood oil

LOCATION:
Where trees are likely to be vulnerable to trampling or run over by cars

PRINCIPLES:
- Provide unified street tree barrier treatment to entire LGA
- Tree staking should be removed at a maximum of 5 years from tree installation
- Pavement context - busy public spaces where young trees may require protection

MATERIALS:
- Hardwood timber, 10mm galvanised steel rod and thread, proprietary wood oil

Note: Tree barrier to be centred in both directions on tree.
PLANTING

Height of hessian tie double stapled to stakes at half to two thirds height of trunk

50 x 50 hardwood stake

Ground level

Ensure base of stake is cut to ensure minimum of profile shown

Section

45 deg

1200

850

150

Typical plan

Location:
As required

Principles:
* Provide unified staking treatment to entire LGA
* Tree staking should be removed at a maximum of 3 years from tree installation

Materials:
Hardwood stakes and hessian ties
PLANTING

Location:
As deemed appropriate around trees in a paved context

Principles:
* Provide unified tree treatment to entire LGA

Materials:
Proprietary porous grout such as xxxx, 10mm diameter washed Nepean river gravel

Porosity and permeability of the porous grout should be considered when selecting the type of material. The grout should be installed in a manner that allows for adequate drainage and air movement around the tree trunk. The depth of the porous grout should be consistent and the width should be determined by the specific tree and site conditions.

Footpath
pavement

Typical Plan - Kerbside Tree In modular Paving With Porous Grout - Gravel Mulch Nts

75mm depth of 10mm diam. Nepean river gravel blended with proprietary porous grout prepared to manufacturers instructions. Installation to suit individual tree situation to be determined on site.

Where trunk is regular in section a gap of 50mm extra to the trunk in radius shall be left to allow for growth. A uniform template shall be used around the inner edge of the porous grout as a temporary form.

Kerb

Typical Plan - Kerbside Tree In modular Paving Nts
PLANTING

Planting should be maintained to avoid plants extending out across footpath or extending in height above 800mm.

75mm mulch layer for moisture retention & weed suppression.

Rip subgrade to 150mm depth.

Note: Level of beds to follow grade of existing road surface.

Typical Cross Section: Kerbside gardens

Footpath pavement

Finished mulch level to be below adjacent pavement surface

Mulch

Kerbside garden bed

Compacted subbase to footpath pavement

Thickened concrete slab edge to all garden beds site specific engineers detail to be provided.

Typical Cross Section: Pavement edge to kerbside gardens

Nts

GARDEN BED PLANTING

Location:
Streets as appropriate where the existing footpath width is greater than 2400mm and minimum clear line of pedestrian access of 2000mm can be maintained.

Principles:
- If street garden bed planting is appropriate as a component of specific centre character, incorporate in ground garden beds in preference to planter boxes or pots.
- Reinforce definition of entry points and thresholds with street garden beds.
- Ensure that the finished level of garden bed grade is below adjacent footpath levels to avoid excess mulch or water dispersal onto gardens and pavements.
- Consider ongoing maintenance of street garden beds in regard to plant selection and appropriate locations.

Materials:
Refer PL9 for planting mixes and mulch.

June 2015
PLANTER PL8 BOXES

Location
Town and village centres, flat areas where in-ground planting is not feasible

Principles
- Street tree and in-ground planting is preferable where there is capacity
- Consider using planters where in-ground planting is not feasible
- Refer F2 – On Street Trading when considering location

Materials
Concrete planter by Hanson Concrete or equivalent, light sponge float finish.
Colour in consultation with Urban Designer.
Adapt as shown in typical section to provide a water reservoir.

Typical Concrete Planter Box NTS

- Trowelled coloured finish with anti-graffiti coating to all visible faces of planter, including top and above soil level
- Waterproofing applied to all internal surfaces to manufacturers specification

Typical Section NTS

- 50mm mulch
- Min 250mm depth soil mix
- Filter fabric
- Min 50mm aggregate drainage layer
- Plastic pipe (see detail)
- Filter fabric to top of aggregate and over top of pipe
- Min. 50mm aggregate layer to base of planter

Drainage Hole Detail NTS

- Plastic pipe or conduit inserted into all drain holes, glue fixed and sealed
- Pipe to extend 20mm above aggregate level as shown
PLANTING

Planting Mixes and Soils - Criteria

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
<th>Description of Planting Mix</th>
<th>Criteria</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree pits</td>
<td>Pavements</td>
<td>Structural Soil</td>
<td>Where carrying pavement loading</td>
<td>Refer PL1 &amp; PL2</td>
</tr>
<tr>
<td>Tree pits</td>
<td>Grass verge</td>
<td>Site soil modified with 10% OM</td>
<td></td>
<td>Refer PL5</td>
</tr>
<tr>
<td>Garden beds</td>
<td>Pavements</td>
<td>Planting Mix</td>
<td></td>
<td>Refer PL7</td>
</tr>
<tr>
<td>Turf/areas</td>
<td>General</td>
<td>Topsoil</td>
<td></td>
<td>Refer PL3</td>
</tr>
<tr>
<td>Planters</td>
<td>General</td>
<td>Light weight soil</td>
<td></td>
<td>Refer PL9</td>
</tr>
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</table>

Surface and Mulches - Criteria

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
<th>Description of Mulch</th>
<th>Criteria</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tree pits</td>
<td>Pavements</td>
<td>Terrabond or equivalent</td>
<td></td>
<td>Refer PL1</td>
</tr>
<tr>
<td>Garden beds</td>
<td>Pavements</td>
<td>Horticultural grade pine bark</td>
<td></td>
<td>Refer PL7</td>
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<tr>
<td>Planters</td>
<td>General</td>
<td>Horticultural grade pine bark</td>
<td></td>
<td>Refer PL8</td>
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Fertilising - Criteria

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<thead>
<tr>
<th>Type</th>
<th>Species</th>
<th>Description of Fertiliser</th>
<th>Criteria</th>
<th>Note</th>
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</thead>
<tbody>
<tr>
<td>Tree pits</td>
<td>Native</td>
<td>Diammonium Plus</td>
<td>Native planting</td>
<td></td>
</tr>
<tr>
<td>Garden beds</td>
<td>Native</td>
<td>Diammonium Plus</td>
<td>Native planting</td>
<td></td>
</tr>
<tr>
<td>Turf/areas</td>
<td></td>
<td></td>
<td>Exotic planting</td>
<td></td>
</tr>
<tr>
<td>Planters</td>
<td>Ornamental</td>
<td>Diammonium Plus</td>
<td>Top dress in October</td>
<td></td>
</tr>
</tbody>
</table>

Planting Mixes - Materials

<table>
<thead>
<tr>
<th>Planting Mix</th>
<th>Lightweight Soil</th>
<th>Topsoil</th>
</tr>
</thead>
<tbody>
<tr>
<td>50% Coarse washed river sand 20% Sandy loam 30% Composted organics, comprising composted sawdust pine bark mushroom and spent coffee grounds</td>
<td>10% Coarse washed river sand 35% Sandy loam 20% Composted H/W sawdust 10% Bororny humus mix 10% Compacted pine bark</td>
<td>40% Coarse sand 60% Black soil Black soil shall be lost within 2 years. Sawdust is coarse and should be handled with care. Composition shall contain between 19-25% clay or more than 75% coarse sand with a minimum humus content of 4% by mass organic matter.</td>
</tr>
</tbody>
</table>

Surface Mulches - Materials

<table>
<thead>
<tr>
<th>Planting Mix</th>
<th>Terrabond or equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horticultural grade pine bark chip of maximum size 15 x 15mm grade</td>
<td>Terrabond or equivalent</td>
</tr>
</tbody>
</table>
CONTENTS

*New to this edition

Signage - S

S1  Road Signage system & standards
S2  Town Entry Sign
S3  Pedestrian Wayfinding
S4  Place Label
Notes:
The use of upper and lower case is used to distinguish between "natural" destinations (lower case) and "urban" or manmade destinations (upper case).
TOWN ENTRY SIGNAGE

NOTES:
• Signs shown use current worse case scenarios for text.
• The depth of all panels is a fixed depth and a minimum height for panels is set.
• Depth of the optional third panel is fixed at 497mm.
• Use Caps and Lowercase on Town names and Festival information. Caps only to be used for elevation, town slogan and City of Blue Mountains.
• Festival Information is commonly in two lines.
• Text specifications: All text is Interstate Regular, sizes as indicated above in mm. Justification is horizontally centred on sign unless otherwise indicated.
PEDESTRIAN WAYFINDING

Locations:
In town centres & other prominent locations. Each site assessed on its merits by Urban Designer in consultation with Asset manager and others.

