NSW GOVERNMENT Education

Darlington Public School – SSDA Condition C23

Condition	Condition requirements	Document reference
23 -	Prior to the installation of landscaping, the Applicant must prepare a revised Landscape Plan to the satisfaction of the Planning Secretary. The plan must:	Refer DPS-SSDA Condition C23 Summary Document (Stage 1) Pg 5-7 of pdf
23 (a)	(a) include planting details, and location, numbers, type and supply size of plant species, with reference to Australian Standards and preference for drought resistant species that contribute to habitat creation and biodiversity;	For planting types, supply sizes, plant species A-80000 (Appendix A, Pg 9 of pdf) For planting locations refer to planting plans A-83001 (Appendix A, Pg 28 of pdf) and A-83004 (Appendix B, Pg 32) For planting details refer A-82030 (Appendix A, Pg 24 of pdf) For drought resistant species that contribute to habitat creation and biodiversity refer Planting Plans A-83001(Appendix A, Pg 28 of pdf) to A-83004 (Appendix B, Pg 30 – 32 of pdf)
23 (b)	(b) provide for: (i) the retention of additional trees to be retained under condition C20; (ii) the retention of additional trees to be retained under condition C21, unless otherwise agreed by the Planning Secretary under that condition; (iii) a minimum 62% canopy cover within the site as stated in the 'Response letter to DPIE' by Ethos Urban dated 15 October 2020;	b) i) Refer Appendix D – Trees Retention Table and Appendix E – Darlington Public School Arborist Report ii) Not applicable to Stage 1 scope iii) Refer Appendix C – Tree Canopy Comparison iv) Refer schedule A-80000 – (Appendix A, Pg 9 of pdf) and plans A-83002 (Appendix B, Pg 30 of pdf)

	(iv) a new Eucalyptus saligna (to replace tree 48) in garden bed between COLA fire stairs pavement and kickabout area; (v) six Flindersia australis (200L pot size), three Banksia integrifolia (200L pot size) and one Magnolia grandiflora (400L pot size); (vi) compensatory tree planting of at least 36 trees with 30% of the tree species having a mature height of at least 6 metres, 30% mature heights of at least 10 metres and 40% mature heights of at least 20 metres;	v) Refer planting schedule A-80000 (Refer Appendix A, Pg 9 of pdf), Refer drawings A-83001(Refer Appendix A, Pg 28 of pdf) A-83002, A-83003 and A-83004 for plant locations (Refer Appendix B, Pg 30-32 of pdf) vi) Refer planting schedule A-80000 (Refer Appendix A, Pg 9 of pdf & summary document)
23 (c)	(c) include trees: (i) that represent a diverse range of species consistent with the expected mature heights and growth within the Sydney area and avoid palms, fruit trees and species recognised to have a short life span; (ii) are grown to Australian Standard 2303:2015 'Tree stock for landscape use' and have a pot size at installation of at least 200 litres (except as otherwise stated in these conditions) and a minimum height of 3 metres; (iii) that are planted in natural ground with adequate soil volumes to allow maturity to be achieved; (iv) that are appropriately located away from existing buildings and structures to allow maturity to be achieved without restriction;	c) i) Diversity of trees detailed in tree schedule A-80000 (Appendix A – Pg 9 of pdf) ii) Installation to Australian Standard 2303. Refer planting schedule A-80000 (Appendix A – Pg 9 of pdf) iii) All trees planet in natural ground. Refer planting detail drawings A-82030 (Appendix A, Pg 24 of pdf) iv) Refer planting plans A-83001(Refer Appendix A, Pg 28 of pdf) and A-83002 to A-83004 (Refer Appendix B, Pg 30-32 of pdf)
23 (d)	(d) include details of earthworks and soil depths including finished levels and any mounding, with minimum soil depths for planting on slab of 1000mm for trees, 450mm for shrubs and 200mm for groundcovers, excluding mulch and drainage layers; and	d) (N/A) no plants to be installed on-top of a slab in either Stage 1 or 2
23 (e)	(e) include details of planting procedures, drainage, waterproofing and watering systems.	e) Refer dwg A-82030 (Appendix A, Pg 24 of pdf)

AW EDWARDS

Darlington Public School

SSDA Condition C23 Satisfaction Report

A W EDWARDS PTY LIMITED

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CONTENTS

1		**DPS – SSDA Condition C23 Summary Document (Stage 1)**	**3**
	1.1	Introduction	3
	1.2	Condition C23A Reference/Summary	3
	1.3	Condition C23B Reference/Summary	3
	1.4	Condition C23C Reference/Summary	4
	1.5	Condition C23D Reference/Summary	4
	1.6	Condition C23E Reference/Summary	4
2		**Appendices**	**6**
	2.1	Appendix A – Landscape Drawings Stage 1	6
	2.2	Appendix B – Landscape Drawings Stage 2 (For Information Only)	7
	2.3	Appendix C - Tree Canopy Comparison	8
	2.4	Appendix D - Trees Retention Table	9
	2.5	Appendix E - Darlington Public School Arborist Report	10

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1 DPS – SSDA CONDITION C23 SUMMARY DOCUMENT (STAGE 1)

1.1 INTRODUCTION

This summary has been produced to seek approval to commence landscaping works for Stage 1 only, refer A-8000 for drawing set of Stage 1 & 2 drawings. Some Stage 2 plans referenced below have been attached for information only to assist with the review.

1.2 CONDITION C23A REFERENCE/SUMMARY

- For planting types, supply sizes, plant species refer to planting schedule on cover sheet A-80000.
- The selected plant species provide a diverse mix of understory and tree species across the site. The planting concept reinforces the Blackwattle Creek riparian woodland where possible. A small percentage of selected species also include exotic understory and tree species that accommodate shaded pockets adjacent building facades and deciduous trees in play areas that allow valuable winter sun. Native plant species in particular are drought resistant and contribute to the Blackwattle Creek habitat creation and biodiversity as the sitewide response.
- For planting locations refer to planting plans A-83001
- For planting details refer to drawings A-82030 (E)
- For drought resistant species that contribute to habitat creation and biodiversity refer Planting Plans A-83001 to A-83004. Drought resistant species highlighted with red underline.

1.3 CONDITION C23B REFERENCE/SUMMARY

- i) There are no trees in Stage 1 which need to be retained under condition 20, however refer to drawing A-80011 which confirms this. The stage 2 scope of works will demonstrate the trees to be retained under conditions C23b (i).
- ii) Not applicable to Stage 1 scope
- iii) Refer Appendix C - Tree Canopy Comparison submitted as part of response letter to DPIE. Tree canopy coverage remains the same and will achieve the 62% noted once stage 2 is complete.
- iv A new Eucalyptus Saligna is installed in Stage 2. Refer landscape plant schedule on the cover sheet A-80000, and phase 2 planting plan A-83002. (A-83002 to be submitted with stage 2 drawing approval)
- v) 6 x Flindersia australis(200L) , 3 x Banksia integrifolia (200L) and 1 x Magnolia grandiflora (400L) are specified for the project – Refer planting schedule on the cover sheet A-80000.
- Stage 1 includes 1 x Flindersia and Stage 2 includes 5 x flindersia as follows:
    - (stage 1) 1 x Flindersia australis (200L pot size), - A-83001

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- (stage 2) 5 x Flindersia australis (200L pot size), - A-83002, A-83003 (drawing's to be submitted with stage 2 drawing approval)

- Stage 2 also allows for the following: 3 x Banksia integrifolia (200L pot size) and 1 x Magnolia grandiflora (400L pot size), refer planting plans A-83002, A-83003, A-83004

- vi) Total number of trees (stage1 + stage2) is 46. All trees (100%) have a mature height of at least 6m. 30trees (65%) have a mature height of at least 10m. 21 trees (45%) have a mature height of at least 20m.

1.4 CONDITION C23C REFERENCE/SUMMARY

- i) A variety of trees are specified for the project which satisfy this condition. Such trees and their details are reflected on the tree schedule – the first table on drawing A-80000 (H). The proposed trees (eg: Banksia integrifolia, Eucalyptus citriodora, Eucalyptus Saligna, Flindersia australis, Pistacis chinensis, Ulmus parvifolia, Melaleuca linarifolia etc) have presented a diverse range of species consistent with the expected mature heights and growth within the Sydney area. There is also a selection of exotic tree species including Magnolia sp, Pistacia and Ulmus Sp. There is one palm species highlighted in the planting design as Livistona australis which is endemic to the Sydney Basin. The inclusion of this species was a special request from the aboriginal elders. These proposed trees don't include fruit trees nor recognized tree species that have a short life span.
- ii) All proposed trees are specified in minimum 200L pot sizes at a minimum 3m height at installation to Australian standard 2303. Refer planting schedule on the cover sheet A-80000.
- iii) All trees will be planted in natural ground. Refer planting detail drawing A-82030 (E) which highlights soil depth requirement of 1m for all tree installation which maximizes potential to achieve expected maturity.
- iv) All proposed trees are in the locations at least 4m away from the new building extents including existing structures to ensure the maturity of the trees can be achieved without restrictions. Refer planting plans A-83001to A-83004.

1.5 CONDITION C23D REFERENCE/SUMMARY

- d) N/A there are no plants to be installed on-top of a slab in either stage 1 or 2.

1.6 CONDITION C23E REFERENCE/SUMMARY

- e) Planting procedures including installation, establishment and maintenance are provided in the landscape specifications. Softscape details and planting procedures are provided on detail drawing A-82030. No waterproofing needed as all planting is on natural grade. 90mm AG pipe to tree pits is proposed to connect to sitewide stormwater system for

	drainage. There is no irrigation system provided; watering will be handled by hose via a network of proposed water taps on site. Taps / hose cocks have been located strategically around the school grounds to ensure garden bed areas can be manually watered by hand with hoses. Hand watering with hoses is more sustainable in terms of water use and requires less maintenance long term compared to irrigation systems. All planting will require a degree of watering and maintenance, especially through the initial plant establishment and maintenance periods of the project. In time, when plants are established there would be less water demand for native planting, as specified on the project compared to some exotic plant species.

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2 APPENDICES

2.1 APPENDIX A – LANDSCAPE DRAWINGS STAGE 1

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DARLINGTON PUBLIC SCHOOL

LANDSCAPE DETAIL DESIGN

LIST OF DRAWINGS (STAGE 1)

LANDSCAPE PLANS

A-80000	Cover Sheet and Schedules	NTS	A1
A-80001	Site Plan	1:250	A1
A-80011	Ground Floor - G.A and Finishes - ZONE 1	1:100	A1

LANDSCAPE PLAY AREAS AND SECTIONS

A-81011	Preschool Outdoor Area	As Shown	A1
A-81012	Preschool Outdoor Area	As Shown	A1
A-81013	Preschool Outdoor Area - Set Out 01	As Shown	A1
A-81014	Preschool Outdoor Area - Set Out 02	As Shown	A1
A-81015	Preschool Outdoor Area - Set Out 03	As Shown	A1
A-81051	Ramp Area - Set Out	As Shown	A1
A-81052	Ramp Preschool - Set Out	As Shown	A1
A-81061	Stair Sections	As Shown	A1
A-81062	Stair Sections	As Shown	A1
A-81070	Play Equipment	As Shown	A1

LANDSCAPE DETAILS

A-82010	Pavements	As Shown	A1
A-82020	Walls and Edging	As Shown	A1
A-82030	Softscape	As Shown	A1
A-82040	External Stairs and Ramps	As Shown	A1
A-82050	Furniture and Structures	As Shown	A1
A-82060	Fences and Gates	As Shown	A1

LANDSCAPE PLANTING PLANS

A-83001	Planting Plan - ZONE 1	1:100	A1

LANDSCAPE SCHEDULE OF WORKS

A-84000	Schedule of Works	N/A	A4

LIST OF DRAWINGS (STAGE 2)

LANDSCAPE PLANS

A-80000	Cover Sheet and Schedules	NTS	A1
A-80001	Site Plan	1:250	A1
A-80012	Ground Floor - G.A and Finishes - ZONE 2	1:100	A1
A-80013	Ground Floor - G.A and Finishes - ZONE 3	1:100	A1
A-80014	Ground Floor - G.A and Finishes - ZONE 4	1:100	A1

LANDSCAPE PLAY AREAS AND SECTIONS

A-81016	Outdoor Area - Set Out 01	As Shown	A1
A-81017	Outdoor Area - Set Out 02	As Shown	A1
A-81018	Outdoor Area - Set Out 03	As Shown	A1
A-81021	Climbing Area	As Shown	A1
A-81022	Climbing Area	As Shown	A1
A-81023	Climbing Area	As Shown	A1
A-81024	Climbing Area	As Shown	A1
A-81031	Natural Play + Dry Creek Bed	As Shown	A1
A-81041	Active Play	As Shown	A1
A-81042	Active Play	As Shown	A1
A-81043	Boardwalk Section	As Shown	A1
A-81044	Boardwalk Section	As Shown	A1
A-81045	Boardwalk Section	As Shown	A1

LANDSCAPE DETAILS

A-82011	Pavements	As Shown	A1
A-82012	Pavements	As Shown	A1
A-82021	Walls and Edging	As Shown	A1
A-82022	Walls and Edging	As Shown	A1
A-82031	Softscape	As Shown	A1
A-82041	External Stairs and Ramps	As Shown	A1
A-82042	External Stairs and Ramps	As Shown	A1
A-82043	External Stairs and Ramps	As Shown	A1
A-82044	External Stairs and Ramps	As Shown	A1
A-82045	External Stairs and Ramps	As Shown	A1
A-82052	Furniture and Structures	As Shown	A1
A-82053	Plant Signage	As Shown	A1

LANDSCAPE PLANTING PLANS

			A1
A-83002	Planting Plan - ZONE 2	1:100	A1
A-83003	Planting Plan - ZONE 3	1:100	A1
A-83004	Planting Plan - ZONE 4	1:100	

LANDSCAPE SCHEDULE OF WORKS

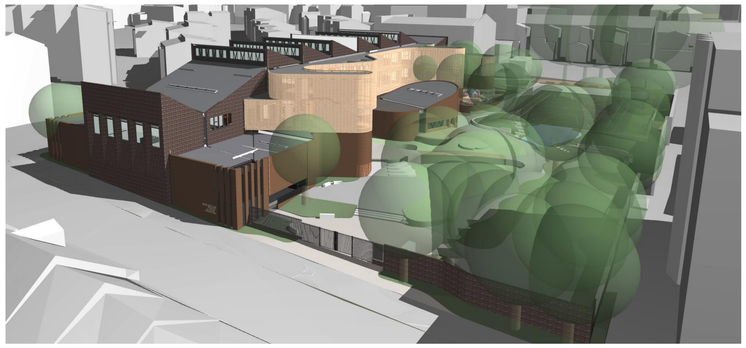
			A4
A-84000	Schedule of Works	N/A	

BOTANICAL NAME	COMMON NAME	MATURE HIEGHT (& TREES CANOPY WIDTH)		CONTAINER SIZE	DENSITY	QTY
TREES (TOTAL = STAGE 1 + STAGE 2)						
Banksia integrifolia	Coast Banksia / Coastal Honeysuckle	20-25m	6-8m	200L	As shown	4
Eucalyptus citriodora	Lemon-Scented Gum	45m	10-12m	200L	As shown	4
Eucalyptus saligna	Sydney Blue Gum	45m	10-12m	200L	As shown	1
Eucalyptus piperita	Sydney Peppermint	20-40m	10-12m	200L	As shown	2
Flindersia australis	Native Teak / Crow's Ash	20-40m	10-12m	200L	As shown	6
Magnolia grandiflora	Bull Bay Magnolia	20m	15m	400L	As shown	1
Pistacia chinensis	Pistacio	10-13m	6-8m	200L	As shown	9
Ulmus parvifolia	Chinese Elm	8-10m	10-12m	200L	As shown	7
Melaleuca linariifolia	Snow in Summer / Narrow-leaved paperback	7-8m	6m	200L	As shown	4
STAGE 1 PLANTING:						
SHRUBS/GROUNDCOVERS						
Doryanthes excelsa	Gymea lily	2m		300mm	As shown	3
Westringia fruticosa "Grey Box"	Grey Box	800mm		200mm	As shown	16
Dicksonia antarctica	Soft Tree Fern	2m Tall		2M tall	As Shown	1
Philodedron 'Imperial Green"	Philodendron Congo			300mm	As Shown	11
Philodendrum Rojo congo	Rojo Congo			400mm	As Shown	21
Philodendron 'Xanadu'	Dwarf Philodendron			300mm	As Shown	29
Syzygium wilsonii	Lillypilly			300mm	As Shown	12
Correa Alba	White Correa	1-1.5m high		300mm	As Shown	21
Banksia sginulosa "Birthday Candles"	Dwarf Banksia	450mm high		300mm	As shown	72
Pennisetum 'Nafray'	Foxtail Grass	600mm		150mm	As shown	164
Blechnum gibbum	Silver Lady			300mm	4 per m2	14
Dichondra repens	Kidney weed			140mm	9 per m2	308
Asplenium nidus	Birds's-Nest Fern			300mm	4 per m2	14
Viola hederacea	Native Violet			140mm	9 per m2	122
Liriope muscari 'Isabella'	Liriope			140mm	6 per m2	80
Leucopogon Lanceolatus	Lance leaved beard heath	400mm high		140mm	4 per m2	48
Hardenbergia violacea "Happy Wanderer"	Happy Wanderer			150mm	4 per m2	58
Scaevola calendulacea	Dune fan-flower	400mm high		150mm	4 per m2	121
Pratia Pedunculata	White star creeper	100mm high		150mm	6 per m2	194
Neomarica gracilis	Walking Iris	600mm		200mm	9per m2	32
Peperomia obtusifolia spec	Rubber plant	200mm		200mm	6 per m2	32
NATIVE GRASSES						
Lomandra 'Little Con'	Mat Rush	300mm		150mm	8 per m2	100
Lomandra longifolia 'Tanika'	Basket Grass	600mm		150mm	6 per m2	170
Lomandra katrinus	Mat Rush	700mm		150mm	6 per m2	49
Gazania 'Kiss Orange Flame'	Kiss Orange Flame	300mm		150mm	8 per m2	30
Myoporum parvifolium 'Yareena'	Creeping Boobialla	100mm		150mm	6 per m2	336
SENSORY GARDEN						
Actinotis helianthi	Flannel flower	0.3		150mm	8 per m2	22
Lavandula angustifolia	English Lavender	1m		5L	4 per m2	5
Stachys byzantina	Lamb's Ear	0.8		150mm	4 per m2	5
Tulbarghia violacea	Wild Garlic/Society Garlic	0.5		200mm	6 per m2	6

STAGE 2 PLANTING:				
BOTANICAL NAME	**COMMON NAME**	**CONTAINER SIZE**	**DENSITY**	**QTY**
SHRUBS				
Asplenium nidus	Birds's-Nest Fern	300mm	As shown	90
Banksia spinulosa "Birthday Candles"	Dwarf Banksia	300mm	4	120
Blechnum gibbum	Silver Lady	300mm	3	125
Correa Alba	White Correa	300mm	As shown	58
Dicksonia antarctica	Soft Tree Fern	2M tall	As shown	10
Doryanthes excelsa	Gymea lily	300mm	As shown	27
Melaluca 'Claret Tops'	Dwarf melaleuca	200mm	As shown	56
Philodedron 'Rojo congo'"	Philodendron	300mm	As shown	62
Philodendron 'Xanadu'	Dwarf Philodendron	300mm	As shown	86
Syzigium wilsonii	Lilly Pilly	300mm	As shown	28
Westringia fruticosa 'Zena'	Westringia Zena	200mm	4	113
NATIVE GRASSES & GROUNDCOVERS				
Dichondra repens	Kidney weed	140mm	12	192
Gazania 'Kiss Orange Flame'	Kiss Orange Flame	150mm	6	126
Hardenbergia violacea 'Happy Wanderer"	Happy Wanderer	150mm	3	200
Isolepsis nodosa	Club Rush	140mm	6	40
Liriope muscari 'Isabella'	Liriope	140mm	6	366
Lomandra 'Little Con'	Mat Rush	150mm	6	200
Lomandra katrinus	Mat Rush	150mm	4	280
Lomandra longifolia 'Tanika'	Basket Grass	200mm	6	242
Myoporum parvifolium "Yareena'	Creeping Boobialla	150mm	6	156
Pennisetum 'Nafray'	Foxtail Grass	150mm	4	215
Pratia Pedunculata	White star creeper	150mm	6	110
Scaevola calendulacea	Dune fan-flower	150mm	4	72
Viola hederacea	Native Violet	140mm	12	204
SENSORY GARDEN				
Actinotis helianthi	Flannel flower	150mm	3	18
Lavandula angustifolia	English Lavender	5L	4	54
Stachys byzantina	Lamb's Ear	150mm	4	22
Tulbarghia violacea	Society garlic	200mm	4	32
Rosmarinus officinalis	Rosemary	200mm		27
INDIGENOUS EDIBLE / MEDICINAL PLANTS				
Backhousia citriodora	Lemon Myrtle	200L		5
Eucallyptus pulperulanta	Silver leaved mountain gum	300mm		3
Leucopogon lanceaolatus	Lance beard heath	300mm		5
Citrus australasica	Finger Lime	200L		5
Syzigium australe	Brush cherry	200L		12
Exocarpus cupressiformus	Cherry Ballart	200L		3
Persoonia Levis	Broad leafed geebung	300mm		4
Livistona Australis	Cabbage tree palm	200L		3

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend



PAVEMENT FINISHES:

PAV1	Concrete paving
PAV1A/B/C	Colour concrete paving - Dolomite/ Arctic/ Silver Colour
PAV2	Stone paver - Granite
PAV3a/b/c	Rubber Softfall -EDPM
PAV4A	Connecting Pathways-Timber Sleepers (in ground)
PAV4B	Connecting Pathways-Stumps in ground
PAV4D	Connecting Pathways-Balancing steepers
PAV4E	Connecting Pathways-Recycled timber logs
PAV4F	Connecting Pathways-Stepping Stones
PAV4G	Stamped Concrete
PAV5	Brick Pavement
PAV6A/B	Preschool - Colour Concrete Topping
PAV7A/B/C	Preschool - Stone Paving - Australian Bluestone Stone cobbles/Stone pavers/ Crazy Paving
AST	Astroturf
TD2	Timber Composite Deck Type 2
LN1	Line marking

WALLS AND FENCING:

W1	In-situ Concrete Bleacher Walls 450mm Wide
W1a	In-situ Concrete seat with composite timber top
W1b	In-situ Concrete wall/Seat 450mm wide
W1c	In-situ Concrete wall/Seat with Cistern Access Hatch
W2	In-situ Concrete Bleacher Walls 900mm wide
W3	Entry Walls 600mm
W4	Sandstone Wall
W5	Entry Wall
W6	Landscape Brick Wall
W7	Insitu Concrete Wall/Seat 300mm wide
R1	Access Ramp & Seatwall Garden
R2	Access Ramp to preschool
EDG1	Composite Timber Edge
EDG2	Concrete Edge
EDG3	Sandstone cobbles
EDG4	Feature steel inlay to COLA
FN02	Preschool Fence

ELEMENTS AND FURNITURE:

BIN1	External Litter Bin
BNCH1	Bench Seat
FP	Flagpole
HRX1	External Handrail - Double
HRX2	External Handrail - Single
FR	Feature Rock and Boulders
RVG	Raised Veggie Garden
S1	Stair Type 1 - Concrete Stairs
TAP	Water Tap
BTS	Indigenous Planting Signage (Refer to planting plans for location)

PLANTING PROFILES:

MPB1	Garden profile on grade - 300MM
MPB2	Garden profile on structure
MPB3	Garden profile on grade - 500MM
MPB4	Garden profile on grade - above 500MM
MUL1	Mulch
MUL2	Rock mulch

rev	date	name	by	chk
I	26/11/21	For Construction	AOL	
H	10/9/21	For Construction	MZ	
G	20/8/21	For Construction	MZ	
F	30/7/21	For Construction Certificate Issue	MZ	
E	24/7/21	For Construction Certificate Issue	MY M	
D	22/6/21	IFC for Sign-off Issue	JRS	
C	31/5/21	Final SINSW Review	MZ	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Plans — **Scale**
Cover Sheet and Finishes Schedule — No Scale @ A1

Project Code — **First Issued**
DTPS — 15/6/20

Sheet No. — **Rev**
A-80000 — I

For Construction

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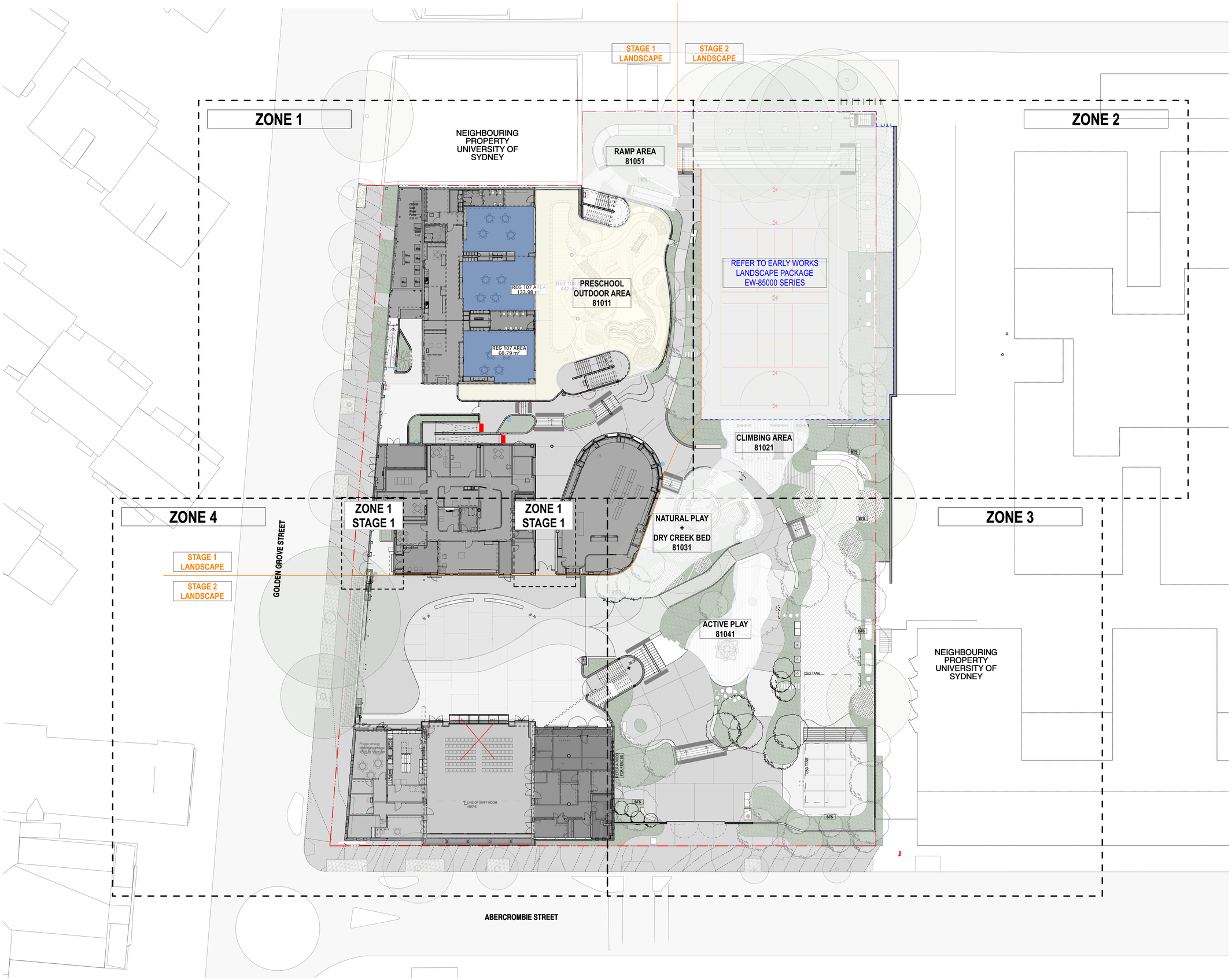

1 PLAN KEY PLAN
1:250

architecture / interiors / urban / landscape / place Level 5, 70 King Street Sydney 2000 **t** +61 2 9251 7077 **w** fjmtstudio.com

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0 2.5 5 10m

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

rev	date	name	by	chk
I	24/9/21	For Construction	MY	M
H	31/8/21	For Construction	JRS	
G	20/8/21	For Construction	MZ	
F	30/7/21	For Construction Certificate Issue	MZ	
E	24/7/21	For Construction Certificate Issue	MY	M
D	8/7/21	For Construction	MZ	
C	22/6/21	IFC for Sign-off Issue	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Plans — **Scale** 1:250 @ A1
Site Plan

Project Code DTPS — **First Issued** 14/5/21

Sheet No. A-80001 — **Rev** I

For Construction

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REFER TO A-81000 LANDSCAPE DRAWING SERIES

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0 0.5 1.0 2.0m

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
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Legend

	FOOTING PLACEMENT
	SITE BOUNDARY
	EXTENT OF WORKS
200	Contours
EX RL	Existing Relative Level
FFL	Finished Floor Level (internal)
RL	Relative Level
SSL	Structural Slab Level
TREE ID#	Existing tree to be retained (Stage 2)
TREE ID#	Existing treeto be removed (Stage 2)
	Structural Root Zone
	Tree Protection Zone
	Proposed tree in Garden Bed
	Garden Bed - MPB
	Timber Decking - TD1/2
	Rubber Softfall - PAV3
	Astroturf - AST

*For Detail Profiles Refer to 82000 Series

	Water Tap
	Hydrant
	Water Pump

*Note: Sculptures to Artwork Committe consultation. To be installed at a later date.

