



REVIEW OF PLANS REPORT

Wodonga Creek Activation Project, Diamond Park

Client
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INTRODUCTION

This report comprises findings on assessment of the play equipment items for the proposed playground at Diamond Park, Wodonga Creek Activation Project. The following documents were reviewed:

Document/Drawing No.	Description	Revision
L-23050-201	Surface and Finishes - Playground	A
L-23050-202	Grading and levels - Playground	A
L-23050-203	Planting Plan - Playground	A
L-23050-301	Detail Plan - Adventure Playground	A
L-23050-302	Detail Plan - Little Kids Playground	A
L-23050-303	Detailed Layout Plan - Water Play Playground	A

The Review of Plans report should be read in conjunction with the Kidsafe NSW information sheets which can be downloaded from the website: kidsafensw.org.

This report assesses the inclusions of the nominated playground plans against the relevant Guidelines, Australian Standards, Codes and Regulations listed below;

Australian Standard AS 4685.0:2017 Playground equipment and surfacing

Part 0: Development, installation, inspection, maintenance and operation

Australian Standard AS 4685:2021 Playground equipment and surfacing

Part 1: General safety requirements and test methods

Part 2: Particular safety requirements and test methods for swings

Part 3: Particular safety requirements and test methods for slides

Part 4: Particular safety requirements and test methods for cableways

Part 5: Particular safety requirements and test methods for carousels

Part 6: Particular safety requirements and test methods for rocking equipment

Australian Standard AS 4685:2014 Playground equipment and surfacing

Part 11: Particular safety requirements and test methods for spatial networks

Australian Standard AS 4422:2022 Playground surfacing

Specifications, requirements and test method

Australian Standard AS 16630:2021 Permanently installed outdoor fitness equipment

Safety requirements and test methods

Australian Standard EN AS14974:2021: Skateparks

Safety requirements and test methods

Australian Standard EN AS16899:2020: Parkour equipment

Safety requirements and test methods

Australian Standard AS 1428:2009 Design for Access and Mobility (selected clauses)

Everyone Can Play: A Guideline To Create Inclusive Playspaces (Department of Planning and Environment, 2023)

PROPOSED INCLUSIONS

Proposed play equipment items and inclusions comprise:

Adventure Playground

- Possums Hideout – Lypa
- Extra Hight Swing Special – Urbania
- Multi Surface Triple Swing – Urbania
- Ring Scales – Urbania

Little Kids Playground

- Toddler Twin Swing – Urbania
- Small Sinner – Urbania
- Dual Rocker – Lypa
- Beastie – Lypa
- Rounded Sand Table – Lypa
- Sand Pulley – Lypa
- Balance Log – Lypa
- Single Concrete Slide (900mm)– Lypa
- Mound with climbing aids
- Thongaphone – Lypa
- Gumnut Cubby with Cladding – Lypa
- Turtle – Lypa
- Potion Making Stone – Lypa

Water Play Area (suggested supplier Urbania)

- Pumps:
 - Crank Handle Pump
 - Lever pump
 - Mushroom spring
 - Playground pump
 - See-saw pump
- Gates:
 - Water flap
 - Sickle gate
 - Rectangular flap
 - Rotating gate
- Other:
 - Ball valve
- Access for All:
 - Water flooder with locking element
- Wheels:
 - Small bucket wheel
- Sprays:
 - Spray Head

Playground surfacing:

- Wet pour rubber, Organic playground softfall,

ISSUES AND RECOMMENDATIONS

Each of the following sections correlates to elements of the Australian Standards for playground equipment. Each section describes the element, identifies hazards and/or non-compliance and provides recommendations.

Key:	R = Recommendation eg. R1.1	NA = Not Applicable
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1. Marking

AS 4685 specifies that individual play equipment structures are to be permanently marked with a plate clearly identifying the name, address, the equipment reference, year of manufacture, ABN and designation (number and date) of the Australian Standard, i.e. AS 4685.1:2022 and any other applicable part of the AS 4685 series. Basic level marks are required on equipment to indicate the installation level of surfacing. All manufacturers, suppliers and designers must be able to verify compliance for play equipment, custom designed items and surfaces where statements of compliance to the Australian Standards have been made.

1.1 No reference is made throughout plans regarding compliance to the AS 4685 or AS 4422. landscape specification not provided.

