



Waverley Council Public Domain Technical Manual | Rev G | AUG 2020 | 157

## **Arris Rail Fence**

#### Function / Location

- The white Arris Rail fence provides a consistent character to the Waverley coast.
- It is to be used primarily along the coast where an edge definition is required.

#### Supplier

Contractor to nominate based on below specifications.

#### Product

- Arris Rail Fence Type A: Arris Rail Fence with 2 rails 1,150mm High.
- Arris Rail Fence Type B: Arris Rail Fence with 2 rails and wire infill 1,150mm High.
- Australian hardwood timber complying with one or more of the following: Australian Forest Certification Scheme (AFS); Forest Stewardship Council (FSC), or Programme for the Endorsement of Forest Certification (PEFC).
- 100 x 150mm post, 90 x 90mm Arris top rail, 75 x 100mm mid rail at 1,500mm centres.
- 6 x 4mm 316 Stainless Steel 7x7 lay wire rope for Fence Type B only.
- Allow for stainless steel 316 wire rope end-post fixing & tensioning fittings including 8x60mm eye screws, wire rope thimbles and crimps and m8 forged closed jaw-jaw turnbuckles at terminations and change in fence direction for Fence Type B only.
- Paint finish to timber Dulux Weathershield Low Sheen "Vivid White".

#### Installation

- Arris Rail Fence Type B is to be used where there is a level change between 1,000 and 2,500mm.
- Sub-surface in concrete footings.
- Structural engineer's review and certification required during all stages of design and installation.

- Regular maintenance should be carried out at a minimum of six monthly intervals, and any repairs to the coating should be made immediately.
- Maintenance consists of cleaning down with a mild detergent in warm water using a cloth or sponge, rinsing off with clean water, and then a visual inspection to check the integrity of the coating.
- Any breaks or openings in the coating need to be repaired. Repairs would require cutting back through the coating to the raw timber using a medium abrasive paper (120 grit), providing a smooth surface by sanding with fine abrasive paper (240 grit), and recoating with Dulux Weathershield Low Sheen "Vivid White".



Arris Rail Fence Type A



Arris Rail Fence Type B

## Fences and Barriers Arris Rail Fence



## Arris Rail Fence Fences and Barriers



D08 ARRIS RAIL FENCE TYPE B WITH WIRE INFILL - ELEVATION 1:25

NOTES:

- 1. WIRES TO BE TENSIONED AS PER NCC SECTION 3.9.2 BARRIERS AND HANDRAILS BASED ON THE WIRE SPACING
- 2. ALLOW FOR STAINLESS STEEL 316 WIRE ROPE END-POST FIXING & TENSIONING FITTINGS INCLUDING 8X60MM EYE SCREWS, WIRE ROPE THIMBLES AND CRIMPS AND M8 FORGED CLOSED JAW-JAW TURNBUCKLES AT TERMINATIONS AND CHANGE IN FENCE DIRECTION.



5MM THICK S/S SUPPORT PLATE TO BE SECURED WITH 3 x S/S COACH SCREWS @ 10MMØ,65MM LONG

(D09) ARRIS RAIL FENCE TYPE B - SUPPORT PANEL Scale 1:10 This page is intentionally left blank

## **Steel Fence**

#### Function

- Steel Fence Type A may be used around playgrounds where planting, rock or the pedestrian garden barrier are not appropriate.
- Height requirements Minimum 600mm to a maximum 850mm for general fencing. If the fence is to be used as a balustrade, follow requirements as per AS4685.1:2014
- In special areas such as lookouts, a hardwood timber rail shall be incorporated (see image).
- Steel Fence Type B may also be used where separation of vehicles and pedestrians is required, such as on park edges adjacent to high speed busy roads, or where a 'transparent' fence is desirable. Fall heights should not exceed 1000mm. Application to be confirmed with council prior to installation.
- Steel Fence Type B should not be used in playgrounds as it is climbable and does not meet the code.
- Steel Fence Type C may be used at lookouts and special areas with fall heights that exceed 4,000mm.
- Continuous fences and other barriers should be avoided along park edges adjacent to moving vehicles to avoid trapping pedestrians.

#### Supplier

- Contractor to nominate based on below specifications.
- Product
- Steel Fence Type A Steel Fence with Vertical Balustrade.
- Steel Fence Type B Steel Fence with Wire infill. Wire to be 4mm Ø 316 Marine Grade Stainless Steel.
- Steel Fence Type C Steel Fence with clear laminated toughened Glass infill to AS1170.1.
- In coastal zones, use 316 Marine Grade Stainless Steel, 2B raw material with 600 grit polish finish.
- Other zones, use Hot Dip Galvanised Steel with natural finish or mild steel with MIO finish.
- No signage / branding (manufacturer or council) to be on fencing.

