



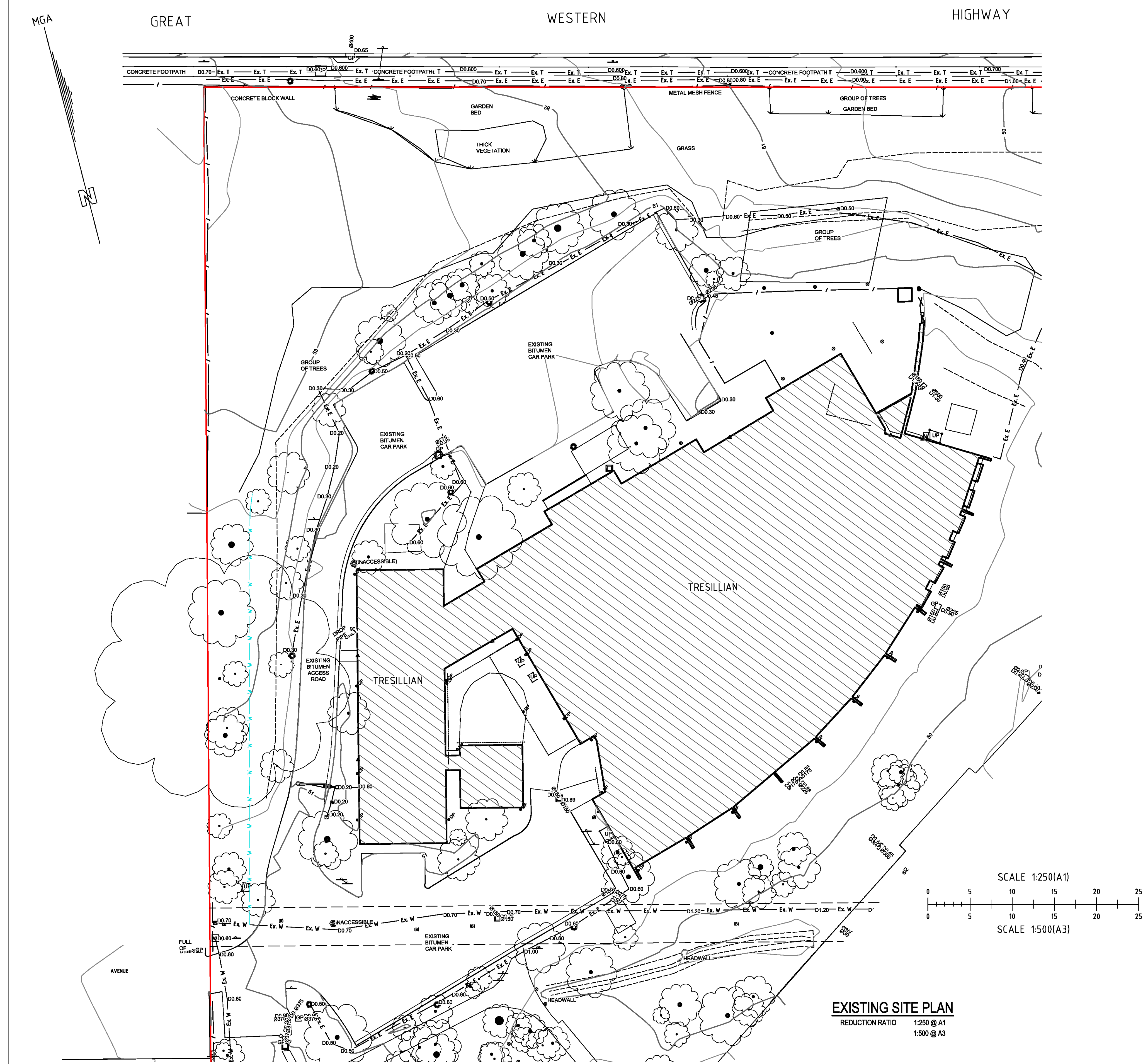
CIVIL ENGINEERING - PROPOSED CHILD CARE CENTRE, NEPEAN HOSPITAL REDEVELOPMENT, KINGSWOOD, NSW

DRAWING SCHEDULE

29929-C00	- CIVIL ENGINEERING COVER SHEET
29929-C01	- EXISTING SITE PLAN
29929-C02	- PROPOSED SITE PLAN
29929-C03	- PROPOSED PAVEMENT PLAN
29929-C04	- STORMWATER MANAGEMENT PLAN
29929-C05	- ROOF DRAINAGE PLAN
29929-C06	- PROPOSED SEWER RETICULATION PLAN
29929-C07	- PROPOSED WATER RETICULATION PLAN

REFERENCE DRAWINGS:

FOR ARCHITECTURAL DRAWINGS, REFER TO BARNSON PTY LTD DRAWINGS 29929-AC1-AC10
FOR SURVEY DRAWINGS REFER TO CARDNO PTY LTD, REFERENCE 118117502 PAGES 1-55.