	Surface inlet Pit
	Juction Pit
	Grated Drain

PAVEMENT FINISHES:

PAV1	Concrete paving
PAV1A/B/C	Colour concrete paving - Dolomite/ Arctic/ Silver Colour
PAV2	Stone paver - Granite
PAV3a/b/c	Rubber Softfall -EDPM
PAV4A	Connecting Pathways-Timber Sleepers (in ground)
PAV4B	Connecting Pathways-Stumps in ground
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AST	Astroturf
TD2	Timber Composite Deck Type 2
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WALLS AND FENCING:

W1	In-situ Concrete Bleacher Walls 450mm Wide
W1a	In-situ Concrete seat with composite timber top
W1b	In-situ Concrete wall/Seat 450mm wide
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S1	Stair Type 1 - Concrete Stairs
TAP	Water Tap
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MPB1	Garden profile on grade - 300MM
MPB2	Garden profile on structure
MPB3	Garden profile on grade - 500MM
MPB4	Garden profile on grade - above 500MM
MUL1	Mulch

rev	date	name	by	chk
L	24/9/21	For Construction	MY	M
K	31/8/21	For Construction	JRS	
J	20/8/21	For Construction	MZ	
I	30/7/21	For Construction Certificate Issue	MZ	
H	24/7/21	For Construction Certificate Issue	MY	M
G	8/7/21	For Construction	MZ	
F	2/7/21	For Construction	MZ	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections — **Scale** 1:50 @ A1
Preschool Outdoor Area

Project Code DTPS — **First Issued** 7/8/20

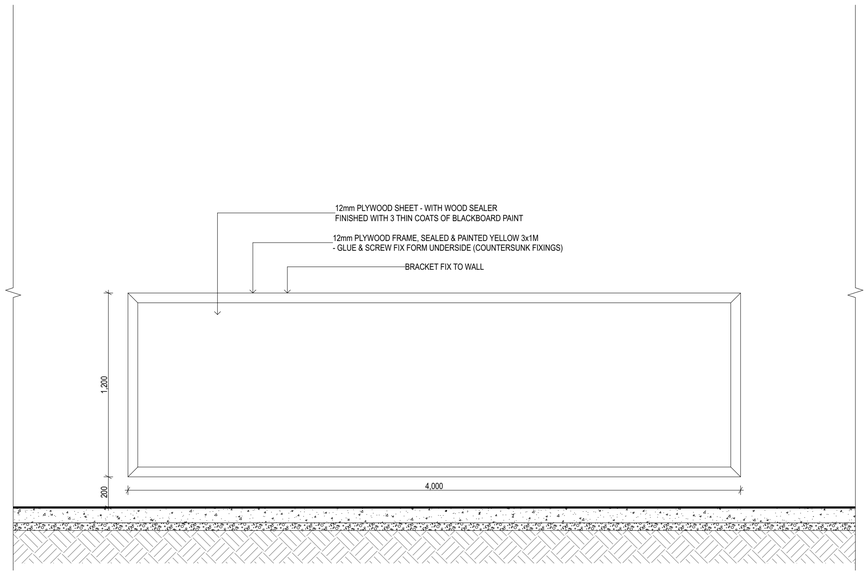
Sheet No. A-81011 — **Rev** L

For Construction

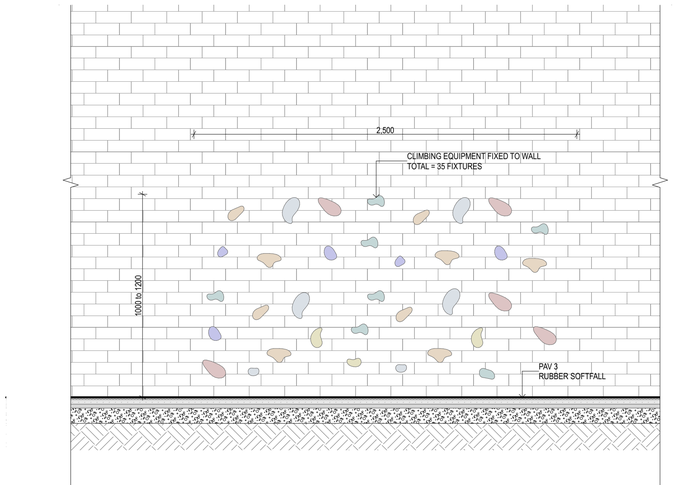
NOTE:
MANUFACTURER'S FALL ZONE:
CONTRACTOR TO PROVIDE IN-SITU TESTING AND CERTIFICATION OF FALL ZONES, EQUIPMENT INSTALLATION AND SOFTFALL

1 PLAN PRESCHOOL OUTDOOR AREA
1:50

© FRANCIS-JONES MOREHEN THORP PTY LTD 2021 ABN 28 101 197 219 NOMINATED ARCHITECTS: RICHARD FRANCIS-JONES 5301 ELIZABETH CARPENTER 6141

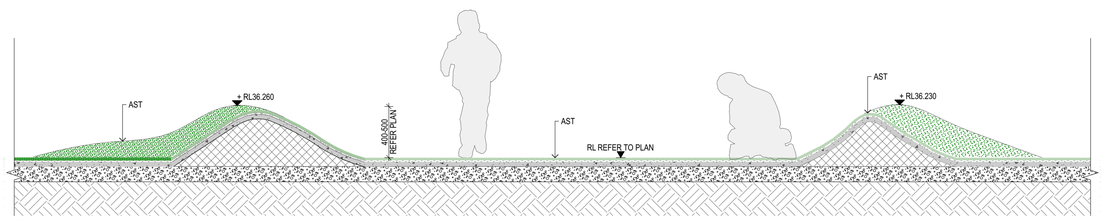


1 ELEVATION BLACKBOARD WALL
1:20

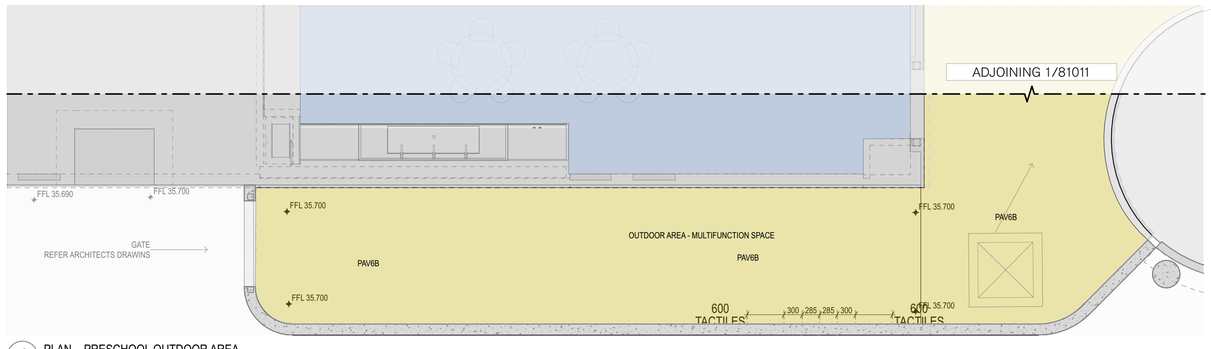


2 ELEVATION CLIMBING WALL
1:20

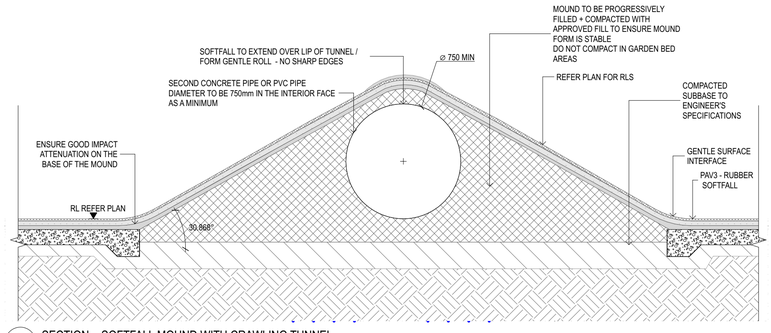
NOTE:
FIXING DETAIL TO BRICK WALL CONFIRMATION TO MANUFACTURER



3 SECTION ASTROTURF MOUNDS
1:20



4 PLAN PRESCHOOL OUTDOOR AREA
1:50



5 SECTION SOFTFALL MOUND WITH CRAWLING TUNNEL
1:20

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0 0.2 0.5 1.0m

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Legend

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F	31/8/21	For Construction	JRS	
E	20/8/21	For Construction	MZ	
D	2/7/21	For Construction	MZ	
C	22/6/21	IFC for Sign-off Issue	JRS	
B	14/5/21	Final SINSW Review Issue	BM	
A	7/4/21	SINSW Preliminary Review 95%	MM G	
04	1/4/21	SINSW Preliminary Review 95%	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections — **Scale**
Preschool Outdoor Area — 1:20 @ A1

Project Code — **First Issued**
DTPS — 7/8/20

Sheet No. — **Rev**
A-81012 — F

For Construction

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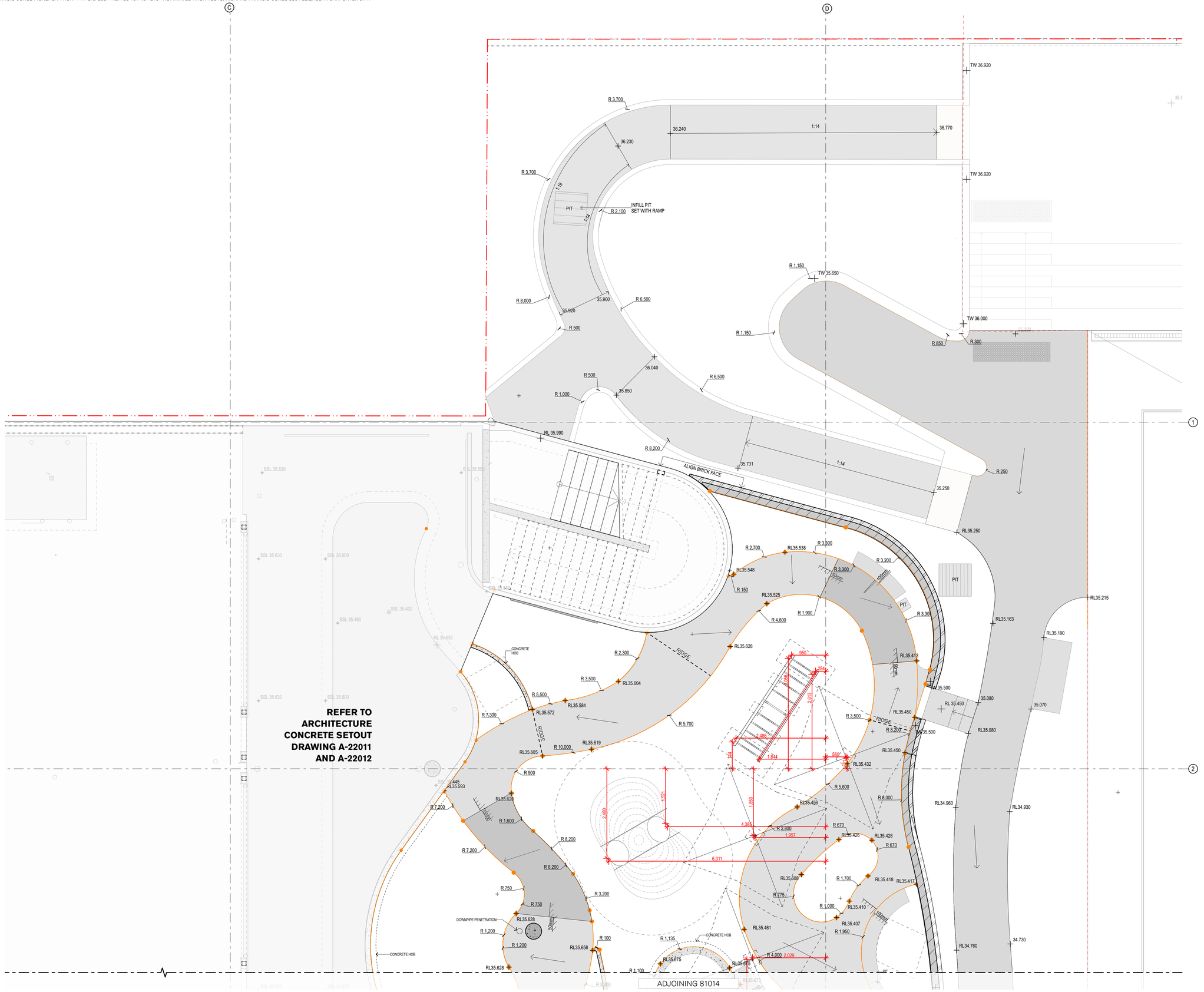

REFER TO ARCHITECTURE CONCRETE SETOUT DRAWING A-22011 AND A-22012

1 PLAN PRESCHOOL OUTDOOR AREA
1:50 CRITICAL LINES SET OUT

architecture / interiors / urban / landscape / place Level 5, 70 King Street Sydney 2000 **t** +61 2 9251 7077 **w** fjmtstudio.com

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0 0.5 1.0 2.0m

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
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Legend
- Change of finish line
- Colour Concrete
- Concrete Setdown (50mm)
- Concrete Hob

rev	date	name	by	chk
K	29/9/21	For Construction	JCB	
J	31/8/21	For Construction	JRS	
I	20/8/21	For Construction	MZ	
H	8/7/21	For Construction	MZ	
G	22/6/21	IFC for Sign-off Issue	JRS	
F	18/6/21	For Construction	MZ	
E	17/6/21	For Construction	MZ	
D	14/5/21	Final SINSW Review Issue	BM	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections
Preschool Outdoor Area - Set Out 01

Scale
1:50 @ A1

Project Code
DTPS

First Issued
8/2/21

Sheet No.
A-81013

Rev
K

For Construction

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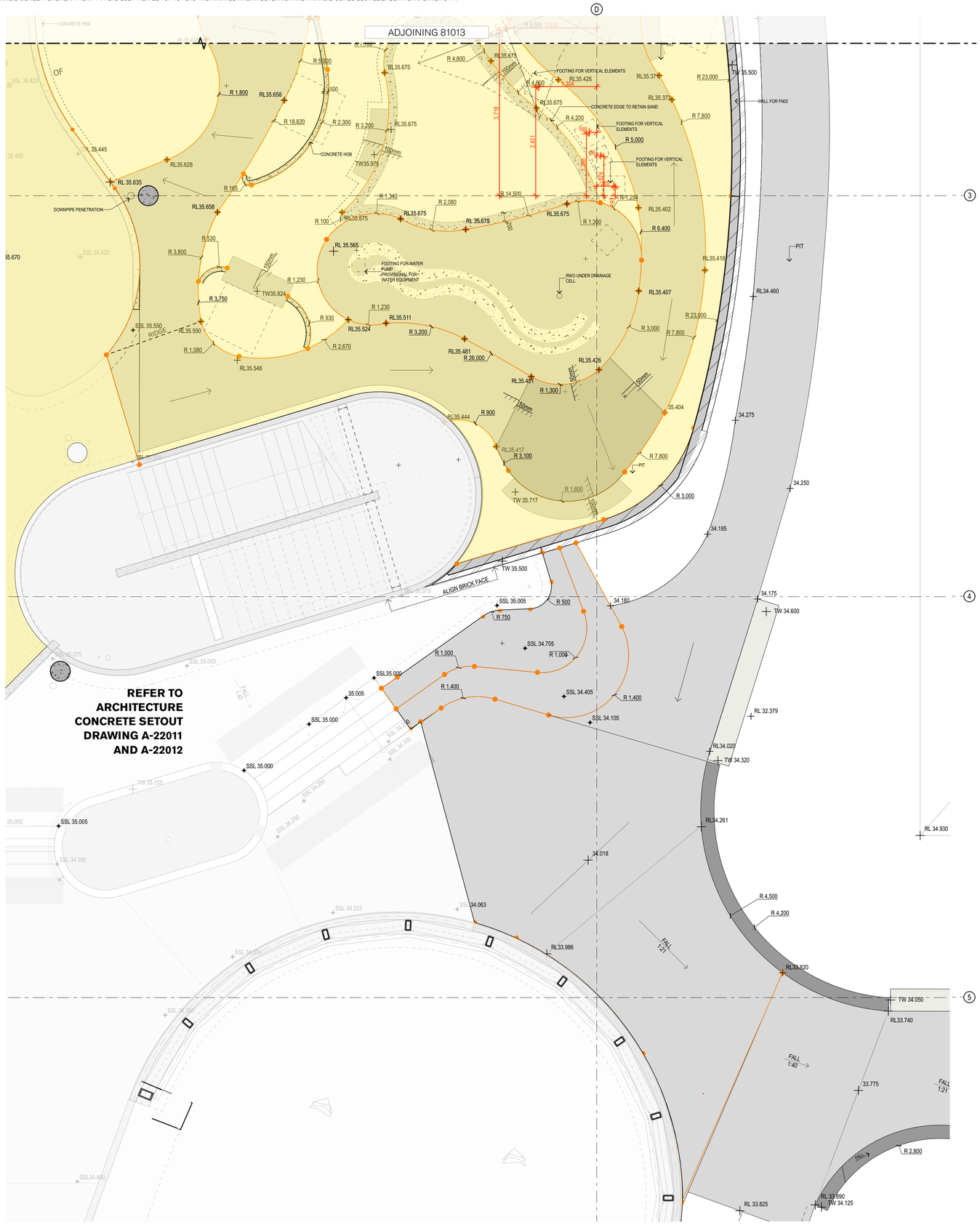

1 PLAN PRESCHOOL OUTDOOR AREA
1:50 CRITICAL LINES SET OUT

architecture / interiors / urban / landscape / place Level 5, 70 King Street Sydney 2000 **t** +61 2 9251 7077 **w** fjmtstudio.com

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0 0.5 1.0 2.0m

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Legend
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rev	date	name	by	chk
K	29/9/21	For Construction	JCB	
J	31/8/21	For Construction	JRS	
I	20/8/21	For Construction	MZ	
H	8/7/21	For Construction	MZ	
G	22/6/21	IFC for Sign-off Issue	JRS	
F	18/6/21	For Construction	MZ	
E	17/6/21	For Construction	MZ	
D	14/5/21	Final SINSW Review Issue	BM	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections — **Scale** 1:50 @ A1
Preschool Outdoor Area - Set Out 02

Project Code DTPS — **First Issued** 15/3/21

Sheet No. A-81014 — **Rev** K

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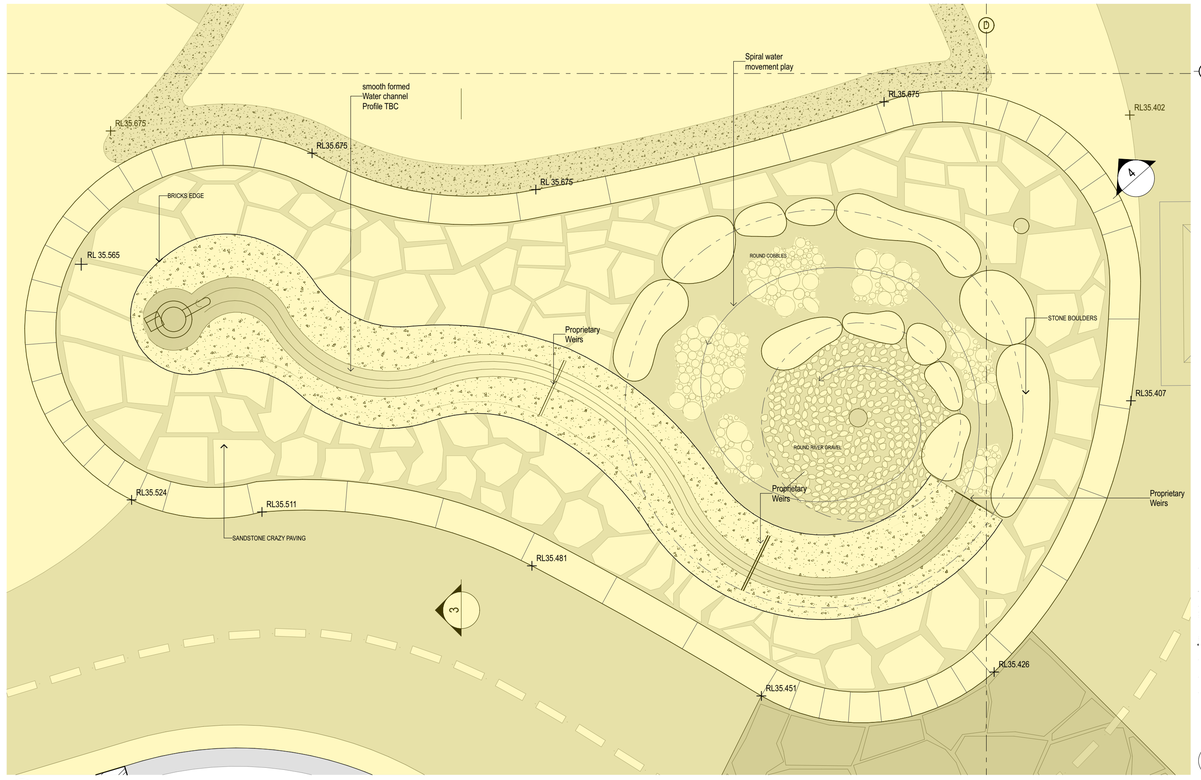
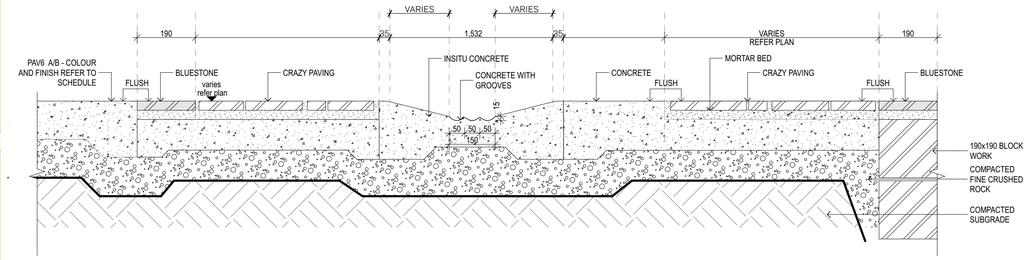
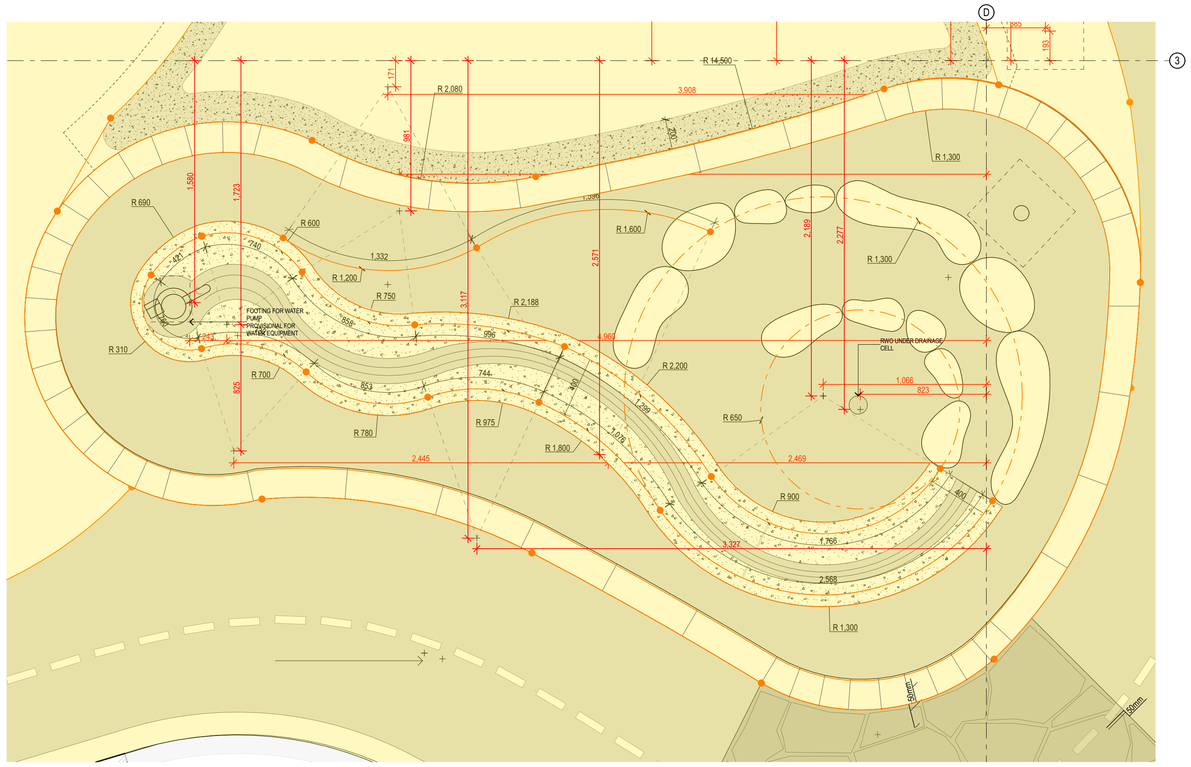


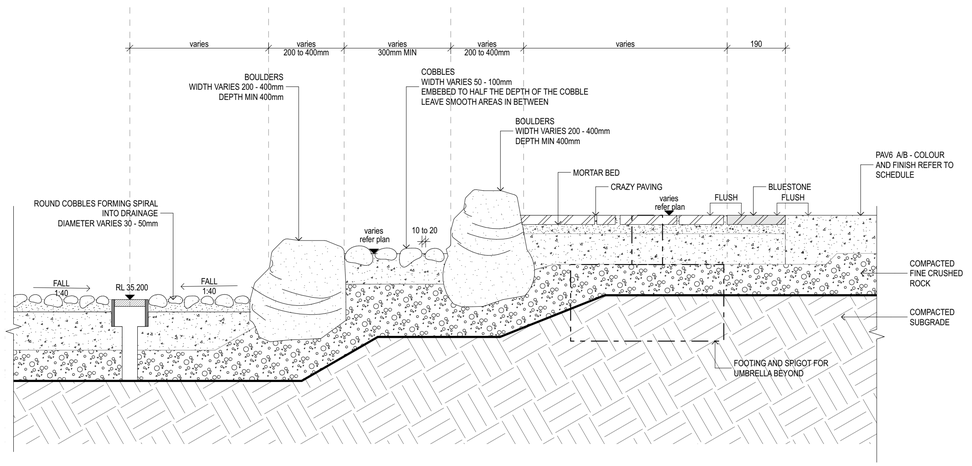
1 SECTION PRESCHOOL OUTDOOR AREA
1:20 WATER PLAY FINISHES AND LEVELS



3 SECTION WATERPLAY
1:10



2 SECTION PRESCHOOL OUTDOOR AREA
1:20 WATER PLAY SET OUT



4 SECTION WATERPLAY
1:10

NOTES:

-LAY COBBLES WITH THE FLATTEST FACE TO THE TOP
-USE SMALLER COBBLES TO INFILL THE SPACES
-MALLET/TAP THEM IN SO THEY ARE ROUGHLY LEVEL

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0 1 2 5m

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Legend

rev	date	name	by	chk
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E	31/8/21	For Construction	JRS	
D	20/8/21	For Construction	MZ	
C	22/6/21	IFC for Sign-off Issue	JRS	
B	14/5/21	Final SINSW Review Issue	BM	
A	7/4/21	SINSW Preliminary Review 95%	MM G	
02	1/4/21	SINSW Preliminary Review 95%	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections — **Scale**
Preschool Outdoor Area - Set Out 03 — 1:100 @ A1

Project Code — **First Issued**
DTPS — 15/3/21

Sheet No. — **Rev**
A-81015 — F

For Construction

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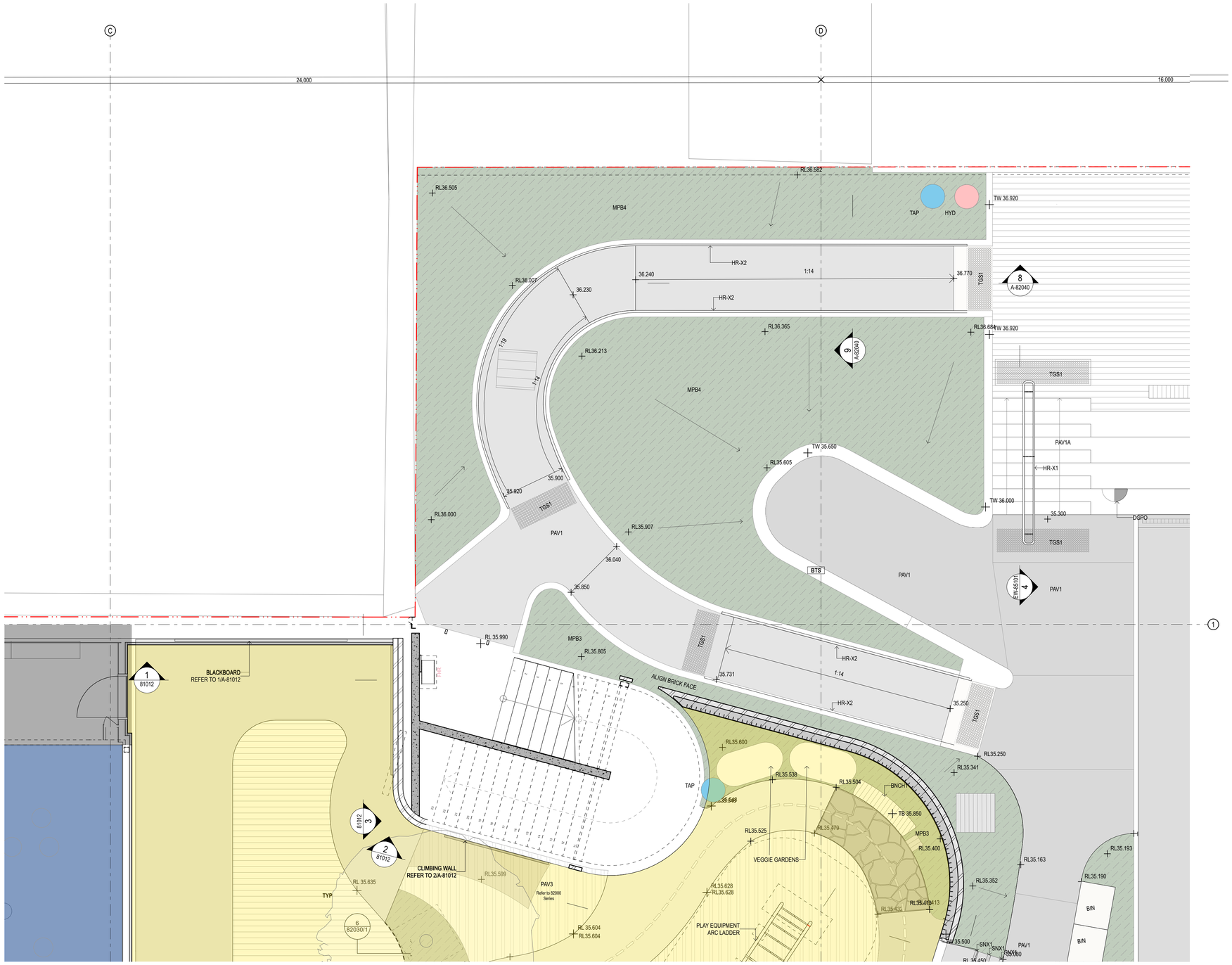