#### Installation

- Sub-surface mounted in concrete footing in gardenbed areas.
- Surface mounted on concrete slab.
- Hidden mounting on deck structures
- Structural engineer's review and certification required during all stages of design & installation



Steel Fence Type A



Steel Fence Type A with hardwood timber rail

- Clean as needed using a soft cloth or brush with a mild detergent. Avoid steam cleaning, abrasive cleansers, carbon steel brushes/wools and cleaners containing chlorine. Stainless steel cleaners may be used on stainless fences to remove stubborn stains.
- A natural patina of minor scratches will always occur on highly polished surfaces. However, should minor repolishing be required, use metal polishing liquids such as Brasso.
- Deeper scratches and damage can sometimes be ground out and repolished by a professional.

## Fences and Barriers Steel Fence



## Steel Fence Fences and Barriers

Steel Fence Type A







NOTES:

- 1. WELDING FINISH TO BE BUTT WELD (B.W.).
- 2. STAINLESS STEEL TO HAVE MIN. YIELDING STRENGTH OF 205MPa AND TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
- 3. 316 STAINLESS STEEL FIXINGS TO BE USED TO CONNECT 316 STAINLESS STEEL PARTS ONLY.
- 4. ENDPOSTS AND OTHER POSTS WHERE TENSION FORCE IS LOCKED OFF, ARE TO BE DOUBLE 75 x 16MM.
- 5. ALL HANDRAILS TO BE MARINE GRADE 316 STAINLESS STEEL
- 6. STEEL FINISH OPTIONS:
- A. 316 STAINLESS STEEL, 2B RAW MATERIAL WITH 600 GRIT POLISH FINISH
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- BLACK STEEL WITH DULUX MIO PAINT FINISH, COLOUR 'BRIDGE GREY', OR Β.
- C. HOT DIP GALVANISED STEEL WITH NATURAL FINISH

## Fences and Barriers Steel Fence



- 1. WELDING FINISH TO BE BUTT WELD (B.W.)
- 2. STAINLESS STEEL TO HAVE MIN. YIELDING STRENGTH OF 205MPa AND TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
- 3. 316 STAINLESS STEEL FIXINGS TO BE USED TO CONNECT 316 STAINLESS STEEL PARTS ONLY.
- 4. ENDPOSTS AND OTHER POSTS WHERE TENSION FORCE IS LOCKED OFF, ARE TO BE DOUBLE 75 x 16MM.
- 5. ALL HANDRAILS TO BE MARINE GRADE 316 STAINLESS STEEL
- 6. STEEL FINISH OPTIONS:
- A. 316 STAINLESS STEEL, 2B RAW MATERIAL WITH 600 GRIT POLISH FINISH
- B. BLACK STEEL WITH DULUX MIO PAINT FINISH, COLOUR 'BRIDGE GREY', OR
- C. HOT DIP GALVANISED STEEL WITH NATURAL FINISH

7. WIRES TO BE TENSIONED AS PER NCC SECTION 3.9.2 BARRIERS AND HANDRAILS BASED ON THE WIRE SPACING

8. ALLOW FOR STAINLESS STEEL 316 WIRE ROPE END-POST FIXING & TENSIONING FITTINGS INCLUDING 8X60MM EYE SCREWS, WIRE ROPE THIMBLES AND CRIMPS AND M8 FORGED CLOSED JAW-JAW TURNBUCKLES AT TERMINATIONS AND CHANGE IN FENCE DIRECTION.

### Steel Fence Fences and Barriers



#### NOTES:

- 1. WELDING FINISH TO BE BUTT WELD ( B.W.).
- 2. STAINLESS STEEL TO HAVE MIN. YIELDING STRENGTH OF 205MPa AND TO BE IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
- 3. 316 STAINLESS STEEL FIXINGS TO BE USED TO CONNECT 316 STAINLESS STEEL PARTS ONLY.
- 4. ENDPOSTS AND OTHER POSTS WHERE TENSION FORCE IS LOCKED OFF, ARE TO BE DOUBLE 75 x 16MM.
- 5. ALL HANDRAILS TO BE MARINE GRADE 316 STAINLESS STEEL.
- 6. WHERE POSTS ARE FIXED AT 1600MM CENTRES, ROD WELDED TO HANDRAIL MUST BE 20MM Ø. 16MM Ø WHERE FIXED AT 900 MAX. CENTRES.
- 7. STEEL FINISH OPTIONS:
- A. 316 STAINLESS STEEL, 2B RAW MATERIAL WITH 600 GRIT POLISH FINISH
- B. BLACK STEEL WITH DULUX MIO PAINT FINISH, COLOUR 'BRIDGE GREY', OR
- C. HOT DIP GALVANISED STEEL WITH NATURAL FINISH