R1.1 Add notes to plans and landscape specification for:

- All play elements to be compliant with, and installed in accordance with, AS 4685:2021 and AS 4422:2022
- Certificates of compliance for manufactured play equipment items to be obtained from the manufacturer/supplier.
- Playground surfacing 'soft fall' materials (playground mulch and rubber (unitary)) to be accompanied by certificate of compliance to AS 4422:2022.
- Basic level marks are to be installed on equipment installed in loose-fill to indicate surfacing depth.
- Surface testing of unitary surfaces to verify compliance with AS 4422 and AS 4685 to be conducted post installation.
- A Comprehensive Post Installation inspection will verify compliance with AS 4685.
- All documentation relating to playground assets, inspections and testing, to be kept for the asset owners playground safety management system.

2. Access, Entrance and Surrounds

AS 4685.0 and AS 1428 specifies that playgrounds should have clear access for pathways and supervision without trip hazards, sharp protrusions or weeds.

2.1 Detail of edge between surface types not provided.

R2.1 Add detail to plans and landscape specification to provide flush finishes between adjacent surfaces.

2.2 No equipment items are accessible for users or supervising adults who may rely on mobility aids.

R2.2 Reconsider surfacing used to access basket swing, group rocker which are both inclusive items. A unitary pathway adjoining these surfaces would enable access for all users and promote effective supervision.

3. Free Height of Fall

AS 4685 specifies that the free height of fall must not exceed 3000mm for All Age Settings. The free height of fall is the greatest vertical distance measured from the intended body support of the equipment to the impact area below. Unintended access shall not be provided to excessive heights.

3.1 The free height of fall of the P1 (Possum Hangout) in the Adventure Playground exceeds 3m. Website specs state 3100mm. Note, as this equipment is planned to be installed in loose-fill, the free height of fall could vary and increase further with loose-fill displacement.

R3.1 Review choice of equipment or replace element which exceeds 3000mm.

3.2 Not able to determine the free height of fall of T4 ('Beastie') and T7 ('Balancing log') in the Little Kids Playground, and boulders and timber steppers in in the Adventure Playground.

R3.2 Any play equipment which has a free height of fall between 600mm – 1500mmH, needs to have an impact area of 1500mm and surfacing which complies with AS 4422. To mitigate this requirement, add not to plan and landscape specification for the finished free height of fall of T4 (Beastie), T7 (Balancing log), boulders and log steppers are less than 600mmH.

4. Spaces and Areas

AS 4685 specifies a minimal impact area of 1500mm is required around equipment with fall heights 600mm-1500mm above playing surface and between individual items of equipment with an increase in the impact area for equipment with platforms measuring more than 1500mm above playing surface. Falling spaces are required for specific equipment items with forced movement such as slides, swings and carousels. The falling space/impact area for equipment with forced movement cannot overlap with other falling spaces/impact areas.

4.1 Not able to determine if adequate impact areas/falling spaces have been provided for all equipment as specifications for equipment were not provided and not all were available online.

R4.1 Install equipment in accordance with manufacturer's installation instructions. Note: extra high swing will require significantly more impact area/falling space than other swings 11.4m required overall for this item.

4.2 Marginal space allocations in plan set out. Impact areas/falling spaces in Adventure Playground are touching. No room for any surveying/placement shortfalls or misalignments when onsite.

R4.2 Ensure surveying assessments are accurate to prevent falling space cross overs especially for swings and 'Ring Scales', as they both have forced movement and must not intersect.

4.3 Detail plan of the Little Kids Playground indicates markings on the rubber embankment which may be climbing aids (climbing pegs and ropes). Not determined if the 'climbing aids' beside the slide are within the free space of the slide. If they are this could create a conflict of play. (I.e; encouraging children to access slide/embankment through the free space of slide).

R4.3 AS 4685 species the free space of equipment shall be free of obstacles. Free space of slide is measured from centre of seated position, with a 1m radius. Relocate climbing aids outside of free space if required.

5. Playground Surfacing

AS 4685 specifies that certified surfacing be provided across the impact area where play equipment is more than 600mm above playing surface. The critical fall height is determined by test methods as per AS 4422. Loose-fill surfacing required to be installed at a minimum 300mm depth and maintained at not less than 200mm depth.

5.1 Refer to R1.1.

5.2 Colour intended for wet pour rubber not determined.

R5.2 Dark coloured rubber surfaces, when unshaded, can reach extreme temperatures resulting in contact burns. When ambient air temperatures are below 30°C, surface temperatures of these materials reach as high as 65-75°C and on hot days can reach 90°C.

Avoid dark colours for heat and very light colours for UV glare. Conduct a shade audit to determine shade needs.

