STRUCTURAL
CIVIL
ELECTRICAL
MECHANICAL
HYDRAULIC
FIRE
VERTICAL TRANSPORT
SEISMIC

STP CONSULTANTS

SHERWOOD CHILDCARE

23 THALLON STREET SHERWOOD

SITE BASED STORMWATER MANAGEMENT PLAN

onefin

ONEFIN SHERWOOD PTY LTD

STP25-2087

DOCUMENT STATUS

Rev.	Issue	Report Author	Approved for Issue		
			Approved by	Signature	Date
1	Preliminary	Davood Khalili	Leigh Stegeman RPEQ 10639		12 February 2026
2	Preliminary	Davood Khalili	Leigh Stegeman RPEQ 10639		05 March 2026

TABLE OF CONTENTS

1. Introduction

Onefin has engaged STP Consultants to prepare a Site Based Stormwater Management Plan. This plan is intended to provide essential information to support the development of a Childcare Facility. The primary objective of this report is to comprehensively address the stormwater infrastructure needs necessary to effectively manage all-site runoff resulting from the proposed development.

Careful consideration of stormwater management is paramount as additional impervious surface inevitably alters the natural hydrological dynamics of the site, which potentially leading to increase runoff volumes and altered drainage patterns. Therefore, the key components of this report include:

1. Site assessment: An evaluation of the site's topography, hydrology, land use, and existing stormwater infrastructure.
2. Risk Analysis: An assessment of potential risk associated with stormwater runoff, including flooding, and water quality.
3. Proposed solutions: recommendations for stormwater management strategies including both green and grey infrastructure measures.

In summary, this report serves as a vital component of the overall project planning process, providing essential guidance for the design and implementation of stormwater infrastructure to effectively manage runoff from the proposed works. It underscores the importance of proactive stormwater management in mitigating potential risk and ensuring the successful and sustainable development of the site.

1.1 Limitations

This report provides a desktop stormwater and hydrology investigation from the information obtained from the following sources.

- Architectural plans prepared by Raunik Design Group Architects.
- Survey Plan.
- LiDAR data obtained from Department of Natural Resources and Mines (via ELVIS – Elevation Foundation Spatial Data).
- Brisbane City Council Infrastructure Mapping Information.
- Brisbane City Council Flood Report Investigation.
- Brisbane City Council Planning Scheme.
- Rainfall and Meteorological Data by the Australia Bureau of Meteorology.
- Before You Dig Australia.
- Queensland Globe.
- Google Maps and Street View.

2. Site Characteristics

The site is situated at 23 Thallon St, Sherwood QLD 4075, with a total land area of 1,137 m². The site falls within the CF4 Community Facility zone and the Sherwood-Graceville district neighbourhood plan under the authority of the Brisbane City Council (BCC) local government area.

The site is positioned on the Western side of Thallon St. At present, the site is occupied with buildings, low density vegetation, and medium to large size trees. The site's immediate surroundings are single to multiple dwelling residences.

Figure 2.1 - Zoning and Locality Plan Extract (BCC Mapping)

Figure 2.2 - District and Neighbourhood Plan (BCC Mapping)

2.1 Easement and Resumptions

There are currently no easements registered over the lot. No road resumptions are proposed on the lot.

Figure 2.3 - Cadastral Boundaries and Easements (Qld Globe)

2.2 Site Topography

The site contains existing surface levels which vary with elevation from RL 25.70m AHD (Australian Height datum) on the Western side, near the corner of boundary, to RL22.52m AHD on the Eastern boundary on Thallon Street.

Presently, the site exhibits slope throughout the site with gradients as low as 7% (1:14), and as steep as 14%.

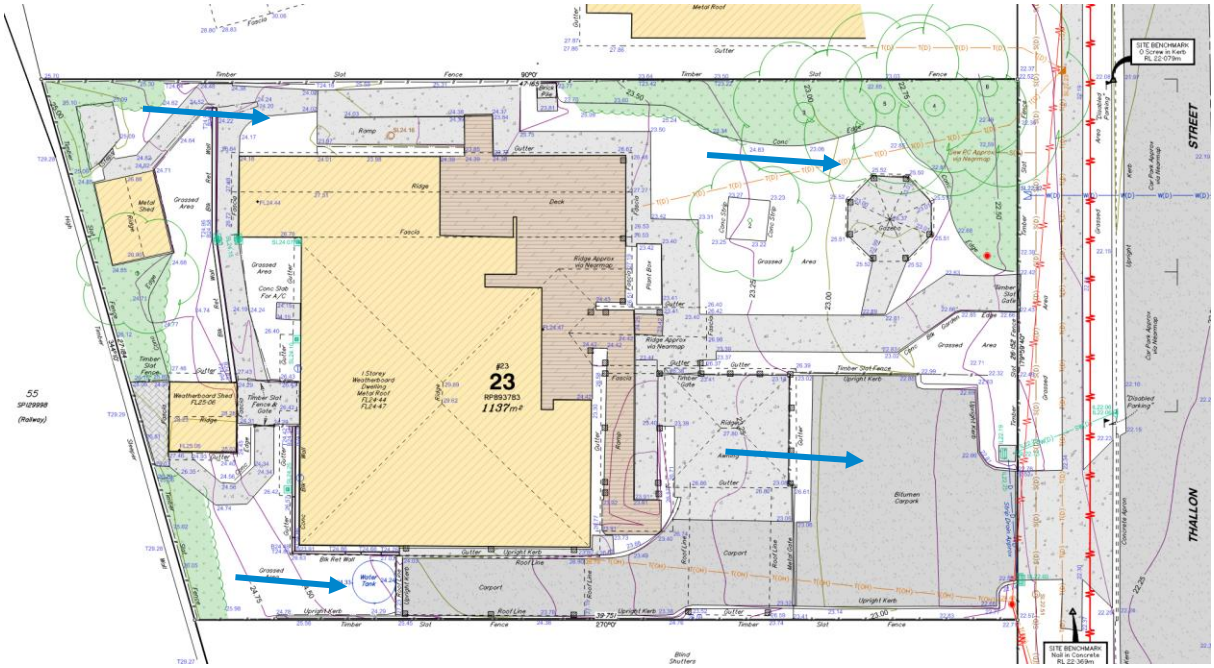


Figure 2.4 - Site Survey (Statewide Survey Group)

2.3 Flood Study

The site is not affected and is outside the 1% AEP (Annual Exceedance Probability) flood overlay.

Figure 2.5 - 1% Flood Map Extract (BCC Mapping)

3. Proposed Development

3.1 Site Plan

The proposed development comprises a single lot. The childcare facility and associated car parking will occupy approximately 720 m² and remaining 417 m² as landscape area.

The development includes construction of a double-storey building, with the ground floor level set above Thallon Street. Vehicle access to the on-site car park will be provided at ground level from Thallon Street.