1 PLAN RAMP SET OUT
1:50

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0 1 2 5m

General notes
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Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections — **Scale**
Ramp Area - Set Out — 1:100 @ A1

Project Code — **First Issued**
DTPS — 16/3/21

Sheet No. — **Rev**
A-81051 — F

For Construction

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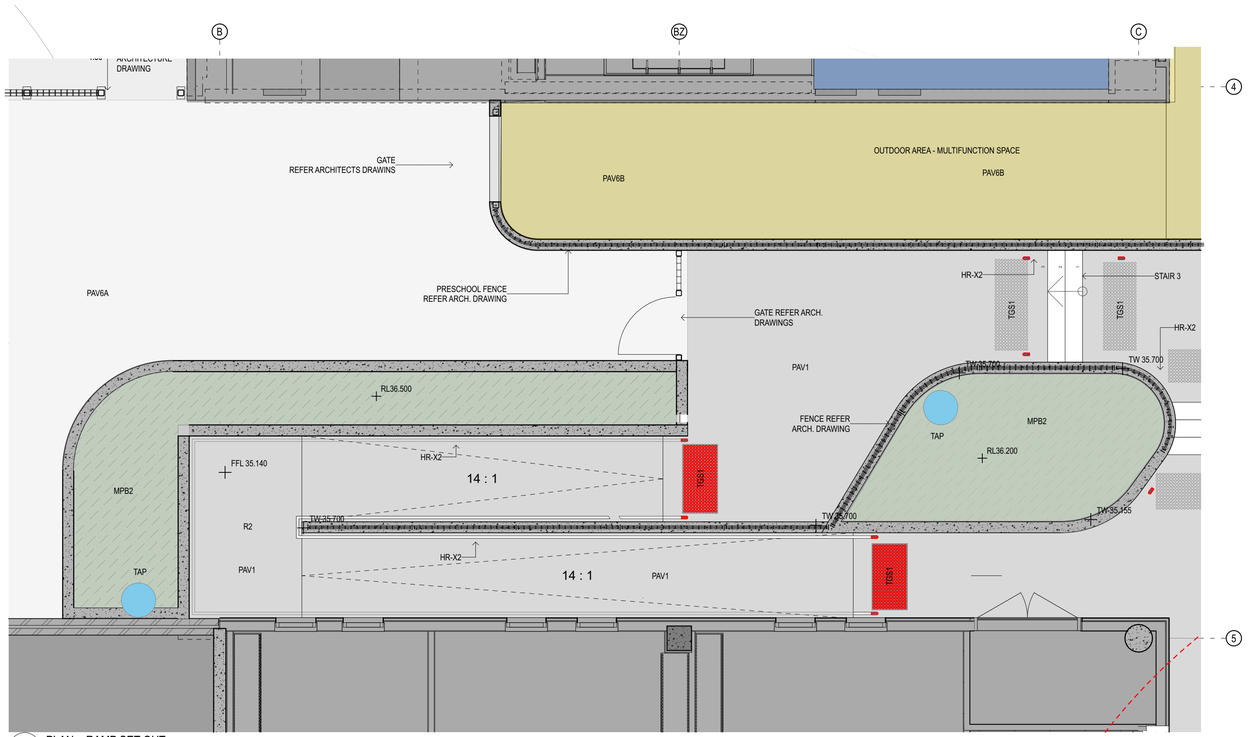
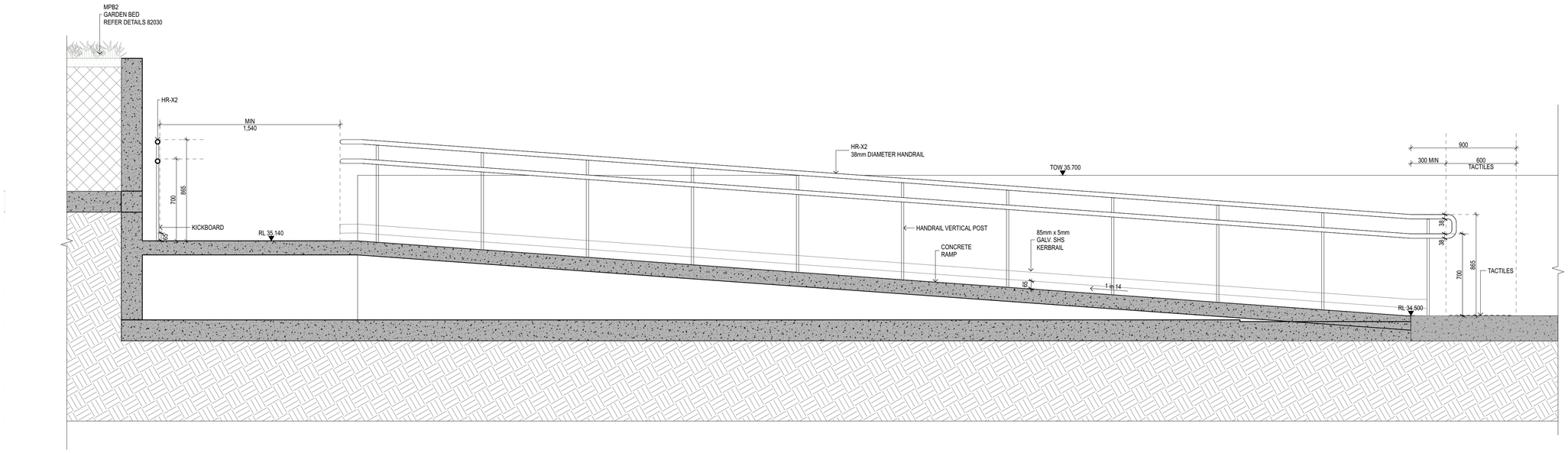


1 PLAN RAMP SET OUT
1:50



2 SECTION
1:20

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0 1 2 5m

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FP	Flagpole
HRX1	External Handrail - Double
HRX2	External Handrail - Single
FR	Feature Rock and Boulders
RVG	Raised Veggie Garden
S1	Stair Type 1 - Concrete Stairs
TAP	Water Tap
BTS	Indigenous Planting Signage (Refer to planting plans for location)

PLANTING PROFILES:

MPB1	Garden profile on grade - 300MM
MPB2	Garden profile on structure
MPB3	Garden profile on grade - 500MM
MPB4	Garden profile on grade - above 500MM
MUL1	Mulch

rev	date	name	by	chk
G	24/9/21	For Construction	MY	M
F	31/8/21	For Construction	JRS	
E	20/8/21	For Construction	MZ	
D	30/7/21	For Construction Certificate Issue	MZ	
C	24/7/21	For Construction Certificate Issue	MY	M
B	22/6/21	IFC for Sign-off Issue	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections — **Scale**
Ramp Preschool Area - Set Out — 1:100 @ A1

Project Code — **First Issued**
DTPS — 14/5/21

Sheet No. — **Rev**
A-81052 — G

For Construction

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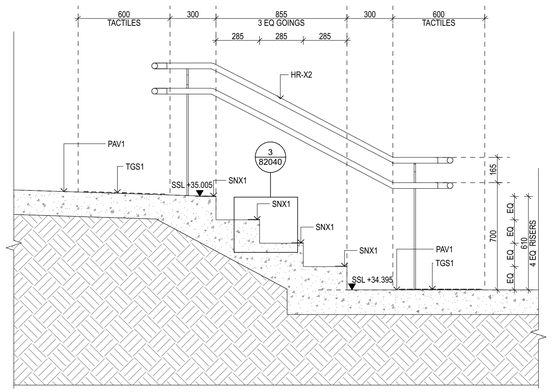
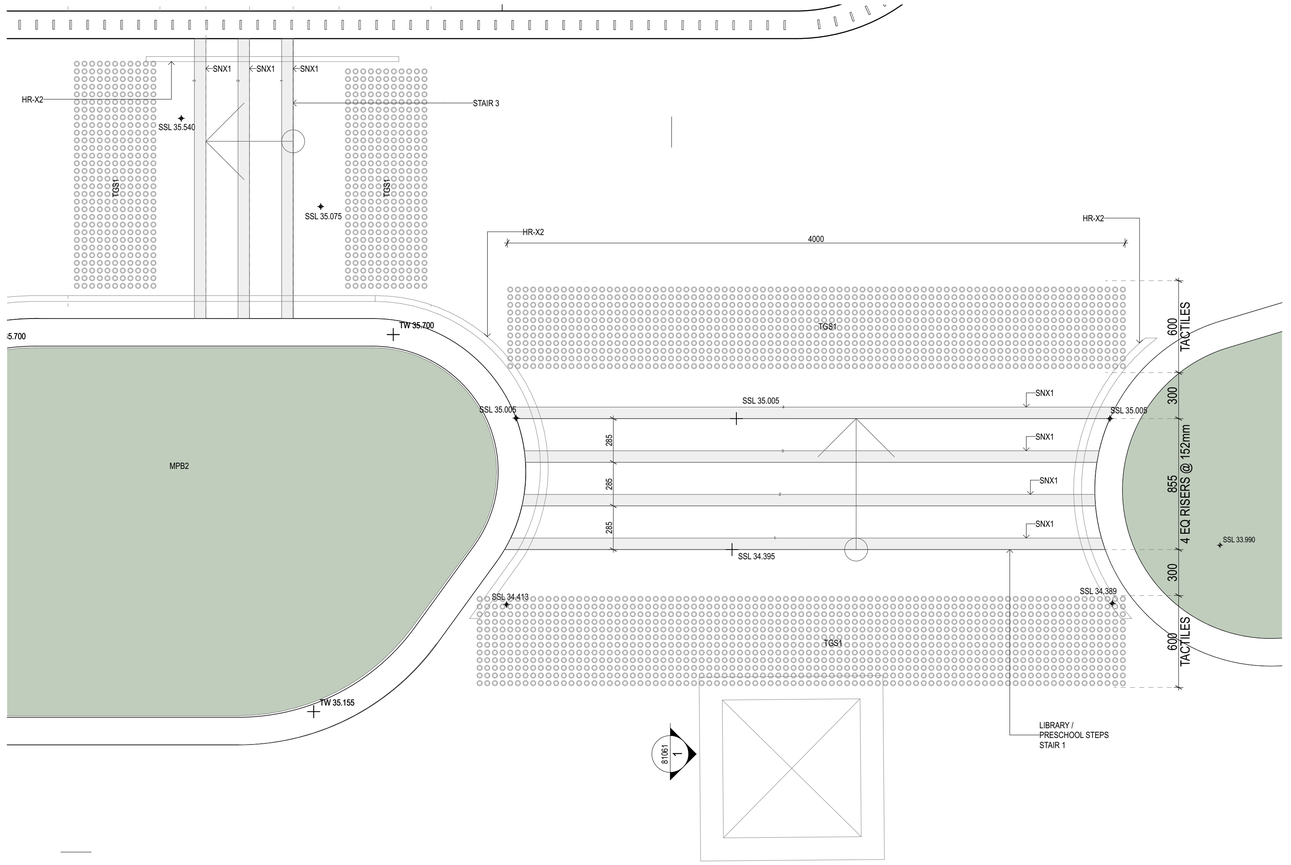
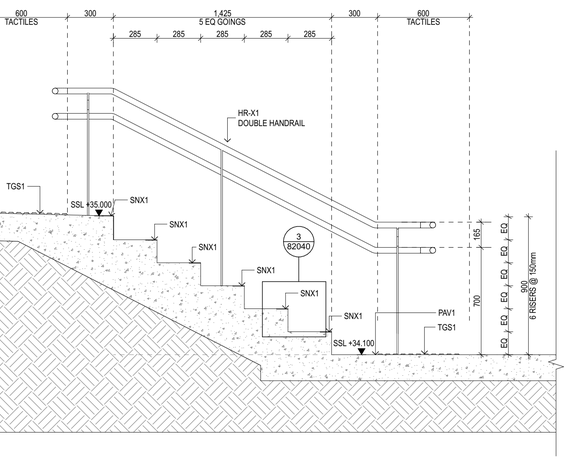


1 SECTION STAIR 1
1:20

*FOR STAIR AND HANDRAIL DETAILS REFER TO 82040



3 PLAN Stair 1
1:20



2 SECTION STAIR 2
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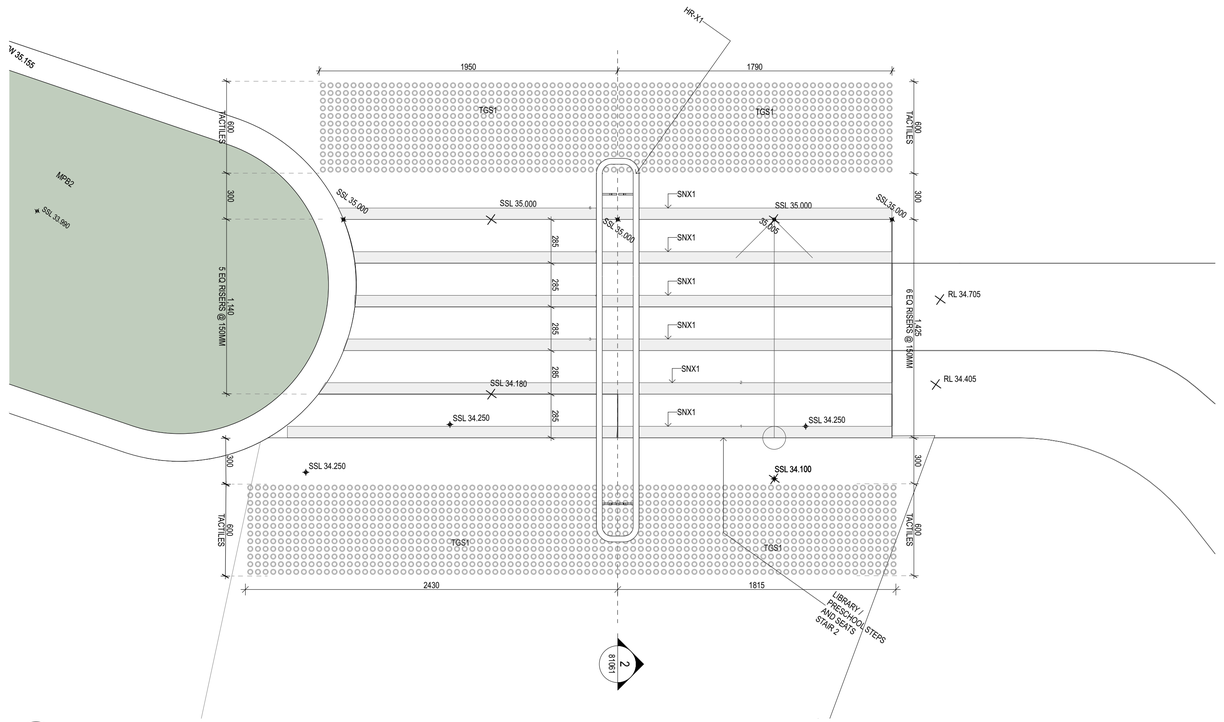
*FOR STAIR AND HANDRAIL DETAILS REFER TO 82040



4 PLAN Stair 2
1:20

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0 1 2 5m

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

FOOTING PLACEMENT
SITE BOUNDARY
EXTENT OF WORKS
200 Contours
EX RL Existing Relative Level
FFL Finished Floor Level (internal)
RL Relative Level
SSL Structural Slab Level
TREE ID# Existing tree to be retained (Stage 2)
TREE ID# Existing treeto be removed (Stage 2)
Structural Root Zone
Tree Protection Zone
Proposed tree in Garden Bed
Garden Bed - MPB
Timber Decking - TD1/2
Rubber Softfall - PAV3
Astroturf - AST
*For Detail Profiles Refer to 82000 Series
Water Tap
Hydrant
Water Pump
*Note: Sculptures to Artwork Committe consultation. To be installed at a later date.
Surface inlet Pit
Juction Pit
Grated Drain

PAVEMENT FINISHES:

PAV1	Concrete paving
PAV1A/B/C	Colour concrete paving - Dolomite/ Arctic/ Silver Colour
PAV2	Stone paver - Granite
PAV3a/b/c	Rubber Softfall -EDPM
PAV4A	Connecting Pathways-Timber Sleepers (in ground)
PAV4B	Connecting Pathways-Stumps in ground
PAV4D	Connecting Pathways-Balancing steepers
PAV4E	Connecting Pathways-Recycled timber logs
PAV4F	Connecting Pathways-Stepping Stones
PAV4G	Stamped Concrete
PAV5	Brick Pavement
PAV6A/B	Preschool - Colour Concrete Topping
PAV7A/B/C	Preschool - Stone Paving - Australian Bluestone Stone cobbles/Stone pavers/ Crazy Paving
AST	Astroturf
TD2	Timber Composite Deck Type 2
LN1	Line marking

WALLS AND FENCING:

W1	In-situ Concrete Bleacher Walls 450mm Wide
W1a	In-situ Concrete seat with composite timber top
W1b	In-situ Concrete wall/Seat 450mm wide
W1c	In-situ Concrete wall/Seat with Cistern Access Hatch
W2	In-situ Concrete Bleacher Walls 900mm wide
W3	Entry Walls 600mm
W4	Sandstone Wall
W5	Entry Wall
W6	Landscape Brick Wall
W7	Insitu Concrete Wall/Seat 300mm wide
R1	Access Ramp & Seatwall Garden
R2	Access Ramp to preschool
EDG1	Composite Timber Edge
EDG2	Concrete Edge
EDG3	Sandstone cobbles
EDG4	Feature steel inlay to COLA
FN02	Preschool Fence

ELEMENTS AND FURNITURE:

BIN1	External Litter Bin
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FP	Flagpole
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MPB4	Garden profile on grade - above 500MM
MUL1	Mulch

rev	date	name	by	chk
I	29/9/21	For Construction	JCB	MY
H	24/9/21	For Construction	MY	M
G	31/8/21	For Construction	JRS	
F	20/8/21	For Construction	MZ	
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C	22/6/21	IFC for Sign-off Issue	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections — **Scale**
Stair Sections — 1:100 @ A1

Project Code — **First Issued**
DTPS — 1/4/21

Sheet No. — **Rev**
A-81061 — I

For Construction

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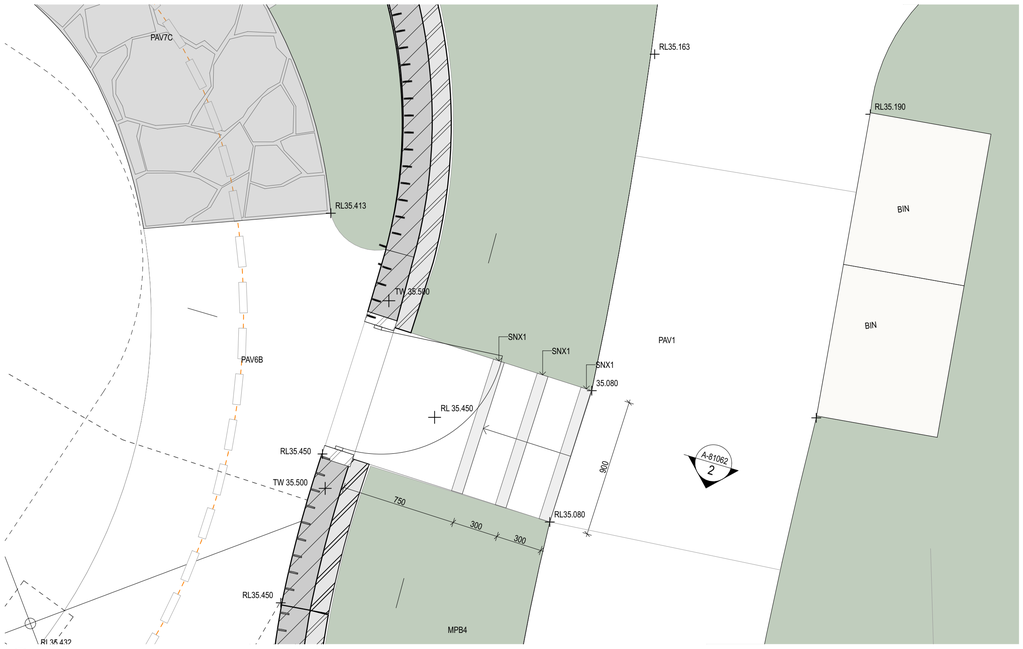
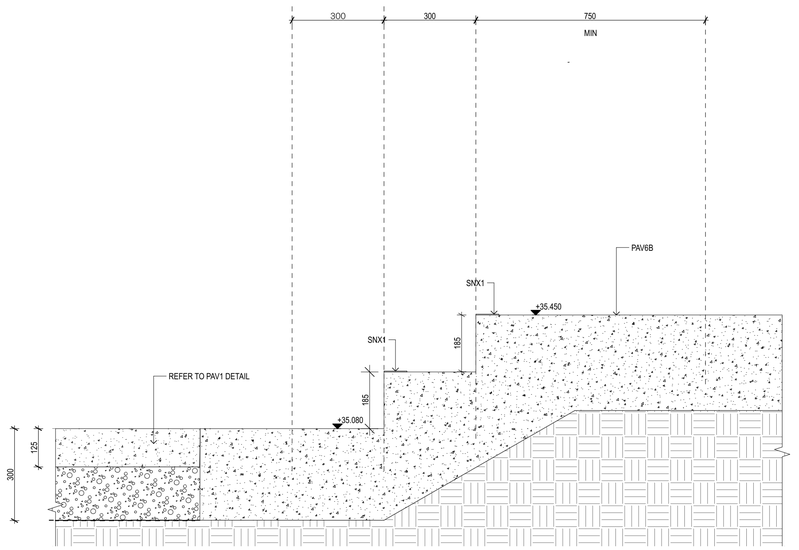


1 PLAN Pre School Stairs
1:20



2 SECTION
1:10

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0 1 2 5m

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Legend

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FFL	Finished Floor Level (internal)
RL	Relative Level
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	Tree Protection Zone
	Proposed tree in Garden Bed
	Garden Bed - MPB
	Timber Decking - TD1/2
	Rubber Softfall - PAV3
	Astroturf - AST

*For Detail Profiles Refer to 82000 Series

- Water Tap
- Hydrant
- Water Pump

*Note: Sculptures to Artwork Committe consultation. To be installed at a later date.

- Surface inlet Pit
- Juction Pit
- Grated Drain

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PAV4B	Connecting Pathways-Stumps in ground
PAV4D	Connecting Pathways-Balancing steepers
PAV4E	Connecting Pathways-Recycled timber logs
PAV4F	Connecting Pathways-Stepping Stones
PAV4G	Stamped Concrete
PAV5	Brick Pavement
PAV6A/B	Preschool - Colour Concrete Topping
PAV7A/B/C	Preschool - Stone Paving - Australian Bluestone Stone cobbles/Stone pavers/ Crazy Paving
AST	Astroturf
TD2	Timber Composite Deck Type 2
LN1	Line marking

WALLS AND FENCING:

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rev	date	name	by	chk
C	31/8/21	For Construction	JRS	
B	20/8/21	For Construction	MZ	
A	22/6/21	IFC for Sign-off Issue	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections
Stair Sections

Scale
1:100 @ A1

Project Code
DTPS

First Issued
22/6/21

Sheet No.
A-81062

Rev
C

For Construction

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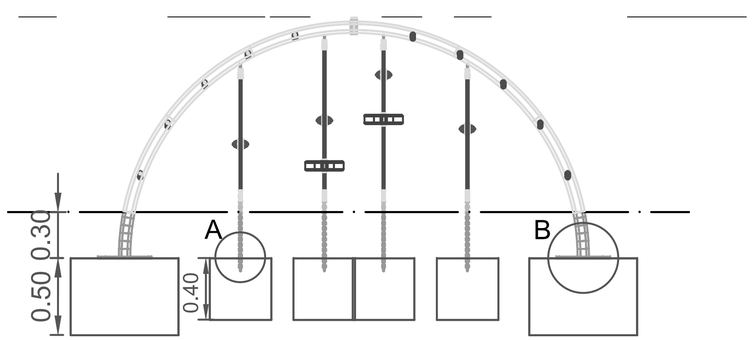
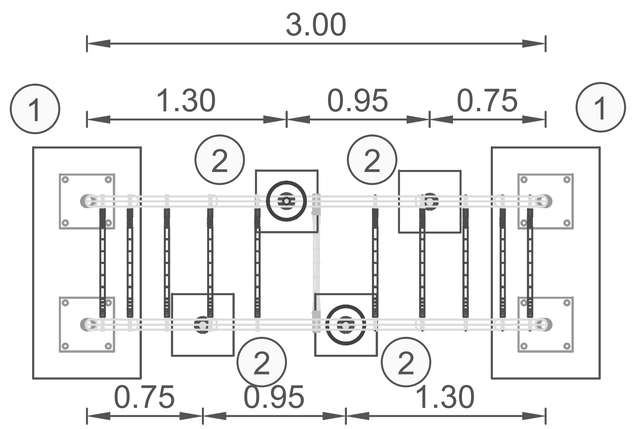
1 PLAN ARC LADDER
1:50



2 SECTION ARC LADDER
1:20

(REFER TO SUPPLIER SPECIFICATION)



3 PLAN ARC LADDER
1:20

(REFER TO SUPPLIER SPECIFICATION)

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0 1 2 5m

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Legend

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	EXTENT OF WORKS
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	Astroturf - AST

*For Detail Profiles Refer to 82000 Series

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	Hydrant
	Water Pump

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rev	date	name	by	chk
C	31/8/21	For Construction	JRS	
B	20/8/21	For Construction	MZ	
A	22/6/21	IFC for Sign-off Issue	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Play Areas and Sections — **Scale**
Play Equipment — 1:100 @ A1

Project Code — **First Issued**
DTPS — 22/6/21

Sheet No. — **Rev**
A-81070 — C

For Construction

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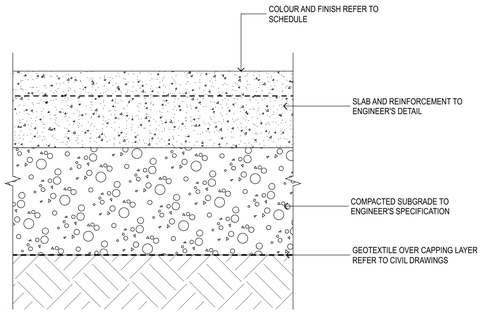
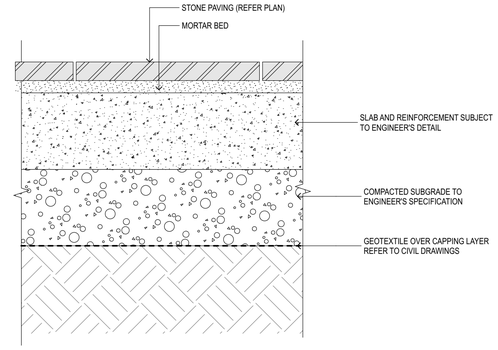


1 DETAIL PAV1/6 A/B/C
1:5 CONCRETE



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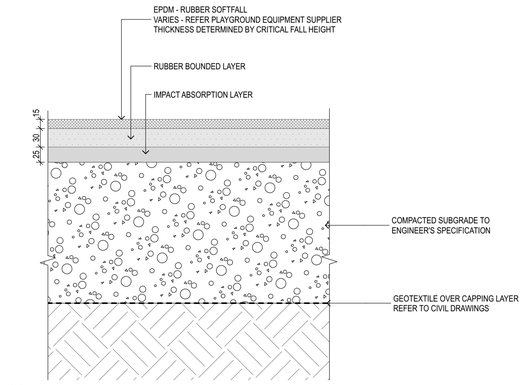
1:5 STONE



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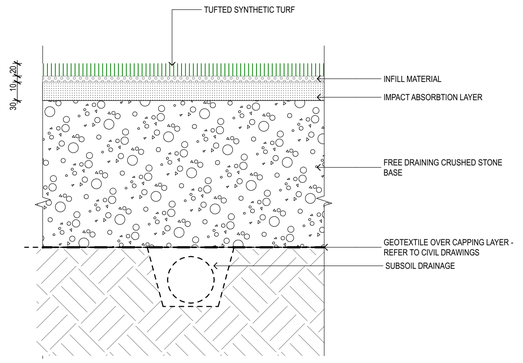
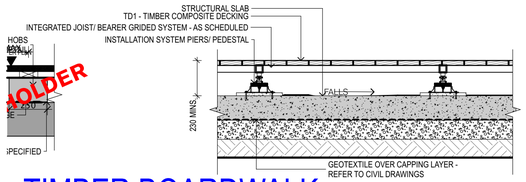
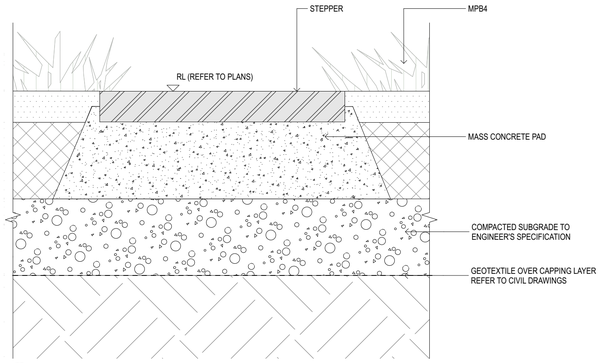