Principles:
• Locations must be selected to maximize pedestrian exposure to information and minimize conflicts with amenity & other services
• Robust frame designed with minimized surface to avoid bill-posting
• Cut metal continues BMCC and Tourism branding
• Maps are printed on vinyl and can be updated

Materials:
Steel frame
8mm aluminium bottom feature face panel
Polyurethane painted Bronze Metallic finish
Concrete footing and fixings to engineer’s specifications.

NOTE
Full fabrication details can be obtained from BMCC Principal Urban Designer.

Interpretive Text
45pt on 65pt leading
D=130 words in Enigma
Location:
- In consultation with local community groups
- In town and village centres and places of significance which merit their own sign
- In areas of excellent night lighting & high surveillance
- Where clear sight lines and minimum vegetation can be maintained

Principles:
- Standardized fabrication materials and details
- Simple robust theft-resistant design expressive of the town and village context
- Ensure minimum leverage points for vandalism
- Font Oliver, MixAGB or similar sans serif, minimum 120mm high

Materials:
Either:
- From 6mm thick mild steel sheet, envelope finished with two coats of "Axolotl" metal finish “Rust Patina” to manufacturers specification (Axolotl Metal Finishes, www.axolotl.com.au)
- HW350 Xlerplate weathering steel sheet (CorTen), 6mm thick may be suitable where rust staining below sign is acceptable
- All joints to be welded and ground smooth before finishing
- Sign fixed to surface via metal fixing pins and 2 pack epoxy glue or as directed
- In brick or block surfaces, position fixing pins to avoid mortar joints

In consultation with local community groups
In town and village centres and places of significance which merit their own sign
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Public Domain Technical Manual

Part 2: Parks & Reserves
PART 2: NATURAL AREAS

Introduction

Part 2 of the Technical manual was developed to meet the need to standardise design and structures required in bushland areas and other natural environments in order to protect natural assets from inappropriate use and to facilitate ongoing sustainable public access.

Built structures in Council’s Parks and Reserves assist the land manager in balancing the conservation needs of an environmental area with the impacts of public access. Much of Council’s 5500ha public reserve system has high conservation value as it contains significant diversity of plants and animals, many of which are rare or threatened. These reserves also contain an extensive network of walking tracks, bike trails, picnic areas and lookouts, many of which are well patronised by locals and tourists alike. The provision of well designed and built, unobtrusive visitor facilities allows for conservation and public recreation to be compatible - in most circumstances.

Sustainable Asset Management:

Council has put considerable work into the development of sustainable asset management practices in the organisation, including the Sustainable Asset Management (SAM) Plans for Walking Tracks and Lookouts and SAM Plans for Natural Areas. Extensive work has also been carried out on the historic significance of walking tracks and the management practices required for their maintenance and restoration with particular reference to the “Conservation Management Plan (CMP) for Walking Tracks of State Heritage Significance in the Blue Mountains” completed by National Parks and Wildlife Services, but including Council Managed walking tracks. These documents should be referenced in conjunction with these construction specifications. The Technical Manual provides the specific construction detail to clearly fabricate and install many of the structures referenced in the SAM plan for walking tracks and the CMP.

The range of structures in this document include walking tracks (steps, foot bridges and board walks) lookout fencing, vehicle barricades and other items such as gates and signage. Shelter structures are not covered.

Design and Detail Sheets:

These designs have been developed over many years, from a range
of current and historic construction practices, and have been documented in an effort to standardise current best practice. Consequently the design and construction details seek to integrate appropriate character and detailing with robustness and durability. The choice of construction materials and methods are based on a range of factors including durability, availability, and environmental impact, practicality of application, aesthetics and cost. Some of the commonly used materials in the construction of built assets in natural areas include the following:

- Sand stone - newly quarried or reclaimed
- Australian hardwood timber – reclaimed or sourced from managed State forest
- Treated timber – Plantation pine treated with ACQ
- Hot dipped galvanised steel - untreated or painted as specified

The remoteness and harsh conditions of bushland reserves make them some of the most challenging locations to construct built assets for public access. Consequently it is not always possible to meet the required building codes and standards. However every effort has been made to make these structures as practical and as durable as possible.

**Future Directions:**

These design sheets are by no means static, and will be further developed, refined and modified over time, in response to changing materials, methods and standards. Comments or suggestions regarding any of these structures should be directed to Councils Bushland Management Officer.
Walking Track Infrastructure – WT

WT1   Board Walk
WT2a  Foot Bridge Type 1
WT2b  Foot Bridge Type 1
WT3   Steps Guideline`
WT4   Stone Steps
WT5   Timber Steps
WT6   Cross Drain Timber
WT7   Cross Drain Stone
WT8   Stepping Stones
WT9   Water Bar Stone
WT10  Water Bar Timber
WT11a Foot Bridge Type 2
WT11b Foot Bridge Type 2
WT12  Board Walk Type 2
WT13  Cross Drain Bush Timber
WT14  Cross Drain Earth
WT15  Cross Drain Bush Rock
WT16* Cross Drain Concrete
**WALKING TRACK INFRASTRUCTURE**

**Options for hardening adjacent path:** hardwood, treated pine, stone

**Bracing of single uni strut placed each 1500mm**

**Post holes to be min. 200 x 400 but deeper if possible**

**Decking rough sawn 50 x 150 x 900 (700 or 1200)**

**Principles:**
- Desireable to cure boardwalks as much as possible to eliminate straight lines and sharp corners
- Direction of framework to approximately follow deck to ensure no large overhangs
- Thicker timbers on deck will allow for overhangs
- Sometimes a straight frame is suitable with decking cut around natural features

**Location:**
Walking tracks where track passes through wet, boggy, unstable or sensitive terrain. May be used to control movement for other reasons such as heritage.

**Materials:**
- Note: This design is based on the Uni Strut proprietary system by Tyco International Ltd.
- Materials for 3 metre section
  - Double uni strut - 6m
  - Single uni strut (for legs) - 6m
  - Single uni strut (for braces) - 3m
  - P1359 leg support bracket - 6
  - P1067 brace plate - 6
  - Structural bolts & nuts (for legs) - 24
  - Structural bolts & nuts (for brace) - 18
  - Bolts & nuts for decking - 72
  - Decking - 18m
  - Concrete (20kg bags) - 6

**Framework**
- All parts Hot Dip Galvanised

**Decking**
- Class 1 hardwood timber
- 150 x 50 x 900mm (options 700 or 1200) rough sawn treated with LOSP - Wax Wood

**References:**
- C. Delap, Landlign Environmental Contracting - Sketches 2007
**FOOT BRIDGE TYPE 1**

**Location:**
Walking tracks crossing creeks where stepping stones are not appropriate. Class 1 to 5 tracks.

**Principles:**
- A carry in structure is preferable to one that requires mechanical lifting to site
- A Geotechnical Survey may be required to inform the proper design of bridge footings
- A minimum setback from the creek bank of 500mm is important to avoid the structure causing soil erosion and risk of undermining of footing by bank erosion
- Careful siting of bridge crossing is important
- Width of footbridge to suit path and volume appropriate to walking track - 900 / 1200mm

**Materials:**
- Concrete Footing
  - Concrete Strength: Min 25Mpa Reinforced
- Framework
  - All parts Hot Dip Galvanised, medium gauge
  - 40 N.B Pipe
  - 25 N.B Pipe
  - Beams (depend on span)
  - T 3way clamp 40 x 40
  - Cross gall clamp T40B25
- Decking
  - Deck fixings HDG cup head bolts and nuts and washers
  - Class 1 or 2 hardwood timber
  - 150 x 50mm rough sawn
- Colour options for metalwork
  - Dulux "Charcoal"
  - Galvanised
  - Colorbond "Plantation"

*Note: Where coloured finish is determined, use low sheen two part epoxy paint.*
Location:
Walking tracks crossing creeks where stepping stones are not appropriate

Principles:
- A carry in structure is preferable to one that requires mechanical lifting to site
- A Geotechnical Survey may be required to inform the proper design of bridge footings
- A minimum setback from the creek bank of 500mm is important to avoid the structure causing soil erosion and risk of undermining of footing by bank erosion
- Careful siting of bridge crossing is important
- Width of footbridge to suit path and volume appropriate to walking track - 900 / 1200mm

Materials:
Concrete Footing
Concrete Strength : Min 25Mpa
Reinforced

Framework
All parts Hot Dip Galvanised, medium gauge
40 N.B Pipe
25 N.B Pipe
Beams (depend on span)
T 3way clamp 40 x 40
Cross gall clamp T40B25
T 3way clamp T40B25