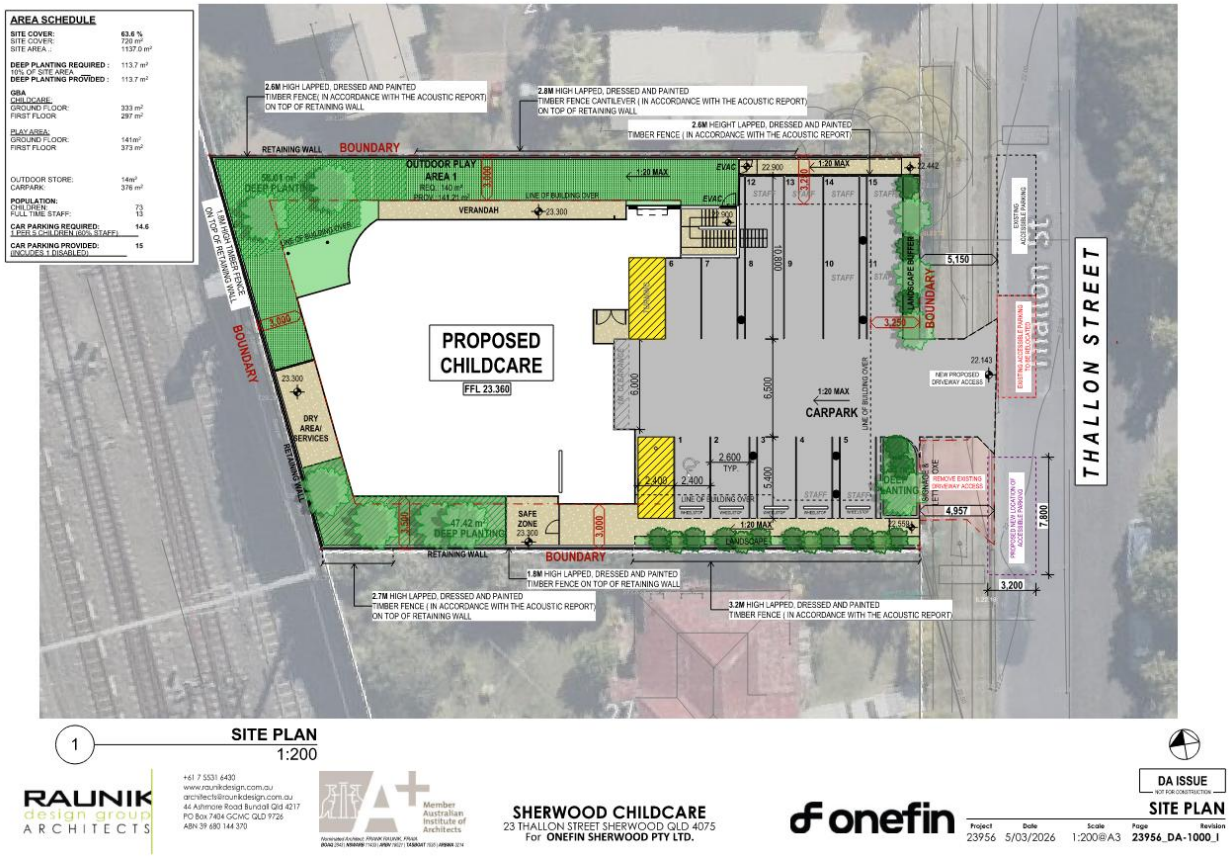


Figure 3.1 - Site Plan (Raunik Design Group Architects)

3.2 Site Earthworks & Finished Floor Levels

Due to the site steep grade and level differences, it is proposed to use retaining walls to achieve desired grades and levels. A concept cut and fill plan has been prepared to estimate the required volumes for the development, with the cut volume approximately 940.13m^3 and the fill volume approximately 0m^3.

As mentioned in Section 2.3, the site is outside the 1% AEP catchment, and floor levels should be calculated based on the existing surface and road levels. To achieve a compliant grade, in accordance with AS1428 – Design for Access and Mobility, from Thallon Street the building floor level should be set to RL23.36m AHD. This will see the entrance from boundary line through property at a grade of 1 in 20, constantly toward building.

The Finished Floor Level of RL23.36m AHD will also make access to the Western side of the building easier by utilising a step ramp to achieve the difference of 100mm from outdoor play area.

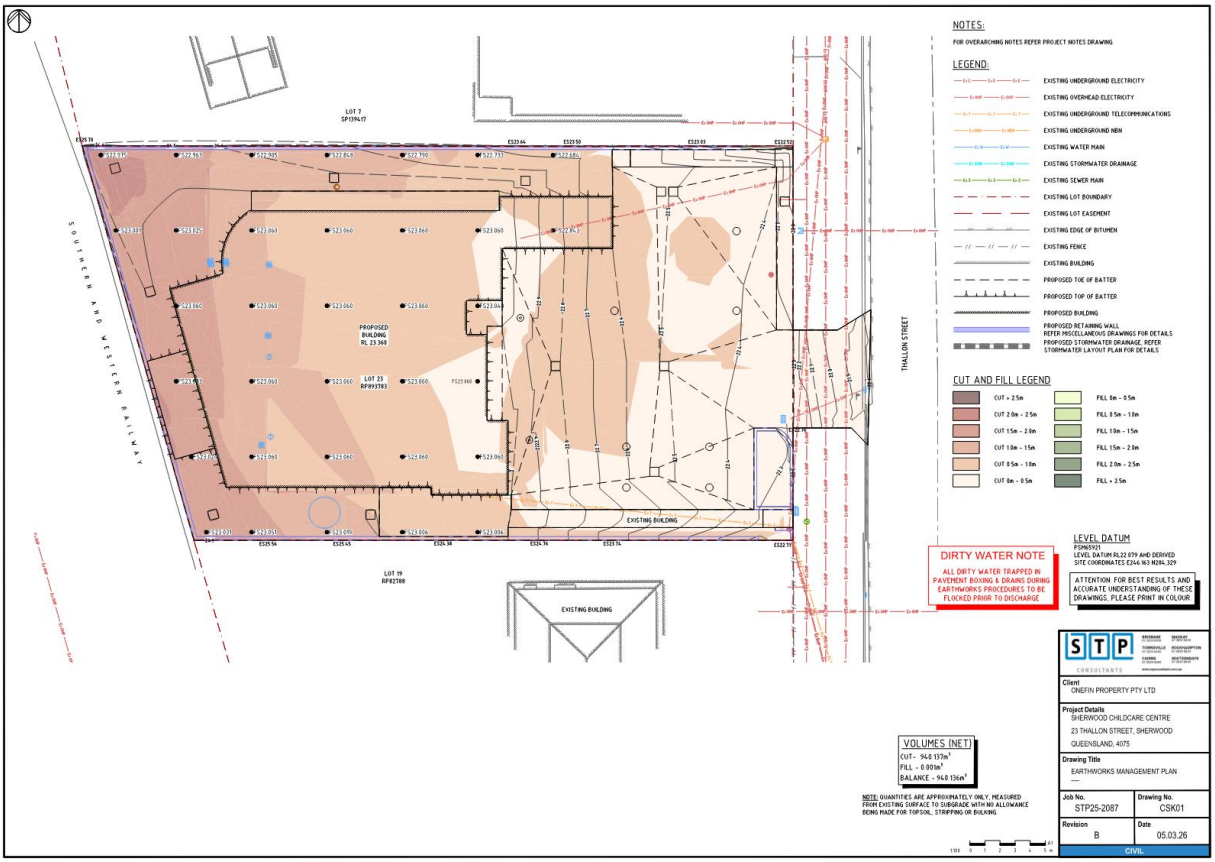


Figure 3.2 - Concept Earthworks Volumes (STP)

3.3 Site Stormwater Drainage

A concept stormwater plan is illustrated in Figure 3.3. The intent of the plan is to retain the existing catchment where runoff is discharge into Thallon Street. Internal pits and grated trench will keep water away from the building and maximize the playground areas, where possible, and direct stormwater to the internal underground pipe network. From there the pipes will discharge into the detention tank before runoff makes its way to a new adaptor (BSD-8114) which is connected to kerb and channel on Thallon Street.