4 DETAIL AST
1:5 ASTROTURF

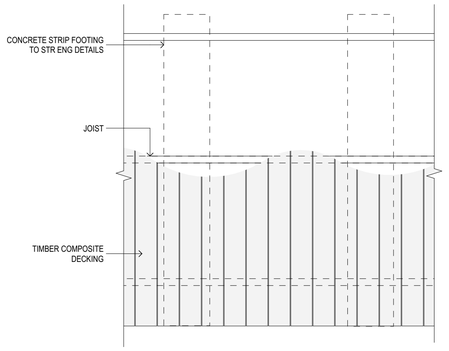


- TIMBER BOARDWALK

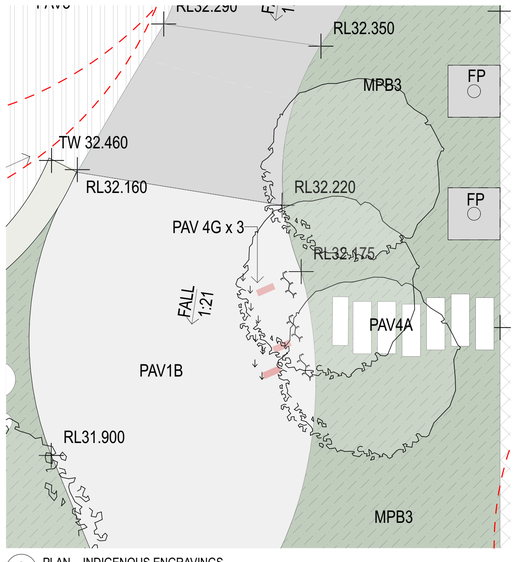
5 DETAIL TD1
1:20 TIMBER COMPOSITE DECKING IN STRUCTURAL SLAB



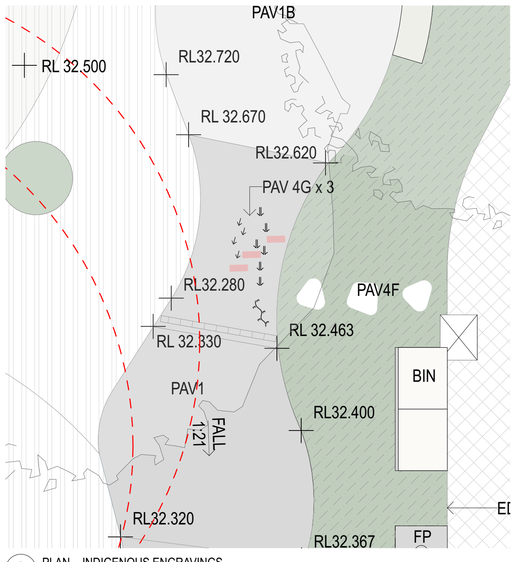
6 DETAIL PAV4F
1:5 STEPPERS



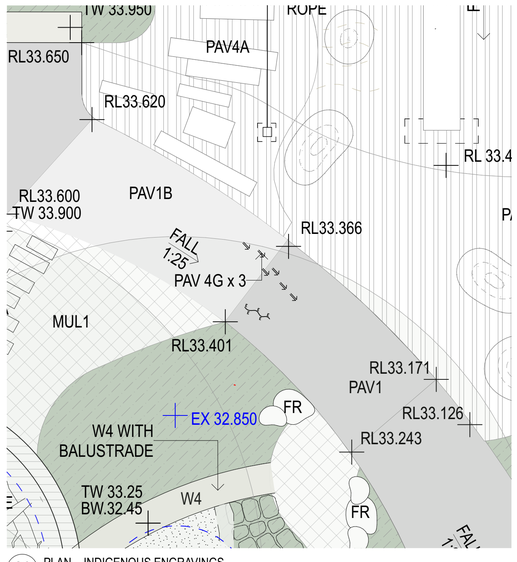
7 PLAN TD1
1:20 TIMBER COMPOSITE DECKING



8 PLAN INDIGENOUS ENGRAVINGS
1:50



9 PLAN INDIGENOUS ENGRAVINGS
1:50



10 PLAN INDIGENOUS ENGRAVINGS
1:50

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0 0.05 0.10 0.20m

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rev	date	name	by	chk
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D	20/8/21	For Construction	MZ	
C	22/6/21	IFC for Sign-off Issue	JRS	
B	14/5/21	Final SINSW Review Issue	BM	
A	7/4/21	SINSW Preliminary Review 95%	MM G	
07	1/4/21	SINSW Preliminary Review 95%	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Details — **Scale**
Pavements — 1:5 @ A1

Project Code — **First Issued**
DTPS — 15/6/20

Sheet No. — **Rev**
A-82010 — E

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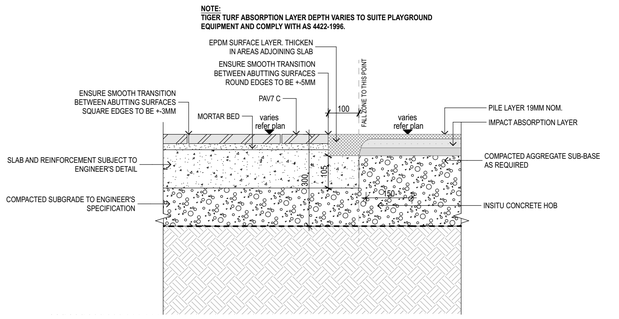
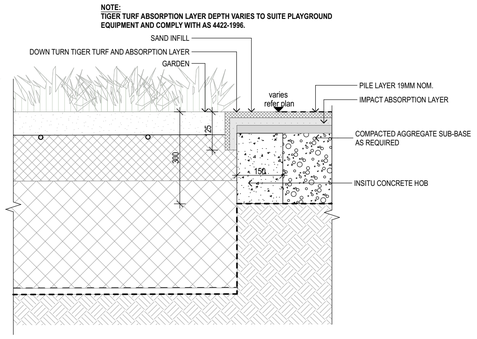


1 DETAIL SOFTFALL/PAV7C
1:10 EDG2



2 DETAIL SOFTFALL/GARDEN
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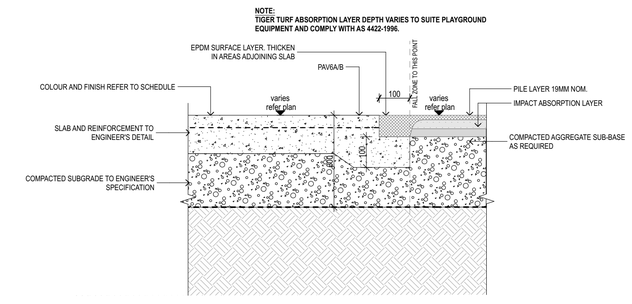

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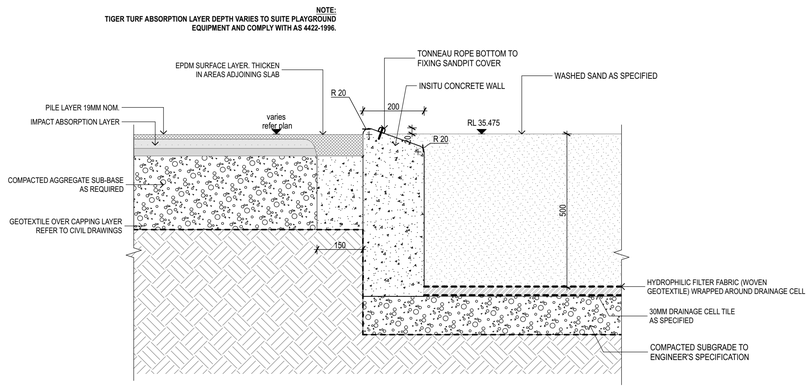

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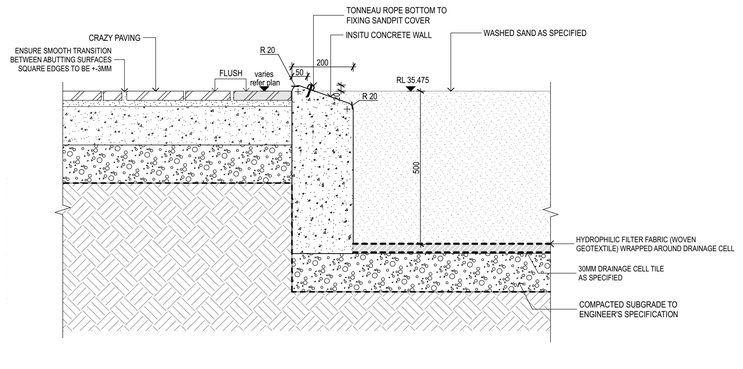

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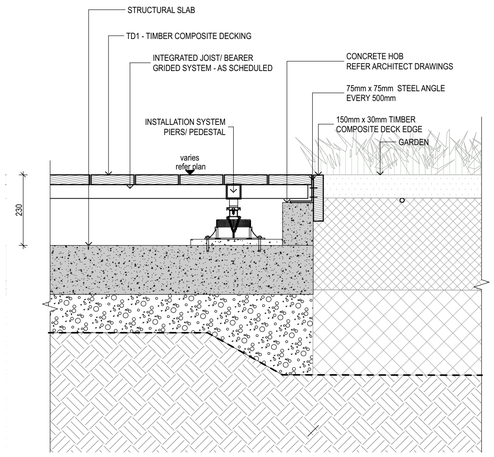
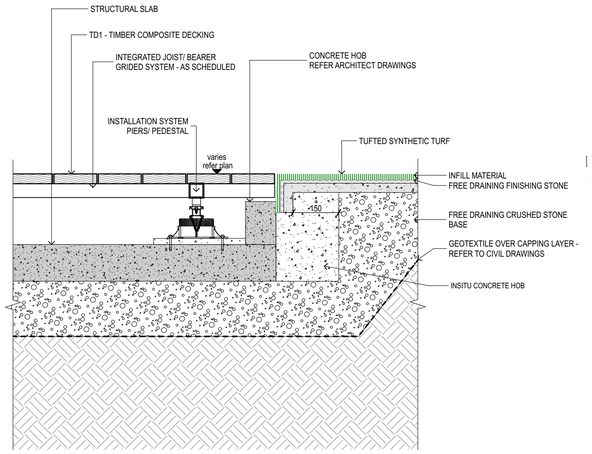
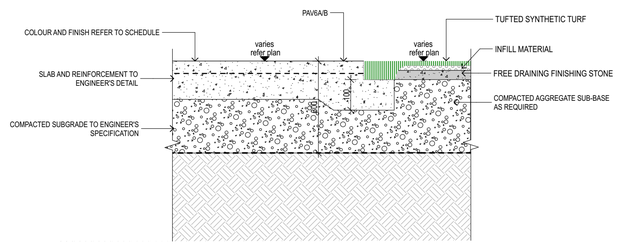


6 DETAIL TD1/GARDEN
1:10 EDG1



7 DETAIL TD1/SYNTHETIC TURF
1:10 EDG1



8 DETAIL PAV6/SYNTHETIC TURF
1:10 EDG2

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0 0.05 0.10 0.20m

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Legend

	FOOTING PLACEMENT
	SITE BOUNDARY
	EXTENT OF WORKS
200	Contours
EX RL	Existing Relative Level
FFL	Finished Floor Level (internal)
RL	Relative Level
SSL	Structural Slab Level
TREE ID#	Existing tree to be retained (Stage 2)
TREE ID#	Existing treeto be removed (Stage 2)
	Structural Root Zone
	Tree Protection Zone
	Proposed tree in Garden Bed
	Garden Bed - MPB
	Timber Decking - TD1/2
	Rubber Softfall - PAV3
	Astroturf - AST

*For Detail Profiles Refer to 82000 Series

- Water Tap
- Hydrant
- Water Pump

*Note: Sculptures to Artwork Committe consultation. To be installed at a later date.

- Surface inlet Pit
- Juction Pit
- Grated Drain

PAVEMENT FINISHES:

PAV1	Concrete paving
PAV1A/B/C	Colour concrete paving - Dolomite/ Arctic/ Silver Colour
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PAV4A	Connecting Pathways-Timber Sleepers (in ground)
PAV4B	Connecting Pathways-Stumps in ground
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PAV4E	Connecting Pathways-Recycled timber logs
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PAV5	Brick Pavement
PAV6A/B	Preschool - Colour Concrete Topping
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TD2	Timber Composite Deck Type 2
LN1	Line marking

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RVG	Raised Veggie Garden
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TAP	Water Tap
BTS	Indigenous Planting Signage (Refer to planting plans for location)

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MPB3	Garden profile on grade - 500MM
MPB4	Garden profile on grade - above 500MM
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rev	date	name	by	chk
E	31/8/21	For Construction	JRS	
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Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Details
Walls and Edging

Scale
1:5 @ A1

Project Code
DTPS

First Issued
15/6/20

Sheet No.
A-82020

Rev
E

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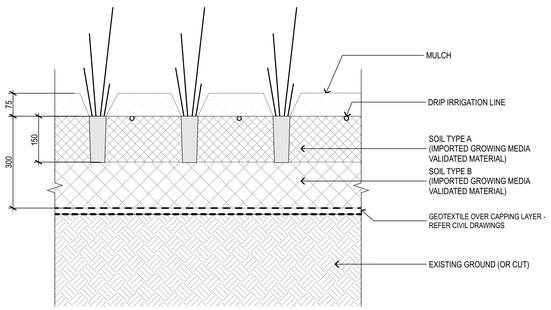

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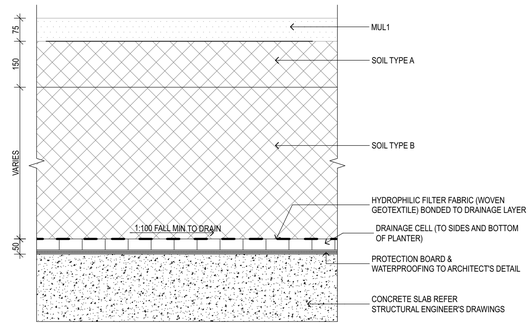

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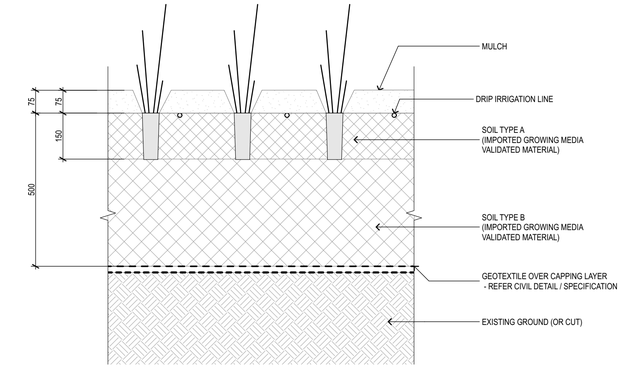

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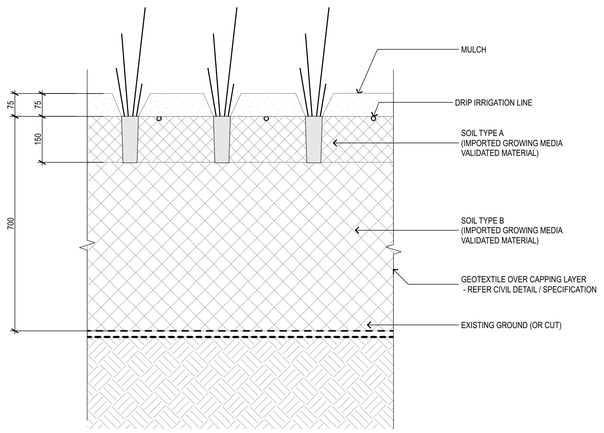

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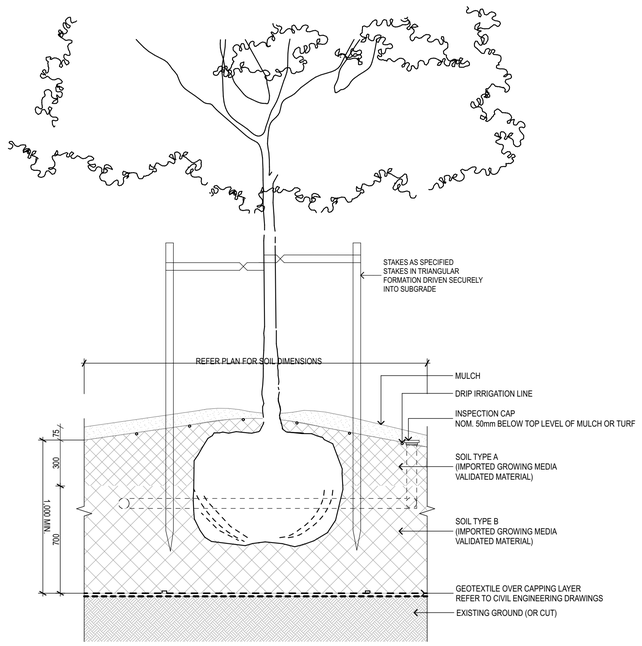

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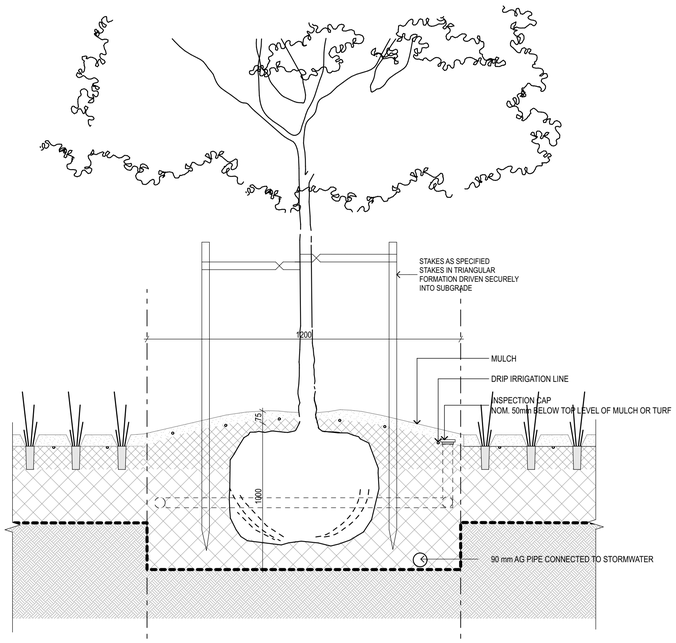

6 DETAIL TREE IN GARDEN W/ CAPPING
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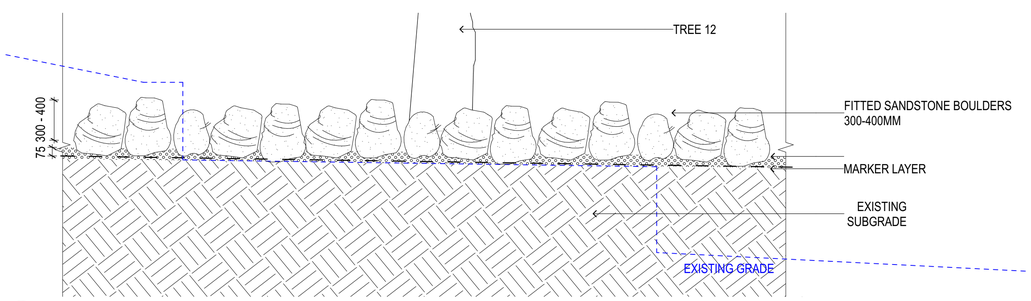

7 SECTION MUL2
1:20

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0 0.05 0.10 0.20m

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Astroturf - AST

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Hydrant
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rev	date	name	by	chk
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Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Details
Softscape

Scale
1:5 @ A1

Project Code
DTPS

First Issued
15/6/20

Sheet No.
A-82030

Rev
E

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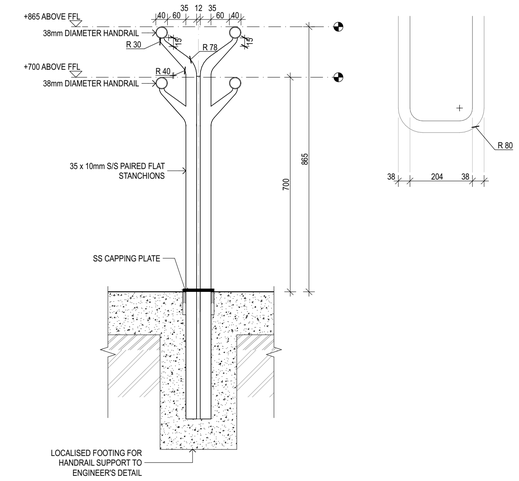

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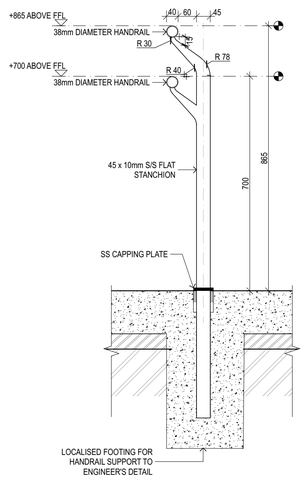

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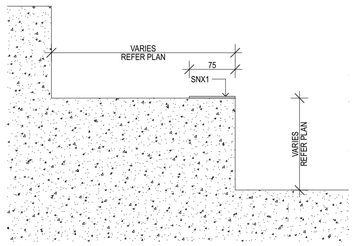

3 DETAIL TYP NSX1 AND SHADOW LINE
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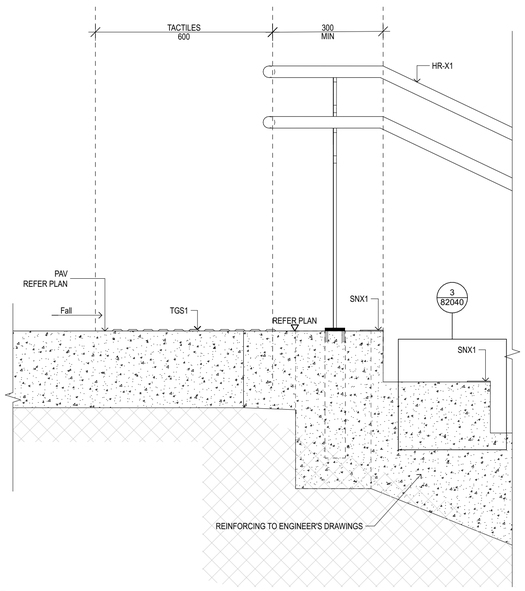

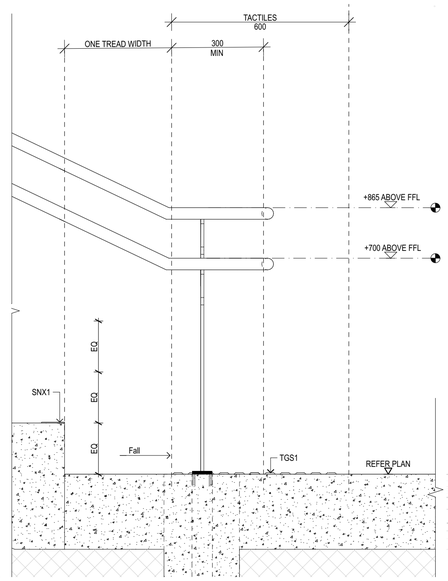

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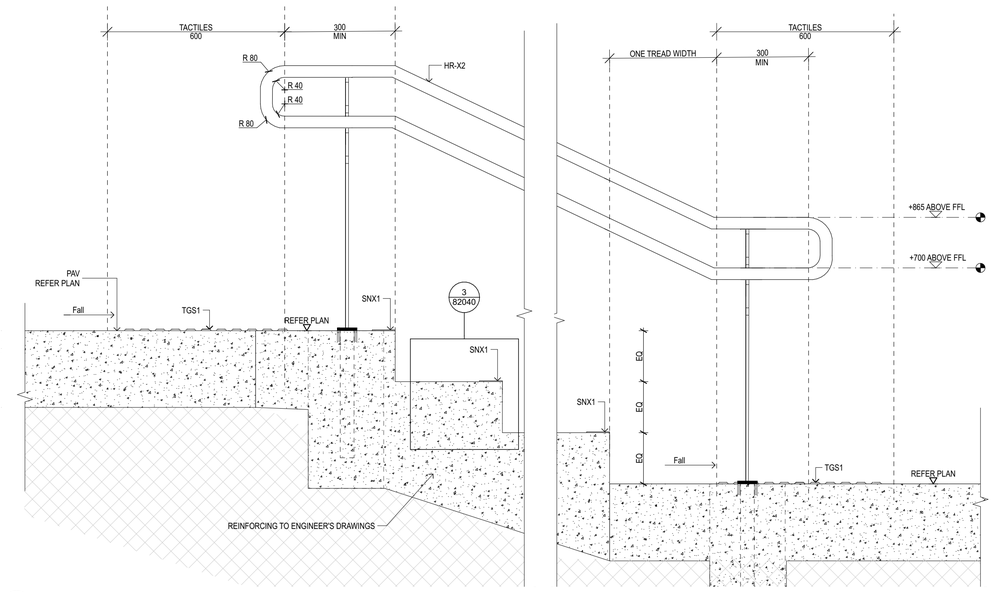

5 SECTION HRX2 - SINGLE HANDRAIL
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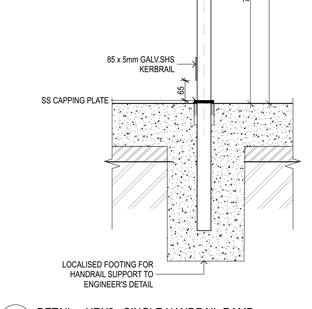

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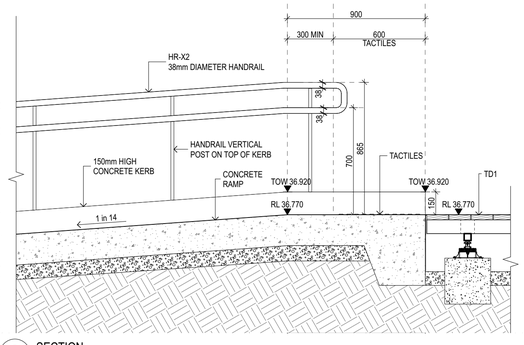

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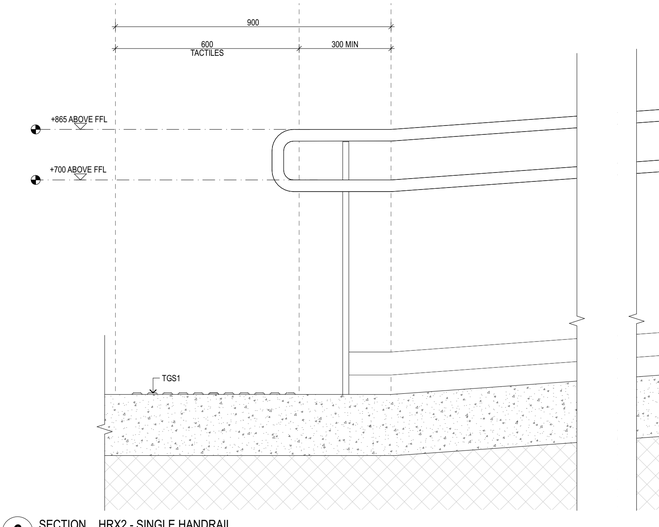

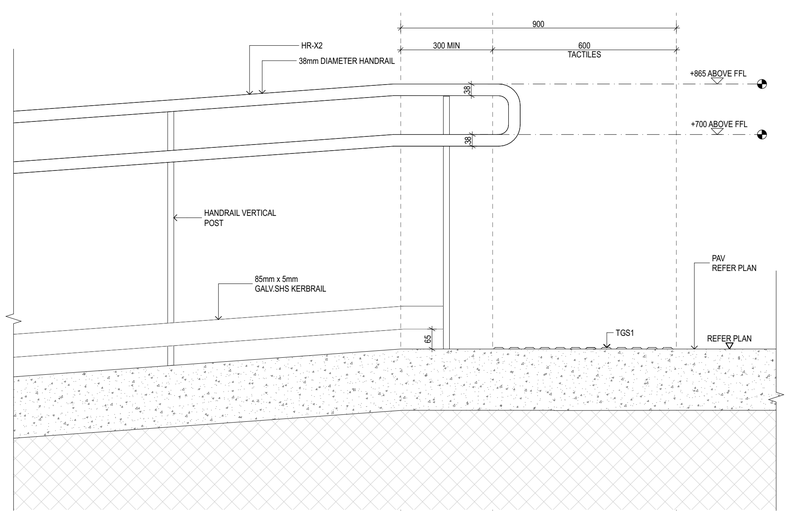

6 SECTION HRX2 - SINGLE HANDRAIL
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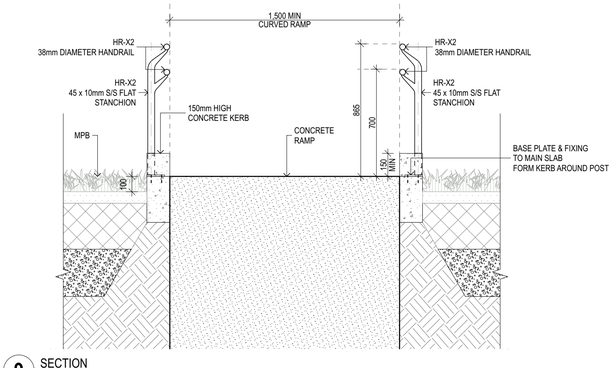

9 SECTION
1:20

architecture / interiors / urban / landscape / place Level 5, 70 King Street Sydney 2000 **t** +61 2 9251 7077 **w** fjmtstudio.com

fjmtstudio

0 0.2 0.5 1.0m

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E	30/7/21	For Construction Certificate Issue	MZ	
D	24/7/21	For Construction Certificate Issue	MY M	
C	22/6/21	IFC for Sign-off Issue	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Details
External Stairs and ramps

Scale
1:20 @ A1

Project Code
DTPS

First Issued
15/6/20

Sheet No.
A-82040

Rev
H

For Construction

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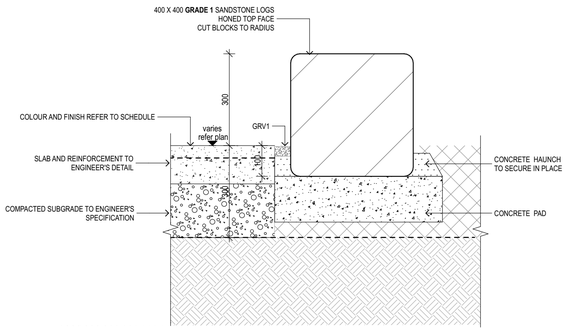