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## **Post Fence with Wire**

#### Function

- The Recycled Plastic Post fence with Stainless Steel wire may be used to form a fence barrier to vegetation areas that need to be protected such as Bush Care sites.
- The Recycled Plastic Post fence should not be used in urban park settings such as Bondi Junction.
- Continuous fences and other barriers should be avoided along park edges that are adjacent to moving vehicles as they can trap pedestrians.

#### Supplier

- Contractor to nominate based on below specifications.
- Product
- Recycled Plastic Post Fence with Stainless Steel Wire
- Recycled Plastic Fixed Bollards. See PDTM Furniture and Fixtures Recycled Plastic Bollard.
- 135 x 65 x 1,500mm. 1,000mm height above ground.
- 4 strands 4mm Stainless Steel Wire.
- No signage / branding (manufacturer or council) to be on fencing.

#### Installation

- Sub-surface mount in reinforced concrete footing. Wire to be held in place and tightened using Stainless Steel Turnbuckle.
- Structural engineer's review and certification required during all stages of design & installation

#### Maintenance

• No special maintenance is required other than regular cleaning with mild detergent, clean water rinse and wipe down.



Recycled Plastic Fence with Stainless Steel Wire

## Fences and Barriers Post Fence with Wire



NOTES:

- 1. NOT TO BE USED AS A BALUSTRADE / BARRIER.
- 2. WIRES TO BE TENSIONED MIN. EXTENT TO BECOME VISUALLY STRAIGHT / ACCEPTABLE. DO NOT OVER TENSION, CARE TO BE TAKEN BY INSTALLER TO ENSURE POSTS ARE NOT STRESSED / DEFLECTING HORIZONTAL.
- 3. WIRES TO BE TENSIONED AS PER NCC SECTION 3.9.2 BARRIERS AND HANDRAILS
- 4. ALLOW FOR STAINLESS STEEL 316 WIRE ROPE END-POST FIXING & TENSIONING FITTINGS INCLUDING 8X60MM EYE SCREWS, WIRE ROPE THIMBLES AND CRIMPS AND M8 FORGED CLOSED JAW-JAW TURNBUCKLES AT TERMINATIONS AND CHANGE IN FENCE DIRECTION.

## **Picket Fence**

#### Function

• The steel white picket fence may be used to define the edges of cricket fields.

#### Supplier

• Contractor to nominate based on below specifications.

#### Product

• Steel Picket Fence: Osborne Spearhead

#### Materials and Dimensions

- 65 x 65mm Galvanised Steel posts. Each panel contains 17 pickets welded onto two horizontal members. Steel to be powder coated "Pearl White". Typically 1,200mm high, but in sections, these heights may vary to 1,600mm high (as specified by council representative).
- No signage / branding (manufacturer or council) to be on fencing.

#### Installation

- Installed by sub-contractor as per manufacturer's and structural engineer's recommendations.
- Sub-surface mount in concrete footing.
- Structural engineer's review and certification required during all stages of design and installation.
- Install and make good mowing strip where present/ required to match existing.

- External surfaces, including the underside and sheltered areas, should be washed down regularly, especially in corrosive conditions (eg. salt or chemical deposits).
- Powder coated surfaces that have become dull through prolonged exposure to sunlight can usually be revived by polishing. Automotive polish (noncutting) can be used to restore a surface that has become scratched or abraded.



Picket Fence Type 4

## Fences and Barriers Picket Fence



## Garden Fence

#### Function

- The Garden Fence is to be used to protect gardens where pedestrian and or dog trampling is a risk.
- The Garden fence is used to define edges and guide movement.
- This fence is suitable to define playground edges in conjunction with planting and is preferable to the Steel Fence.

### Supplier

• Contractor to nominate based on below specifications.

### Materials and Dimensions

- Garden Fence
- 800mm High (700mm above ground).
- Finish to be Galvanised Steel with black powdercoat finish, MIO Bridge Grey paint or Natural Hot Dip Galvanised steel finish; or mild steel with MIO finish.
- No signage / branding (manufacturer or council) to be on fencing.

### Installation

- Install as per structural engineer's recommendations.
- Sub-surface mount in concrete footings.
- Connect single loops to form continuous line of fencing, using shared footings.
- Structural engineer's review and certification required during all stages of design & installation.