Decking
Deck fixings HDG cup head bolts and nuts and washers
Class 1 hardwood timber
150 x 50mm rough sawn - Treated with LOSP - Wax Wood

Colour options for metalwork
* Dulux "Charcoal" 
* Galvanised
* Colorbond "Plantation"

Note : Where coloured finish is determined, use low sheen two part epoxy paint.
WALKING TRACK INFRASTRUCTURE

Grade: 1 in 10
Angle: 5.5 degrees

Location:
Walking tracks - Class 2 - 5
Variable requirements for landings refer to AS 2156 Walking Tracks

Principles:
* 1 in 10 maximum grade without steps
* min. tread 300mm
* max. tread 600 / 900mm
* 600 - 700 treads are uncomfortable for walkers therefore install steeper flights with landings
* Steps should be in similar profile to surroundings
* Consideration to limiting the amount of waste produced, the amount of corner stones required and their sizes, and the amount of material needed in other areas

Materials:
As specified - stone, timber

Useful formula
\[
\text{Grade angle} = \frac{\text{No. of steps required}}{2.5} \quad \text{in 5m}
\]

Guideline for new steps
Nts

References:
Smith J., Beaver D., Betteridge C. C.M.P. Walking tracks of State Heritage Significance in the Blue Mountains, NPWS 2004
WALKING TRACK INFRASTRUCTURE

Location:
Walking tracks Class 2 - 5. Restoration of existing tracks constructed in sandstone. New work in high use or high profile sites.

Principles:
* Steps to be planned according to the slope of the track
* The number and spacing of steps shall be determined according to Steps Guideline WT3
* Curved steps are aesthetically pleasing however short sections of straight are also suitable
* Width of steps to be 700 / 900 / 1200 / 1800mm as appropriate to site and walking track volumes

Materials:
Newly quarried or reclaimed sandstone
Approximate size - 200(h) x 250 - 350 x 700/900/1200

References:
C. Delap, Landlign Environmental Contracting - Sketches 2007
**Principles:**
- Steps to be planned according to the slope of the track
- The number and spacing of steps shall be determined according to Steps Guideline WT3
- Curved steps are aesthetically pleasing however short sections of straight are also suitable
- Width of steps to be 700 / 900 / 1200 / 1800 as appropriate to site and walking track volumes

**Materials:**
- **Riser:**
  - ACQ treated pine, treated hardwood or reclaimed railway sleepers 200 x (75 - 100)
- **Fixings Options:**
  - 21mm HDG pipe
  - 18mm mild steel pin with fixing tab
  - 18mm threaded reinforcing bars
- **Corner stones:**
  - Sandstone
  - Other local stone

**References:**
- C. Delap, Landlign Environmental Contracting - Sketches 2007
**WALKING TRACK INFRASTRUCTURE**

**CROSS DRAIN WT6 TIMBER**

**Principles:**
- Placement and spacing of cross drains should relate to functional requirements.

**Location:**
- Walking tracks class 2 - 5
- New trackwork, restoration of historic tracks (utilise hardwood or railway sleepers)

**Note:** Cross drains on class 1 track require cover grate or a culvert.

**Materials:**
- **Riser Options:**
  - 200 x 75 or 100mm
  - ACQ treated pine, treated hardwood or reclaimed railway sleepers
- **Fixings Options:**
  - 21mm HDG pipe
  - 18mm mild steel pin with fixing tab
  - Threaded reinforcing bars 14mm
- **Corner stones:**
  - Sandstone
  - Other local stone

---

**Section Through Timber Cross Drain (Open Culvert)**

- Only necessary to line the base of cross drain where volumes of runoff are high. The base timber shall have a slight cross fall of 2 - 3 degrees.

- Corner stones to be placed around drain to provide stability and help blend new work into existing environment.

- Place single large stone to act as a splash plate. This will prevent undercutting and help disperse water.

**Plan Timber Cross Drain (Open Culvert)**

- 1800mm wide step for lower sloping path.
- 300 - 350mm
- 150 - 200mm
- 300 - 350mm
**Principles:**
* Placement and spacing of cross drains should relate to functional requirements.

**Location:**
Walking tracks - Class 2 - 5. Cross drain on class 1 track require cover grate.

**Materials:**
- Newly quarried or reclaimed sandstone. Preferable stone dimensions 200 x 350 x (300 - 500)

**References:**
- Smith J., Beaver D., Betteridge C. C.M.P. Walkingtracks of State Heritage Significance in the Blue Mountains, NPWS 2004
WALKING TRACK INFRASTRUCTURE

Stepping Stones

Note: In very boggy areas the stone hole may need to be dug down to a solid base to support rubble fill as a better prepared sub-base.

Location:
Walking track Class 3 - 5. Permanently wet areas of walking tracks or small creek crossings.

Principles:
* Use stepping stones to traverse wet areas or minor side creeks.
* Use when stone is available on site or easily transported to the site and after safety and environmental issues have been considered.

Materials:
Local stone or selected new quarried sandstone, reclaimed stone or formed concrete with oxide.

Stone dimensions - 250 - 400 (H) x 250 - 400 (D) x 600 - 900 (W).

References:
WATER BAR & CROSS DRAIN SPACING GUIDE

Location:
Walking tracks Class 2 - 5, top of stairs

Principles:
* Placement and spacing of water bars cannot be determined by any rule. Every situation will need to be treated individually after assessment of:
  - soil stability
  - length and steepness of slope
  - rainfall (quantity and intensity)
  - amount of water entering track
  - tread material
  - availability of places to divert the water
* Every opportunity should be taken to remove water from the track. Refer to Water Bar Spacing Guide for maximum spacings only.
* Water bars should be self cleaning. This is achieved by setting the angle down slope so that the bar neither erodes nor fills with debris.
* The bar must be high enough to divert the flow, but not so high that walkers regard it as a barrier. The water bar should not be visible from below, but should merge with the profile of the track.

Materials:
Newly quarried or reclaimed sandstone. Preferable stone dimensions 200 x 350 x (300 - 500)

References:
Historic Walking Track Erosion Control Works, Soil Conservation Service, Lithgow
Smith J., Beaver D., Betteridge C. C.M.P. Walkingtracks of State Heritage Significance in the Blue Mountains, NPWS 2004
**WALKING TRACK INFRASTRUCTURE**

- **Location:** Walking tracks

**Principles:**
- Placement and spacing of water bars cannot be determined by any rule. Every situation will need to be treated individually after assessment of:
  - soil stability
  - length and steepness of slope
  - rainfall (quantity and intensity)
  - amount of water entering track
  - tread material
  - availability of places to divert the water

- Every opportunity should be taken to remove water from the track. Refer to Water Bar Spacing Guide WT9 for maximum spacings only.

- Water bars should be self cleaning. This is achieved by setting the angle down slope so that the bar neither erodes nor fills with debris.

- The bar must be high enough to divert the flow min. 100mm - max. 200mm, but not so high that walkers regard it as a barrier. The water bar should not be visible from below, but should merge with the profile of the track.

**Materials:**
- **Riser Options:** ACQ treated pine, treated hardwood or reclaimed railway sleepers
- **Fixing Options:**
  - 21mm HDG pipe
  - 18mm mild steel pin with fixing tab
  - Threaded reinforcing bars 14mm

- **Corner stones:** Sandstone
- Other local stone

**References:**

---

**Section Through Timber Water Bar**

- Compacted earth fill
- Water bar angled at 30 - 40 degrees depending on slope and soil type, and it projects past the edge of the path Min. 300mm beyond track
- Additional natural stones are placed to reduce scouring
- Stone splash plate placed at the end of the water bar to prevent undercutting and to help disperse the water
- Corner stones selected to suit the site situation. Stones help retain soil behind riser and direct pedestrians to stay on track
- 21x 400 - 600mm HD Gal. pipe

**Plan Timber Water Bar**

- Ground level

**Section View of Front of Water Bar**

- Note: Water Bars should always have a step behind otherwise they erode behind the platform minimum of 900 with 1200mm preferable

---
FOOT BRIDGE TYPE 2

Principles:
* This bridge is only suitable where mechanical lifting of structure is possible
* A Geotechnical Survey may be required to inform the proper design of bridge footings
* A minimum setback from the creek bank of 500mm is important to avoid the structure causing soil erosion and risk of undermining of footing by bank erosion
* Careful siting of bridge crossing is important
* Width of footbridge to suit path and volume appropriate to walking track -1200 - 1400mm

Location:
Walking tracks crossing creeks where stepping stones are not appropriate. Class 1 to 3 tracks.