1 DETAIL BNCH1
1:10

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0 0.1 0.2 0.5m

General notes
- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

FOOTING PLACEMENT
SITE BOUNDARY
EXTENT OF WORKS
200 Contours
EX RL Existing Relative Level
FFL Finished Floor Level (internal)
RL Relative Level
SSL Structural Slab Level
TREE ID# Existing tree to be retained (Stage 2)
TREE ID# Existing treeto be removed (Stage 2)
Structural Root Zone
Tree Protection Zone
Proposed tree in Garden Bed
Garden Bed - MPB
Timber Decking - TD1/2
Rubber Softfall - PAV3
Astroturf - AST
*For Detail Profiles Refer to 82000 Series
Water Tap
Hydrant
Water Pump
*Note: Sculptures to Artwork Committe consultation. To be installed at a later date.
Surface inlet Pit
Juction Pit
Grated Drain

PAVEMENT FINISHES:

PAV1	Concrete paving
PAV1A/B/C	Colour concrete paving - Dolomite/ Arctic/ Silver Colour
PAV2	Stone paver - Granite
PAV3a/b/c	Rubber Softfall -EDPM
PAV4A	Connecting Pathways-Timber Sleepers (in ground)
PAV4B	Connecting Pathways-Stumps in ground
PAV4D	Connecting Pathways-Balancing steepers
PAV4E	Connecting Pathways-Recycled timber logs
PAV4F	Connecting Pathways-Stepping Stones
PAV4G	Stamped Concrete
PAV5	Brick Pavement
PAV6A/B	Preschool - Colour Concrete Topping
PAV7A/B/C	Preschool - Stone Paving - Australian Bluestone Stone cobbles/Stone pavers/ Crazy Paving
AST	Astroturf
TD2	Timber Composite Deck Type 2
LN1	Line marking

WALLS AND FENCING:

W1	In-situ Concrete Bleacher Walls 450mm Wide
W1a	In-situ Concrete seat with composite timber top
W1b	In-situ Concrete wall/Seat 450mm wide
W1c	In-situ Concrete wall/Seat with Cistern Access Hatch
W2	In-situ Concrete Bleacher Walls 900mm wide
W3	Entry Walls 600mm
W4	Sandstone Wall
W5	Entry Wall
W6	Landscape Brick Wall
W7	Insitu Concrete Wall/Seat 300mm wide
R1	Access Ramp & Seatwall Garden
R2	Access Ramp to preschool
EDG1	Composite Timber Edge
EDG2	Concrete Edge
EDG3	Sandstone cobbles
EDG4	Feature steel inlay to COLA
FN02	Preschool Fence

ELEMENTS AND FURNITURE:

BIN1	External Litter Bin
BNCH1	Bench Seat
FP	Flagpole
HRX1	External Handrail - Double
HRX2	External Handrail - Single
FR	Feature Rock and Boulders
RVG	Raised Veggie Garden
S1	Stair Type 1 - Concrete Stairs
TAP	Water Tap
BTS	Indigenous Planting Signage (Refer to planting plans for location)

PLANTING PROFILES:

MPB1	Garden profile on grade - 300MM
MPB2	Garden profile on structure
MPB3	Garden profile on grade - 500MM
MPB4	Garden profile on grade - above 500MM
MUL1	Mulch

rev	date	name	by	chk
E	31/8/21	For Construction	JRS	
D	20/8/21	For Construction	MZ	
C	22/6/21	IFC for Sign-off Issue	JRS	
B	14/5/21	Final SINSW Review Issue	BM	
A	7/4/21	SINSW Preliminary Review 95%	MM G	
05	1/4/21	SINSW Preliminary Review 95%	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Details
Furniture and Structures

Scale
1:10 @ A1

Project Code
DTPS

First Issued
15/6/20

Sheet No.
A-82050

Rev
E

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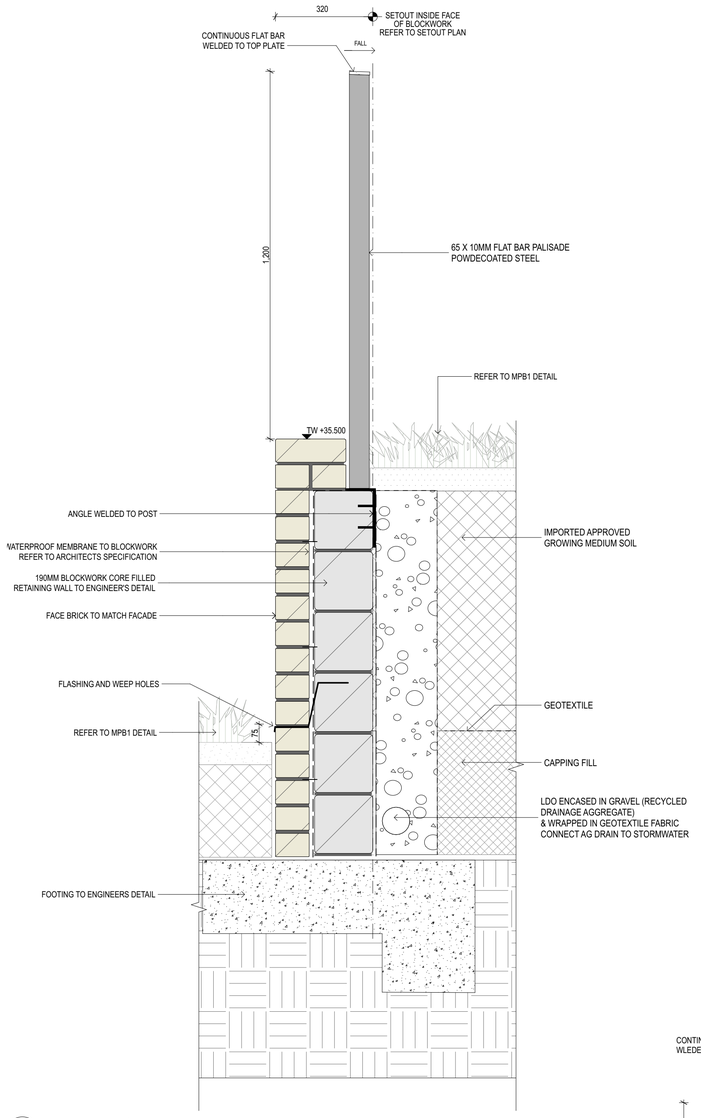
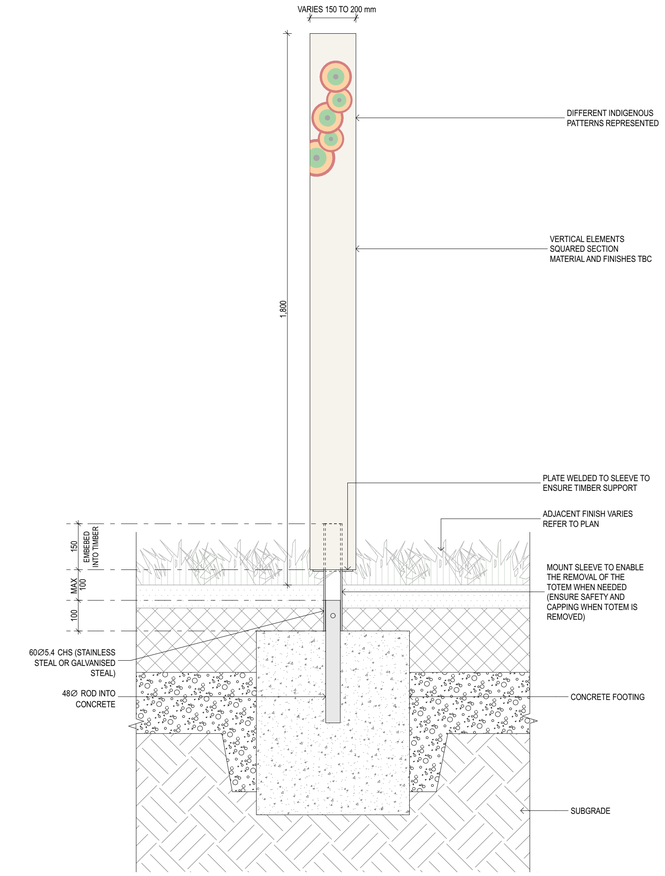
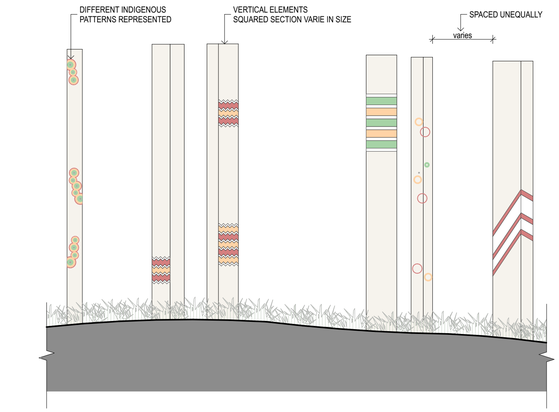


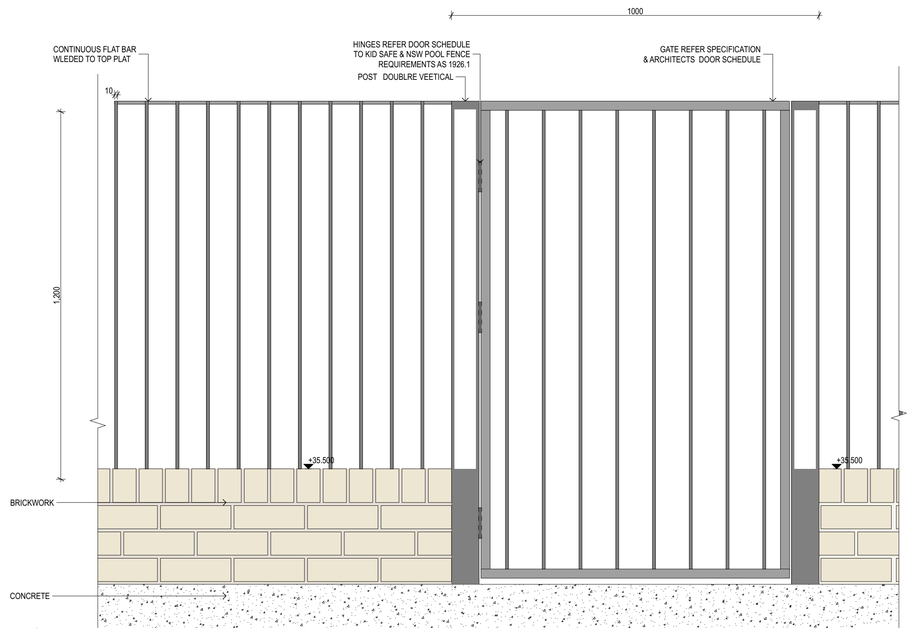
1 SECTION PRESCHOOL FENCE - FN02
1:10



2 SECTION VERTICAL ELEMENTS
1:10



3 ELEVATION VERTICAL ELEMENTS
1:20



4 ELEVATION PRESCHOOL GATE
1:10

5 ELEVATION PRESCHOOL FENCE- FN02
1:10

NOTE:
FOR GATES REFER TO GATE SCHEDULE A-96007 AND ELEVATIONS A-64008 AND A-64009

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0 0.1 0.2 0.5m

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Legend

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	SITE BOUNDARY
	EXTENT OF WORKS
200	Contours
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FFL	Finished Floor Level (internal)
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SSL	Structural Slab Level
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PAV4G	Stamped Concrete
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W4	Sandstone Wall
W5	Entry Wall
W6	Landscape Brick Wall
W7	Insitu Concrete Wall/Seat 300mm wide
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EDG1	Composite Timber Edge
EDG2	Concrete Edge
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EDG4	Feature steel inlay to COLA
FN02	Preschool Fence

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MPB3	Garden profile on grade - 500MM
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MUL1	Mulch

rev	date	name	by	chk
F	31/8/21	For Construction	JRS	
E	20/8/21	For Construction	MZ	
D	8/7/21	For Construction	MZ	
C	22/6/21	IFC for Sign-off Issue	JRS	
B	14/5/21	Final SINSW Review Issue	BM	
A	7/4/21	SINSW Preliminary Review 95%	MM G	
05	1/4/21	SINSW Preliminary Review 95%	JRS	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Details
Fences and gates

Scale
1:10 @ A1

Project Code
DTPS

First Issued
15/6/20

Sheet No.
A-82060

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F

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0 1 2 5m

General notes
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- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

FOOTING PLACEMENT
SITE BOUNDARY
EXTENT OF WORKS
200 Contours
EX RL Existing Relative Level
FFL Finished Floor Level (internal)
RL Relative Level
SSL Structural Slab Level
BOTANICAL NAME Drought resistant species

ADJOINING ZONE 2

REFER TO EARLY WORKS LANDSCAPE PACKAGE EW-85000 SERIES

ADJOINING ZONE 4

rev	date	name	by	chk
H	31/3/22	For Construction	AG	
G	31/8/21	For Construction	JRS	
F	20/8/21	For Construction	MZ	
E	30/7/21	For Construction Certificate Issue	MZ	
D	24/7/21	For Construction Certificate Issue	MY M	
C	22/6/21	IFC for Sign-off Issue	JRS	
B	14/5/21	Final SINSW Review Issue	BM	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Landscape Planting Plans
Planting Plan - ZONE 1

Scale 1:100 @ A1

Project Code DTPS

First Issued 7/4/21

Sheet No. A-83001

Rev H

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1 PLAN LANDSCAPE - ZONE 1
1:100

2.2 APPENDIX B – LANDSCAPE DRAWINGS STAGE 2

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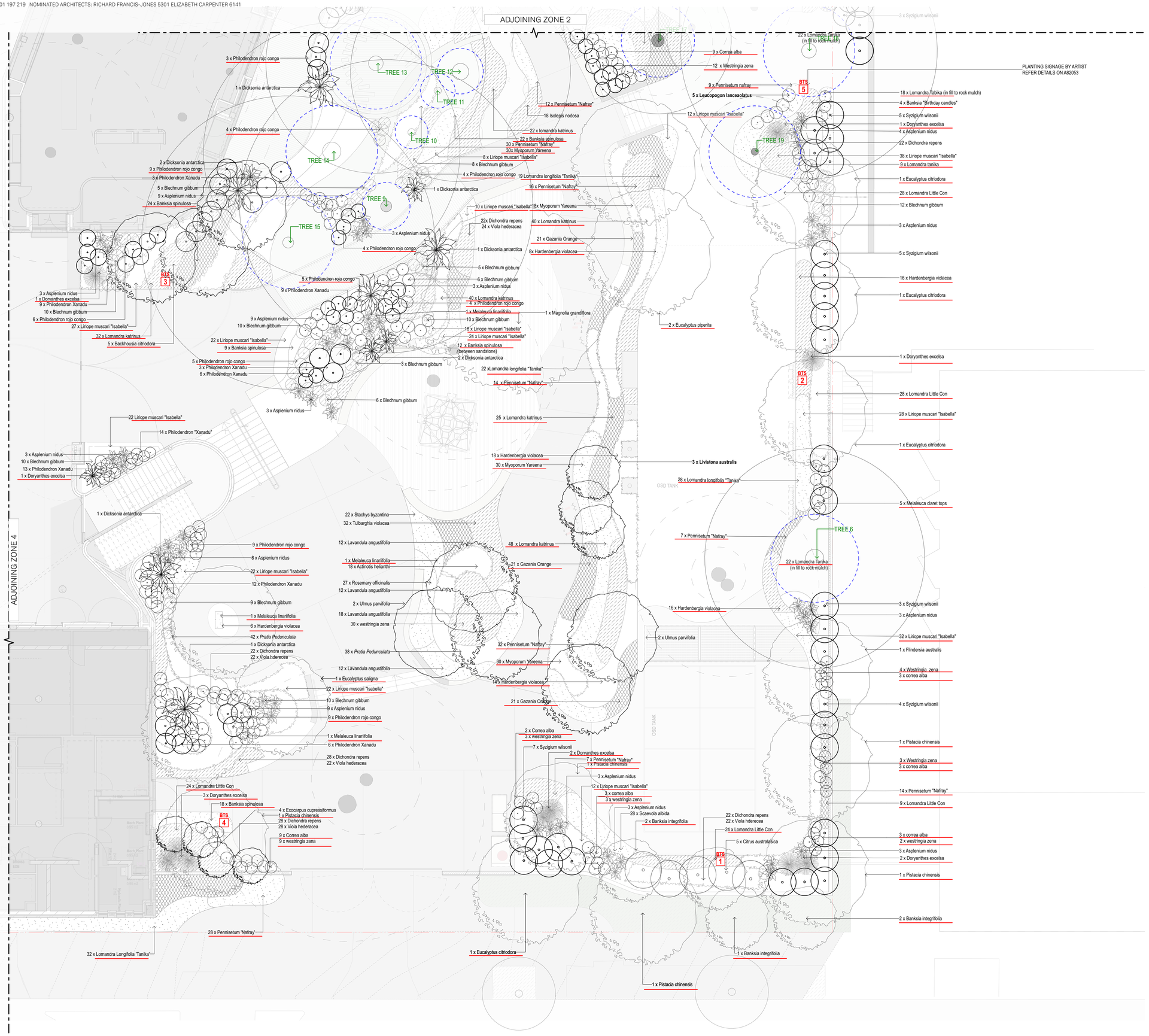

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0 1 2 5m

General notes

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- Do not scale drawings.
- Use figured dimensions only.

Legend

	FOOTING PLACEMENT
	SITE BOUNDARY
	EXTENT OF WORKS
– 200–	Contours
EX RL	Existing Relative Level
FFL	Finished Floor Level (internal)
RL	Relative Level
SSL	Structural Slab Level
BOTANICAL NAME	Drought resistant species

rev	date	name	by	chk
G	21/2/22	For Construction	AQL	
F	18/11/21	For Construction	AQL	
E	10/9/21	For Construction	MZ	
D	31/8/21	For Construction	JRS	
C	22/6/21	IFC for Sign-off Issue	JRS	
B	31/5/21	Final SINSW Review	MZ	
A	7/4/21	SINSW Preliminary Review 95%	MM G	

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Golden Grove Street
Darlington NSW 2008

Scale
Planting Plan - ZONE 3 — 1:100 @ A1

Project Code
DTPS

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7/4/21

Sheet No.
A-83003

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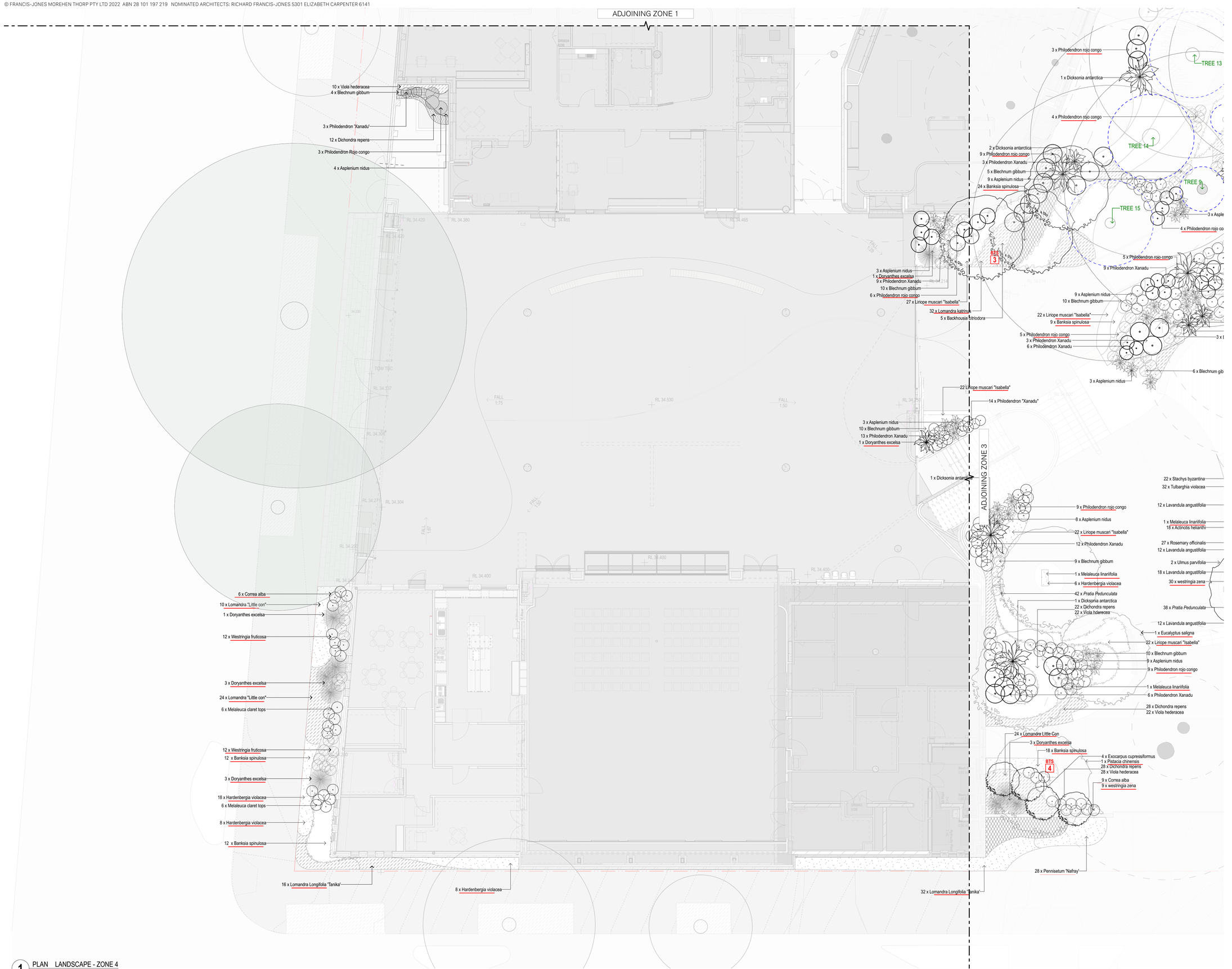

1 PLAN LANDSCAPE - ZONE 4
1:100

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0 1 2 5m

General notes
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- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

	FOOTING PLACEMENT
	SITE BOUNDARY
	EXTENT OF WORKS
200	Contours
EX RL	Existing Relative Level
FFL	Finished Floor Level (internal)
RL	Relative Level
SSL	Structural Slab Level
BOTANICAL NAME	Drought resistant species

rev	date	name	by	chk
F	21/7/22	For Construction	AC	
E	20/9/21	For Construction	MZ	
D	31/8/21	For Construction	JRS	
C	20/6/21	IFC for Sign-off Issue	JRS	
B	31/5/21	Final SINSW Review	MZ	
A	7/4/21	SINSW Preliminary Review 95%	MM G	

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Darlington NSW 2008

Scale
Planting Plan - ZONE 4 — 1:100 @ A1

Project Code
DTPS

First Issued
7/4/21

Sheet No.
A-83004

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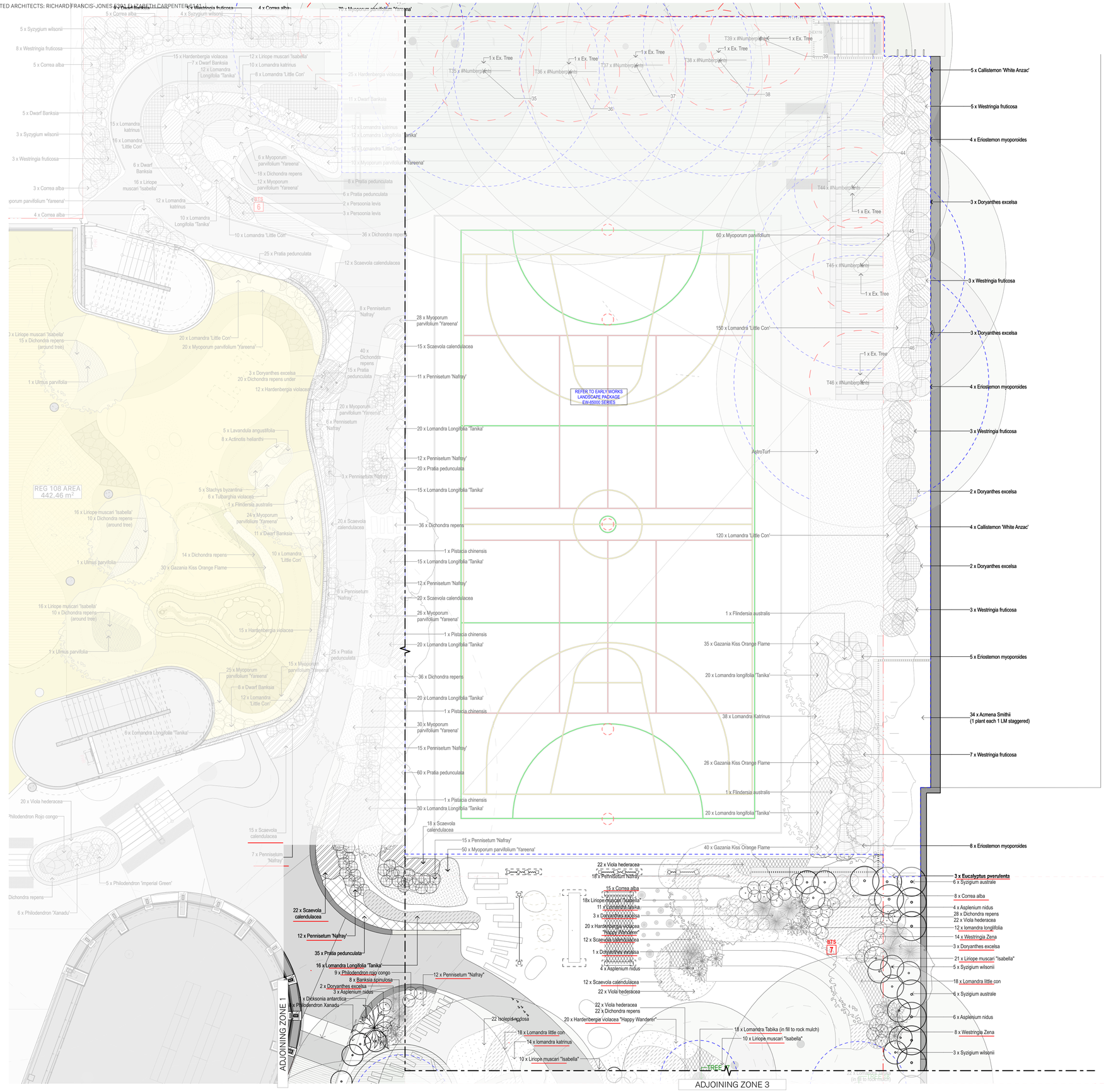

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0 1 2 5m

General notes

- All dimensions and existing conditions shall be checked and verified by the contractor before proceeding with the work.
- All levels relative to 'Australian Height Datum'.
- Do not scale drawings.
- Use figured dimensions only.