Refer to : Pfautsch, S., & Wujeska-Klause, A. (2021). Guide to Climate-Smart Playgrounds: Research Findings and Application. <https://doi.org/10.26183/2bgz-d714>

5.3 Noted drainage plans. Not determined what sub-surface provisions are intended for loose-fill mulch and sand areas. No details provided regarding geomesh fabric.

R5.3 Provide detailed plans and specifications for sub-surface treatments for loose fill and sand areas.

5.4 No detailed plans or sections provided for transition from unitary surfacing (rubber) to loose-fill.

R5.4 There have been reported injuries, (mainly adults) having falling/tripping incidents due to steep rubber transitions when mulch is displaced/depleted, especially around swings. [SAPIA: Code of Practice](#): for the installation and maintenance of impact attenuating surfacing systems for Playgrounds, provides best practice guidelines for the transition between rubber and mulch. Review and add detail to plans and specifications for rubber transitions.

5.5 Unshaded concrete surfaces on outskirts of water play area may get very hot. Risk for contact burns is greater as users (young children) will be barefoot due to water play.

R5.5 Provide signage alerting supervising adults to be aware of hot surface risks if required.

6. Materials

AS 4685 specifies appropriate materials are used in the construction of equipment taking into account climatic and atmospheric conditions, toxicity, flammability and ultraviolet radiation. All timber components shall be free from Copper Chromium Arsenate (CCA) or creosote timber treatments. Timber elements need to drain freely and metal components need to be corrosion protected.

6.1 The treatment method for the timber elements, including any subsurface treatment, has not been specified.

R6.1 Add detail to specification as per AS 4685 (4.1.3) for all timber;
• shall exclude CCA or creosote treatments, including timber that has contact with the

ground. A bitumen-based treatment is recommended for any timber installed below ground level.

- all timber shall be treated in accordance with AS 1604 series for hazard class H4 (and above ground H3) or durability class 1 or class 2 in accordance with AS 5604 provided untreated sap wood does not exceed 15% of the cross section area.

6.2 No detail outlined regarding treatments or capping of open end cuts on timber posts/logs.

R6.2 To prolong the life of timber elements protect open cut ends with preserving treatment, nail plates or end caps where suitable.

7. Finish of Equipment

AS 4685 specifies that the finish of equipment shall have no protruding nails, bolt threads, projecting wire rope terminations or pointed or sharp ended components. Projecting parts and corners are less than 8mm with a minimum radius of 3mm and are to be covered. Surfaces are finished smooth with no splintering.

7.1 No details provided regarding finishes of timber or boulder surfaces.

R7.1 Ensure the finish of all surfaces and edges are smooth. Ensure all corners, edges and projections are finished with a radius not less than 3mm. Chamfer sharp corners or edges of boulders. Ensure the fixing of components comply with the requirements of AS 4685. Accessible bolt threads are covered or protected.

8. Equipment Elements

AS 4685 specifies that all playground equipment should be structurally stable and fit for children's play.

8.1 The rubber embankment in Little Kids Playground is very steep 1:2, behind the slide. Varying gradients (1:10 & 1:8) to each side of the embankment. Sand is in close proximity to embankment and will be transported in shoes and clothing. The combination of steep slopes and sand will make the rubber slopes extremely slippery and challenging for young children or less mobile people attempting to access the embankment.

R8.1 As this is a play area for younger children, often needing to be supported by adults, review/redesign the gradient of the embankment. Additional provisions may also be considered:

- a rope handrail to support adults
- build in rubber steps/indents
- signage to alert (adult) users of slippery surface.

8.2 The P1 ('Possums Hangout') in the Adventure Playground has a long tube slide. As specifications are not provided, it is not determined if this slide is a giant tube slide (GTS > 7.5m long). If this side is a GTS there are specific requirements around the access into this equipment/slide which can not be determined. It is noted a protection against climbing collar/barrier is provided on slide.

R8.2 In 2025 a handbook - '**supplementary guide for AS 4685.3 2021, Giant tube slides**' was released stating all GTS should be designed in compliance with the supplementary guide and have:

- at least 1 ability filter in the path of travel to the GTS to limit access, and
- Signage (no tandem riding, feet first riding, exit immediately, not for users under 1200mmH, Users must be able to access the equipment independently; assistance is not allowed, no climbing up inside or outside of slide).

Review with manufacturer to determine if specifications comply with the new requirements and install signage as outlined in handbook.