Materials:
Note : Bridge requires design by structural engineer and sizes of sections may change
Concrete Footing
Concrete Strength : Min 25Mpa
Mass footings
Framework
All parts Hot Dip Galvanised
Decking
Deck fixings HDG cup head bolts and nuts and washers
Class 1 hardwood timber
130 x 50mm rough sawn sustainably harvested and treated with LOSP - Wax wood

Colour options for metalwork
* Dulux "Charcoal" ©
* Galvanised
* Colorbond "Plantation" ©
Note : Where coloured finish is determined, use low sheen two part epoxy paint.
Principles:
- This bridge is only suitable where mechanical lifting of structure is possible.
- A Geotechnical Survey may be required to inform the proper design of bridge footings.
- A minimum setback from the creek bank of 500mm is important to avoid the structure causing soil erosion and risk of undermining of footing by bank erosion.
- Careful siting of bridge crossing is important.
- Width of footbridge to suit path and volume appropriate to walking track - 1200 - 1400mm.

Materials:
- Concrete Footing
- Concrete Strength: Min 25Mpa
- Mass footings
- Framework: All parts Hot Dip Galvanised
- Decking: HDG cup head bolts and nuts and washers
- Class 1 hardwood timber 130 x 50mm rough sawn - treated with LOSP - Wax Wood

Colour options for metalwork
- Dulux "Charcoal" ©
- Galvanised
- Colorbond "Plantation" ©

Note: Where coloured finish is determined, use low sheen two part epoxy paint.
**Principles:**

- Desireable to cure boardwalks as much as possible to eliminate straight lines and sharp corners.
- Direction of framework to approximately follow deck to ensure no large overhangs.
- Thicker timbers on deck will allow for overhangs.
- Sometimes a straight frame is suitable with decking cut around natural features.

**Location:**

Walking tracks where track passes through wet, boggy, unstable or sensitive terrain. May be used to control movement for other reasons such as heritage.

**Materials:**

**Note:** Boardwalk requires design by structural engineer and sizes of sections may change.

- 200 x 75 C section posts
- 200 x 75 C section bearers
- Steel sections for bracing beneath deck
- Bolts, nuts & washers for decking
- Decking timber 130 x 50
- Concrete for post footings

**Framework**

- All parts Hot Dip Galvanised

**Decking**

- Class 1 hardwood timber 130 x 50 x 1400mm (option - 1200) rough sawn sustainably harvested and treated with LOSP - Wax Wood
**WALKING TRACK INFRASTRUCTURE**

Note: Cross drain to be angled at 120 - 130 deg. to track alignment depending on slope and soil type - increase with steeper slope

**Principles:**

1. To be used as a semi permanent or permanent measure to address erosion problems of walking track associated with uncontrolled water runoff.
2. On site material to be utilised thereby reducing time and cost associated with installation of drainage on walking tracks.
3. Water bars should be maintained 1 to 2 times per year. Eroded material deposited at the water bar outlet or in front of it may be removed and added to the lee side of the water bar and integrated into the walking track surface.
4. Placement and spacing of cross drains should relate to functional requirements.
5. Refer to spacing guide.

**Materials:**

Select round straight logs with a diameter approx. 200mm. Length should cover entire track width and extend approx. 300mm beyond track edge. Select sound timber that is not rotten or split. New timber from live trees may be selected once an environmental assessment has been carried out. In this case select the more durable timber where possible.

**References:**

Dept. Land Soil Conservation Services - Historic Walking Track Cross Drainage for BMCC 2006

**WATER BAR & CROSS DRAIN SPACING GUIDE**

<table>
<thead>
<tr>
<th>Track Grade (Ratio)</th>
<th>Average Spacing (Metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:100 - 1:10</td>
<td>45 - 100</td>
</tr>
<tr>
<td>1:10 - 1:5</td>
<td>25 - 45</td>
</tr>
<tr>
<td>1:5 - 3:10</td>
<td>12 - 25</td>
</tr>
<tr>
<td>3:10 - 4:10</td>
<td>8 - 12</td>
</tr>
</tbody>
</table>

**Location:**

Walking tracks class 3 - 6

**Principles:**

- To be used as a semi permanent or permanent measure to address erosion problems of walking track associated with uncontrolled water runoff.
- On site material to be utilised thereby reducing time and cost associated with installation of drainage on walking tracks.
- Water bars should be maintained 1 to 2 times per year. Eroded material deposited at the water bar outlet or in front of it may be removed and added to the lee side of the water bar and integrated into the walking track surface.
- Placement and spacing of cross drains should relate to functional requirements.
- Refer to spacing guide.

**Materials:**

Select round straight logs with a diameter approx. 200mm. Length should cover entire track width and extend approx. 300mm beyond track edge. Select sound timber that is not rotten or split. New timber from live trees may be selected once an environmental assessment has been carried out. In this case select the more durable timber where possible.
**WALKING TRACK INFRASTRUCTURE**

Principles:
- To be used as a semi permanent or permanent measure to address erosion problems of walking track associated with uncontrolled water runoff.
- On site material to be utilised thereby reducing time and cost associated with installation of drainage on walking tracks.
- Water bars should be maintained 1 to 2 times per year. Eroded material deposited at the water bar outlet or in front of it may be removed and added to the lee side of the water bar and integrated into the walking track surface.
- Placement and spacing of cross drains should relate to functional requirements
- Refer to spacing guide

Materials:
- Earth - sourced from onsite utilising a cut and fill of the walking track surface.
- Areas of sediment deposition may be used for additional material source.

**REFERENCES:**
- Dept. Land Soil Conservation Services - Historic Walking Track Cross Drainage for BMCC 2006

**WATER BAR & CROSS DRAIN SPACING GUIDE**

<table>
<thead>
<tr>
<th>Track Grade (Ratio)</th>
<th>Average Spacing (Metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:100 - 1:10</td>
<td>45 - 100</td>
</tr>
<tr>
<td>1:10 - 1:5</td>
<td>25 - 45</td>
</tr>
<tr>
<td>1:5 - 3:10</td>
<td>12 - 25</td>
</tr>
<tr>
<td>3:10 - 4:10</td>
<td>8 - 12</td>
</tr>
</tbody>
</table>
**Principles:**

* To be used as a semi permanent or permanent measure to address erosion problems of walking track associated with uncontrolled water runoff. On site material to be utilised thereby reducing time and cost associated with installation of drainage on walking tracks. Water bars should be maintained 1 to 2 times per year. Eroded material deposited at the water bar outlet or in front of it may be removed and added to the lee side of the water bar and integrated into the walking track surface.

* Placement and spacing of cross drains should relate to functional requirements

* Refer to spacing guide

**Materials:**

Utilise rock on site if suitable and able to be stacked and maintain a sound structure that does not collapse on the pressure of foot traffic. Environmental assessment to be undertaken if sourcing bush rock from natural habitat. Where possible select material for existing disturbed areas.

**References:**

Dept. Land Soil Conservation Services - Historic Walking Track Cross Drainage for BMCC 2006
**WALKING TRACK INFRASTRUCTURE**

**CROSS DRAIN CONCRETE**

**Location:**
Walking tracks - Class 1 - 2

**Principles:**
- Placement and spacing of cross drains should relate to functional requirements

**Materials:**
- 3mm gauge steel
- Expanded mesh - max opening 15 x 45
- Fully hot dip galvanised

---

**Section Cross Drain in Concrete Path**

- N12 Bars @ 200mm centres both ways
- 50 x 50 L section
- Steel plate 3 x 50mm end piece

**Plan Cross Drain in Concrete Path**

- Drain made to suit path width
- Expanded mesh or other approved openings approx 15 x 45
- Fixings

---
CONTENTS

*New to this edition

Fire Trail – FT

FT1 Rail Gate
FT2 Swing Gate
FT3 Fire Trail Signage
FT4* Swing Gate with Quad Lock
SLIDING RAIL GATE

FIRE TRAIL

Principles:
* Rail gate to be used in non-vandal prone areas to prevent vehicular entry on trails and access points.
* Setback from roads or access ways must be considered.

General requirements:
- Min distance of 8m is required as a threshold to the gate for service vehicles.
- Site specific layouts are required.

Materials:
5mm gauge steel
Fully hot dip galvanised

Colour options:
* Dulux "Charcoal" ©
* Galvanised
* Colorbond "Plantation" ©

Location:
Fire trails, service roads, access to parks

Location:
Fire trails, service roads, access to parks

Typical Rail Gate

Lock plate
250 x 250 x 16 or 20mm welded to post with 90 or 100nb shroud fully welded to lock plate and cutout (34 x 10) in plate as shown for lock tongue.