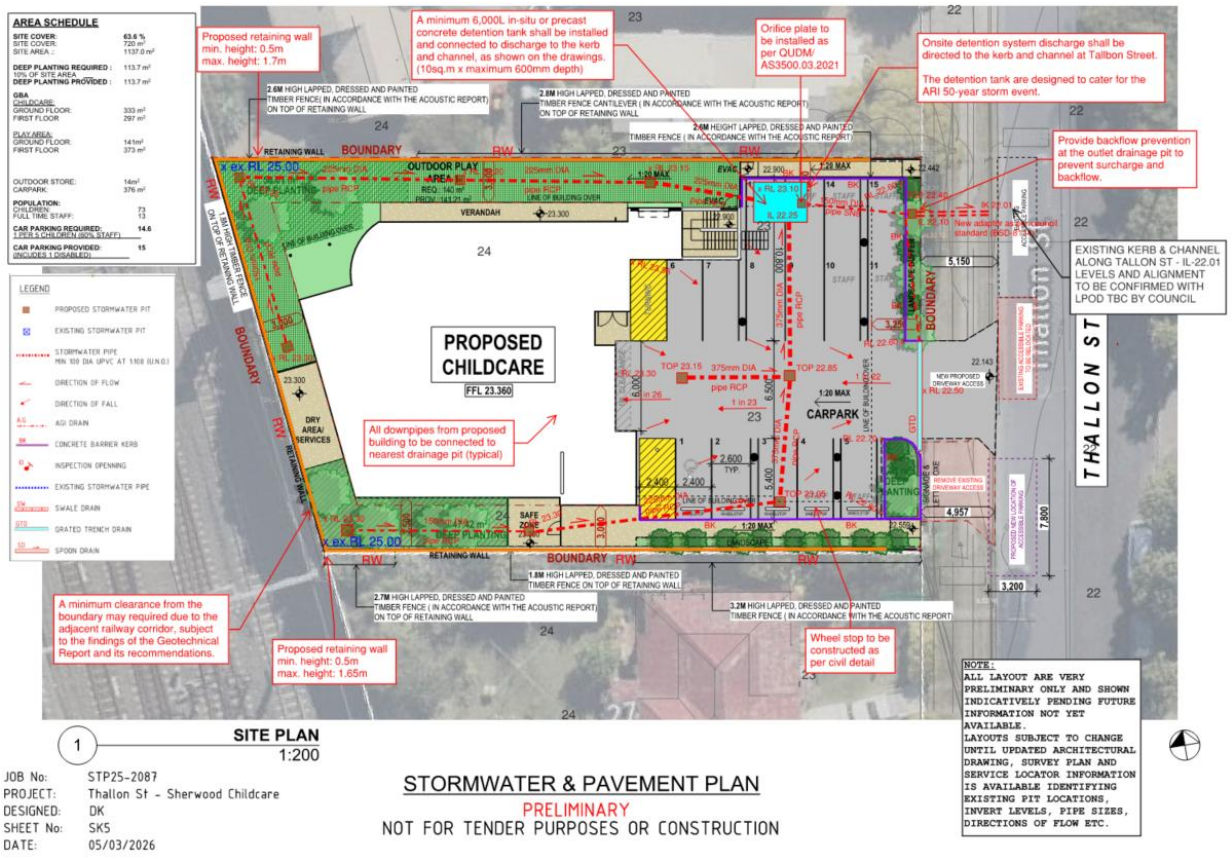


Figure 3.3 - Concept Stormwater Drainage Plan

4. Site Based Stormwater Management

4.1 Existing Stormwater Infrastructure

Currently, the site discharges runoff to Thallon Street via kerb adaptors connected to pits beneath roofwater downpipes, as well as via overland flow toward the east into Thallon Street. A kerb inlet is located at the front of the site on Thallon Street; however, the associated pipe discharges directly to the kerb through two 100 mm diameter pipes.

It is proposed to construct a new adaptor connection to Thallon Street in accordance with Brisbane City Council Standard Detail BSD-8114.

The Legal Point of Discharge (LPOD) will be the proposed new adaptor on Thallon Street.

4.2 External Catchments

There are no external catchments contributing to the site runoff. The adjacent properties fall away from the site. No runoff enters the site from the road reserve.

4.3 Stormwater Runoff & Detention

Chapter 7 – Stormwater Drainage of Schedule 6.16 in the Brisbane City Council Planning Scheme refers to the minimum requirements for stormwater drainage in the Brisbane are. Table 4.1 notes the minimum design standards for the drainage system for both the minor and major rainfall events, where the minor is to be designed to the 10% AEP and the major to the 2% AEP rainfall events.

Development category	Design parameter	Minimum design standard	
		AEP	ARI (years)
Rural areas (typically 2–5 dwellings per hectare)	Minor drainage system Major drainage system	39% 2%	2 50
Residential developments (Low density residential)	Minor drainage system Major drainage system	39% 2%	2 50
	Roof water drainage	Level II QUDM	
Residential developments (Low–medium density to High density)	Minor drainage system Major drainage system	10% 2%	10 50
	Roof water drainage	Level III and Level IV QUDM	
Industrial uses	Minor drainage system Major drainage system	39% 2%	2 50
	Roof water and lot drainage	Level IV QUDM	
Commercial land uses (centre zones)	Minor drainage system Major drainage system	10% 2%	10 50
	Roof water and lot drainage	Level IV and V QUDM	

Table 4.1 - Design Standards for Drainage Systems (BCC Planning Scheme)

QUDM provides development categories under section 7.3.4. to simplify and create general categories across Queensland. The site is zoned in a Community Facility which QUDM categorises as a commercial development.

Pre-development and post-development runoff calculations will be based on action impervious fractions and times of concentration for each scenario, in accordance with the recommendations of QUDM. The current fraction of impervious for the site prior to demolition works is 0.46. The development increases the fraction of impervious to 0.74 for the post-development flows. The Standard Inlet Time of 5 minutes has been adopted for the site (in accordance with QUDM).

Runoff calculations for the pre- and post-development are presented in Table 4.2 below using the Rational Method. As calculated by the Mass-Flow Equation (QUDM 5.6.2) and represented graphically in Figure 4.1, the required on-site detention storage volume is 6m³. This can be accommodated through roofwater tanks or underground tanks or a combination of both systems.

CATCHMENT - Pre Development

Area (m^2)	(ha)	Impervious Area (%)	C_{10}	Time of Concentration (min)
1137	0.114	46.6	0.73	8

C_1	C_2	C_5	C_{10}	C_{20}	C_{50}	C_{100}
0.584	0.6205	0.6935	0.73	0.7665	0.8395	0.876

I_1	I_2	I_5	I_{10}	I_{20}	I_{50}	I_{100}	
97.9	111	152	179	205	240	266	mm/hr

Q_1	Q_2	Q_5	Q_{10}	Q_{20}	Q_{50}	Q_{100}	
0.018	0.022	0.033	0.041	0.050	0.064	0.074	m^3/s

CATCHMENT - Post Development

Area (m^2)	(ha)	Impervious Area (%)	C_{10}	Time of Concentration (min)
1137	0.114	74.4	0.8	5

C_1	C_2	C_5	C_{10}	C_{20}	C_{50}	C_{100}
0.64	0.68	0.76	0.8	0.84	0.92	0.96

I_1	I_2	I_5	I_{10}	I_{20}	I_{50}	I_{100}	
111	126	173	204	235	275	306	mm/hr

Q_1	Q_2	Q_5	Q_{10}	Q_{20}	Q_{50}	Q_{100}	
0.022	0.027	0.042	0.052	0.062	0.080	0.093	m^3/s