9. Protection Against Falling

AS 4685 specifies guardrails/barriers to be installed for heights of more than 600mm above playing surface. Continuous handrails are required on each side of access ways and bridges. All items intended for gripping must have a diameter that measures between 16mm-45mm.

9.1 The P1 ('Possums Hangout') in the Adventure playground may be easily accessible due to the ladder, not able to determine the height of lowest rung. Not determined if there are any other ability filters within the tower with slide and the opening sizes in the barriers, as specifications were not provided.

R9.1 If ladder is easily accessible (bottom rung is under 400mmH from ground), discuss access options with manufacturer to create a more challenging ability filter to limit access into equipment for less competent users rendering it 'not easily accessible'.

10. Head and Neck Entrapment

AS 4685 specifies that bound head and neck entrapment (dimensions of 89mm – 230mm), partially bound and V-shaped openings, shearing or moving openings (flexible and rigid parts with openings less than 230mm) must be avoided. Head and neck entrapment refers to any opening at a height of more than 600mm above playing surface that would allow a child's body to pass through but not their head. This can result in death or serious permanent injury. It is therefore critical that any head entrapment hazards are eliminated immediately.

10.1 Potential bound head and neck entrapment between in openings over 600mm from the playground surface in the T1 (Possums Hangout – Adventure Playground) and the T10 ('Gumnut Cubby with cladding – Little Kids Playground). Not able to determine as specifications were not provided. Expectation is for manufactured equipment certified compliant with AS 4685 should not have entrapment issues.

R10.1 Refer to certificates of compliance with AS 4685. Comprehensive Post Installation inspection will test onsite to verify compliance.

11. Clothing/Hair Entrapment

AS 4685 specifies that toggle/clothing entrapment refers to situations where parts of clothing/hair may become trapped and may lead to serious or fatal injury.

11.1 Potential for clothing/hair entrapment at the top of the slides.

R11.1 Comprehensive Post Installation inspection will test onsite to verify compliance.

12. Foot Entrapment

AS 4685 specifies that foot entrapment refers to situations where gaps greater than 30mm present on surfaces inclined up to 45° intended for running/walking or completely bound rigid openings in surfaces for running/climbing.

12.1 No details provided for the feature concrete paving around the water play area.

R12.1 Avoid ridged bound openings greater than 30mm, provide a flush surface finish to adjoining surfaces. Comprehensive Post Installation inspection will test onsite to verify compliance.

13. Finger Entrapment

AS 4685 specifies that finger entrapment refers to any opening that would allow a child's fingers or thumbs to be trapped in a fall situation and can be responsible for traumatic long term injury. Gaps or openings with dimensions of 8-25mm at 1000mm or more above playing surface level must be eliminated. Chains must conform to AS 2321 as a minimum and shall have a maximum opening of 8.6mm in any one direction.

13.1 Not able to determine as specifications were not provided for any equipment.

R13.1 Comprehensive Post Installation inspection will test onsite to verify compliance.

14. Means of Access

AS 4685 specifies that equipment is designed to provide safe ascent or descent. Means of access include steps, stairs, ladders and ramps. The equipment shall be designed to ensure that adults are able to gain access to assist children within the equipment.

14.1 Refer to R 8.1, R8.2 and R9.1

15. Sandpits

15.2 Sand specified on plan legend is 'playground sand'.

R15.2 Recommended sand to be used for sandpits is washed beach or river sand.

15.2 Shade not provided over sandpit area. Several existing trees are located on plans in sandpit. Size and type not determined. Not determined if adequate shade will be provided by trees. Whilst natural shade provides a thermally comfortable ambient environment, the sand may impact on the health of the trees. Tree debris in sand will be a constant source of maintenance.

R15.2 Reconsider maintaining trees in sandpit. Conduct a [shade audit](#) to ascertain shade requirements for the space. Install shade structure or additional planting of trees as determined by audit.

16. Plant Schedule

16. 1 No issues identified. Plants check against the [Kidsafe Grow Me Safely , Plants to Avoid list](#).

R16.1 Install any plants with sharp or pointy leaves or branches away from paths and play areas. Placement of any plants which drop large amounts of debris (seed pods, sticks and leaf matter) to be located away from access pathways to prevent trip and slip hazards or mask any variations in surface finishes.

17. Inclusiveness

An inclusive playground is one that invites and welcomes everyone, of all ages and abilities. AS 4685.0 Foreword states *Provision should also be made to cater for the needs and interests of users of all abilities*. The introduction of AS 4685.1 states that *play areas have a balance of safety whilst offering challenge and stimulation to all users*. Consideration in the playspace design of the three principles recommended by the guideline *Everyone Can Play*, includes access to and within the playspace, provision of various play opportunities and provision of amenities.