Post & Lock Shroud

Side View

Nts

Post & Lock Shroud

Front View

Nts

Post & Lock Shroud

Top View

Nts

Refer to lock shroud detail

Concrete footing using 25mpa

Rail support plate 16 or 20mm 250 x 250, 6mm fillet weld all round to the centre of the post. Plate with 80mm diameter circular cutout.

Cap plate 6mm thick 115mm diam.

15mm lugs to prevent removal of bar

Rail with tongue 50 x 32 x 8 or 10mm welded to end centrally. Tongue to have cutout 34 x 10 for tag. Tag with 2 holes 17mm apart on centre to fit Council lock & fire trail lock

Rail to slot into 16 or 20mm plate

6mm plate on back of shroud with tongue slot in plate

Tongue 75 x 32 x 8mm with cutout 34 x 10 for tag 75 x 32 x 8mm with 2 of 12mm holes for dual locks

Lock plate 250 x 250 x 16 or 20mm welded to post with 90 or 100nb shroud fully welded to lock plate and cutout (34 x 10) in plate as shown for lock tongue.

65nb Rail

100nb Post

Post with welded cover

Shroud 100nb

90

Shroud 90 or 100nb

Tongue 75 x 32 x 8mm with cutout 34 x 10 for tag 75 x 32 x 8mm with 2 of 12mm holes for dual locks

Cap plate 6mm thick 115mm diam.

15mm lugs to prevent removal of bar

Rail support plate 16 or 20mm 250 x 250, 6mm fillet weld all round to the centre of the post. Plate with 80mm diameter circular cutout.

Cap plate 6mm thick 115mm diam.

15mm lugs to prevent removal of bar

Rail support plate 16 or 20mm 250 x 250, 6mm fillet weld all round to the centre of the post. Plate with 80mm diameter circular cutout.

Cap plate 6mm thick 115mm diam.

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Cap plate 6mm thick 115mm diam.

15mm lugs to prevent removal of bar

Rail support plate 16 or 20mm 250 x 250, 6mm fillet weld all round to the centre of the post. Plate with 80mm diameter circular cutout.

Cap plate 6mm thick 115mm diam.

15mm lugs to prevent removal of bar

Rail support plate 16 or 20mm 250 x 250, 6mm fillet weld all round to the centre of the post. Plate with 80mm diameter circular cutout.
**Principles:**

* Swing gate to be used in vandal prone areas to prevent vehicular entry on trails and access points
* Setback from roads or access ways must be considered.

**General requirements:**
- Min distance of 8m is required as a threshold to the gate for service vehicles.
- Site specific layouts are required.

**Location:**
Fire trails, service roads, access to parks

**Materials:**
- 5mm gauge steel
- Fully hot dip galvanised

**Colour options**
* Dulux "Charcoal"©
* Galvanised
* Colorbond "Plantation"©
**FIRE TRAIL SIGNAGE**

**Principles:**
- To inform fire fighters of their location as well as the names and attributes of the fire trail on which they are working.
- All Fire Trails listed on the District Fire Trail Register must be signposted.

**Location:**
Generally located at track entrances. Additional signage may be located where other trails branch off from or meet a track.

**Materials:**
- Extruded aluminium "I" section street blade 200mm in height
- Reflective background - Yellow, class 1 retro-reflective
- Lettering - Black, non reflective vinyl, all upper case
- Trail Name Font : Hi-Road 65mm
- Secondary Information Font : Hi-Road 45mm
- Standard galvanised street blade

**Secondary Information Format**
- Dead end (if required) > Length > Category
- Five spaces (or other like gap) between elements
- Centred below trail name text

**Post - galvanised 50 NB 3.25m steel post with cap**
Post set in concrete to a depth of 600mm
Ideally the lower edge of the sign blade should be set at 2.4m from ground level.
**FIRE TRAIL**

**SWING GATE WITH QUAD LOCK**

**FT4**

**Principles:**
- Swing gate with quad lock and double bracing option to be used in high vandal prone areas, particularly in areas where illegal dumping is occurring, to prevent vehicular entry on trails and access points.
- Setback from roads or access ways must be considered.

**General requirements:**
- Min. distance of 8m is required as a threshold to the gate for service vehicles.

**Location:**
- Fire trails, service roads, access to parks.

**Materials:**
- 5mm gauge steel
- Fully hot dip galvanised

*Note: Gate to same detail as Swing Gate Detail FT2 with modifications and options as shown on this page.*
CONTENTS

*New to this edition

Natural Area Furniture NF

NF1  Seat Type 1
NF2  Seat Type 2
NF3  Picnic Setting
NF4  Camping Pad
NF5  Fire Ring
**NATURAL AREAS FURNITURE**

**Side Elevation of In Ground Seat**

- Seat installed plumb 450mm above ground level
- Thickening beneath slab where seat to be located

**Side Elevation of Base Plate Mount Seat**

- Seat installed plumb 450mm above ground level

**Principles:**

- Ensure seat is located to maximise its usefulness
- Ensure that surrounding ground has an even grade and preferably is not steeply sloping

**Location:**

- In picnic areas, lookouts and other strategic locations where a simple seat is required.

**Materials:**

- **Timber:** hardwood - tanalith E treated spotted gum from regrowth forests
- **Steel frame:** 50 & 32mm medium galvanised pipe
- **Mounting:** surface fixed to concrete slab or subsurface set in concrete footing
- **Paint:**
  - Prime using oil based undercoat such as Dulux "Preplock" or equivalent
  - Paint Type Dulux "Weathershield" or equivalent
- **Main Body Colour:** Dulux "Mission Brown"
- **Frame support:** Gloss Black

**Supplier:**

- Moodie Outdoor Products
- Ph: 02 9616 1133

* Playmaker 2010 seat - 9 slats - base plate mount - Code: 18748
* Playmaker 2010 seat - 9 slats - inground mount - Code: 18745
NATURAL AREAS FURNITURE

Principles:
* Use in areas where a simple seat made from natural materials would be suitable

Location:
Natural areas requiring higher quality more individual seating selection

Materials:
Sandstone base blocks (2 per seat) of sawn sandstone 250 x 300 x 430
Timber - hardwood - recycled or sustainably harvested and treated with LOSP
All fittings and connections fully hot dip galvanised or stainless steel

Paint:
Harwood waxed

Note: Where connected to concrete slab slab should be thickened beneath to 200mm
NATURAL AREAS FURNITURE

PICNIC SETTING

Principles:
* Ensure picnic setting is located to maximise its usefulness
* Ensure that surrounding ground has an even grade and preferably is not steeply sloping

Location:
In picnic areas

Materials:
Timber: hardwood - tanalith E treated spotted gum from regrowth forests
Steel frame: 50 & 32mm medium galvanised pipe
Mounting: surface fixed to concrete slab or subsurface set in concrete footing

Paint:
Prime using oil based undercoat such as Dulux "Preplock" or equivalent
Paint Type Dulux "Weathershield" or equivalent.
Main Body Colour:
Dulux "Mission Brown"
Frame support: Gloss Black

Supplier:
Moodie Outdoor Products
Ph: 02 9816 1133

* Playmaker 2010 Clearline single leg setting Code: 18769

Picnic setting installed plumb with seats 450mm above ground level
Thickening beneath slab where seat to be located

Both in ground and base plate mounts available

Elevation of Picnic Setting
Nts
CAMPING PAD NF4

Principles:

- 1 pad per camp site within camping area
- Ensure that surrounding ground has an even grade and preferably is not steeply sloping
- Fire rings should be placed in relationship to each camp pad or shared between two camp pads

Location:

Designated camping areas.

Materials:

- Timber: 100mm Diam treated pine winged split
- Stakes: 400mm 10mm ridged rio rod.
- Gravel: Selected decomposed granite

Plan of Raised Camping Pad

Shape all corners to profile of adjacent winged split
Decomposed granite gravel pad falling from high point in centre at 1:100

- 100mm winged split LOSP - Waxed Wood fixed with 400mm 10mm rio rods
- Corners additionally fixed with a coach screw

Section through Camp Pad

Decomposed granite gravel pad falling from high point in centre at 1:100

- 100mm winged split LOSP - Waxed Wood partially buried fixed with 400mm 10mm rio rods

Fall

Fall

80
**Principles:**

- Locate one fire ring per camp site
- Ensure that placement is well away from unmaintained bushland

**Location:**

Camping areas where Council permits camp fires

**Materials:**

- Ring and made from 5mm sheet steel
- Fixings fully welded
- Paint: None.