Legend

	FOOTING PLACEMENT
	SITE BOUNDARY
	EXTENT OF WORKS
– 200–	Contours
EX RL	Existing Relative Level
FFL	Finished Floor Level (internal)
RL	Relative Level
SSL	Structural Slab Level
BOTANICAL NAME	Drought resistant species

rev	date	name	by	ch k
F	21/09/22	For Construction	AG	
E	10/9/21	For Construction	MZ	
D	31/8/21	For Construction	JRS	
C	22/8/21	IFC for Sign-off Issue	JRS	
B	31/5/21	Final SINSW Review	MZ	
A	7/4/21	SINSW Preliminary Review 95%	MM G	

Darlington Public School
Golden Grove Street
Darlington NSW 2008

Scale
Planting Plan - ZONE 2 1:100 @ A1

Project Code DTPS
First Issued 7/4/21

Sheet No. A-83002
Rev F

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2.3 APPENDIX C - TREE CANOPY COMPARISON

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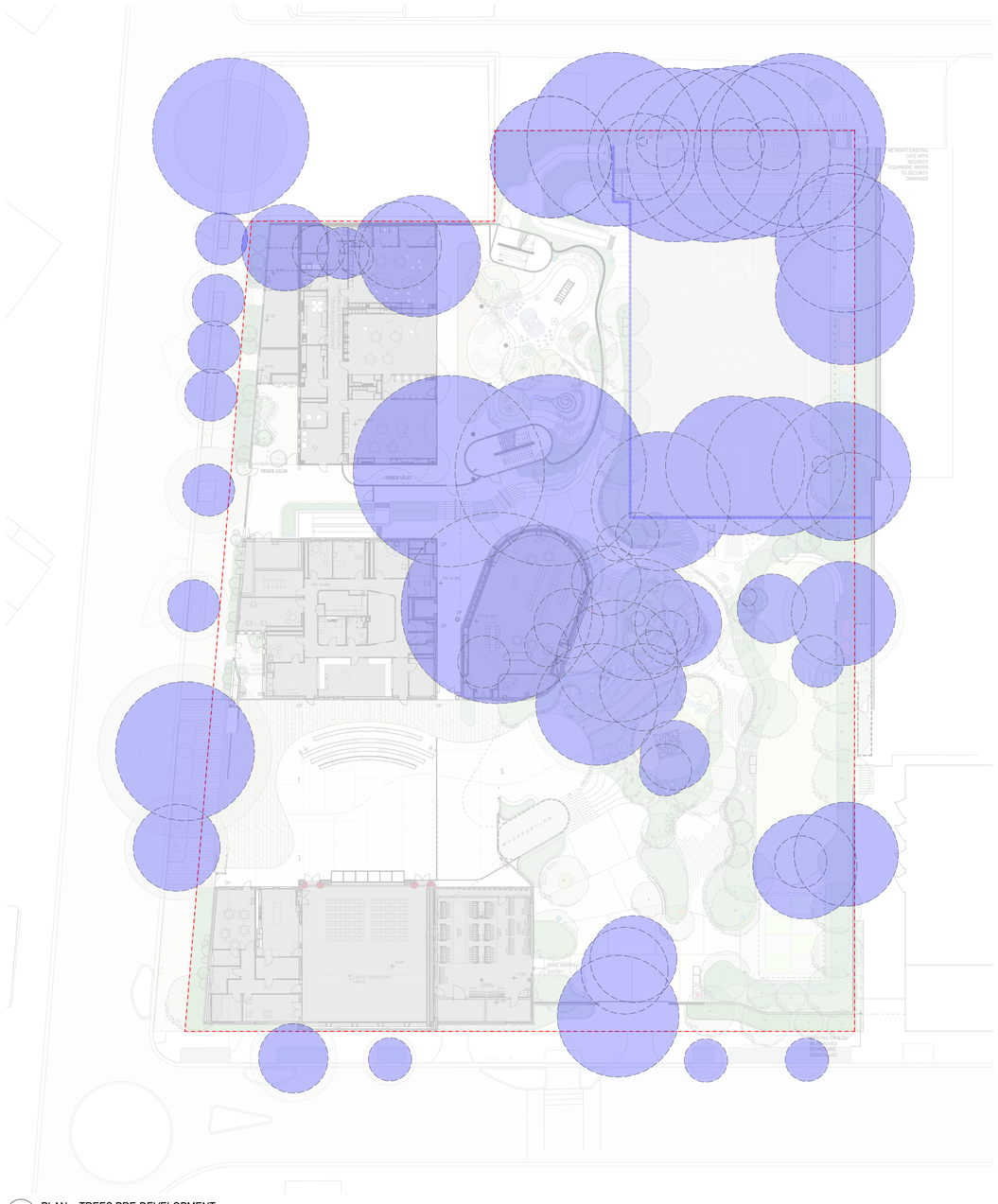
DARLINGTON PUBLIC SCHOOL

TREE CANOPY COMPARISON



1 PLAN TREES PRE-DEVELOPMENT

AREA OF TREE CANOPY PRE-DEVELOPMENT : 4440m²

2 PLAN TREES POST-DEVELOPMENT

AREA OF TREE CANOPY POST-DEVELOPMENT : 4500m²

GENERAL NOTES

- ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK.
- ALL LEVELS RELATIVE TO 'AUSTRALIAN HEIGHT DATUM'.
- DO NOT SCALE DRAWINGS. USE FIGURED DIMENSIONS ONLY.

legend

rev	date	name	by	chk

fjmt studio architecture interiors landscape urban community
sydney melbourne uk
Level 5, 70 King Street t +61 2 9251 7077 w fjmtstudio.com

project
Darlington Public School
Golden Grove Street
Darlington NSW 2008

title
Tree Canopy - Comparison

scale	Not to Scale	first issued	DD/MM/YYYY
project code		sheet no.	revision
DTPS		X-80000	

2.4 APPENDIX D - TREES RETENTION TABLE

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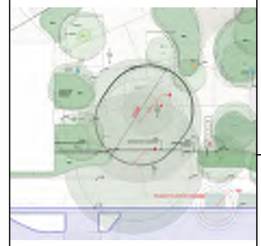
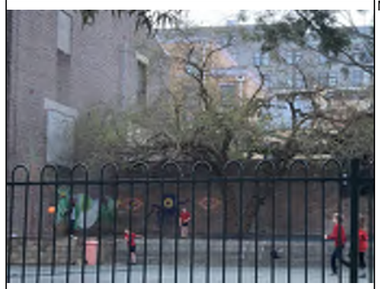
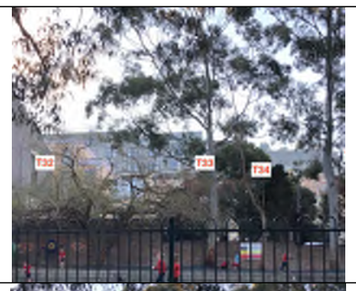
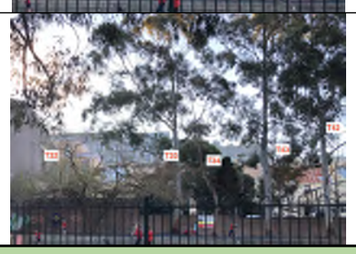
SSDA Trees	Tree Photo (where possible)	Species	Remove/ Retain	Category for Removal	Justification if removed		Diagram	Incursion if retained (%)	
Tree					Design	Arborist		into TPZ	into SRZ
1		Broad leaved paperbark (Melaleuca quinquenervia)	Remove	FUNCTIONALITY (SITE AND EMERGENCY ACCESS)	Trees 1 and 2 are proposed to be removed due to changes to existing levels to meet overland flow requirements due to existing flooding on site and provision of a new accessible pedestrian entry, and vehicular entry including emergency vehicle access. To retain these paperbark trees a new raised planter would be required due to the change in level (approx. 500+mm). In accordance with the Arborist requirements, the size of the planter is to align with the TPZ. The combined TPZ will protrude into the new footpath zone and is the full width of the entry way (refer diagram). The accessible entry can't be relocated to the east of this planter (as the footpath levels become lower, resulting in a non-compliant pathway) The accessible entry can't be relocated to the west of this planter as the planter blocks the connection to the 1:20 graded pathways. Due to the above, it is not possible for Trees 1 and 2 to be retained.	Changes to existing levels and new accessible pedestrian entry.		-	-
2		Broad leaved paperbark (Melaleuca quinquenervia)	Remove					-	-
4		Cabbage tree palm (Livistona australis)	Remove	PREFERENCE TO REMOVE (FUNCTIONALITY OF RECREATIONAL PLAY SPACE)	This tree was recommended for removal, to create an open run around area as requested by the school leadership. Due to changes to existing levels to create a level surface Astroturf kick about zone, retention would mean that a raised planter bed would be required. It is our preference to maintain the run around area, however if deemed necessary this tree can be retained. As the Cabbage Tree palm does have some substantial spikes to its base, the garden bed will provide some protection. Retaining this tree will result in loss of play space. This tree does not have a significant canopy size and would not provide significant shading. Replacement is recommended. Also refer Arborist analysis of tree health following removal of concrete.	I am not so confident retaining Trees 4 and 5. As shown in the images the roots are likely to have grown into and around the existing concrete surface so removing this concrete will result in a degree of root loss that will be hard to quantify.		-	-
5		Swamp mahogany (Eucalyptus robusta)	Remove	PREFERENCE TO REMOVE (FUNCTIONALITY OF RECREATIONAL PLAY SPACE)	This tree was recommended for removal, to create an open run around area as requested by the school leadership. Due to changes to levels to create a level surface Astroturf kick about zone, retention would mean that a raised planter bed would be required. It is our preference to maintain the run around area, however if deemed necessary this tree can be retained and the play space reduced. It should be noted that the NSW Department of Education requires 10m2 of recreational play space per student, therefore any reduction is not preferred as the play space calculations are currently on the cusp of 10sqm per student. Also refer Arborist analysis of tree health following removal of concrete.			-	-
6		Brushbox (Lophostemon confertus)	RETAIN		-	-		12%	0
7		Coastal banksia (Banksia integrifolia)	Remove	ACCESSIBILITY	Changes to levels to create new accessible entry path, and grading to deliver the overall overland flowpath result in 2m difference in height between the adjacent COLA and the existing soil level for T7 & T8. If they were to be retained, a retaining wall to retain 2m of soil would be required and the trees would be 2 meters below the COLA level and 1m below the eastern foot path level. Retention is not recommended due to the extreme level differences.	Changes to levels to create new accessible entry path.		-	-
8		Swamp mahogany (Eucalyptus robusta)	Remove					-	-

9		River she oak (Casuarina cunninghamiana)	Remove	ACCESSIBILITY	Maintenance issues were raised by the school due to pine needles. The needles can also can cause slip hazard. It was suggested that a non slip surface could be used, however the concern is that a higher slip rating will not assist as the needles will form a layer over the ramp's surface. The ramp has been designed to be compliant, with a slip rating of R11. T9 and T10 are located on the edge of a brick retaining wall and pavement which are to be removed in the design. Accessible Pathway T9 is located in the path of new accessible entry pathway. The length of the path is critical as it delivers the compliant grades for wheelchair access. A number of options were tested to locate the accessible path. The current alignment represents the shortest, most direct route, with the boardwalk crossing the TPZ of trees to be retained. We tried to move the boardwalk but it either moved too close to the nature play area, creating a low narrow and unusable space or created an overly circuitous connection.	Not large or significant tree.. 9-15 could all be retained due to the dense bonded root mass. Removing the wall near 9 and 12 would be OK.		-	-
10		River she oak (Casuarina cunninghamiana)	RETAIN IF POSSIBLE (subject to retaining wall removal / assessment on site)	ACCESSIBILITY & FUNCTIONALITY	T10 and T11 are located on the edge of a brick retaining wall and pavement which are to be removed in the design. We have concern over the stability of the trees once the wall is removed. The landscape has been designed around T12 to include sandstone steps and boulders to assist in maintaining existing levels. Work in this area is to be undertaken under Arborist supervision. If T10 & 11 can be retained they can be accommodated in the garden.	Not large or significant tree.		-	-
11		River she oak (Casuarina cunninghamiana)	RETAIN IF POSSIBLE (subject to retaining wall removal / assessment on site)	ARBORIST		Not large or significant tree.		-	-
12		River she oak (Casuarina cunninghamiana)	RETAIN		This species has been retained to provide a reference for the Flora of the Blackwattle Creek riparian zone. The She-Oak is a feature of this community, levels around the tree are to be retained, a cove-like dry creek bed has been designed around the tree, the needles (for the most part) are intended to fall into the play space - opportunity for learning environment and Nature Play. T12 is located on the edge of a brick retaining wall and pavement which are to be removed in the design. It's possible that T12 can be retained as it is set back from the wall. It is noted on the SSDA as subject to Arborist's review.	-		<15% These trees have been growing in a restricted root area and will not have the typical broad spreading root plate of a normal tree. This incursion applies to all 4 of these trees	0
13		Tallowwood (Eucalyptus microcorys)	RETAIN		-	-			0
14		Tallowwood (Eucalyptus microcorys)	RETAIN		-	-			0
15		Tallowwood (Eucalyptus microcorys)	RETAIN		-	-			0
16		Firewheel tree (Stenocarpus sinuatus)	Remove	PREFERENCE TO REMOVE (FUNCTIONALITY OF SAFETY OF PLAY SPACE)	The level of the adjacent accessible footpath is 1m higher than the existing levels at the base of the tree. The pathway can't be relocated to the west as it would impact Tree11 by cutting through its TPZ & SRZ and possibly result in its failure. To retain the tree, there are to be no changes to the soil levels in the TPZ which would require a 1m high retaining wall as well as a balustrade for safety - a compromise to the design that is not in keeping with the size of the tree. Preference would be to replace with a large size new tree. Refer Arborist comment.	Small tree and could be readily replaced with alternate, more suitable planting.		-	-

17		Illawarra flame tree (Brachychiton acerifolius)	RETAIN	The garden can be adjusted /extended to retain this tree	Retaining this tree will result in loss of play space. This tree does not have a significant canopy size, recommend replacement.	Small tree and could be readily replaced with alternate, more suitable planting.		TBC	TBC
18		Lemon-scented gum tree (Corymbia citriodora)	RETAIN		-	-		<10%	0
19		Bangalow palm (Archontophoenix cunninghamiana)	RETAIN	The garden can be adjusted /extended to retain this tree	Retaining this tree will result in loss of play space. This tree does not have a significant canopy size, recommend replacement.	Could be replaced with a better species to suit area. Minimal canopy cover and shade provision from this tree. It is located on the eastern boundary of the site so shade to the school is limited. A visual barrier between the the school and the adjoining Uni buildings and larger more dense tree species could be selected.		-	-
26		Kaffir plum (Harpephyllum caffrum)	Remove	BUILDING FOOTPRINT	As the neighbouring Sydney Uni Regiment building presents a blank facade and overshadows the site, it was deemed appropriate for the proposed school to abut the existing building. This also enables the pattern of urban form along the streetscape to be reinforced. Extending the proposed building footprint to the northern boundary creates a strong street wall along Golden Grove Street and provides security and privacy for the school, without the need for extensive fencing. This direction was supported and recommended by GANSW during the masterplanning phase. Retaining these trees would result in a linear pocket of playground between the proposed and existing building with poor sightlines for supervision.	Removal of trees due to requested increased footprint. Replacement trees being provided with net increase to canopy.		-	-
27		Kaffir plum (Harpephyllum caffrum)	Remove					-	-
28		River she oak (Casuarina cunninghamiana)	Remove					-	-
29		Black bean (Castanospermum australe)	Remove					-	-
30		Kaffir plum (Harpephyllum caffrum)	Remove					-	-
31		Willow gum (Eucalyptus scoparia)	Remove					-	-
32		Mulberry (Morus nigra)	Remove	ARBORICULTURAL Codominant stems with partial decay occurring between the two main stems SULE Category 2c: removed for more suitable planting	Tree recommended for removal due to poor health. Refer Arborist justification.	Tree is splitting between stems. Is a classic example of a tree with codominat stems. The angle of both stems will increase with weight placing tension within the main union. Decay is already present in this union. For the life expectancy of the school project in relation to the life expectancy of this tree it is a chance to replace with a native species.		-	-
47		Spotted gum (Corymbia maculata)	Remove	BUILDING FOOTPRINT	Retaining Trees 47 and 48 was not possible due to the orientation of the proposed preschool to allow for good solar access to the activity rooms. In addition, the alignment of the two upper levels of learning neighbourhoods in a north-south direction allows for an efficient classroom configuration and minimises the building footprint. The proposed design of the upper levels is comprised of 16m wide floorplates for maximum daylight penetration into the learning spaces, with an adjacent external walkway. The external stairs are required to be 6m from the building facade for fire isolation and their location has been dictated by travel distance requirements. The existing RL of tree 48 is approximately 600mm above the design level. The design level allows for an equitable accessible connection from the preschool to the playground. A secondary concern of the School Leadership group is that currently due to the occurrence of limb shedding, the students are not allowed in the play grounds on windy days. The central stair cannot be relocated to avoid this tree. Moving the stair 9 to 10m north would result in non-compliant egress distances and the stair cannot be moved south of the library as it would impede access to the library and sight lines from the COLA, and result in non-compliant egress distances.	Removal of trees due to requested increased footprint. Replacement trees being provided with net increase to canopy. Large mature tree with broad spreading canopy will be exposed to new wind forces once Tree 47 is removed. The TPZ for this tree is almost a 15m radius. Due to the age and size of this tree i would not be recommending an incursion of more than 15% at the most so that this old tree remains viable. The other issue will be the change in surface hydrology that the tree will be become accustomed to over the last 20-30 years.		-	-
48		Sydney blue gum (Eucalyptus saligna)	Remove					-	-
52		Unknown	Remove	BUILDING FOOTPRINT	These trees are located in the footprint of the proposed library. The masterplan for the school located the library at the centre of the proposal, symbolising the 'heart' of the school. The library has been located central to the classrooms and projects out into the playground to provide a connection to the landscape. Alternative locations for the library were considered however these impeded on sightlines and site circulation and were incompatible with the topography of the site.			-	-
53		Tallowwood (Eucalyptus microcorys)	Remove					-	-
54		Trident maple (Acer sp)	Remove					-	-
55		Water gum (Tristaniopsis laurina)	Remove					-	-
56		Sweetgum (Liquidambar styraciflua)	RETAIN				Street tree, no incursions.		

57		Sweetgum (Liquidambar styraciflua)	RETAIN		-	-	Street tree, no incursions.			
58		Sweetgum (Liquidambar styraciflua)	RETAIN		-	-	Street tree, no incursions.			
59		Brushbox (Lophostemon confertus)	RETAIN		-	-	Street tree, no incursions.			
60		Tallowwood (Eucalyptus microcorys)	RETAIN		-	-	Street tree, no incursions.			
61		Tallowwood (Eucalyptus microcorys)	RETAIN		-	-	Street tree, no incursions.			
62		Evergreen Ash (Fraxinus griffithii)	RETAIN		-	-	Street tree, no incursions.			
63		Evergreen Ash (Fraxinus griffithii)	RETAIN		-	-	Street tree, no incursions.			
64		Brushbox (Lophostemon confertus)	RETAIN		-	-		No incursion.		
65		Brushbox (Lophostemon confertus)	RETAIN		-	-		No incursion.		
66		Evergreen Ash (Fraxinus griffithii)	RETAIN		-	-		No incursion.		
67		Evergreen Ash (Fraxinus griffithii)	RETAIN		-	-		No incursion.		
68		Tallowwood (Eucalyptus microcorys)	RETAIN		-	-		No incursion.		

DA Trees	Tree Photo (where possible)	Species	Remove/ Retain	Category for Removal	Justification for Removal			Incursion if retained	
Tree		Species	Remove/Retain		Design	Arborist		into TPZ	into SRZ
20		Lemon-scented gum tree (Corymbia citriodora)	Remove	GAMES COURT	The installation of the Multisport Court will require these trees to be removed and 600-800mm of imported fill to be installed. Providing a full size multi-court to a school of 415 students is a brief requirement and provides high quality amenity for outdoor play for a school of this size. The court has been oriented north-south in order to allow adequate space adjacent to the preschool to meet the NSW Childcare Planning Guideline requirement for external playspace. The early construction of the games court will provide a quality play space which will enable all students to remain on the site during construction period. It is preferable to provide a staged solution to a school redevelopment, so that any funds required for relocation to an alternative site can be used for the new school. Due to the topography of the site, the suggestion from the GANSW (SDRP) to provide a street wall response to the urban context and the overland flow path, alternative locations for the games court were ruled out. A number of configurations for the school were explored and tested during concept design - the north south layout met the topographical constraints, maximised solar access (to the playground and the school) and delivered a secure perimeter. Through this process, it become clear that only 1 location for the games court was possible.	Removal of trees due to requested increased footprint. Replacement trees being provided with net increase to canopy.		-	-
21		Sydney blue gum (Eucalyptus saligna)	Remove					-	-
22		Sydney blue gum (Eucalyptus saligna)	Remove					-	-
23		No Value	Remove					-	-
24		Spotted gum (Corymbia maculata)	Remove					-	-
25		Lone Pine (Pinus brutia)	Remove					-	-
33		Sydney blue gum (Eucalyptus saligna)	Remove	ACCESSIBILITY RAMP	In order to provide an accessible connection for wheelchair access, the existing steps need to be demolished and a new ramp constructed - the existing soil is required to be excavated to create a complying ramp at 1:14 grade - the excavation cuts through a significant portion of the TPZ and SRZ and the health of the tree will be compromised. Other options to provide accessible ramp to this area were considered however resulted in greater impact on existing trees.	Level change at base of tree due to new accessible ramp		-	-
34		Sydney blue gum (Eucalyptus saligna)	Remove	ARBORICULTURAL Asymmetrical canopy to the south suppressed specimen SULE Category 2c: removed for more suitable planting	Refer Arborist justification.	Smaller suppressed specimen which will never reach full potential.		-	-
35		Sydney blue gum (Eucalyptus saligna)	RETAIN		It is noted while this is a high incursion, where levels are required to be retained, terrace seats and walls have been designed in the place of existing structures to minimise excavation and additional impacts to tree health. The removal of rubber softfall around these trees (and installation of floating deck) is to	-		27%	0
36		Sydney blue gum (Eucalyptus saligna)	RETAIN			-		25%	0

37		Sydney blue gum (Eucalyptus saligna)	RETAIN		The removal of rubber softfall around these trees (and installation of floating deck) is to improve conditions and tree health. It's proposed that work in these areas will be by hand or under the supervision of the arborist.	-		23%	0
38		Sydney blue gum (Eucalyptus saligna)	RETAIN			-		23%	0
39		Sydney blue gum (Eucalyptus saligna)	RETAIN			-		13%	0
40		Liquidambar (Liquidambar styraciflua)	Remove	ARBORICULTURAL Suppressed by larger trees	Refer Arborist justification	Smaller suppressed specimens will never reach full potential		-	-
41		Liquidambar (Liquidambar styraciflua)	Remove					-	-
42		Liquidambar (Liquidambar styraciflua)	Remove					-	-
43		Cupresses sp.	Remove					-	-
44		Sydney blue gum (Eucalyptus saligna)	RETAIN		-	Note: existing wall to be removed and replaced with garden bed for this tree.		7%	0
45		Sydney blue gum (Eucalyptus saligna)	RETAIN		It is noted while this is a high incursion, removal of existing structures and softfall (replacing with garden) is proposed so that impacts to tree are minimised and health is improved. It is proposed that work in these areas will be by hand or under the supervision of the arborist.	Note: existing wall to be removed and replaced with garden bed for these 2 trees.		22%	0
46		Spotted gum (Corymbia maculata)	RETAIN					21%	0
49		Broad leaved paperbark (Melaleuca quinquenervia)	Remove	BUILDING FOOTPRINT	The installation of the Multisport Court and its connecting paths will require these trees to be removed and 600-800mm imported fill to be installed. Providing a full size multi-court to a school of 415 students is a brief requirement and provides high quality amenity for outdoor play for a school of this size. The court has been oriented north-south in order to allow adequate space adjacent to the preschool to meet the NSW Childcare Planning Guideline requirement for external playspace. Due to the topography of the site and the overland flow path, alternative locations for the games court were ruled out. Note: Although tree 50 does not sit within the zone of the proposed Multisport Court, it is adjacent to an existing wall that is required to be removed to enable construction of the court and access stair and pathway. Removal of this wall adjacent to the tree will result in a 1m vertical level difference over a distance of 7m, exposing the roots in the TPZ. The tree is also in close proximity to the proposed library and cannot be retained.	Removal of trees due to requested increased footprint. Replacement trees being provided with net increase to canopy.		-	-
50		Illawarra flame tree (Brachychiton acerifolius)	Remove					-	-
51		Hymenosporum flavum	Remove					-	-

2.5 APPENDIX E - DARLINGTON PUBLIC SCHOOL ARBORIST REPORT

THIS DOCUMENT IS UNCONTROLLED WHEN PRINTED

Moore Trees
Arboricultural Services

ABN 90887347745

Arboricultural Impact Assessment Report

DARLINGTON PUBLIC SCHOOL
October 2020
FINAL

Prepared for: Darlington Public School
c/o Mace Australia Pty Ltd

Prepared by: Paul Vezgoff
Consulting Arborist
ISA / Arboriculture Australia
Registered Consultant

Registered Consultant

PO Box 3114 Austinmer NSW 2515
Ph: 0242 680 425
Mob: 0411 712 887
Email: enquiries@mooretrees.com.au
Web: www.mooretrees.com.au

Table of Contents

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		Page
1	**INTRODUCTION**	3
2	**METHODOLOGY**	6
3	**TREE IMPACTS**	8
4	**TREE PROTECTION MEASURES**	26
	Appendices	
1	**Tree Impact Plan - TPZ and SRZ encroachments**	29
2	**Tree Health and Condition Schedule**	31
3	**Tree Significance Assessment Criteria**	38
4	**SULE methodology**	40
5	**TPZ and SRZ methodology**	41
6	**Explanatory notes**	43
7	**Bibliography**	44
8	**Curriculum Vitae**	45

1 INTRODUCTION

1.1 This Arboricultural Impact Assessment (AIA) has been conducted to assess impacts to the subject trees at Darlington Public School, Golden Grove St, Chippendale NSW 2008 (Diagram 1). This Report has been prepared for the proposed development works as a submission through two separate approval processes being State Significant Development (SSD), identified in the State and Regional Development SEPP, and the Local Council Development Application (DA) process.

This Report has been prepared for Darlington Public School c/o Mace Australia Pty Limited as specified by the Department of Planning Industry & Environment in their letter dated 2/10/2020, requesting an Arboricultural Impact Assessment Report for the entire site to determine the cumulative impact of all tree removal proposed. This Report has been prepared by a qualified AQF Level 5 Consulting Arborist, and the report has been prepared referencing AS4970.

1.2 The purpose of this report is to collect the appropriate tree related data on the subject trees and to provide advice on the categorization of the site trees in order to assist in potential design layouts.

1.3 This AIA follows the requirements for Consulting Arborists reporting to CoS as detailed in 8.2.1 *Arboricultural Impact Assessment Report* of Schedule 8 of the Sydney Development Control Plan 2012.

1.4 This report also contains the following information for this Impact Assessment requirement:-

a) Reviewing the Architectural Drawings and assessing the potential impact of the proposed development on existing trees to be retained, including assessment of any proposed incursions to the canopy and/or root zone;
b) Advising the client if further investigations, such as root investigations or internal diagnostic testing is required;
c) Recommending modifications to the design or construction methods where appropriate to minimise adverse impact on trees considered worthy of retention including recommended setbacks or other measures to avoid adverse impacts;

d) Preparing a plan showing the trees to be removed and retained together with their respective identification number based on the site survey;

e) Providing generic recommendations for tree protection measures to ensure the retention of healthy trees as appropriate ; and

1.5 The site: The subject site is known as Darlington Public School, Golden Grove St, Chippendale NSW 2008 (Diagram 1). The site area, including tree numbering, can be seen in the Tree Impact Plan (Appendix 1). The site is located at Darlington Public School, known as Lot 592 in DP 752049 and Lot 100 in DP 623500. The proposed development site from herein will be referred to as "the Site".

Diagram 1: Location of subject site, Darlington Public School (Red arrow) (whereis.com.au, 2020)

1.6 Documents and information provided: Tree Retention Study undertaken by Fjmt marked Rev 1 dated 8/10/2020; Architectural Masterplan Report by Fjmt Studio for SSDA; and Tree Management Plan by Fjmt Studio, reference sheet #8200 Rev 02 dated 21/5/2020. This AIA Report has been assessed against these plans.

1.7 **The Site trees:** The appropriate tree related data was collected on the subject trees concerning their health and condition. This tree data for the site trees can be seen in Appendix 2 (Tree Health and Condition Schedule). The subject trees were also part of a categorization process that rated them into a high, medium or low retention rating.

The Tree Significance & Retention Value used in this Report is known as the Significance of a Tree Assessment Rating System, or STARS© system, created by the Australian Institute of Consulting Arboriculturists (IACA). As noted by IACA, this system is a free to use system by Arboriculturists, as at the date of this report. This system allows a rating system utilising structured qualitative criteria to assist in determining the retention value for a tree. To assist this process all definitions for terms used in the *Tree Significance - Assessment Criteria* and *Tree Retention Value - Priority Matrix*, are taken from the IACA Dictionary for Managing Trees in Urban Environments (Draper and Richards 2009). The system uses a scale of *High, Medium and Low significance* in the landscape. Once the landscape significance of an individual tree has been defined, the retention value can be determined. The Retention Value is selected between *High, Medium, Low and Priority for removal.*

All of the site trees are protected under Clause 3.5.3 Tree Management (CoS DCP 2012).

1.8 **The Proposed Works:** The proposed works entail expanding the school's capacity for increased student numbers in the catchment area. The proposed works include demolition of all existing buildings and construction of multi-story buildings, a new ball court and landscaping throughout the school property.

2 METHODOLOGY

2.1 To record the health and condition of the trees, an initial Visual Tree Assessment (VTA) was undertaken on the subject trees on the 15th October 2018. This method of tree evaluation is adapted from Matheny and Clark, 1994 and is recognised by The International Society of Arboriculture. Individual tree assessments are listed in Appendix 2 in tabulated format. All inspections were undertaken from the ground. No diagnostic devices were used on these trees.

2.2 **Tree Protection Zone (TPZ):** The TPZ is the principal means of protecting trees on development sites. The TPZ is a combination of the root area and crown area requiring protection. It is an area isolated from construction disturbance, so that the tree remains viable. TPZ's have been calculated for the site trees. The TPZ calculation is based on the Australian Standard *Protection of trees on development sites,* AS 4970, 2009. The Tree Protection Zones are shown in the *Tree Impact Plan* (Appendix 1)

2.3 **Structural Root Zone (SRZ)**: The SRZ is a specified distance measured from the trunk that is set aside for the protection of tree roots, both structural and fibrous. The woody root growth and soil cohesion in this area are necessary to hold the tree upright. SRZ areas are also shown in Tree Impact Plan (Appendix 1). The TPZ and SRZ are measured as a radial measurement from the trunk. No roots should be severed within this area. A detailed methodology on the TPZ and SRZ calculations can be found in Appendix 5.

2.4 **Impact Assessment:** The site survey and plans provided by CoS were assessed for the following:

- Reduced Level (R.L.) at base of any site tree.
- Incursions into the Tree Protection Zone (TPZ).
- Assessment of the likely impact of the works.
- Possible remediation opportunities.
- Overall canopy loss based on assessment of aerial photography.

2.5 **Terms:** The following terms have been used in this report and due the extent of various disciplines involved on a project of this size; basic terminologies have been used as described below;

***Foot print*:** The term footprint will relate to any proposed structure located above Ground Level (GL) that may potentially affect the root zone of any tree or tree itself. The structure may be as small as a rubbish bin or as large as an area of paving.

***Excavation*:** This includes trenching, trenching and batters, footings for walls, trenching for services, pipes, lighting telecommunications.

***Hand dug*:** Excavation to occur by hand so as not to damage or sever any roots associated with nearby trees. In general, the Project Arborist inspects or supervises this work.

***TPZ encroachments*:** The Australian Standard *Protection of trees on development sites*, (AS 4970) recommends no more than 10% encroachment unless the TPZ can be compensated elsewhere and contiguous with the TPZ. Any encroachment greater than 10% is considered a major encroachment. In this instance the Project Arborist is required to demonstrate that the tree would still remain viable due to the >10% encroachment.

2.6 **Report limitations:** This report does not constitute a Tree Protection Plan. Once the designs have been finalised, in conjunction with the findings of this report, a final site specific Tree Protection Plan can then be produced.

3 TREE IMPACTS

3.1 Darlington Public School is located in Chippendale, in Sydney. Darlington Public School is an inner city school servicing the suburbs of Chippendale, Darlington, Redfern and Waterloo. The school has been built following World War 2 (Diagram 2) however the school's trees are well established, with some being almost twenty (20) metres in height and spread.