Table 4.2 - Runoff Calculations up to ARI 100-yr

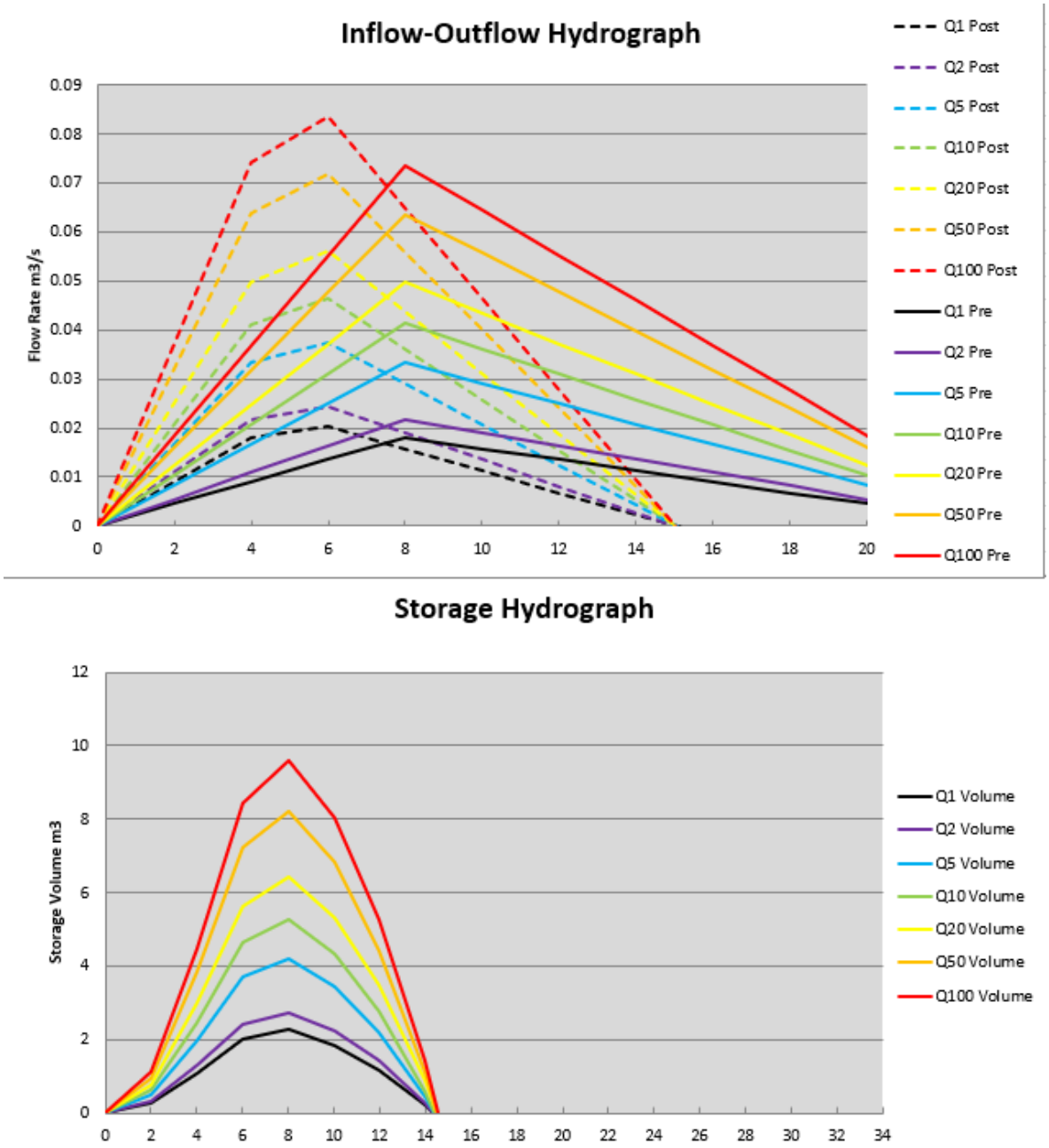


Figure 4.1 - Inflow-Outflow-Storage Hydrographs for Post-Development Detention Storage

Table 4.3 below shows the comparison in site discharge for the pre- and post-development.

Pre and Post Total Peak Outflow Comparisons							
AEP	**63.20%**	**50%**	**20%**	**10%**	**5%**	**2%**	**1%**
Pre-Developed (m^3/s)	0.018	0.022	0.033	0.041	0.050	0.064	0.074
Post-Developed (m^3/s)	0.022	0.027	0.042	0.052	0.062	0.080	0.093
Difference (m^3/s)	0.004	0.005	0.008	0.010	0.013	0.016	0.019

Table 4.3 - Pre- & Post-Development unmitigated Comparison

4.4 Orifice Plate

To ensure that the pre-developed flows are maintained after development, an orifice plate is recommended on the detention outlet. The orifice can be a plate that is fixed or cast-in to the wall of the structure. Table 4.4 demonstrates how the pre-developed flows are achieved.

Pre- & Post-Development Mitigation Comparison							
AEP	63.20%	50%	20%	10%	5%	2%	1%
Pre-Developed Flows Lot 1 (m^3/s)	0.018	0.022	0.033	0.041	0.050	0.064	0.074
Post-Developed Flows for Lot 1 (m^3/s)	0.006	0.011	0.021	0.023	0.035	0.061	0.073
Difference (m^3/s)	-0.012	-0.010	-0.012	-0.018	-0.015	-0.003	-0.001

Table 4.4 - Pre- & Post-Development Mitigation Comparison

5. Stormwater Quality

In accordance with the State Planning Policy (SPP), the reconfigured development does not meet the threshold criteria (Site is less than 2500 m²) and therefore no stormwater quality treatment is required. The childcare facility and associated car parking will occupy approximately 726 m², with the remaining 411 m² retained as the balance lot.

Assessment benchmarks – water quality

These performance outcomes apply to the following development applications, to the extent the SPP has not been identified in a local planning instrument as being appropriately integrated.

For receiving waters, a development application for:

(1) a material change of use for an urban purpose that involves premises 2500 metres² or greater in size and;

(a) will result in six or more dwellings; or

(b) will result in an impervious area greater than 25 per cent of the net developable area; or

(2) reconfiguring a lot for an urban purpose that involves premises 2500 metres² or greater in size and will result in six or more lots; or

(3) operational works for an urban purpose that involves disturbing a land area 2500 metres² or greater in size.

For water supply buffer areas, a development application:

(4) located wholly outside an urban area and relating to premises that is within, or partly within, a water supply buffer area, that involves:

(a) a material change of use for the intensive animal industry, medium and high-impact industry, noxious and hazardous industry, extractive industry, utility installation that involves sewerage services, drainage or stormwater services, waste management facilities, or motor sport facility; or

(b) reconfiguring a lot to create five or more additional lots if any resultant lot is less than 16 hectares in size, and any of the lots created will rely on on-site wastewater treatment.

The following requirements are assessment benchmarks for the development:

(1) Development is located, designed, constructed and operated to avoid or minimise adverse impacts on environmental values arising from:

(a) altered stormwater quality and hydrology

(b) waste water

(c) the creation or expansion of non-tidal artificial waterways

(d) the release and mobilisation of nutrients and sediments.

(2) Development achieves the applicable stormwater management design objectives outlined in tables A and B (appendix 2)

(3) Development in a water supply buffer area avoids adverse impacts on drinking water supply environmental values.

Further information in relation to these requirements is detailed in the water quality guidance material.