**Concrete slab with steel trowel finish**

**Warming / cooking grate of 16mm rod welded to 30 x 30mm angle welded to inner wall of the fire pit**

**8mm diam. hole to allow fat to drip through**

**300mm tall x 1000mm diameter circular fire ring of 5mm sheet steel**

**Plan View**

**Nts**

**30 x 30 angle piece**

**R 15**

**R 25**

**3 of 10mm diam chemical anchors fixing fire pit to slab through 5mm plate tabs welded to inside base**

**150mm thick reinforced circular concrete footing**

**Side Elevation of Seat**

**Nts**

**June 2015**
CONTENTS

*New to this edition

Fencing and Barricades FB

FB1  Type A Barrier
FB2  Type C Barrier
FB3  Mesh Fence
FB4  Boulders
FB5  Bollards Steel
FB6  Bollards Treated Pine
FB7  Post & Cable
**FENCING AND BARRICADES**

**Principles:**
- Barriers to comply to AS 2156.2-2001
- The design and installation process shall consider geotechnical factors
- Structural engineering design will be required in many circumstances
- Barriers to be designed for site specific situation including curved to site
- Fully welded structure required at lookouts

**Location:**
Lookouts, walking tracks where there is a risk to injury from falls. When there is a risk of fall refer to Table 2, AS 2156.2 - 2001 Allowable Barrier Type For Effective Fall Height to determine required barricade for given situation

**Materials:**
- All members HDG, medium gauge
  - 48.3 x 3.2 CHS Top Rail
  - 33.7 x 3.2 CHS Mid Rails
  - 16 Dia Bar Verticals
  - Post Type A 48.3 x 4 CHS
  - Post Type B 76.1 x 3 CHS
  - 10 MPa Concrete
  - Chemical anchor
- Colour options
  - Dulux "Charcoal"
  - Galvanised
  - Colorbond "Plantation"

*Note: Where coloured finish is determined, use low sheen two part epoxy paint.*
WALKING TRACK INFRASTRUCTURE

Typical Handrail Panel

Notes:
* All members to be hot dip galvanised
* Minimise site welding
* Connections to be Uni - Fit universal fittings
* Footings to be designed by qualified engineer on a site specific basis
* Type C Barrier can be fixed to a foot bridge or boardwalk

Repack granular site pedestrian surface such as gravel a Min. 100mm over concrete footing

Typical Handrail Section
Post 48.3 CHS
Nts

Notes:
* All members to be hot dip galvanised
* Minimise site welding
* Connections to be Uni - Fit universal fittings
* Footings to be designed by qualified engineer on a site specific basis
* Type C Barrier can be fixed to a foot bridge or boardwalk

Location:
Walking tracks, board walk, footbridges. When there is a risk of fall refer to Table 2, AS 2156.2-2001 Allowable Barrier Type For Effective Fall Height

Principles:
* Barriers to comply to AS 2156.2-2001
* The design and installation process shall consider geotechnical factors
* Structural engineering design will be required in many circumstances
* Barriers to be designed for site specific situation including curved to site

Materials:
All members HDG, medium gauge
* 48.3 x 3.2 CHS Top Rail
* 33.7 x 3.2 CHS Mid Rail
* 16 Dia Bar Verticals
* Post Type A 48.3 x 4 CHS
* Post Type B 76.1 x 3 CHS
* 20 MPa Concrete
* Chemical anchor

Colour options
* Dulux "Charcoal"
* Galvanised
* Colorbond "Plantation"

Note: Where coloured finish is determined, use low sheen two part epoxy paint.
FENCING AND BARRICADES

Location:
Walking tracks, board walk, footbridges. When there is a risk of fall refer to Table 2, AS 2156.2 - 2001 Allowable Barrier Type For Effective Fall Height

Principles:
* Barriers to comply to AS 2156.2-2001
* The design and installation process shall consider geotechnical factors
* Structural engineering design will be required in many circumstances
* Barriers to be designed for site specific situation
* Curve to site in straight sections

Materials:
All members HDG, medium gauge
* 48.3 x 3.2 CHS Top Rail
* 33.7 x 3.2 CHS Mid & Bottom Rails
* Post Type A 48.3 x 4 CHS Post Type B 76.1 x 3 CHS Post Type B 76.1 x 3 CHS
* 20 MPa Concrete
* Chemical anchor

Colour options
* Dulux "Charcoal"
* Galvanised
* Colorbond "Plantation"
Note: Where coloured finish is determined, use low sheen two part epoxy paint.
FENCING AND BARRICADES

Location:
Entry points, start of walking tracks, car parking, other situations where prevention of unauthorised vehicular access

Principles:
* Placement and spacing of boulders should relate to functional requirements

Materials:
Sandstone boulders as available
Minimum size 800 x 400 x 400mm
FENCING AND BARRICADES

BOLLARDS - STEEL

Principles:
* Spacing to be related to application on a site specific basis
* Max distance apart 1400mm
* Min distance apart 700mm
* For any one site spacing to be equal

Location:
Walking tracks, camping and day use areas, parks, car parks - particularly to be used in sites prone to vandalism

Materials:
100 - 120NB Medium gauge hot dip galvanised pipe

- Colour options
  * Dulux "Charcoal"
  * Galvanised
  * Colorbond "Plantation"

Concrete 10 MPa
BOLLARDS TREATED PINE

Location:
Walking tracks, car parks, edge of open space areas to control pedestrian and vehicular movement

Principles:
- Spacing to be related to application on a site specific basis
- Max distance apart 1400mm
- Min distance apart 700mm
- Reflectors to be used where adjacent to roads car parks
- Min of 2m from edge of a sealed road

Materials:
CCA H4 Treated Pine Round 140mm diameter unless otherwise specified
Concrete 10MPa
Finishes:
- Natural
- Cabots Timbershade® - “Ebony”
FENCING AND BARRICADES

Location:
Walking tracks, camping and day use areas, parks, car parks - particularly to be used in sites prone to vandalism.

Principles:
- Max distance apart 2400mm
- For any one site spacing to be equal
- Exclude motor vehicles and motor bikes - use two cables

Materials:
100 - 120NB Medium gauge hot dip galvanised pipe 1500mm
Galvanised cap to suit

Colour options
* Dulux "Charcoal"
* Galvanised
* Colorbond "Plantation"

Concrete 10 MPa
25mm hdg roped steel cable
Tension clamps HDG at each end post
CONTENTS

*New to this edition

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<td>NS3 Track Head Signage Type C (4 sheets)</td>
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<td>NS4 Track Head Signage Type D (4 sheets)</td>
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<td>NS5 Routed Locality Sign</td>
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<td>NS8 Timber Totem Type A &amp; B</td>
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<td>NS9 Steel Totem Type C</td>
</tr>
<tr>
<td>NS10* Shelter Sign</td>
</tr>
</tbody>
</table>
NATURAL AREA SIGNAGE

TRACK HEAD NS1 SIGNAGE
TYPE A

Location:
At major visitor nodes or localities such as Echo Point or Knapsack Park entry points & main tourist trackheads

Principles:

Scale of Content
* the time required for an average reader to complete sign should be limited to one to two minutes

Essential Content
* reserve name
* track name (s)
* track map
* track grades + pictograms, distance, time, special status (if any) and features
* track difficulty rating
* appropriate risk warnings and advisory information
* management agency name(s) + logo(s)
* photographs

Optional Content
* regulatory information / symbol signs eg. no dogs, no riding
* additional information on track features
* reserve / area map
* statement on catchment significance (where relevant)
* additional interpretive content
* public transport information
* agency or emergency contact information

Materials:
Refer to Style Guide following
This area can vary in layout & design according to relevant specifications.
Knapsack Reserve

All measurements are in millimetres

Maps and Track Profile Colour Guide

<table>
<thead>
<tr>
<th>Colour Code</th>
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<td>PMS 7479</td>
<td>NPWS</td>
</tr>
<tr>
<td>PMS 277</td>
<td>Other Crown Land</td>
</tr>
</tbody>
</table>

This area can vary in layout & design according to relevant specifications.

Walks from here

- Marge's Lookout: 20 mins - 1.2km one way
- Elizabeth Lookout: 20 mins - 1.2km one way
- Leaun Bridge via Marge's Lookout: 20 mins - 1.2km one way
- Knapsack Bridge via Elizabeth Lookout: 20 mins - 1.2km one way
- John Whitton Memorial Place via Elizabeth Lookout and Knapsack Bridge: 20 mins - 1.2km one way

Note: All paths are unsealed and unsuitable for wheelchairs.