LEGEND

- EXISTING CADASTRAL BOUNDARIES
- EXISTING TOP / BOTTOM OF BANK
- EXISTING FENCE LINE
- EXISTING GATE
- EXISTING UNDERGROUND TELECOMMUNICATIONS CABLES
- EXISTING UNDERGROUND ELECTRICITY CABLES
- EXISTING UNDERGROUND WATER MAIN
- EXISTING SIGN
- EXISTING LIGHT POLE
- EXISTING SEWER MAN HOLE
- EXISTING SEWER INSPECTION OPENING
- EXISTING IRRIGATION VALVE
- EXISTING STOP VALVE
- EXISTING WATER METER
- EXISTING BOLLARD
- EXISTING UNCLASSIFIED PIT
- EXISTING GRATED STORMWATER PIT
- EXISTING DOWN PIPE
- FOOTPRINT OF EXISTING BUILDING
- EXISTING TREE

PRELIMINARY DRAWING
Not to be used for construction purposes



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Client: **HEALTH INFRASTRUCTURE**
Project: **PROPOSED CHILD CARE CENTRE
NEPEAN HOSPITAL REDEVELOPMENT
KINGSWOOD, NSW**
Drawing Title: **EXISTING SITE PLAN**

Rev Date Amendment
A 21.11.2018 PRELIMINARY ISSUE

Design **DOS** Certification

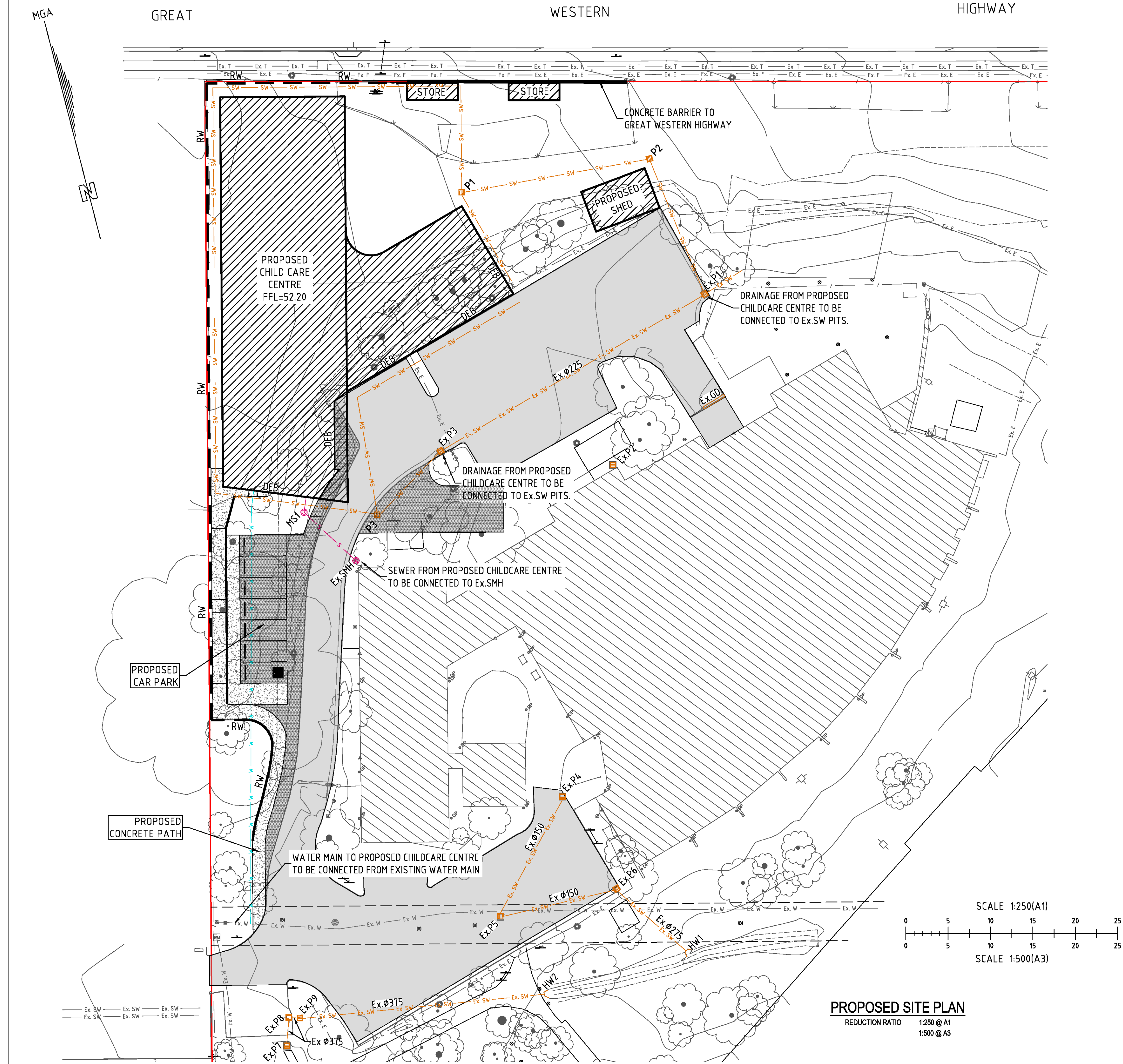
Drawn **LT**

Check **LM**

Original Sheet
Size = A1

Drawing Number
29929_C01

Revision
A



LEGEND (proposed)

- Ex. SW Ex. SW EXISTING STORMWATER PIPE
- P1 PROPOSED GRATED STORMWATER PIT
- MS1 PROPOSED SEWER MAINTENANCE SHAFT
- SW SW PROPOSED STORMWATER PIPE
- S S PROPOSED SEWER MAIN LINE
- W W PROPOSED WATER MAIN LINE
- RW PROPOSED RETAINING WALL
- DEB PROPOSED DEEPEENED EDGE BEAM
- Ex. GD EXISTING GRATED DRAIN
- FOOTPRINT OF PROPOSED BUILDING
- EXTENT OF EXISTING BITUMEN SEAL
- EXTENT OF PROPOSED BITUMEN SEAL
- EXTENT OF PROPOSED CONCRETE AREA

LEGEND (existing)

- EXISTING CADASTRAL BOUNDARIES
- EXISTING TOP / BOTTOM OF BANK
- EXISTING FENCE LINE
- EXISTING GATE
- Ex. T Ex. T EXISTING UNDERGROUND TELECOMMUNICATIONS CABLES
- Ex. E Ex. E EXISTING UNDERGROUND ELECTRICITY CABLES
- Ex. W Ex. W EXISTING UNDERGROUND WATER MAIN
- EXISTING SIGN
- EXISTING LIGHT POLE
- Ex. SMH EXISTING SEWER MAN HOLE
- EXISTING SEWER INSPECTION OPENING
- EXISTING IRRIGATION VALVE
- EXISTING STOP VALVE
- EXISTING WATER METER
- EXISTING BOLLARD
- UP EXISTING UNCLASSIFIED PIT
- Ex. P1 EXISTING GRATED STORMWATER PIT
- Ex. DP EXISTING DOWN PIPE
- FOOTPRINT OF EXISTING BUILDING
- EXISTING TREE