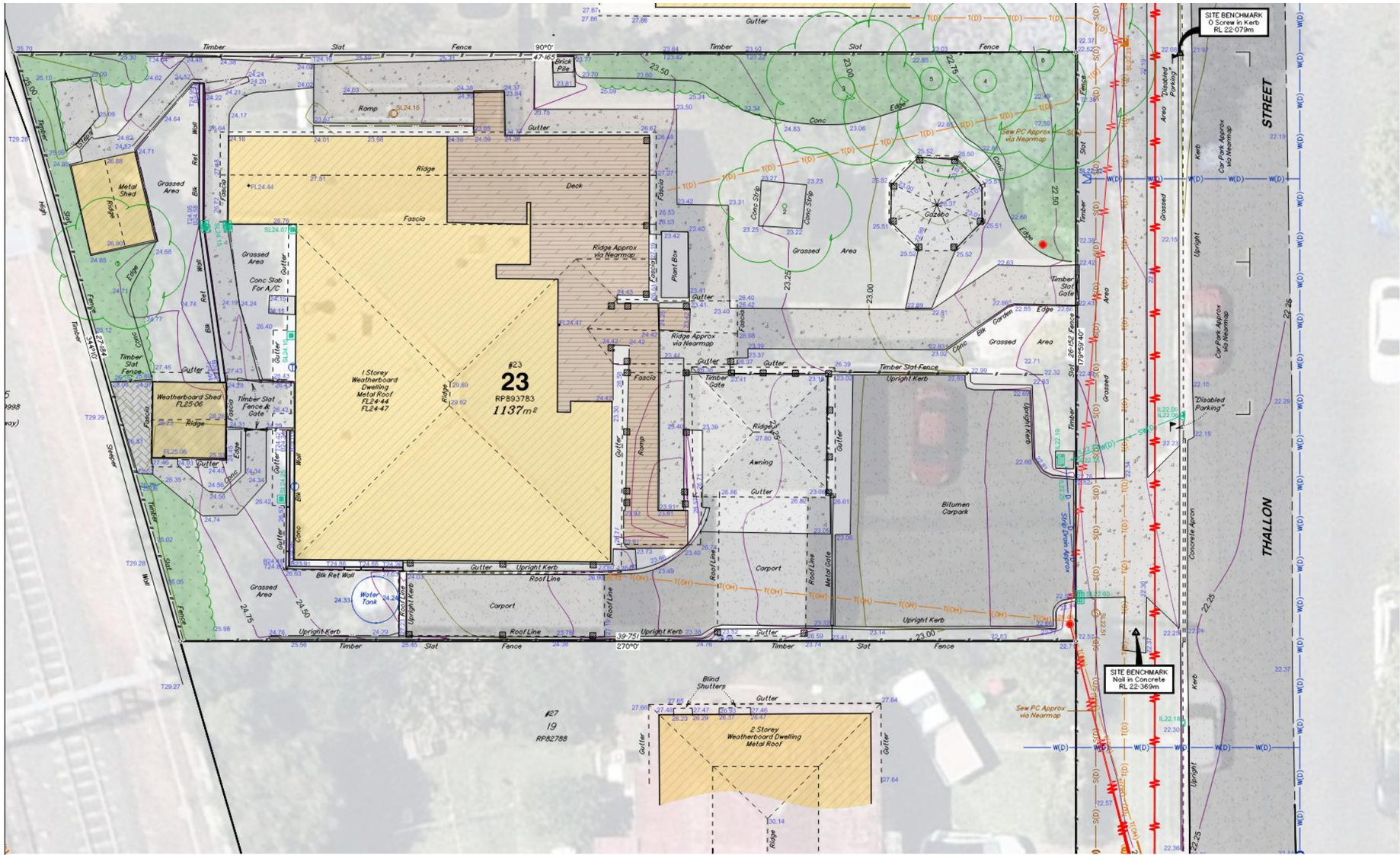
Figure 5.1 - Assessment Benchmark for Stormwater Quality (State Planning Policy)

6. Conclusion

As demonstrated, the development can be constructed as proposed.

- Site not affected by the 1% AEP design storm.
- The building floor levels to be set at RL23.36m AHD which places access above the street path.
- Retaining walls are required for the development.
- No external catchment to cater for.
- Minor Design Event is the 10% AEP.
- Major Design Event is the 2% AEP.
- A total of 6kL of On-Site Detention (OSD) is required for the development in accordance with Section 4.4. This requirement will be satisfied through a 6kL below-ground storage.
- Maintain the existing catchment and discharge location. LPOD is Thallon Street through a new kerb adaptor in accordance with Brisbane City Council Standard Detail BSD-8114.
- No Quality treatment is required under the State Planning Policy.

Appendix A: Survey Plan



HATCH LEGEND

- BITUMEN SURFACE
- STRUCTURE/FEATURE
- CONCRETE SURFACE
- TIMBER SURFACE
- VEGETATION/GARDEN BED

LEGEND

- COLUMN
- ELECTRICITY POWER POLE
- FIELD INLET
- INSPECTION OPENING
- SEWER MANHOLE
- SIGN
- SURVEY MARK
- BOUNDARY CORNER
- STORMWATER GULLY PIT
- STORMWATER OUTLET
- TELECOMS PIT
- WATER FIRE HYDRANT
- WATER METER
- WATER TAP
- CHANGE OF GRADE
- CROWN OF ROAD
- EAVE/GUTTER/RIDGE
- D — DRAIN
- ELECTRICITY OVERHEAD
- # — FENCE
- S — SEWER
- SW — STORMWATER
- T — TELECOMS
- TELECOMS OVERHEAD
- VEGETATION
- W — WATER
- 1.00 — MAJOR CONTOUR INTERVAL
- 0.25 — MINOR CONTOUR INTERVAL
- T0.00 TOP OF FEATURE
- B0.00 BOTTOM OF FEATURE

NOTES

- Underlying image derived from Nearmap and may not reflect current site conditions.
- For boundary definition, refer to IS344758 completed concurrently with this survey.
- The ground levels shown hereon are surface levels at time of survey and are not necessarily natural ground levels.
- Underground service lines exist in site. We recommend client engages a pipe locator to confirm exact position/depth prior to detail design or excavation. Client is advised to check with council for any additional drainage records
- Quality Level D – Service lines are drafted via existing records, and are unable to be confirmed by survey data. Intended to indicate presence of service only.

TREE TABLE (METRES)

No.	TYPE	TRUNK DIA.	HEIGHT	SPREAD
1	Tree	0·2	7	6
2	Tree	0·2	9	6
3	Tree	Multiple	9	7
4	Tree	Multiple	12	9
5	Tree	Multiple	12	9
6	Tree	Multiple	16	10

Scale 1:100@A1 (m) 0 1 2 3 4 5 6 7 8 9 10

rpose of designing new construction on the land and r purpose. Underground services shown hereon have ere possible. Prior to any Demolition, Construction or vant Authority should be contacted for the possible services.