Please note: You are required to maintain your own drinking water and ensure that you are prepared for any changes in weather.

This area can vary in layout & design according to relevant specifications.

Maps and Track Profile Colour Guide

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Note: All paths are unsealed and unsuitable for wheelchairs.

Please note: You are required to maintain your own drinking water and ensure that you are prepared for any changes in weather.

This area can vary in layout & design according to relevant specifications.

Maps and Track Profile Colour Guide

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<td>PMS 277</td>
<td>Other Crown Land</td>
</tr>
</tbody>
</table>
1 - Aluminium Modular Post:
104x104mm Aluminium modular posts.
50mm slot.
2 pack paint. Dulux ‘Bluestone Rock’.
Posts supplied with all hardware
including slot infill strip and screws.

2 - Modular Aluminium Panel Rail:
Aluminium panel rail top & bottom of
the sign. Natural anodised aluminium.

3 - Aluminium Sign:
3mm aluminium sign. Full colour digital
print with Armsign Polycure coating.

4 - Backing Panel:
3mm backing panel painted, 2 pack
Dulux ‘Bluestone Rock’, 30mm thick
poly styrene insert between sign and
backing panel.

5 - Steel Post:
75x50x1000mm SHS galvanised steel
post. Minimum 600mm secured in the
ground with concrete footing.

6 - Aluminium Top Cap:
Aluminium top cap painted 2 pack
Dulux ‘Bluestone Rock’.

Scale 1:20
NATURAL AREA SIGNAGE

Location:
At medium tourist trackheads or localities linked to one or several major tracks e.g. Centennial Glen, Mt York Day Use Area

Principles:
Scale of Content
* the time required for an average reader to complete sign should be limited to one minute.

Essential Content
* reserve name
* track name(s)
* track map
* track grades + pictograms, distance, time, special status (if any) and features
* track difficulty rating
* appropriate risk warnings and advisory information
* management agency name(s) + logo(s)

Optional Content
* track features
* regulatory information / symbol signs eg. no dogs, no riding
* additional information on track features
* reserve / area map
* statement on catchment significance (where relevant)
* additional interpretive content
* public transport information
* advisory information
* agency or emergency contact information

Materials:
Refer to style guide following
Lawsons Long Alley

Walks from here
Lawsons Long Alley is part of the historic Blue Mountains walking track network.
- Please ensure you are prepared for your walk including carrying adequate food, water.
- Dress for the weather of your choice and you are prepared for any changes in weather.

- Hartley Vale via Lawsons Long Alley — 2 hours - 5km one-way
- Lawsons Long Alley return via Lockyers Road - 4 hours - 11km
- Lawsons Long Alley return via Coxs Road — 5 hours - 12.5km
- Mt York via RidgeTrack — 1 hour - 3.5km one-way

Maps and Track Profile Colour Guide

- PMS 356: BCC Parks & Ovals
- PMS 7495: Council Reserves
- PMS 7479: NPWS
- PMS 277: Other Crown Land
- PMS 2995: Adjoining LGA Reserve 1
- PMS 7462: Adjoining LGA Reserve 2
- PMS 7494: Inset Map Background Colour
- PMS 7517: Track Profile Land Cross Section
- PMS 301: White
- Track Profile Sky Cross Section

All measurements are in millimetres
1 - Aluminium Modular Post:
+ 104x104mm Aluminium modular posts.
+ 50mm slot.
+ 2 pack paint. Dulux 'Bluestone Rock'.
+ Posts supplied with all hardware including slot infill strip and screws.

2 - Modular Aluminium Panel Rail:
+ Aluminium panel rail top & bottom of the sign. Natural anodised aluminium.

3 - Aluminium Sign:
+ 3mm aluminium sign. Full colour digital print with Armsign Polycure coating.

4 - Backing Panel:
+ 3mm backing panel painted, 2 pack Dulux 'Bluestone Rock', 30mm thick poly styrene insert between sign and backing panel.

5 - Steel Post:
+ 75x50x1000mm SHS galvanised steel post. Minimum 600mm secured in the ground with concrete footing.

6 - Aluminium Top Cap:
+ Aluminium top cap painted 2 pack Dulux 'Bluestone Rock'.
NATURAL AREA SIGNAGE

TRACK HEAD NS3 SIGNAGE
TYPE C

Location:
At minor tourist trackheads or major track junction e.g. Berghofers Pass

Principles:
Scale of Content
* the time required for an average reader to complete sign should be limited to half a minute

Essential Content
* reserve name
* track name (s)
* track map
* track grades + pictograms, distance, time, special status (if any) and features
* track difficulty rating
* appropriate risk warnings
* management agency name(s) + logo(s)

Optional Content
* track features
* regulatory information / symbol signs eg. no dogs, no riding
* additional information on track features
* reserve / area map
* statement on catchment significance (where relevant)
* public transport information
* advisory information
* agency or emergency contact information

Materials:
Refer to style guide following
Lawsons Long Alley

Walks from here

Lawsons Long Alley is part of the historic Blue Mountains walking track network.

- Please ensure you are prepared for your walk by bringing adequate food and water.
- Ensure your fitness and skill are appropriate for the walk.
- All walks are one way.

- Lawsons Long Alley (Kurrajong to Mt York Road)
  2 hours. 2km one way

- Lawsons Long Alley return via Lockyers Road
  4 hours. 11.5km

- Lawsons Long Alley return via Coza Road
  5 hours. 12.8km

Symbols colours:
- Blue: PMS 301
- Yellow: PMS 136
- Red: PMS 186
- Black
- White

Text: White

1 - Caption:
PMS 7463. Font DIN Medium

2 - Sub Caption:
Black. Font Avenir 42pt

3 - General text
Black. Avenir heavy & light 20pt

4 - Detail lines:
White. Line thickness 1mm

5 - Message text:
Black. Font: Avenir heavy 26pt, light 21pt

6 - Information symbols:
PMS 301. Size 20x20mm

7 - Map background colour:
PMS 7530

8 - Message bar:
PMS 7531. Font: White Avenir light 16pt

9 - Background colour:
PMS 7527

10 - Regulatory symbol bar:
PMS 7531

11 - Regulatory symbols:
Size 35x35mm. Font: White Avenir heavy

Symbols colours:
- Blue: PMS 301
- Yellow: PMS 136
- Red: PMS 186
- Black
- White

Text: White
Lawsons Long Alley

Walks from here

Lawsons Long Alley is part of the historic Blue Mountains walking track network.
- Please ensure you are prepared for your walk by carrying adequate food and water.
- Ensure you follow the signs and stick to the route of your choice and that you are prepared for any changes in weather.

- Lawsons Long Allee (Hartley Vale to Mt York Road)
  2 hours - 3km one way

- Lawsons Long Allee return via Lockyers Road
  4 hours - 7.5km

- Lawsons Long Allee return via Coxs Road
  5 hours - 12.5km

All measurements are in millimetres

Maps and Track Profile Colour Guide

- PMS 356 BCC Parks & Ovals
- PMS 7495 Council Reserves
- PMS 7479 NPWS
- PMS 277 Other Crown Land
- PMS 2995 Adjoining LGA Reserve 1
- PMS 7462 Adjoining LGA Reserve 2
- PMS 7494 Inset Map Background Colour
- PMS 7517 Track Profile Land Cross Section
- PMS 301 White Track Profile Sky Cross Section
1 - Aluminium Modular Post:
104x104mm Aluminium modular posts. 50mm slot. 2 pack paint. Dulux ‘Bluestone Rock’. Posts supplied with all hardware including slot infill strip and screws.

2 - Modular Aluminium Panel Rail:
Aluminium panel rail top & bottom of the sign. Natural anodised aluminium.

3 - Aluminium Sign:
3mm aluminium sign. Full colour digital print with Armsign Polycure coating.

4 - Backing Panel:
3mm backing panel painted, 2 pack Dulux ‘Bluestone Rock’. 30mm thick poly styrene insert between sign and backing panel.

5 - Steel Post:
75x50x1000mm SHS galvanised steel post. Minimum 600mm secured in the ground with concrete footing.