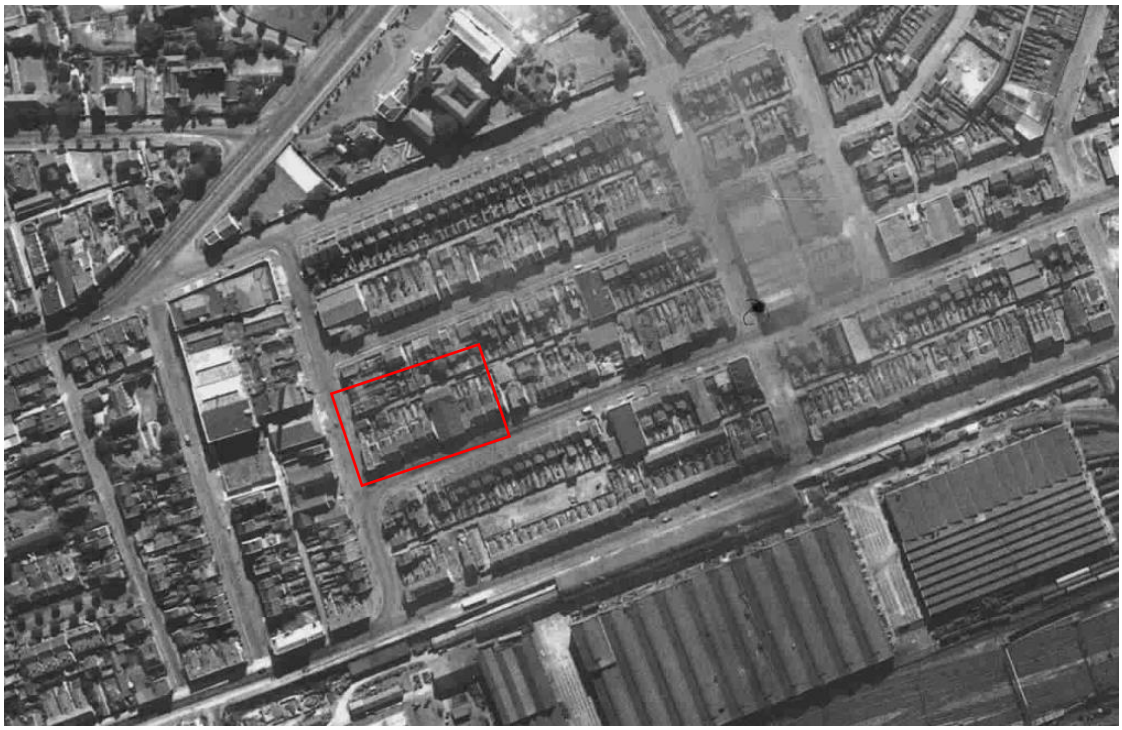


Diagram 2: The site as seen in 1943, devoid of trees (RTA From the skies, 2007).

3.2 **The Site Trees:** The site was inspected on 15th October 2018. Each tree has been given a unique number for this site and can be viewed on the Tree Impact Plan (Appendix 1).

3.3 The site consists of several buildings connected by covered walkways. Playground areas are located throughout the site with specimen trees located in some protected courtyard areas (Plate 1). Some of these courtyard specimens are large mature specimens that provide extensive canopy cover to the site (Plate 2).

Plate 1: Image showing Trees 1 and 2. Working around a mature tree such as this will be difficult in terms of canopy impacts and root disturbance. P. Vezgoff

Plate 2: Image showing one of the larger mature specimens, Tree 53. P. Vezgoff

3.4 Trees 7-15 are located within the central playground area (Plate 3). Although not great specimens individually, they do work well as a group providing canopy cover and good aesthetic value to the rear area.

Plate 3: Image showing Trees 7-15 central to the playground area. The area not facing the camera consists of a low retaining wall. P. Vezgoff

3.5 Trees 20, 21, 47 and 48 are some of the larger trees on site being some twenty (20) metres in height (Plate 4). The majority of the root zone of these trees is covered with hard surface. These trees have some previous failures which is to be expected from trees of this size and age. These trees were assessed as being in good health and condition. The main trunks, first and second order branches are free of any cracks, splits or fruiting bodies. New extension growth was noted. The basal area and woody root zones were free of any ground heaving, or lifting. Ideally an aerial inspection should occur to fully determine the condition of the main branch unions if they were to be retained.

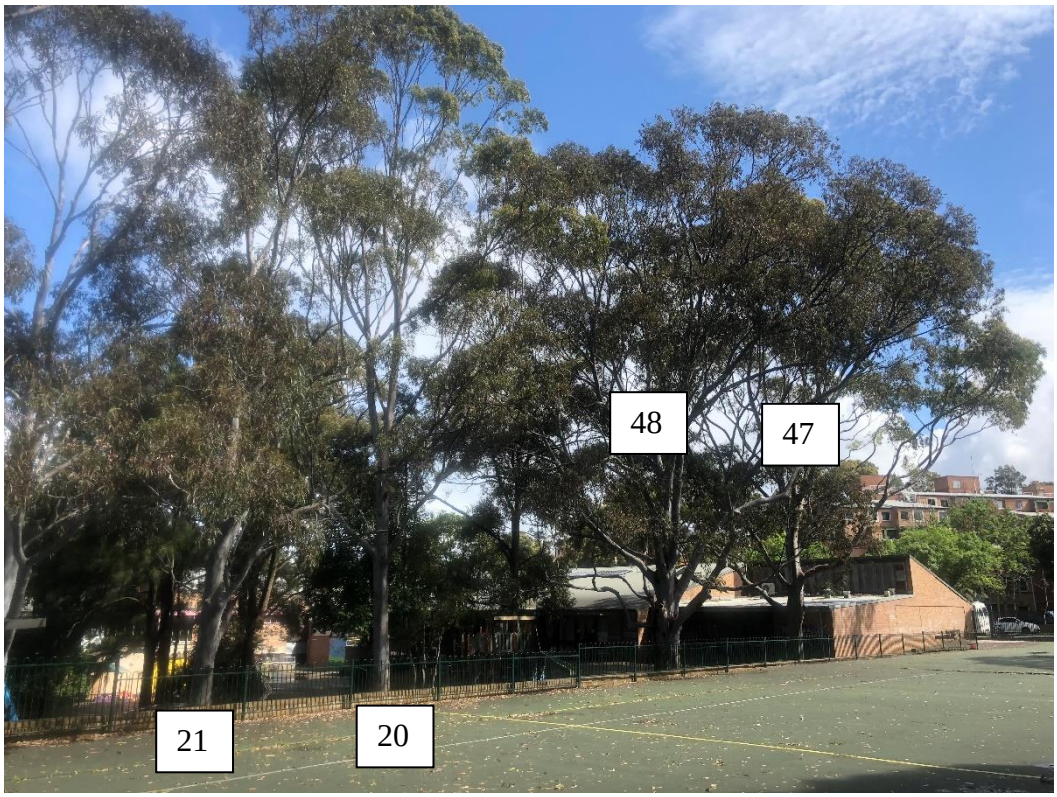


Plate 4: Image showing Trees 21, 20. P. Vezgoff

3.6 Trees 26-31 (Plate 5) are tightly grouped specimens that have a restricted root space and are covered with asphalt and playground rubberised matting up to the trunks. These trees are mostly in good health but could be replaced with better specimens. They would not be considered long term specimens.

Plate 5: Image showing Trees 26-31. P. Vezgoff

3.7 Trees 32-39 are growing along the northern boundary fence (Plate 6). These are a mixed group of large mature *Eucalyptus* specimens but competing with some exotic specimens (Liquidambar) that have been planted between and under the large *Eucalyptus* specimens. These trees are also tightly grouped specimens that have a restricted root space and are covered with asphalt and playground rubberised matting up to the trunks. Varied levels are present as these trees have been planted on a stepped area (Plate 7).

3.8 Under these larger more dominant native specimens are Trees 40-43 that are Liquidambar *(Liquidambar styraciflua)* and a single *Cupresses* specimen. These trees can be seen in Plate 7. Now suppressed, these trees will not reach maturity and as such are not long term viable specimens.

Plate 6: Image showing Trees 32-39. P. Vezgoff

Plate 7: Image showing surface condition of Trees 32-39. P. Vezgoff

3.9 Trees 44-46 (Plate 8) are growing along the eastern boundary fence. These trees are younger specimens in excellent health and condition and provide a good screen between two properties. The majority of the root zones of these trees is covered with hard surface.

Plate 8: Image showing Trees 44-46. P. Vezgoff

3.10 Although this area of Sydney may be high in sand content, that would normally encourage deeper root systems, this site has an uncertain history. Based on Diagram 2, it appears that prior to the school being built, there were rows of terrace houses and warehouse structures, so subsoil conditions will be far from natural and would be highly disturbed. This will mean that old footings or foundations that may be subsurface will deflect woody roots keeping them close to the surface such as near Tree 20 (Plate 9).

Plate 9: Image showing surface roots from Tree 20. P. Vezgoff

3.11 Trees 47 and 48 are some of the larger trees on site being over some twenty (20) metres in height. Again, the majority of the root zone of these trees is covered with hard surface. These trees have some previous failures which is to be expected from trees of this size and age. These trees were assessed as being in good health and condition. The main trunks, first and second order branches are free of any cracks, splits or fruiting bodies. New extension growth was noted. The basal area and woody root zone were free of any ground heaving, or lifting.

3.12 Street trees are numbered as Trees 56-59 along Darlington Road. These trees are mostly Sweetgum *(Liquidambar styraciflua)* with a single specimen of Brushbox *(Lophostemon confertus)*, being Tree 59. Along Golden Grove Street are Trees 60-68. These species consist of Brushbox *(Lophostemon confertus)*, Sweetgum *(Liquidambar styraciflua)*, Tallowwood *(Eucalyptus microcorys)*. Trees 61 and 68 are two (2) large specimens of Tallowwood. Tree 68 does not show on the Landscape plans, however I have included it in this Report as it is a large street tree near the site.

3.13 The trees were assessed as below for the Significance of a Tree, Assessment Rating System or STARS©. The STARS© Matrix can be seen in Appendix 3.

Significance Scale	**1 (High)**	**2 (Medium)**	**3 (Low)**
Tree No.	4-8, 13-15, 17-22, 24, 33-39, 44-48, 53, 58-62, 68.	1, 2, 9-12, 16, 25, 49-52, 54-57, 63-67.	23, 26-32, 40-43.

3.14 **Impacts:** Impacts to the site trees, due to the designs, can be seen in the *Tree Impact Plan* (Appendix 1). The building footprint has been overlaid with the site trees and their TPZ and SRZ distances. The incursion impacts have been divided into two categories being deep excavations such as footings, and the second being more surface excavations that will alter levels within the TPZ area. It should be noted there are no service diagrams at this stage. Trenching for services is often overlooked and needs to be considered for the final impacts to the site trees.

3.15 Based on the plans provided, trees that are possible to retain are numbered as; 6, 12, 13, 14, 15, 18, 35-39, 44-46, and (street trees) 56-68. Trees within the building footprint will suffer too greater incursion into the TPZ areas and as such are proposed to be removed are numbered as; 1, 2, 4, 5, 7-11, 16, 17, 19-34, 40-43, 47-55. The impacts for each tree can be seen in Table 2 (Individual Tree Impacts).

3.16 Trees 20-25 are located within the sports court footprint and Trees 49, 50 and 51 are located within an area required to be resumed for the levelling of the sports court area. Trees 34, 40-43 are smaller suppressed specimens of *Liquidambar* interplanted between the *Eucalyptus* specimens that will never reach their full potential. Provided the existing steps along Trees 33, 35-39, and the small wall along Trees 44-46 can be retained, or at least no excavations beyond these trees, then these trees could be successfully retained. The deck area proposed in this location should be possible to be constructed provided excavations are sympathetic to the TPZ areas. As seen in the Tree Impact Plan, the TPZ distances are within the sports court works area however the roots from these trees will have been restricted in radial growth due to these steps and footings currently present. Any roots under the sports court area should be reasonably deep and provided the existing finished levels can be maintained impacts to these trees will be minimal.

3.17 The design levels around Tree 12 are very tight as it is surrounded by an existing brick wall and sandstone steps (Plate 10). Any new wall around this tree is likely to require additional excavation to allow for drainage. The landscape design is working to retain existing levels and allowing for the construction of new accessible footpath however further consultation may be required in relation Trees 12-15 to achieve this.

Plate 10: Trees 9, 10, 11 and 12. P. Vezgoff

3.18 **Structural Root Zones (SRZ) breach:** Based on the proposed plans, there are no deep incursions to SRZ areas (except for where a tree is within a building footprint) however there is the removal of turf, mulch and hard surfaces below some of the site trees which, if not undertaken correctly, could damage the main stems and basal areas of the trees. The TPZ areas of Trees 6 and 18 will have only minor surface works occur within the top one hundred (100) millimetres.

3.19 **Tree Protection Zone (TPZ) breach:** The TPZ distances are breached on Trees 1-12 for soft landscaping but also hard landscaping being a brick garden edge and also clay paving. TPZ encroachments for Trees 7-12 are all approximately <10%. This area is currently turf and mulch (Plate 2). Trees 1 and 2 cannot be retained due to the levels between the street and internal garden area that are required.

3.20 If these works are not undertaken correctly it could damage the main stems and basal areas of the aforementioned trees. TPZ encroachments can be seen in the Tree Impact Plan (Appendix 1). Where the trees are located within a building foot print the tree has been listed to be removed. Where the tree has level changes within the TPZ there may be options to alter designs in order to retain the more significant specimens. Some following options could be applied to determine root locations during the construction process.

For works within TPZ areas that require level changes the following methodologies must be applied;

3.20.1 Mechanised excavation: A flat bucket attachment on the excavator can be used within the TPZ areas to locate roots provided levels are reduced by small increments so as not to damage any roots found. Should any roots >40mm be located, hand excavation will follow. This is to ensure that no roots within the TPZ are to be cut or damaged that are >40mm in diameter. A spotter must be present to ensure machinery does not hit any of the trees and to monitor the excavation depths.

3.20.2 Hand excavation: Hand excavation will ensure that no roots within the SRZ are to be cut or damaged that are >40mm in diameter around Trees such as 6, 12, 18.

3.20.3 Hydrovac: When undertaking hydro-vacuum excavation the water pressure shall be calibrated so as to not damage, remove bark, or sever roots over 30mm in diameter. Canopy clearance will require assessment based on the size truck that will be supplied. Depending on the location of storage bays and site sheds it may be possible to park the truck off the street provide canopy clearance is available. The truck should also be kept out of the TPZ areas and not parked within any TPZ area for the duration of the works. No roots >30mm within the SRZ are to be cut or damaged. The Project Arborist shall supervise these works. This option could be used for the decking piers below Trees 33-39 and 44-46.

3.21 Drainage works: With regards to drainage, the majority of the site is porous due to the installation of garden areas and soft fall areas however final assessment of lines will need to be assessed in relation to any TPZ areas.

3.22 Planting within TPZ areas: The design requires planting within TPZ areas. No mechanised cultivation of any TPZ area shall occur, only hand tools shall be used. Should any roots from trees be found that are >40mm in diameter, the plant should be moved so no roots are required to be severed.

3.23 Removal of existing turf: Any existing turf within the TPZ areas of the trees to be removed shall be removed by hand and not by mechanical means around a five hundred (500) millimetre radius around each tree. Soil and mulch should also be removed by hand within this five hundred (500) millimetre radius. A flat bucket excavator may be used across the rest of the site however a spotter must be present due to the tight working area.

3.24 Removal of hard surfaces: Any existing hard surfaces to be removed within the TPZ areas of the trees to be retained shall be removed by hand and not by mechanical means around a five hundred (500) millimetre radius around each tree. Soil and mulch should also be removed by hand within this five hundred (500) millimetre radius. A flat bucket excavator may be used across the rest of the site however a spotter must be present due to the tight working area.

3.25 Furniture installation: The installation of seating, rubbish bins and new signage will require minor excavations. Any roots found forty (40) millimetres in diameter or less than, may be cleanly severed with a sharp saw. Any root found >40mm, the Project Arborist shall be contacted for further advice if the landscape item cannot be moved to avoid the root.

3.26 Canopy loss: The impacts to the site trees have been assessed based on the client's plans and Section 3.5 – *Urban Ecology* of Sydney DCP 2012. Section 2 states;

Provide at least 15% canopy coverage of a site within 10 years from the completion of development.

The DCP also states in Section 3.5.1 (a) ;

Protect existing habitat features within and adjacent to development sites.

The current design shows large mature trees in good health and condition being removed however this would appear to be due to the significant increase in internal building space that is required for the design scope.

3.27 The following calculations were made based on Google Earth polygon shape layers, note these calculations are approximate only. The total area for the site is 7663 square metres. The total area of existing canopy cover for the site is 3706 square metres. The total area of canopy proposed to be removed is 2250 square metres. The remaining canopy cover will be 1456 square metres (Table 1 and Diagram 3). As a percentage, the remaining canopy cover for the site will be 19% of the existing vegetation.

Item	**Area**	**Percentage of canopy cover for the site**	**Percentage of current canopy cover for the site**
Total area of site (m^2)	7663 m^2	3706 m^2	48%
Total area of canopy cover removed (m^2)	2250 m^2	29%	60%
Total area of canopy cover retained (m^2)	1456 m^2	19%	40%

Table 1: Tree canopy cover percentages.

Diagram 3: Image showing the proposed trees to be removed (red) and the trees that will be retained (green) (Google earth 2020).

Table 2: Individual Tree Impacts – Darlington Public School

Tree	Species	TPZ (m)	SRZ (m)	Probable outcome	Impact issue	Incursion to TPZ	Incursion to SRZ
1	Broad leaved paperbark (Melaleuca quinquenervia)	5.4	2.4	Remove		100%	100%
2	Broad leaved paperbark (Melaleuca quinquenervia)	5.4	2.4	Remove	Changes to existing levels and new accessible	100%	100%
4	Cabbage tree palm (Livistona australis)	6	2.6	Remove	pedestrian entry from the road verge.	100%	100%
5	Swamp mahogany (Eucalyptus robusta)	4.8	2.4	Remove	Changes to levels to create astroturf kick about zone.	100%	100%
6	Brushbox (Lophostemon confertus)	4.8	2.4	**RETAIN**	Woody roots have grown into the concrete surface so trying to retain these trees may only create unstable specimens.	12%	0
7	Coastal banksia (Banksia integrifolia)	4.2	2.3	Remove	Minor incursion -	100%	100%
8	Swamp mahogany (Eucalyptus robusta)	4.2	2.3	Remove		100%	100%
9	River she oak (Casuarina cunninghamiana)	6	2.6	Remove	Changes to levels to create new accessible entry path	100%	100%
10	River she oak (Casuarina cunninghamiana)	2.4	1.9	Remove		100%	100%
11	River she oak (Casuarina cunninghamiana)	2.4	1.9	Remove	Located in the path of new accessible entry path	100%	100%
12	River she oak (Casuarina cunninghamiana	6	2.6	**RETAIN**		10%	
13 14 15	Tallowwood (Eucalyptus microcorys)	5.4	2.5	**RETAIN**	These trees have been growing in a restricted root area and will not have the typical broad spreading root plate of a normal tree. This tree is part of a group of 4 and this incursion applies to all these trees	<15%	
16	Firewheel tree (Stenocarpus sinuatus)	0.8	1.1	Remove	These trees have been growing in a restricted root area and will not have the typical broad spreading root plate of a normal tree.	100%	100%
17	Illawarra flame tree (Brachychiton acerifolius)	4.2	2.3	Remove		100%	100%
18	Lemon-scented gum tree (Corymbia citriodora)	5.4	2.5	**RETAIN**	Changes to levels to create astroturf kick about zone	<10%	0
19	Bangalow palm (Archontophoenix cunninghamiana)	2.2	1.6	Remove	Minor incursion -	100%	100%

Tree	Species	TPZ (m)	SRZ (m)	Probable outcome	Impact issue	Incursion to TPZ	Incursion to SRZ
20	Lemon-scented gum tree (Corymbia citriodora)	7.2	2.6	Remove	Changes to levels to create astroturf kick about zone	100%	100%
21	Sydney blue gum (Eucalyptus saligna)	7.2	2.8	Remove	Located in basketball footprint	100%	100%
22	Sydney blue gum (Eucalyptus saligna)	7.2	2.8	Remove		100%	100%
23	No Value	2.4	1.6	Remove		100%	100%
24	Spotted gum (Corymbia maculata)	9.6	3.1	Remove		100%	100%
25	Lone Pine (Pinus brutia)	6	2.6	Remove		100%	100%
26	Kaffir plum (Harpephyllum caffrum)	4.8	2.4	Remove		100%	100%
27	Kaffir plum (Harpephyllum caffrum)	4.2	2.3	Remove	Located within building footprint	100%	100%
28	River she oak (Casuarina cunninghamiana)	3	2.1	Remove	Located within building footprint	-	-
29	Black bean (Castanospermum australe)	1.2	1.2	Remove		-	-
30	Kaffir plum (Harpephyllum caffrum)	4.8	2.4	Remove		-	-
31	Willow gum (Eucalyptus scoparia)	5.4	2.4	Remove		-	-
32	Mulberry (Morus nigra)	5.4	2.6	Remove		90%	-
33	Sydney blue gum (Eucalyptus saligna)	6	2.6	Remove	Tree consists of codominant stems and has decay forming between these stems. Level changes will also occur in this area for landscaping. Species is exempt from the Tree Preservation Order and is <10m tall.	100%-	-
34	Sydney blue gum (Eucalyptus saligna)	2.4	1.9	Remove	Located in footprint of new DDA accessible ramp	40%	-

Tree	Species	TPZ (m)	SRZ (m)	Probable outcome	Impact issue	Incursion to TPZ	Incursion to SRZ
35	Sydney blue gum (Eucalyptus saligna)	6	2.6	**RETAIN**	Level change at base of tree due to new accessible ramp	27%	0
36	Sydney blue gum (Eucalyptus saligna)	6	2.6	**RETAIN**	Although classed as a major incursion to the TPZ most of this incursion is raised decking that could be constructed sympathetically to reduce root damage.	25%	0
37	Sydney blue gum (Eucalyptus saligna)	6	2.6	**RETAIN**	Although classed as a major incursion to the TPZ most of this incursion is raised decking that could be constructed sympathetically to reduce root damage.	23%	0
38	Sydney blue gum (Eucalyptus saligna)	6	2.6	**RETAIN**	Although classed as a major incursion to the TPZ most of this incursion is raised decking that could be constructed sympathetically to reduce root damage.	23%	0
39	Sydney blue gum (Eucalyptus saligna)	6	2.6	**RETAIN**	Although classed as a major incursion to the TPZ most of this incursion is raised decking that could be constructed sympathetically to reduce root damage.	13%	0
40	Liquidambar (Liquidambar styraciflua)	2.2	1.6	Remove	Although classed as a minor incursion to the TPZ most of this incursion is raised decking that could be constructed sympathetically to reduce root damage.		

Tree	Species	TPZ (m)	SRZ (m)	Probable outcome	Impact issue	Incursion to TPZ	Incursion to SRZ
41	Liquidambar (Liquidambar styraciflua)	2.2	1.6	Remove	Smaller suppressed specimen will never reach full potential. Species is exempt from the Tree Preservation Order and is <10m tall.		
42	Liquidambar (Liquidambar styraciflua)	2.4	1.9	Remove	Smaller suppressed specimen will never reach full potential. Species is exempt from the Tree Preservation Order and is <10m tall.		
43	Cupresses sp.	1.8	1.6	Remove	Smaller suppressed specimen will never reach full potential. Species is exempt from the Tree Preservation Order and is <10m tall.		

Tree	Species	TPZ (m)	SRZ (m)	Probable outcome	Impact issue	Incursion to TPZ	Incursion to SRZ
44	Sydney blue gum (Eucalyptus saligna)	3	2.1	**RETAIN**	Smaller suppressed specimen will never reach full potential.	7%	0
45	Sydney blue gum (Eucalyptus saligna)	5.4	2.5	**RETAIN**	Although classed as a minor incursion to the TPZ most of this incursion is raised decking that could be constructed sympathetically to reduce root damage.	22%	0
46	Spotted gum (Corymbia maculata)	6.6	2.7	**RETAIN**	Although classed as a major incursion to the TPZ most of this incursion is raised decking that could be constructed sympathetically to reduce root damage.	21%	0
47	Spotted gum (Corymbia maculata)	14.4	3.6	Remove	Although classed as a major incursion to the TPZ most of this incursion is raised decking that could be constructed sympathetically to reduce root damage.	100%	100%
48	Sydney blue gum (Eucalyptus saligna)	13.2	3.5	Remove	Located in building footprint	100%	100%
49	Broad leaved paperbark (Melaleuca quinquenervia)	3	2.1	Remove		100%	100%
50	Illawarra flame tree (Brachychiton acerifolius)	2.4	1.9	Remove		100%	100%
50	Illawarra flame tree (Brachychiton acerifolius)	2.4	1.9	Remove		100%	100%
51	Hymenosporum flavum	1.2	1.3	Remove		100%	100%
52	Unknown	2.4	1.9	Remove		100%	100%
53	Tallowwood (Eucalyptus microcorys)	10.8	3.3	Remove		100%	100%
54	Trident maple (Acer sp)	1.2	1.3	Remove		100%	100%
55	Water gum (Tristaniopsis laurina)	3	2.1	Remove		100%	100%

4 TREE PROTECTION MEASURES

4.1 Based on the plans provided, trees that are possible to retain are numbered as; 6, 12, 13, 14, 15, 18, 35-39, 44-46, and (street trees) 56-68. Trees within the building footprint or will suffer too greater incursion into the TPZ areas and as such are proposed to be removed are numbered as; 1, 2, 4, 5, 7-11, 16, 17, 19-34, 40-43, 47-55.

4.2 This project will require a site specific Tree Protection Plan and specification once designs have been finalised. Regular site inspections shall also be specified in order to ensure that the contractor implements the recommendations of this Report and the Tree Protection Plan and associated specifications.

4.3 **Fencing:** Trees to be retained will require tree protection fencing as specified in the Australian Standard *Protection of trees on development sites,* AS 4970, 2009. All tree protection works should be carried out before the start of demolition or building work. It is recommended that chain mesh fencing with a minimum height of 1.8 metres is installed. TPZ fencing locations shall be shown on demolition plans. The specifications for a TPZ are in Section 4.5 of this report.

4.4 **Trunk Protection:** This trunk protection will be required due to the proximity of heavy equipment operating near trees to be retained. It is important to protect the bark on trees. Bark is a very effective barrier that helps to protect trees from pest, disease and decay pathogens. This is achieved by attaching lengths of timber (75mm x 50mm x 2000mm) fastened around the trunk. Geotextile fabric or carpet underlay shall be wrapped around the trunk prior to the timbers being attached. These timbers are to be fastened with hoop iron strapping and not attached directly into the bark of the tree. These timbers are only to be removed when all construction is complete.

4.5 **The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ):** The TPZ is implemented to ensure the protection of the trunk and branches of the subject tree. The TPZ is based on the Diameter at Breast Height (DBH) of the tree. The SRZ is also a radial measurement from the trunk used to protect and restrict damage to the roots of the tree.

The Tree Protection Zone (TPZ) and Structural Root Zone (SRZ) shall be measured from the centre of the trunk, as a radial measurement. The following activities shall be avoided within the TPZ and SRZ of the trees to be retained;

- Erecting site sheds or portable toilets.
- Trenching, ripping or cultivation of soil (with the exception of approved foundations and underground services).
- Soil level changes or fill material (pier and beam or suspended slab construction are acceptable).
- Storage of building materials.
- Disposal of waste materials, solid or liquid.

4.6 Trees 60 and 61 will require a degree of canopy pruning to allow for the two (2) new building structures. These branches should be reduced back so as to maintain the canopy of the trees (ie, no lopping or 'flat topping'). Pruning points should be no greater than 50mm in diameter. This pruning is known as selective pruning and can be read about in more detail in the Australian Standard for the Pruning of Amenity Trees (AS 4373) 2007. The Project Arborist should supervise these works. This pruning should also be clearly shown on construction plans. It is likely that City of Sydney may want to undertake this pruning themselves.

4.7 The Australian Standard *Protection of trees on development sites,* (AS 4970) recommends no more than 10% encroachment unless the TPZ can be compensated elsewhere and contiguous with the TPZ. Provided the portion (of TPZ incursion) of footings across the root zone can be bridged via the use of pier and beam construction this would allow designs to comply with AS4970. Ultimately the site trees will require further assessment once plans and designs progress and have been agreed upon.

4.8 Building material storage: Areas on the site shall have to be set aside for the exclusive use of:

- Construction access points / roads
- Position of site sheds and latrines and temporary services
- Storage of materials

Any area set aside for the stockpiling of soil and waste shall have the appropriate erosion control measures around this area as specified by an engineer. These erosion control measures shall be monitored and maintained regularly throughout the construction period of the site. These measures are to restrict any waste material entering the TPZ areas of the trees to be retained.

If you have any questions in relation to this report, please contact me.