17.1 Refer to R2.1 and R2.2.

17.2 Noted, some seating options are provided which support accessibility and inclusion. No play equipment elements are accessible due to surface finishes, even though some items may offer inclusivity to users with mobility issues if accessible (ie; infant swing, P3 'group swing', 'dual rocker', 'thongaphone', 'gumnut cubby cladded').

R17.2 Review unitary surfacing finishes around these elements to provide access and inclusivity.

18. Shade

Appendix A AS 4685.0 provides general guidance on factors that should be considered in deciding on the amount and type of shade and sun protection provided in a playground. This includes direct and indirect UV radiation, site usage, climatic and weather conditions, clearance heights above equipment.

18.1 Built shade is provided over water play area. No built shade structures proposed for the Adventure Playground or the Little Kids Playground. Potential for contact burns on sliding and playground surfaces.

R18.1 Refer to R5.2 and R15.2. In addition, install signage alerting visitors to potential hot surfaces.

19. Fencing

19.1 Although fencing of a public space is not a requirement of AS 4685, barriers are often used as a risk mitigation tool to redirect children from directly running out towards high risk areas eg; carparks, road, waterways. Some fencing/barriers are indicated on plans, no details are provided.

R19.1 To avoid introducing a strangulation hazard (Ushaped/loop top fencing), choose fencing/barriers with a flat top profile.

20. Additional Items

20.1 Not determined if concrete finishes around water play area and sand

R20.1 Concrete surfaces adjacent to sand and water play areas require a textured non-slip finish achieving a minimum AS 4586 Class C (wet-barefoot) slip-resistance rating.

20.2 The use of F5 'Sun Loungers' may deter families from active supervision as the seating type will encourage supervising adults to recline.

R20.2 Review seating options for this area.

20.3 Water system to be utilised in water play areas is not specified. Single use or recirculated water system.

R20.3 If recirculated water is to be used engage qualified aquatic/water-treatment specialist To be involved in the design, commission, and to monitor, in accordance with [VIC Public Health legislation](#).

CONCLUSION

Kidsafe NSW has systematically identified the potential hazards and issues associated with the design of the playground and where possible provided recommendations.

The issues raised in this report are intended to achieve an acceptable and safe outcome for users of the playspace.

AS 4685.0 requires a **Comprehensive Post Installation Inspection** (including playground surface impact-attenuation testing of unitary surfaces) at the completion of the build. This inspection verifies that the playground complies with the requirements of the relevant parts of the AS 4685 series and the impact-attenuating surfacing test in AS 4422. It identifies and details installation and safety issues to be rectified prior to opening.

For further information or clarification on this report, please contact:

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INFORMATION AND RESOURCES

Documentation

The playground owner/operator should establish a Playground Safety Management System to include the recording and archiving of documentation.

Documentation may include:

- Policies and procedures
- Reports eg. accident/injury
- Inventory/Equipment register
- Inspection checklists
- Inspection reports
- Works orders
- Maintenance actions
- Certification records eg. equipment, surfacing
- Manufacturer's warranty details
- Manufacturer's installation, inspection and maintenance instructions
- Operating Instructions (if applicable)
- Supervision plan
- Risk and risk benefit assessments

For more information regarding the Australian Standards for playgrounds, refer to the Kidsafe NSW information sheets available to download from the website:

<http://www.kidsafensw.org/information-sheets/playground-safety/>

Relevant information sheets include:

- Assessing Risk and Benefit in Playspaces
- Barriers, Guardrails and Handrails
- Bike Tracks
- Entrapment
- Fencing Playspaces
- Impact Areas
- Mounds for Play
- Natural Playspaces
- Outdoor Fitness Equipment
- Playground Development
- Playground Safety Management System
- Playground Surfacing
- Portable Mats
- Sandpits
- Shade in Playspaces
- Slides
- Stepping Stones
- Swings
- Timber in Playspaces
- Trampolines

Moveable Play Equipment – a guide for playground owners and educators, a valuable resource for Education and Care Services. Download a copy from the website:

https://www.kidsafensw.org/imagesDB/documents/2021_FINAL_MoveablePlayEquipmentpdf.pdf

Information on safe gardening with children and recommended plants for playgrounds can be found on the web resource 'grow me safely':

<https://www.kidsafensw.org/safety/growmesafely/>