have not been defined by this survey and have been

REV	DESCRIPTION	DRAWN	CHECKED	DATE
A	ORIGINAL ISSUE	HT	MS	16/12/25

CLIENT

ASSOCIATED CONSULTANT

CONTOUR & DETAIL PLAN

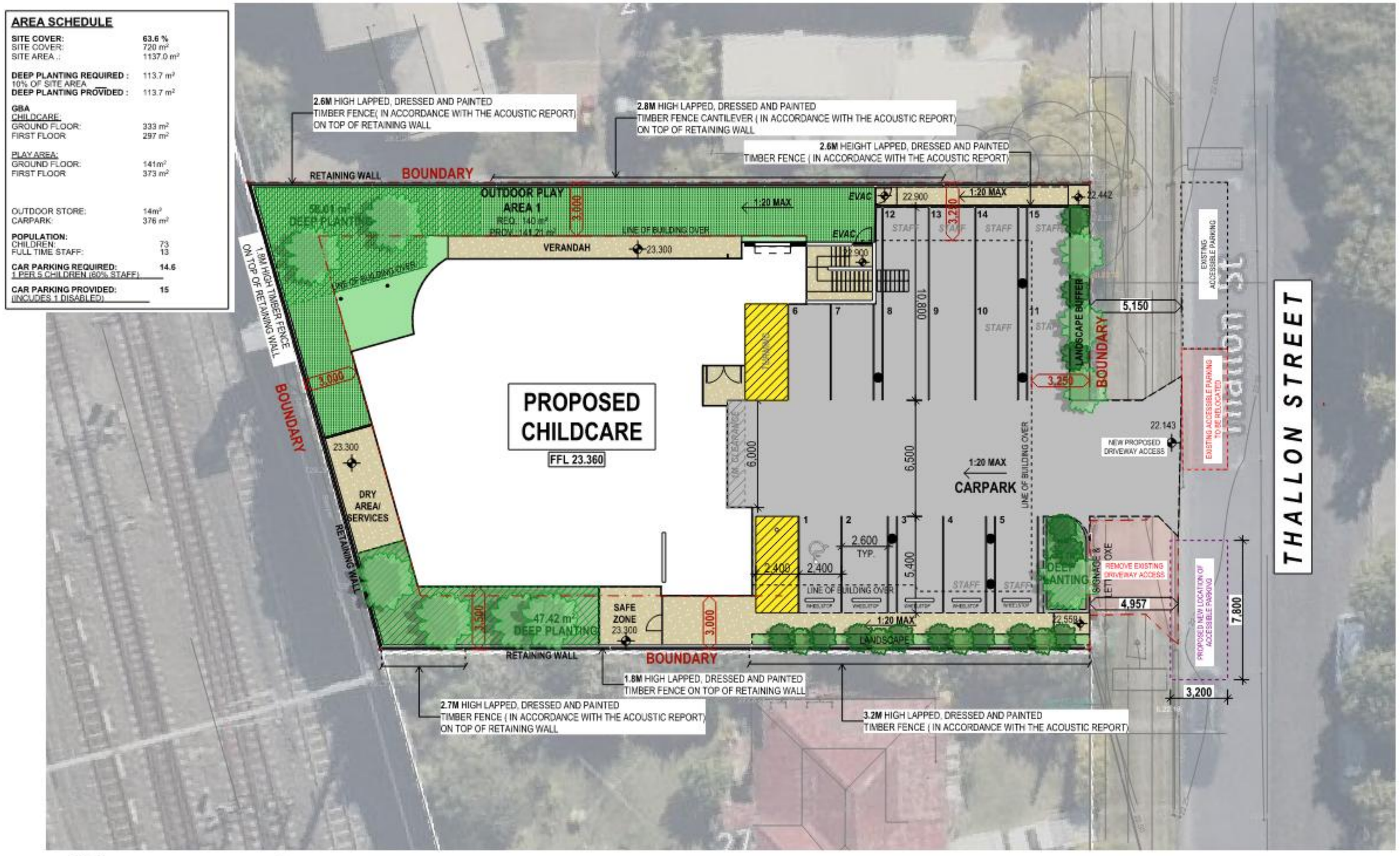
Location: 23 Thallon Street, Sherwood

Cadastral: Lot 23 on RP893783

Local Authority: Brisbane City — A1 Scale:

Statewide survey group

Appendix B: Site Plan



1 **SITE PLAN**
1:200

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www.raunikdesign.com.au
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Member Australian Institute of Architects