Paul Vezgoff
Consulting Arborist
Dip Arb (Dist), Arb III, Hort cert, AA, ISA

22nd October 2020

www.mooretrees.com.au

Appendix 1

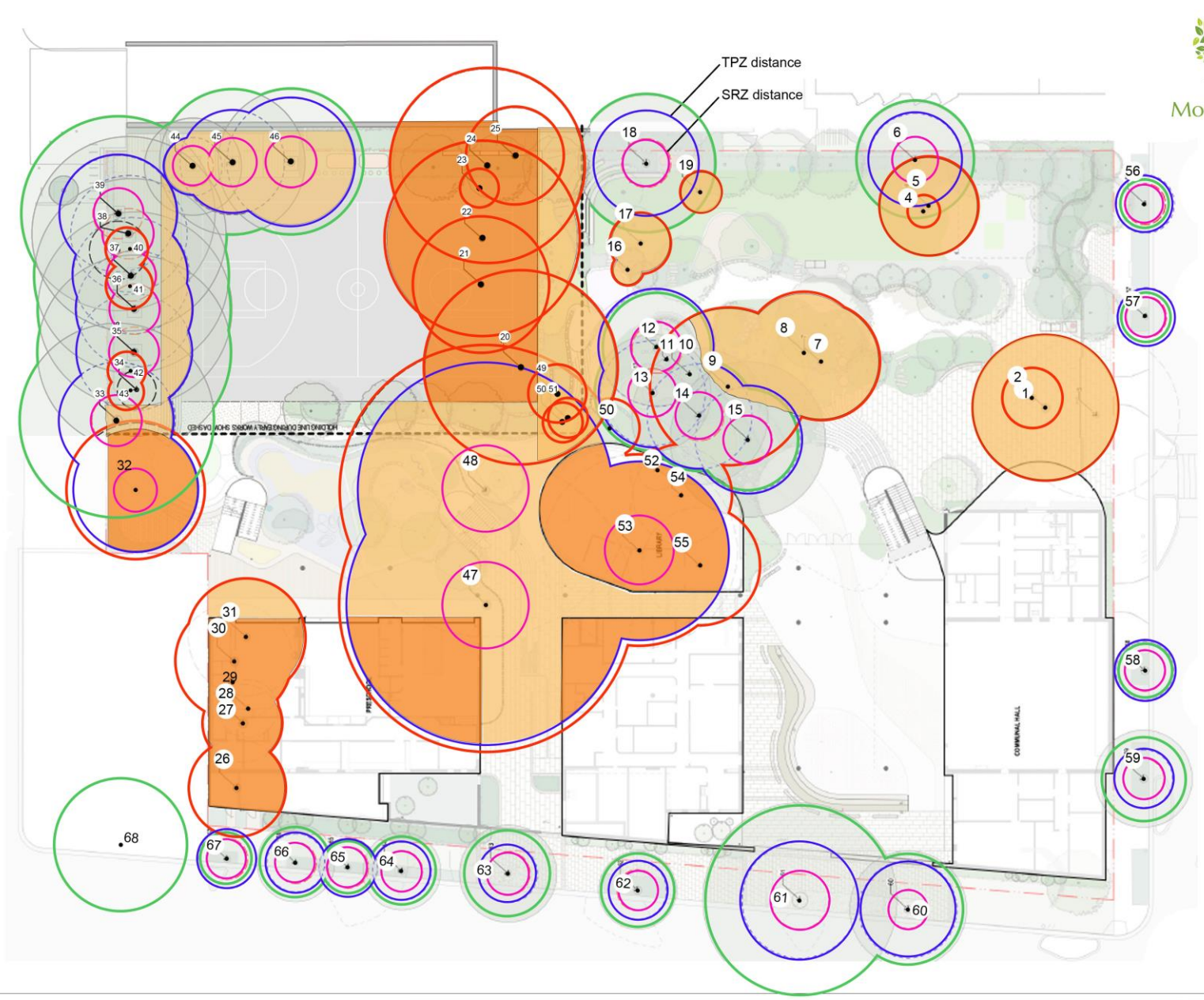
Tree Impact Plan

Impact Assessment

TPZ and SRZ encroachments

Impact Assessment

Moore Trees



Tree should be possible to retain

Tree unlikely to tolerate TPZ incursions.

0 5 10 15 20 25

SCALE 1:250

TPZ distance

SRZ distance

TPZ incursion that involves level changes

Deep excavation through TPZ

Date: 27.10.2020
Drawn: P.Vezgoff
Site Address: Darlington Public School
Darlington NSW

Appendix 2

Tree health & condition assessment schedule

Table 4: TREE FIELD DATA SCHEDULE – Darlington Public School, Chippendale

Tree	Species	Height (m)	Spread (m)	DBH (m)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (m)	SRZ (m)
1	Broad leaved paperbark (Melaleuca quinquenervia)	14	5	0.45	95	No visual defects	2a May only live for 15-40 years	Good	Mature	With garden rockery	5.4	2.4
2	Broad leaved paperbark (Melaleuca quinquenervia)	14	5	0.45	95	No visual defects	2a May only live for 15-40 years	Good	Mature	With garden rockery	5.4	2.4
4	Cabbage tree palm (Livistona australis)	15	3	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Fibrous root mass at base. Spines at base	6	2.6
5	Swamp mahogany (Eucalyptus robusta)	14	6	0.4	92	No visual defects	2a May only live for 15-40 years	Good	Mature		4.8	2.4
6	Brushbox (Lophostemon confertus)	14	6	0.4	92	No visual defects	2a May only live for 15-40 years	Good	Mature		4.8	2.4
7	Coastal banksia (Banksia integrifolia)	8	3	0.35	90	No visual defects	2a May only live for 15-40 years	Good	Mature	Within paved area. Sewer pit at base	4.2	2.3
8	Swamp mahogany (Eucalyptus robusta)	8	4	0.35	90	No visual defects	2a May only live for 15-40 years	Good	Mature	Within paved area. Sewer pit at base	4.2	2.3
9	River she oak (Casuarina cunninghamiana)	15	5	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature		6	2.6
10	River she oak (Casuarina cunninghamiana)	9	2.5	0.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		2.4	1.9
11	River she oak (Casuarina cunninghamiana)	9	2.5	0.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		2.4	1.9
12	River she oak (Casuarina cunninghamiana)	15	5	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature		6	2.6
13	Tallowwood (Eucalyptus microcorys)	19	7	0.45	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Part of a row of three	5.4	2.5
14	Tallowwood (Eucalyptus microcorys)	19	7	0.45	95	Dead wood >50mm	2a May only live for 15-40 years	Good	Mature	Part of a row of three. 100mm section of dead wood over path	5.4	2.5

Tree	Species	Height (m)	Spread (m)	DBH (m)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (m)	SRZ (m)
15	Tallowwood (Eucalyptus microcorys)	19	7	0.45	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Part of a row of three	5.4	2.5
16	Firewheel tree (Stenocarpus sinuatus)	5	1	0.07	100	No visual defects	5a Small tree <5 m in height.	Good	Mature		0.8	1.1
17	Illawarra flame tree (Brachychiton acerifolius)	7	4	0.35	95	No visual defects	2a May only live for 15-40 years	Good	Mature		4.2	2.3
18	Lemon-scented gum tree (Corymbia citriodora)	17	6	0.45	92	No visual defects	2a May only live for 15-40 years	Good	Mature	Minor mechanical wound at base	5.4	2.5
19	Bangalow palm (Archontophoenix cunninghamiana)	6	3	0.18	100	No visual defects	2a May only live for 15-40 years	Good	Mature		2.2	1.6
20	Lemon-scented gum tree (Corymbia citriodora)	20	8	0.6	95	Dead wood >50mm	2a May only live for 15-40 years	Good	Mature	Old storm damage noted. Section of dead wood	7.2	2.6
21	Sydney blue gum (Eucalyptus saligna)	20	8	0.6	95	No visual defects	2a May only live for 15-40 years	Good	Mature		7.2	2.8
22	Sydney blue gum (Eucalyptus saligna)	20	8	0.6	95	No visual defects	2a May only live for 15-40 years	Good	Mature		7.2	2.8
23	No Value	5	1	0.2	70	Root damage	2c removed for more suitable planting	Poor	Mature	Lopped for shed roof	2.4	1.6
24	Spotted gum (Corymbia maculata)	21	8	0.8	95	No visual defects	2a May only live for 15-40 years	Good	Mature		9.6	3.1
25	Lone Pine (Pinus brutia)	9	5	0.5	70	No visual defects	2a May only live for 15-40 years	Fair	Mature		6	2.6
26	Kaffir plum (Harpephyllum caffrum)	10	5	0.4	92	No visual defects	2c removed for more suitable planting	Good	Mature		4.8	2.4
27	Kaffir plum (Harpephyllum caffrum)	10	3	0.35	92	No visual defects	2c removed for more suitable planting	Good	Mature		4.2	2.3
28	River she oak (Casuarina cunninghamiana)	12	3	0.25	70	No visual defects	3a May only live for 5-15 years.	Poor	Mature	Decline	3	2.1

Tree	Species	Height (m)	Spread (m)	DBH (m)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (m)	SRZ (m)
29	Black bean (Castanospermum australe)	6	2	0.1	90	No visual defects	5a Small tree <5 m in height.	Good	Mature		1.2	1.2
30	Kaffir plum (Harpephyllum caffrum)	10	5	0.4	92	No visual defects	2c removed for more suitable planting	Good	Mature		4.8	2.4
31	Willow gum (Eucalyptus scoparia)	16	7	0.45	90	No visual defects	2a May only live for 15-40 years	Fair	Mature		5.4	2.4
32	Mulberry (Morus nigra)	6	7	0.45	95	Included codom stems	2c removed for more suitable planting	Fair	Mature	Codominant stems with partial decay occurring between the two main stem's Exempt from TPO	5.4	2.6
33	Sydney blue gum (Eucalyptus saligna)	21	10	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Soft fall over root zone	6	2.6
34	Sydney blue gum (Eucalyptus saligna)	8	5	0.2	80	No visual defects	2c removed for more suitable planting	Fair	Mature	Asymmetrical canopy to the south suppressed specimen	2.4	1.9
35	Sydney blue gum (Eucalyptus saligna)	21	10	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Soft fall over root zone	6	2.6
36	Sydney blue gum (Eucalyptus saligna)	21	10	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Soft fall over root zone	6	2.6
37	Sydney blue gum (Eucalyptus saligna)	21	10	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Soft fall over root zone	6	2.6
38	Sydney blue gum (Eucalyptus saligna)	21	10	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Soft fall over root zone	6	2.6
39	Sydney blue gum (Eucalyptus saligna)	21	10	0.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Soft fall over root zone	6	2.6
40	Liquidambar (Liquidambar styraciflua)	9	3	0.18	108	No visual defects	2a May only live for 15-40 years	Good	Mature	Suppressed by larger trees	2.2	1.6
41	Liquidambar (Liquidambar styraciflua)	9	3	0.18	108	No visual defects	2a May only live for 15-40 years	Good	Mature	Suppressed by larger trees	2.2	1.6

Tree	Species	Height (m)	Spread (m)	DBH (m)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (m)	SRZ (m)
42	Liquidambar (Liquidambar styraciflua)	9	3	0.2	108	No visual defects	2a May only live for 15-40 years	Good	Mature	Suppressed by larger trees	2.4	1.9
43	Cupresses sp.	7	0.5	0.15	100	No visual defects	2a May only live for 15-40 years	Good	Mature	Suppressed by larger trees	1.8	1.6
44	Sydney blue gum (Eucalyptus saligna)	11	5	0.25	95	No visual defects	2a May only live for 15-40 years	Excellent	Mature	Soft fall over root zone	3	2.1
45	Sydney blue gum (Eucalyptus saligna)	18	8	0.45	95	Dead wood >50mm	2a May only live for 15-40 years	Excellent	Mature	Soft fall over root zone. Sections of dead wood	5.4	2.5
46	Spotted gum (Corymbia maculata)	19	8	0.55	95	No visual defects	2a May only live for 15-40 years	Excellent	Mature		6.6	2.7
47	Spotted gum (Corymbia maculata)	21	11	1.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		14.4	3.6
48	Sydney blue gum (Eucalyptus saligna)	21	11	1.1	95	No visual defects	2a May only live for 15-40 years	Good	Mature		13.2	3.5
49	Broad leaved paperbark (Melaleuca quinquenervia)	8	2.5	0.25	90	No visual defects	1a >40 years	Good	Mature	Group of three stems	3	2.1
50	Illawarra flame tree (Brachychiton acerifolius)	7	4	0.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		2.4	1.9
51	Hymenosporum flavum	5	2	0.1	100	No visual defects	5a Small tree <5 m in height.	Good	Mature		1.2	1.3
50	Illawarra flame tree (Brachychiton acerifolius)	7	4	0.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		2.4	1.9
52	Unknown	6	4	0.2	95	No visual defects	2c removed for more suitable planting	Good	Mature		2.4	1.9
53	Tallowwood (Eucalyptus microcorys)	21	11	0.9	95	Dead wood <50mm	2a May only live for 15-40 years	Good	Mature	Soft fall around base	10.8	3.3
54	Trident maple (Acer sp)	6	2.5	0.1	100	No visual defects	2c removed for more suitable planting	Good	Mature		1.2	1.3

Tree	Species	Height (m)	Spread (m)	DBH (m)	Live canopy %	Defects	SULE	Condition	Age	Comments	TPZ (m)	SRZ (m)
55	Water gum (Tristaniopsis laurina)	6	3	0.25	95	No visual defects	2a May only live for 15-40 years	Good	Mature		3	2.1
56	Sweetgum (Liquidambar styraciflua)	6	2.5	.25	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Exempt from TPO	3	2.1
57	Sweetgum (Liquidambar styraciflua)	6	2.5	.25	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Exempt from TPO	3	2.1
58	Sweetgum (Liquidambar styraciflua)	6	2.5	.25	95	No visual defects	2a May only live for 15-40 years	Good	Mature	Exempt from TPO	3	2.1
59	Brushbox (Lophostemon confertus)	9	4	.3	95	No visual defects	2a May only live for 15-40 years	Good	Mature		3	2.1
60	Tallowwood (Eucalyptus microcorys)	14	5	.4	95	No visual defects	2a May only live for 15-40 years	Good	Mature		5	2
61	Tallowwood (Eucalyptus microcorys)	19	8	.5	95	No visual defects	2a May only live for 15-40 years	Good	Mature		6	3
62	Evergreen Ash *(Fraxinus griffithii*)	6	3	.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		3	2.1
63	Evergreen Ash *(Fraxinus griffithii*)	6	3	.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		3	2.1
64	Brushbox (Lophostemon confertus)	7	3	.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		3	2.1
65	Brushbox (Lophostemon confertus)	7	3	.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		3	2.1
66	Evergreen Ash *(Fraxinus griffithii*)	6	3	.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		3	2.1
67	Evergreen Ash *(Fraxinus griffithii*)	6	3	.2	95	No visual defects	2a May only live for 15-40 years	Good	Mature		3	2.1
68	Tallowwood (Eucalyptus microcorys)	22	9	.9	95	No visual defects	2a May only live for 15-40 years	Excellent	Mature		6	3

KEY

Tree No: Relates to the number allocated to each tree for the Tree Plans.

Height: Height of the tree to the nearest metre.

Spread: The average spread of the canopy measured from the trunk.

DBH: Diameter at breast height. An industry standard for measuring trees at 1.4 metres above ground level, this measurement is used to help calculate Tree Protection Zones.

Live Crown Ratio: Percentage of foliage cover for a particular species.

Age Class:	Young:	Recently planted tree	Semi-mature:< 20% of life expectancy
	Mature:	20-90% of life expectancy	Over-mature:>90% of life expectancy

SULE: See SULE methodology in the Appendix 3

Tree Protection Zone (TPZ): The minimum area set aside for the protection of the trees trunk, canopy and root system throughout the construction process. Breaches of the TPZ will be specified in the recommendations section of the report.

Structural Root Zone (SRZ): The SRZ is a specified distance measured from the trunk that is set aside for the protection of tree roots, both structural and fibrous.

Appendix 3

Tree Significance - Assessment Criteria

1. High Significance in landscape

- The tree is in good condition and good vigour;
- The tree has a form typical for the species;
- The tree is a remnant or is a planted locally indigenous specimen and/or is rare or uncommon in the local area or of botanical interest or of substantial age;
- The tree is listed as a Heritage Item, Threatened Species or part of an Endangered ecological community or listed on Councils significant Tree Register;
- The tree is visually prominent and visible from a considerable distance when viewed from most directions within the landscape due to its size and scale and makes a positive contribution to the local amenity;
- The tree supports social and cultural sentiments or spiritual associations, reflected by the broader population or community group or has commemorative values;
- The tree's growth is unrestricted by above and below ground influences, supporting its ability to reach dimensions typical for the taxa in situ - tree is appropriate to the site conditions.

2. Medium Significance in landscape

- The tree is in fair-good condition and good or low vigour;
- The tree has form typical or atypical of the species;
- The tree is a planted locally indigenous or a common species with its taxa commonly planted in the local area
- The tree is visible from surrounding properties, although not visually prominent as partially obstructed by other vegetation or buildings when viewed from the street,
- The tree provides a fair contribution to the visual character and amenity of the local area,
- The tree's growth is moderately restricted by above or below ground influences, reducing its ability to reach dimensions typical for the taxa in situ.

3. Low Significance in landscape

- The tree is in fair-poor condition and good or low vigour;
- The tree has form atypical of the species;
- The tree is not visible or is partly visible from surrounding properties as obstructed by other vegetation or buildings,
- The tree provides a minor contribution or has a negative impact on the visual character and amenity of the local area,
- The tree is a young specimen which may or may not have reached dimension to be protected by local Tree Preservation orders or similar protection mechanisms and can easily be replaced with a suitable specimen,
- The tree's growth is severely restricted by above or below ground influences, unlikely to reach dimensions typical for the taxa in situ - tree is inappropriate to the site conditions,
- The tree is listed as exempt under the provisions of the local Council Tree Preservation Order or similar protection mechanisms,
- The tree has a wound or defect that has potential to become structurally unsound.

Environmental Pest / Noxious Weed Species

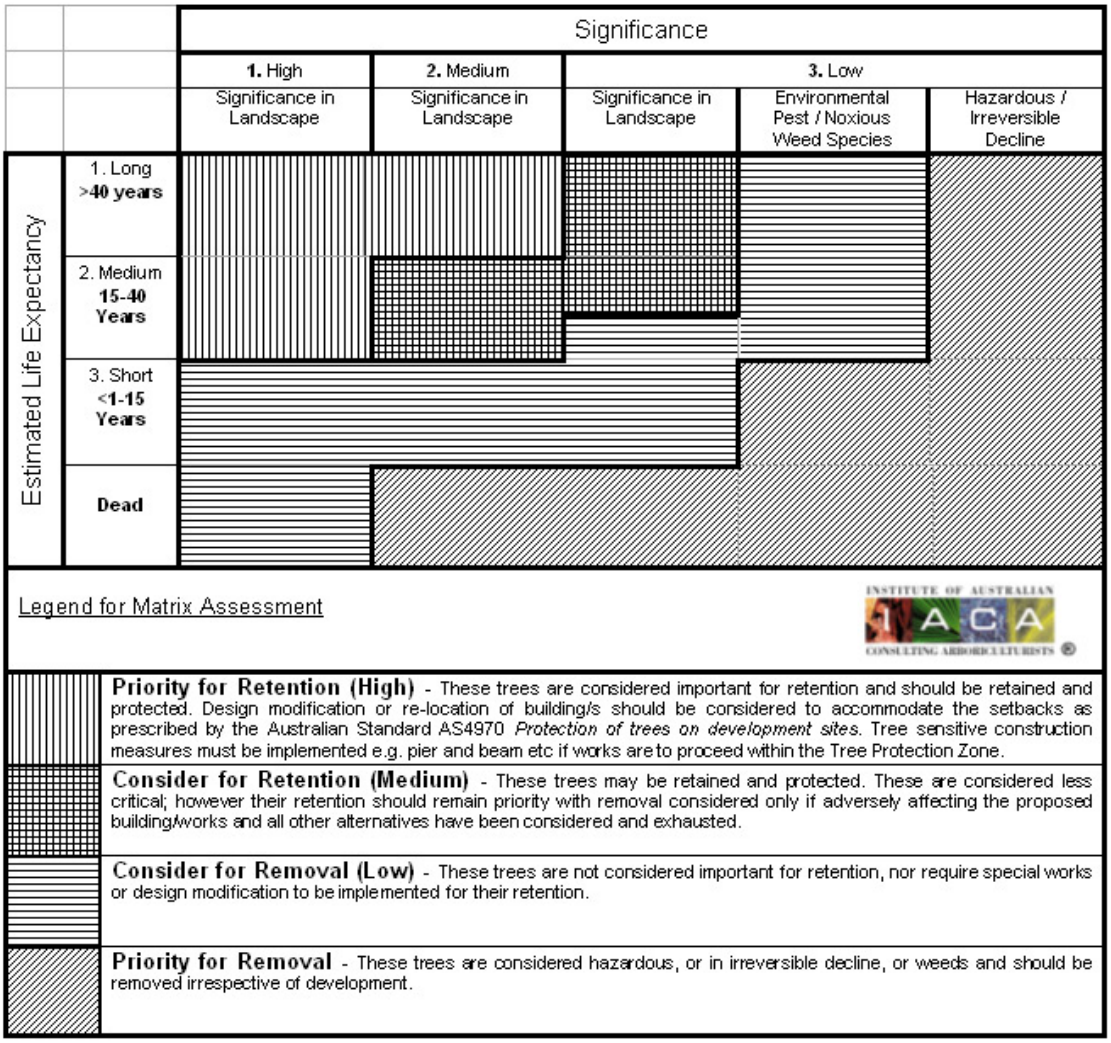
- The tree is an Environmental Pest Species due to its invasiveness or poisonous/ allergenic properties,
- The tree is a declared noxious weed by legislation.

Hazardous/Irreversible Decline

- The tree is structurally unsound and/or unstable and is considered potentially dangerous, - The tree is

dead, or is in irreversible decline, or has the potential to fail or collapse in full or part in the immediate to short term.

The tree is to have a minimum of three (3) criteria in a category to be classified in that group.



Legend for Matrix Assessment.

IACA, 2010, IACA Significance of a Tree, Assessment Rating System (STARS), Institute of Australian Consulting Arboriculturists, Australia, **www.iaca.org.au**

Appendix 4

SULE categories (after Barrell, 2001)[1]

SULE Category	Description
Long	Trees that appeared to be retainable at the time of assessment for more than 40 years with an acceptable level of risk.
1a	Structurally sound trees located in positions that can accommodate for future growth
1b	Trees that could be made suitable for retention in the long term by remedial tree care.
1c	Trees of special significance that would warrant extraordinary efforts to secure their long term retention.
Medium	Trees that appeared to be retainable at the time of assessment for 15-40 years with an acceptable level of risk.
2a	Trees that may only live for 15-40 years
2b	Trees that could live for more than 40 years but may be removed for safety or nuisance reasons
2c	Trees that could live for more than 40 years but may be removed to prevent interference with more suitable individuals or to provide for new planting.
2d	Trees that could be made suitable for retention in the medium term by remedial tree care.
Short	Trees that appeared to be retainable at the time of assessment for 5-15 years with an acceptable level of risk.
3a	Trees that may only live for another 5-15 years
3b	Trees that could live for more than 15 years but may be removed for safety or nuisance reasons.
3c	Trees that could live for more than 15 years but may be removed to prevent interference with more suitable individuals or to provide for a new planting.
3d	Trees that require substantial remedial tree care and are only suitable for retention in the short term.
Remove	Trees that should be removed within the next five years.
4a	Dead, dying, suppressed or declining trees.
4b	Dangerous trees because of instability or loss of adjacent trees
4c	Dangerous trees because of structural defects
4d	Damaged trees not safe to retain.
4e	Trees that could live for more than 5 years but may be removed to prevent interference with more suitable individuals or to provide for a new planting.
4f	Trees that are damaging or may cause damage to existing structures within 5 years.
Small	Small or young trees that can be reliably moved or replaced.
5a	Small trees less than 5m in height.
5b	Young trees less than 15 years old but over 5m in height.

1 (Barrell, J. (2001) "SULE: Its use and status into the new millennium" in *Management of mature trees*, Proceedings of the 4th NAAA Tree Management Seminar, NAAA, Sydney.

Appendix 5

TPZ and SRZ methodology

Determining the Tree Protection Zone (TPZ)

The radium of the TPZ is calculated for each tree by multiplying its DBH x 12.

TPZ = DBH x 12

Where

DBH = trunk diameter measured at 1.4 metres above ground

Radius is measured from the centre of the stem at ground level.

A TPZ should not be less than 2 metres no greater than 15 metres (except where crown protection is required.). Some instances may require variations to the TPZ.

The TPZ of palms, other monocots, cycads and tree ferns should not be less than 1 metre outside the crown projection.

Determining the Structural Root Zone (SRZ)

The SRZ is the area required for tree stability. A larger area is required to maintain a viable tree.

The SRZ only needs to be calculated when major encroachment into a TPZ is proposed.

There are many factors that affect the size of the SRZ (e.g. tree height, crown area, soil type, soil moisture). The SRZ may also be influenced by natural or built structures, such as rocks and footings. An indicative SRZ radius can be determined from the trunk diameter measured immediately above the root buttress using the following formula or Figure 1. Root investigation may provide more information on the extent of these roots.

SRZ radius = $(D \times 50)^{0.42} \times 0.64$

Where

D = trunk diameter, in m, measured above the root buttress

NOTE: The SRZ for trees with trunk diameters less than 0.15m will be 1.5m (see Figure 1).

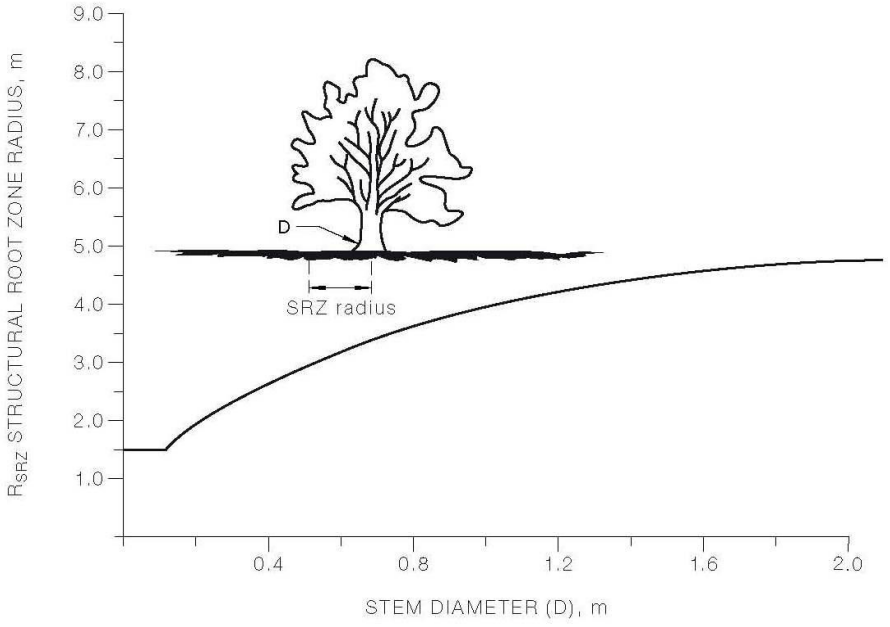


FIGURE 1 - STRUCTURAL ROOT ZONE

Notes:

1 R_{SRZ} is the structural root zone radius.
2 *D* is the stem diameter measured immediately above root buttress.
3 The SRZ for trees less than o.15 metres diameter is 1.5 metres.
4 The SRZ formula and graph do not apply to palms, other monocots, cycads and tree ferns.
5 This does not apply to trees with an asymmetrical root plate.

Appendix 6

Explanatory Notes

- **Mathematical abbreviations:** > = Greater than; < = Less than.

- **Measurements/estimates:** All dimensions are estimates unless otherwise indicated. Less reliable estimated dimensions are indicated with a '?'.

- **Species:** The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first, with the botanical name after in brackets. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. Where there is some doubt of the precise species of tree, it is indicated with a '?' after the name in order to avoid delay in the production of the report. The botanical name is followed by the abbreviation sp if only the genus is known. The species listed for groups and hedges represent the main component and there may be other minor species not listed.

- **Height:** Height is estimated to the nearest metre.

- **Spread:** The maximum crown spread is visually estimated to the nearest metre from the centre of the trunk to the tips of the live lateral branches.

- **Diameter:** These figures relate to 1.4m above ground level and are recorded in centimetres. If appropriate, diameter is measure with a diameter tape. 'M' indicates trees or shrubs with multiple stems.

- **Estimated Age:** Age is estimated from visual indicators and it should only be taken as a provisional guide. Age estimates often need to be modified based on further information such as historical records or local knowledge.

- **Distance to Structures:** This is estimated to the nearest metre and intended as an indication rather than a precise measurement.

Appendix 7

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Curriculum Vitae

PAUL VEZGOFF - MOORE TREES P O Box 3114, Austinmer NSW 2515
P 0242 680 425 M 0411 712 887 E enquiries@mooretrees.com.au W www.mooretrees.com.au

EDUCATION and QUALIFICATIONS

- 2013 / 2018 – ISA TRAQ qualification
- 2007 – Diploma of Arboriculture (AQF Cert V) Ryde TAFE. (Distinction)
- 1997 – Completed Certificate in Crane and Plant Electrical Safety
- 1996 – Attained Tree Surgeon Certificate (AQF Cert II) at Ryde TAFE
- 1990 – Completed two month intensive course on garden design at the Inchbald School of Design, London, United Kingdom
- 1990 – Completed patio, window box and balcony garden design course at Brighton College of Technology, United Kingdom
- 1989 – Awarded the Big Brother Movement Award for Horticulture (a grant by Lady Peggy Pagan to enable horticulture training in the United Kingdom)
- 1989 – Attained Certificate of Horticulture (AQF Cert IV) at Wollongong TAFE

INDUSTRY EXPERIENCE

Moore Trees Arboricultural Services **January 2006 to date**
Tree Consultancy and tree ultrasound. Tree hazard and risk assessment, Arborist development application reports
Tree management plans.

Woollahra Municipal Council **Oct 1995 to February 2008**
ARBORICULTURE TECHNICAL OFFICER
August 2005 – February 2008
ACTING COORDINATOR OF TREES MAINTENANCE
June – July 2005, 2006
Responsible for all duties concerning park and street trees. Prioritising work duties, delegation of work and staff supervision.
TEAM LEADER
January 2003 – June 2005
September 2000 – January 2003
HORTICULTURALIST
October 1995 – September 2000

Northern Landscape Services **July to Oct 1995**
Tradesman for Landscape Construction business

Paul Vezgoff Garden Maintenance (London, UK) **Sept 1991 to April 1995**

CONFERENCES AND WORKSHOPS ATTENDED

- International Society of Arboriculture Conference (Canberra May 2017)
- QTRA Conference, Sydney Australia (November 2016)
- TRAQ Conference, Auckland NZ / Sydney (2013/2018)
- International Society of Arboriculture Conference (Brisbane 2008)
- Tree related hazards: recognition and assessment by Dr David Londsdale (Brisbane 2008)
- Tree risk management: requirements for a defensible system by Dr David Londsdale (Brisbane 2008)
- Tree dynamics and wind forces by Ken James (Brisbane 2008)
- Wood decay and fungal strategies by Dr F.W.M.R. Schwarze (Brisbane 2008)
- Tree Disputes in the Land & Environment Court – The Law Society (Sydney 2007)
- Barrell Tree Care Workshop- Trees on construction sites (Sydney 2005).
- Tree Logic Seminar- Urban tree risk management (Sydney 2005)
- Tree Pathology and Wood Decay Seminar presented by Dr F.W.M.R. Schwarze (Sydney 2004)
- Inaugural National Arborist Association of Australia (NAAA) tree management workshop- Assessing hazardous trees and their Safe Useful Life Expectancy (SULE) (Sydney 1997).