PRELIMINARY DRAWING
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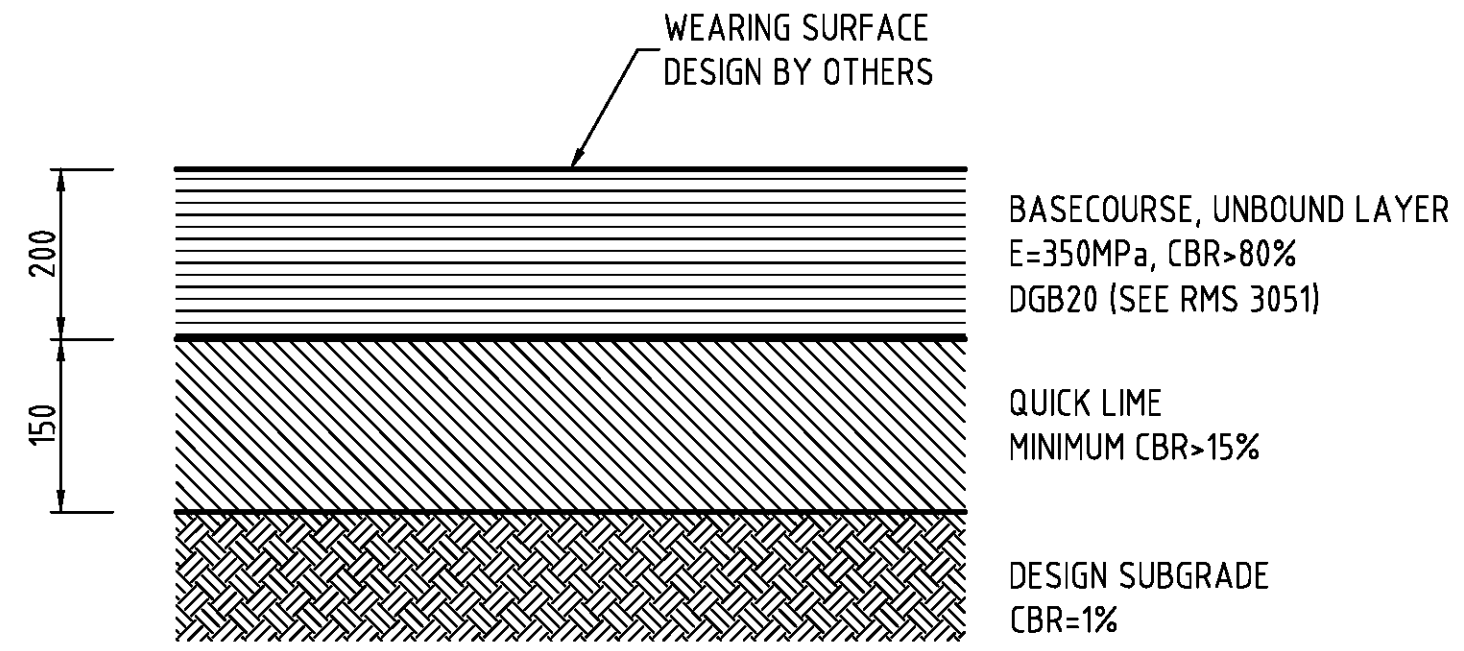
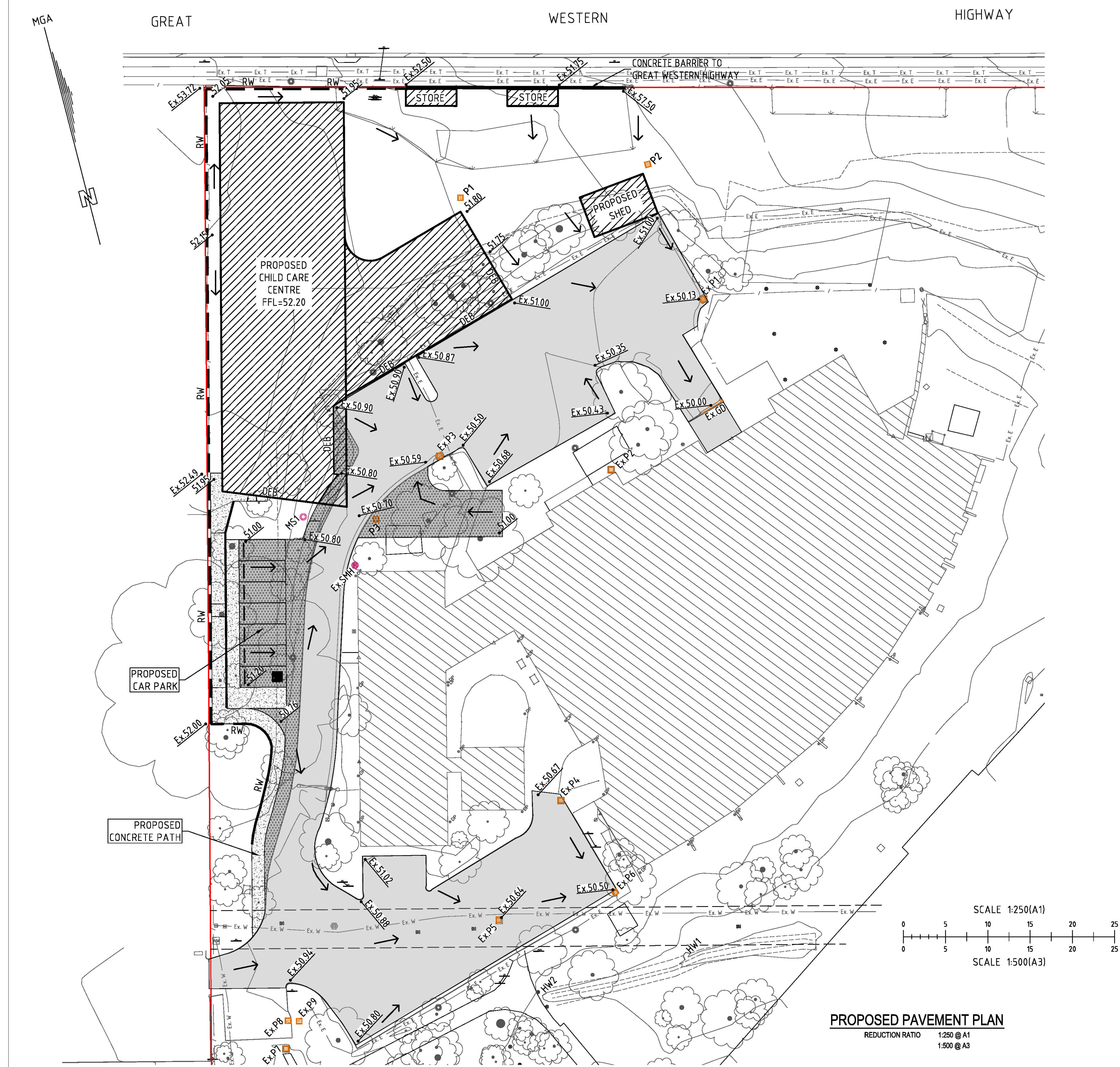
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Client: **HEALTH INFRASTRUCTURE**
Project: **PROPOSED CHILD CARE CENTRE
NEPEAN HOSPITAL REDEVELOPMENT
KINGSWOOD, NSW**
Drawing Title: **PROPOSED SITE PLAN**