SHERWOOD CHILDCARE
23 THALLON STREET SHERWOOD QLD 4075
For **ONEFIN SHERWOOD PTY LTD.**

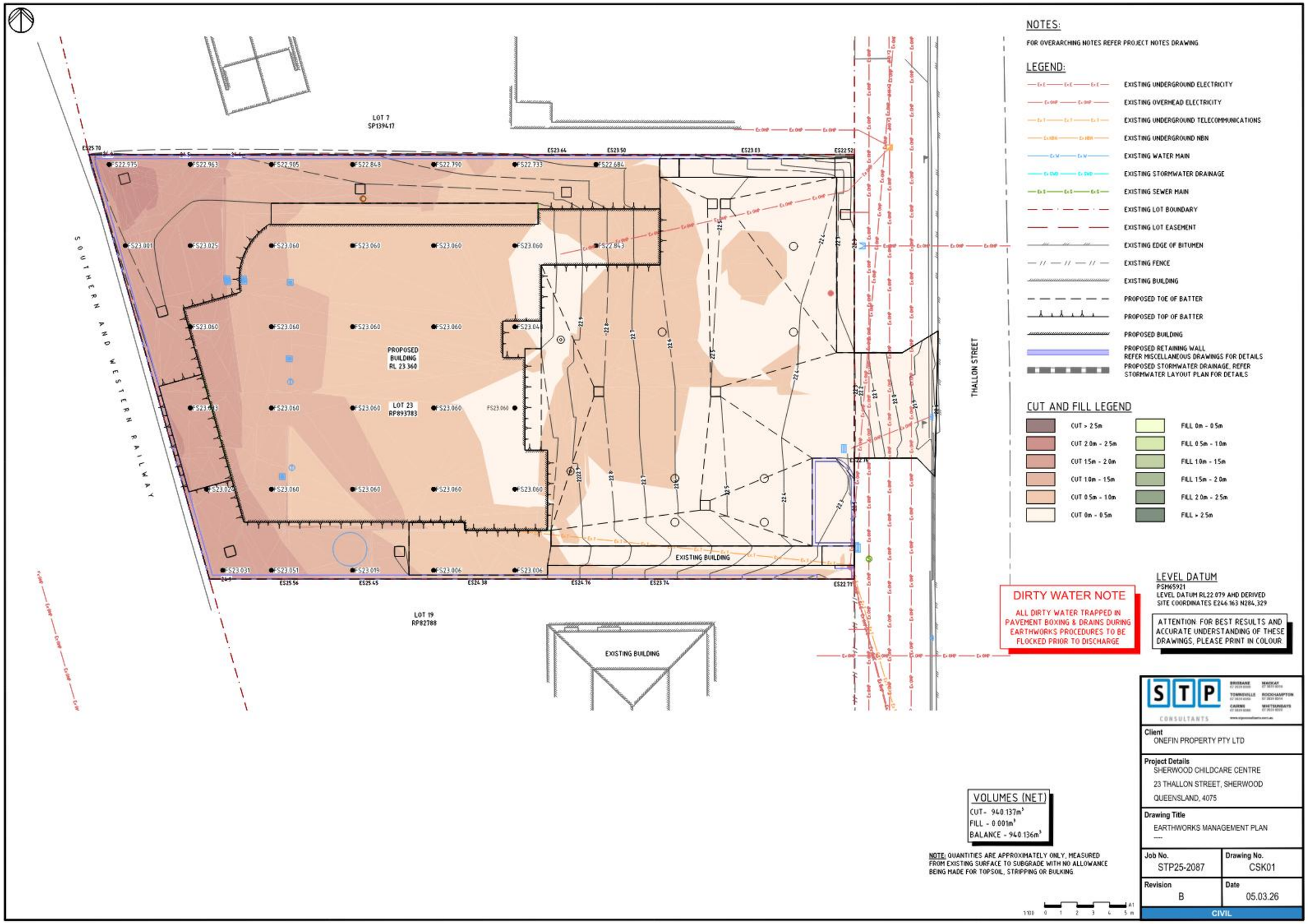
onefin

DA ISSUE
NOT FOR CONSTRUCTION

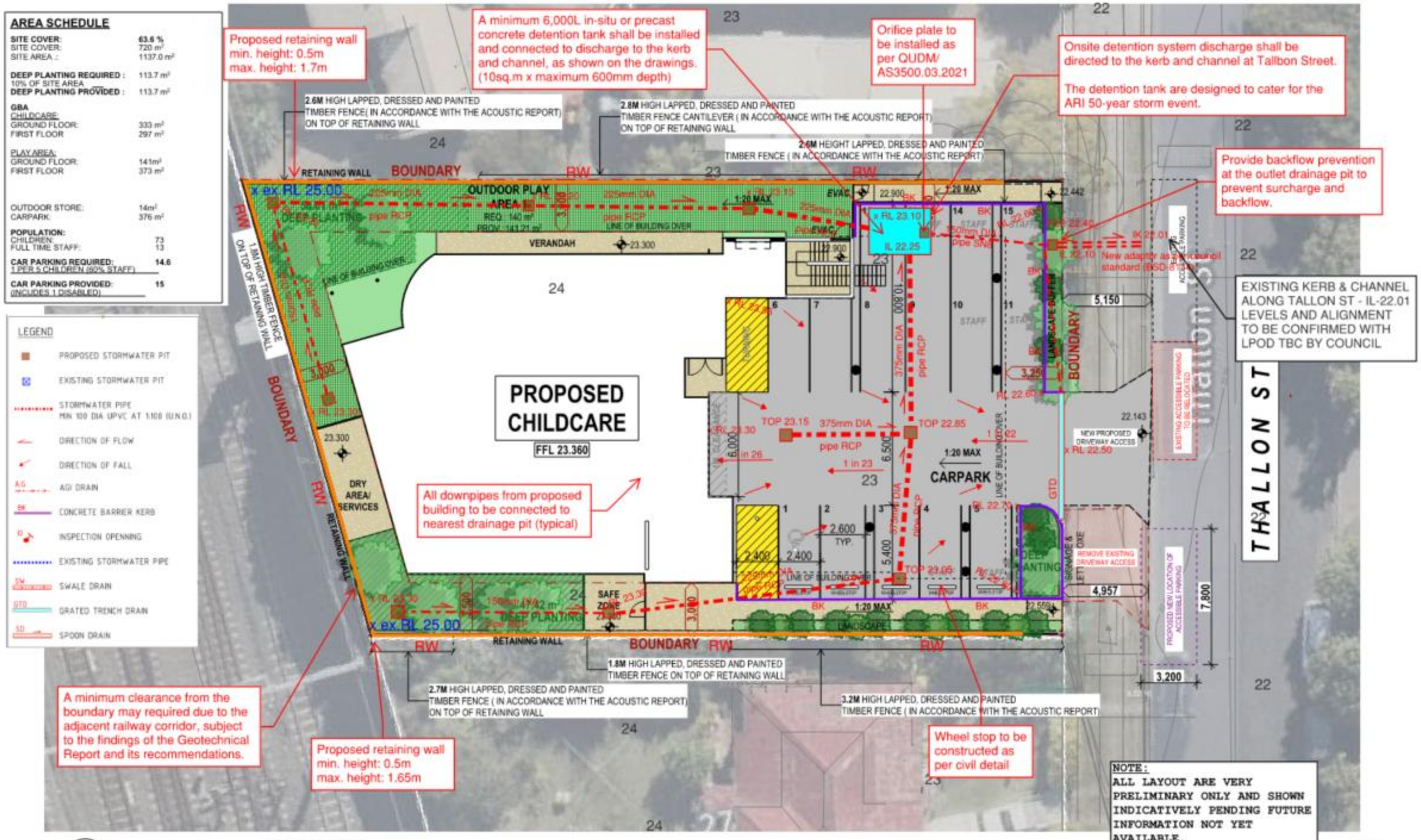
SITE PLAN

Project	Date	Scale	Page	Revision
23956	5/03/2026	1:200@A3	23956_DA-1000_I	

Appendix C: Concept Earthworks


LOT 7
SP139417
LOT 23
RP893783
LOT 19
RP82788
PROPOSED BUILDING
RL 23 360
EXISTING BUILDING
EXISTING BUILDING
SOUTHERN AND WESTERN RAILWAY
THALLON STREET
NOTES:
FOR OVERARCHING NOTES REFER PROJECT NOTES DRAWING
LEGEND:
EXISTING UNDERGROUND ELECTRICITY
EXISTING OVERHEAD ELECTRICITY
EXISTING UNDERGROUND TELECOMMUNICATIONS
EXISTING UNDERGROUND NBN
EXISTING WATER MAIN
EXISTING STORMWATER DRAINAGE
EXISTING SEWER MAIN
EXISTING LOT BOUNDARY
EXISTING LOT EASEMENT
EXISTING EDGE OF BITUMEN
EXISTING FENCE
EXISTING BUILDING
PROPOSED TOE OF BATTER
PROPOSED TOP OF BATTER
PROPOSED BUILDING
PROPOSED RETAINING WALL
REFER MISCELLANEOUS DRAWINGS FOR DETAILS
PROPOSED STORMWATER DRAINAGE, REFER
STORMWATER LAYOUT PLAN FOR DETAILS
CUT AND FILL LEGEND
CUT > 2.5m
CUT 2.0m - 2.5m
CUT 1.5m - 2.0m
CUT 1.0m - 1.5m
CUT 0.5m - 1.0m
CUT 0m - 0.5m
FILL 0m - 0.5m
FILL 0.5m - 1.0m
FILL 1.0m - 1.5m
FILL 1.5m - 2.0m
FILL 2.0m - 2.5m
FILL > 2.5m
DIRTY WATER NOTE
ALL DIRTY WATER TRAPPED IN PAVEMENT BOXING & DRAINS DURING EARTHWORKS PROCEDURES TO BE FLOCKED PRIOR TO DISCHARGE
LEVEL DATUM
PSM65921
LEVEL DATUM RL22.079 AHD DERIVED
SITE COORDINATES E246 163 N284, 329
ATTENTION: FOR BEST RESULTS AND ACCURATE UNDERSTANDING OF THESE DRAWINGS, PLEASE PRINT IN COLOUR.
VOLUMES (NET)
CUT - 940.137m³
FILL - 0.001m³
BALANCE - 940.136m³
NOTE: QUANTITIES ARE APPROXIMATELY ONLY, MEASURED FROM EXISTING SURFACE TO SUBGRADE WITH NO ALLOWANCE BEING MADE FOR TOPSOIL, STRIPPING OR BULKING
STP CONSULTANTS
BRISBANE
MACKAY
TOWNSVILLE
ROCKHAMPTON
CAIRNS
WHITSUNDAYS
Client
ONEFIN PROPERTY PTY LTD
Project Details
SHERWOOD CHILDCARE CENTRE
23 THALLON STREET, SHERWOOD
QUEENSLAND, 4075
Drawing Title
EARTHWORKS MANAGEMENT PLAN
Job No.
STP25-2087
Drawing No.
CSK01
Revision
B
Date
05.03.26
CIVIL

Appendix D: Concept Stormwater Drainage



1 **SITE PLAN** 1:200

JOB No: STP25-2087
PROJECT: Thallon St - Sherwood Childcare
DESIGNED: DK
SHEET No: SK5
DATE: 05/03/2026