- Unpolished and brushed metals, will weather naturally. If required, these surfaces may be cleaned using a stiff bristle brush, mild detergent and warm water, with a clean water rinse.
- Minor damage and scratches can generally be restored by hand using Scotch-Brite pad or stiff, nonferrous wire brush.



Garden Fence



Garden Fence Dickson Park

## Fences and Barriers Garden Fence

NOTES:



D04 Scale 1:50

## **Coastal Fence**

#### Function

• The Coastal Fence is used along coastal reserves with an existing coastal fence or along clifftop perimeters where a heightened risk of fall is identified.

### Supplier

• Contractor to nominate based on below specifications.

#### Materials and Dimensions

- 1,200mm high post and infill panel fence to be used in cliff top locations within parks and alongside walking tracks.
- 1,800mm high post and infill panel fence in cliff top locations adjoining sports fields.
- Timber rail at top of fence to be used at lookout locations to allow people to comfortably lean against fence.
- Materials 316 stainless steel at 320 grit polish, final finish electropolish.
- Timber cladding, seasoned Australian Hardwood, durability class 1. Timber to be oiled.
- The Coastal Fence is guided by
- AS 2156.2 Walking tracks, Part 2: Infrastructure design

AS 1926.1 and AS 1926.2 Swimming pool safety

AS 1170.1 Structural design Actions, Part 1: Permanent, imposed and other actions

#### Installation

- Install as per structural engineer's recommendations.
- Sub-surface mount in concrete footings.
- Structural engineer's review and certification required during all stages of design and installation.

#### Inspection and Maintenance

- Check upright and supporting posts for wear and tear. All upright, supporting poles should be at right angles to the ground.
- Replace any broken or damaged sections of fencing.
- Regular cleaning with a mild detergent, clean water rinse and wipe down of stainless steel.
- Timber to be re-oiled annually with Intergrain Natures Oil.



Coastal Fence 1,800mm high

## Fences and Barriers Coastal Fence





## Fences and Barriers Coastal Fence





## **Chain Wire Fence**

#### Function

• The Chain Wire Fence may be used at certain sports grounds and courts where ball loss is an issue.

#### Supplier

• Contractor to nominate based on below specifications.

#### Materials and Dimensions

- Chain Wire Fence.
- Posts and Rails to be Galvanised Steel with black powdercoated finish, 1,800mm high.
- Mesh to be 3.15mm Galvanised Steel with black PVC coating.
- No signage / branding (manufacturer or council) to be on fencing.

#### Installation

- Install as per structural engineer's recommendations.
- Sub-surface mount in concrete footings.
- Surface mount on concrete pad.
- Structural engineer's review and certification required during all stages of design and installation.

- Check upright and supporting posts for wear and tear. All upright, supporting poles should be at right angles to the ground.
- Replace any broken or damaged sections of chain wire fencing.
- Regular cleaning with a mild detergent, clean water rinse and wipe down.



Chain Wire Fence

## Fences and Barriers Chain Wire Fence



#### NOTES:

- 1. CHAIN-LINK FABRIC FENCING SHALL COMPLY WITH AUSTRALIAN STANDARD AS 1725-2010 PARTS 2-5 AS APPLICABLE INCLUDING FIXINGS, GATE CATCHES AND HINGES
- 2. ALL CHAIN LINK FABRIC FENCES ARE TO BE SUPPLIED AND INSTALLED AS PER FENCES TYPE 2 -T-B/P-T (TOP AND BOTTOM RAIL) OR AS SPECIFIED.
- 3. THE GALVANISED (ZINC) COATING ON THE STEEL PIPES SHALL COMPLY WITH AS/NZ 4792.

4. POST AND RAILS TO BE MANUFACTURED FROM MEDIUM QUALITY GALVANISED STEEL PIPES TO COMPLY WITH AS 1725-2010 PARTS 2-5 AS APPLICABLE AND AS 1163 GRADE 250.

- 5. ALL CHAIN LINK FABRIC MESH FENCE TO BE GALVANISED STEEL WITH A BLACK PVC COATING.
- 6. ALL POSTS AND RAILS SHALL BE BLACK POWDERCOATED FINISH TO AS 5405.

7. ALL ITEMS WELDED OR CUT ON SITE MUST BE PRIMED FOLLOWED BY BLACK PAINT.

8. ALL FITTINGS INCLUDING NUTS AND BOLTS ARE TO BE SPOT-WELDED TO STOP REMOVAL.

9. SECURE RAILS TO POSTS WITH GALVANISED STEEL BOLTED SPLIT CLAMPS AS PER AS 1725-2010 PARTS 2-5 AS APPLICABLE.

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