6 - Aluminium Top Cap:
Aluminium top cap painted 2 pack Dulux ‘Bluestone Rock’.
NATURAL AREA SIGNAGE

TRACK HEAD NS4 SIGNAGE TYPE D

Location:
At low-key local trackheads

Principles:
Scale of Content
* very limited number of words

Essential Content
* track name(s)
* track grades + pictograms, distance, time
* track difficulty rating
* appropriate risk warnings
* management agency name(s) + logo(s)

Optional Content
* reserve name
* regulatory information / symbol signs eg. no dogs, no riding
* agency or emergency contact information

Materials:
Refer to style guide following
Berghofers Pass

Berghofers Pass Return Walk
1.5 hours - 4.5km

1 - Caption:
PMS 7463. Font DIN Medium

2 - Background colour:
PMS 7527

3 - Message text:
Black. Font: Avenir heavy 90pt, light 75pt

4 - Regulatory symbol bar:
PMS 7531

5 - Regulatory symbols:
Size 55x55mm. Font: White Avenir heavy

Symbols colours:
Blue: PMS 301
Yellow: PMS 136
Red: PMS 186
Black
White
Text: White
Berghofer's Pass

Berghofer's Pass Return Walk
1.5 hours - 4.5km

All measurements are in millimetres
1 - Aluminium Modular Post:  
104x104mm Aluminium modular posts.  
50mm slot.  
2 pack paint. Dulux ‘Bluestone Rock’.  
Posts supplied with all hardware including slot infill strip and screws.

2 - Modular Aluminium Panel Rail:  
Aluminium panel rail top & bottom of the sign. Natural anodised aluminium.

3 - Aluminium Sign:  
3mm aluminium sign. Full colour digital print with Armsign Polycure coating.

4 - Backing Panel:  
3mm backing panel painted, 2 pack Dulux ‘Bluestone Rock’. 30mm thick poly styrene insert between sign and backing panel.

5 - Steel Post:  
75x50x1000mm SHS galvanised steel post. Minimum 600mm secured in the ground with concrete footing.

6 - Aluminium Top Cap:  
Aluminium top cap painted 2 pack Dulux ‘Bluestone Rock’.

Scale 1:20

Track Head sign 1200x420mm - sign type D
NATURAL AREA SIGNAGE

Length of sign determined by largest writing + 200mm each end

1500mm - Max 2400

Timber rail 300 x 50 x 1500 fixed to post with countersunk domehead nut and bolts (4 per rail)

Sign - Maximum of 3 panels high

Routed rebate for symbol inserts

Symbols 150 x 200mm printed aluminium inserts fixed with 4 x vandal proof screws

Concrete footings

Galvanised steel painted 100mm square posts with caps to suit

Materials:

All timber D.A.R.

Finger jointed pine rails 300 x 50mm x Variable up to max. 2400mm (Max sign length 2400mm)

Steel Posts 100 x 100 x Varies

Steel cap

Symbols 150 x 200mm printed aluminium inserts fixed with vandal proof screws (4 to each insert)

Galvanised dome head nut and bolt 10mm diam. (4 per rail)

Concrete for footings - 20Mpa

Paint:

Prime using oil based undercoat such as Dulux "Preplock" or equivalent

Paint Type Dulux - "Weathershield" or equivalent.

Main Body Colour:

Dulux "Bluestone Rock" - 94080

Routed Lettering Colour:

"Oyster"

Location:

At localities such as car parks, picnic areas, parks and other major visitor nodes

Principles:

* Locate at road or car park entry in safe and clearly visible location

* All relevant user information shall be displayed by symbols

Front Elevation of Typical Locality Sign

Nts

Timber rail 300 x 50 x 1500

All front edges and rear top edge of the sign to be chamfered 15mm as shown

Steel post 100 square x (height varies according to number of rails)

Concrete footings

Side Elevation of Typical Track Head Sign

Nts

Length of sign determined by largest writing + 200mm each end

50mm

Post length 600mm below ground + design height up to 1240 + 50( max post height 1890 )

Concrete footing

NOTE: Routed lettering sizes shown on WT21
LETTERING & SYMBOLS FOR ROUTED SIGNS

**Location:**
Routed signs

**Principles:**
* Lettering to be sized suitable to be legible relating to the distance and speed of viewing i.e. pedestrian or motor vehicle
* Symbols to follow standard order and be placed in a logical sequence

**Materials:**
Symbols 150 x 200mm printed aluminium inserts
Blue symbols to be standard blue "Trish’s Blue 5a"

Font - routed lettering is applied in the standard font - Arial

**Symbol Sequence & Placement**

* Symbols should be placed left to right in the following order
* White on blue permitted activities occur first with the primary activity of the locality placed first followed in order of priority
* Black on yellow warning signs are placed second in order of priority
* Red on black and white prohibition symbols are placed third in order of priority
* The Council symbol and phone number is right justified

**Finished sizes of routing available:**
* 40mm
* 60mm
* 70mm
* 110mm
* 125mm
* 170mm

NATURAL AREA SIGNAGE

Length of sign determined by largest writing + 200mm each end

Front Elevation of Typical Locality Sign

BARDENS LOOKOUT

Routed rebate for symbol inserts
Symbols 150 x 200mm printed aluminium inserts fixed with 4 x vandal proof screws

Routed lettering - shown here 110mm - refer to size options below
NATURAL AREA SIGNAGE

Location:
At path junctions and secondary entry points and along paths at strategic locations.

Principles:
* Locate in safe and clearly visible location
* Ensure correct orientation for accuracy of sign

Materials:
Finger jointed pine rails
Directional Sign Rail - 200 x 50 x 800mm (Max sign length 1200mm)
Post - 100 x 100 steel with cap Galvanised dome head nut and bolt 10mm diam. (4 per rail)
Concrete for footings - 20 Mpa

Paint:
Prime using oil based undercoat such as Dulux "Preplock" or equivalent
Paint Type Dulux - "Weathershield" or equivalent.
Main Body Colour: Dulux "Bluestone Rock" 94080
Routed Lettering Colour: "Oyster"

Front Elevation of Totem Post

Front Elevation of Directional Sign
NATURAL AREA SIGNAGE

TIMBER TOTEM TYPE A & B

Principles:
* Locate at track entry in safe and clearly visible location
* Ensure correct orientation for accuracy of totem

Location:
At track junctions and secondary entry points and along tracks at strategic locations

Materials:
All timber D.A.R. Treated Pine H4 (Max totem length 1700mm)
Totem 1100 or 800 out of ground 600 buried - usually dry packed with option to use concrete footing if required
Concrete for footings - 20Mpa Symbols 150 x 200mm printed aluminium inserts fixed with vandal proof screws (4 to each insert)

Paint:
Prime using oil based undercoat such as Dulux "Preplock" or equivalent
Paint Type Dulux "Weathershield" or equivalent.
Main Body Colour:
Dulux "Bluestone Rock" - 94080
Routed Lettering Colour:
"Oyster"

Front Elevation of Type A Totem Nts

Front Elevation of Type B Totem Nts

Side Elevation of Type A Totem Nts
NATURAL AREA SIGNAGE

**Principles:**
- Locate at track entry in safe and clearly visible location
- Ensure correct orientation for accuracy of totem

**Location:**
At track junctions and secondary entry points and along tracks at strategic locations

**Materials:**
- Steel post 150 x 75 with steel cap fully welded, xxxfully hot dip galvanised
- Max totem length 1700mm
- 600 buried - with concrete footing
- Concrete for footings - 20Mpa
- Grouped symbols printed on 1.6mm aluminium sheet
- 3M digitally printed non reflective with 1150 3M tedlar anti graffiti over laminate

**Paint:**
- Prime using oil based undercoat such as Dulux “Preplock” or equivalent
- Paint Type Dulux “Weathershield” or equivalent
- Main Body Colour: Dulux “Bluestone Rock” - 94080

Alternate Option Main Body Colour: Dulux powdercoat colour “Estate”
NATURAL AREA SIGNAGE

Location:
At major visitor nodes or localities such as Katoomba Falls
Reserve entry points & main tourist trackheads

Principles:

Essential Content
* Type A Sign - refer to Sheet NS1

Options
* Side panel can be mounted on the left or right in relation to sight specific considerations

Materials:
Steel frame: Refer to Engineers Drawings - C.G. Hilder Pty Ltd Dr No. 1885 - S1, S2, N1, N2, N3
Mounting: Posts set in concrete footing. Refer to Engineers Drawings - C.G. Hilder Pty Ltd Dr No. 1885 - S1, S2, N1, N2, N3
Paint:
Posts and frame: Two pack system in finished in Dulux "Bluestone Rock" with manufacturers preparation, primers and undercoats
Side Panel: Two pack system finished in Gloss Black with manufacturers preparation, primers and undercoats
Roof sheeting and flashing: "Colorbond" Woodland Grey
NATURAL AREA SIGNAGE

PLAN VIEW

SIDE ELEVATION