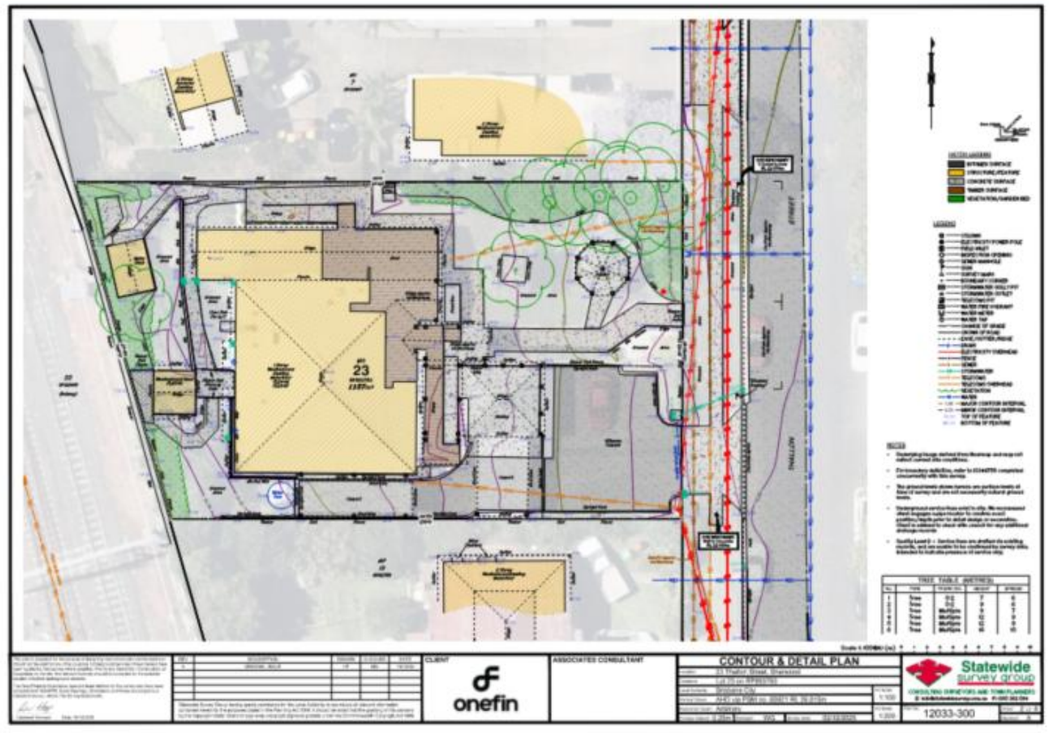
STORMWATER & PAVEMENT PLAN

PRELIMINARY

NOT FOR TENDER PURPOSES OR CONSTRUCTION

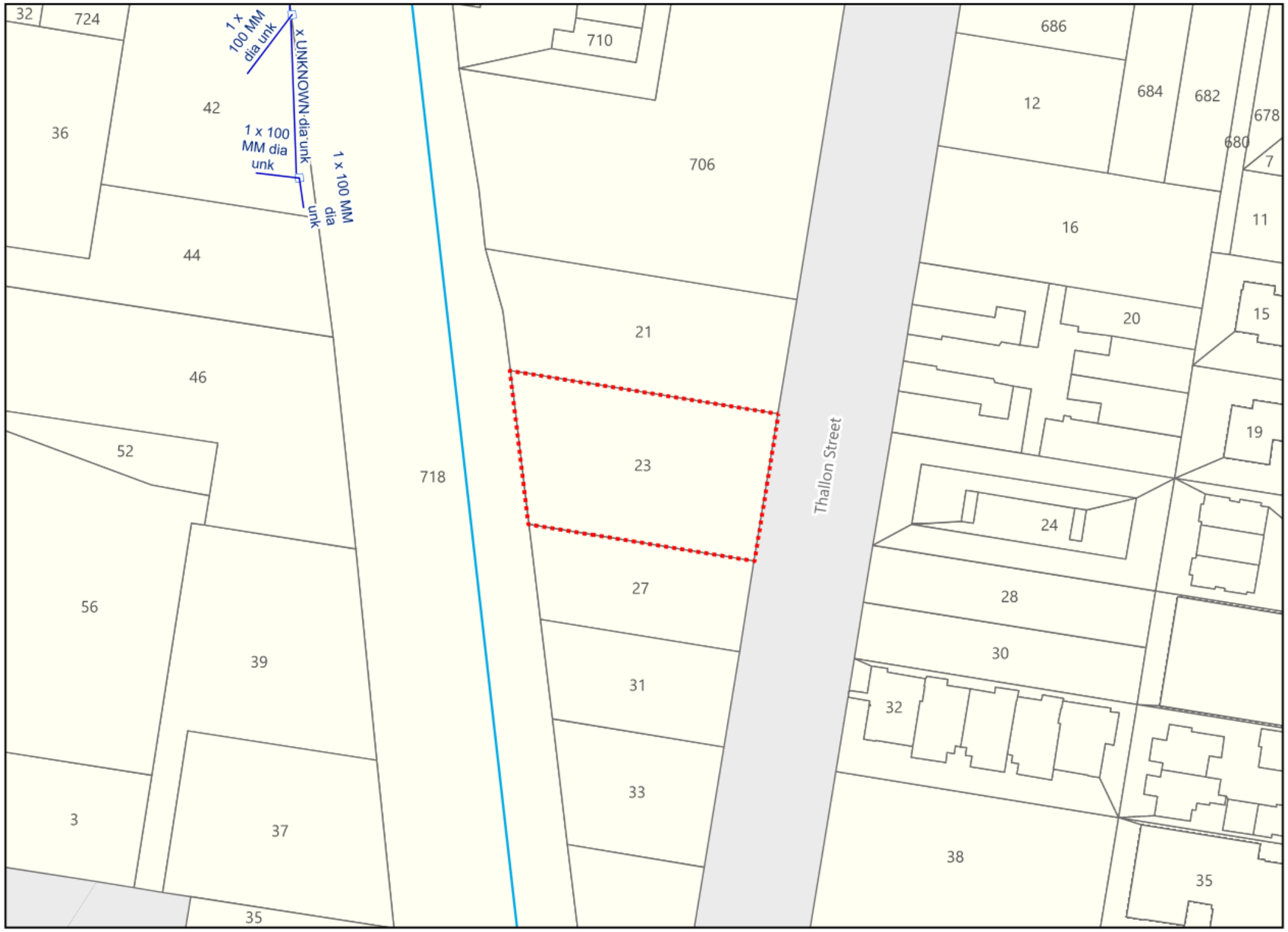
Appendix E: Impervious Area Pre- & Post-Development Comparison


AREA SCHEDULE
PROPOSED CHILDCARE
FFL 23.360
OUTDOOR PLAY AREA 1
CARPARK
THALLON STREET
BOUNDARY
RETAINING WALL
VERANDAH
DRY AREA / SERVICES
SAFE ZONE
1 SITE PLAN
1:200
RAUNIK DESIGN GROUP ARCHITECTS
SHERWOOD CHILDCARE
23 THALLON STREET SHERWOOD QLD 4075
For ONEFIN SHERWOOD PTY LTD.
onefin
DA ISSUE
SITE PLAN
Project 23956
Date 5/03/2026
Scale 1:200@A3
Page 23956_DA-1000_I


CONTOUR & DETAIL PLAN
23 Thallon Street, Sherwood
Statewide Survey Group
12033-300
CLIENT
onefin
ASSOCIATES CONSULTANT

Appendix F: Brisbane City Council Stormwater Drainage

Job # 52291483
Seq # 267754198
Provider: Brisbane City Council
Telephone: (07) 3403 8888



Legend

BYDA Enquiry

Stormwater Network

- Stormwater Gully / Roofwater Connection
- Stormwater Roofwater Pit

BCC Cable Network

- Fibre Optic Cable Location

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Cadastre and Street Names © 2020 State of Queensland (Department of Natural Resources, Mines and Energy)

Caution: This map may contain the locations of abandoned underground asbestos pipes. Council gives no warranty to the completeness or accuracy of these records. Appropriate care needs to be taken in all cases.

In an emergency contact Brisbane City Council on 07 3403 8888
05/02/26 (valid for 30 days)

0 10 20 40 m

Scale 1:1,000

Plans generated by SmarterWX™ Automate

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