Rev Date Amendment
A 21.11.2018 PRELIMINARY ISSUE

Design	DOS	Certification	
Drawn	LT		
Check	LM	Drawing Number	Revision
Original Sheet Size = A1		29929_C02	A



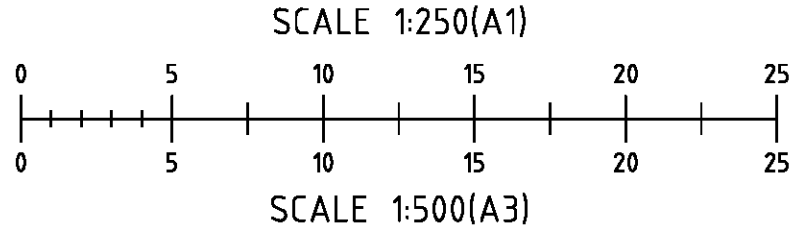
PAVEMENT SECTION - CARPARK
SCALE = N.T.S.

- LEGEND (proposed)**
- P1 PROPOSED GRATED STORMWATER PIT
 - RW PROPOSED RETAINING WALL
 - DEB PROPOSED DEEPEENED EDGE BEAM
 - Ex.GD EXISTING GRATED DRAIN
 - 52.05 PROPOSED SURFACE FINISH LEVEL
 - Ex.52.05 EXISTING SPOT LEVEL
 - ← EXISTING SPOT LEVEL
 - [Hatched Box] FOOTPRINT OF PROPOSED BUILDING
 - [Solid Grey Box] EXTENT OF EXISTING BITUMEN SEAL
 - [Dotted Grey Box] EXTENT OF PROPOSED BITUMEN SEAL
 - [Cross-hatched Box] EXTENT OF PROPOSED CONCRETE AREA

- LEGEND (existing)**
- [Red Line] EXISTING CADASTRAL BOUNDARIES
 - [Dashed Line] EXISTING TOP / BOTTOM OF BANK
 - [Thin Line] EXISTING FENCE LINE
 - [Gate Symbol] EXISTING GATE
 - [Ex. T / Ex. E / Ex. W] EXISTING UNDERGROUND TELECOMMUNICATIONS CABLES
 - [Ex. E / Ex. E / Ex. E] EXISTING UNDERGROUND ELECTRICITY CABLES
 - [Ex. W / Ex. W / Ex. W] EXISTING UNDERGROUND WATER MAIN
 - [Sign Symbol] EXISTING SIGN
 - [Light Pole Symbol] EXISTING LIGHT POLE
 - [Sewer Man Hole Symbol] EXISTING SEWER MAN HOLE
 - [Sewer Inspection Opening Symbol] EXISTING SEWER INSPECTION OPENING
 - [Irrigation Valve Symbol] EXISTING IRRIGATION VALVE
 - [Stop Valve Symbol] EXISTING STOP VALVE
 - [Water Meter Symbol] EXISTING WATER METER
 - [Bollard Symbol] EXISTING BOLLARD
 - [UP Symbol] EXISTING UNCLASSIFIED PIT
 - [Grated Stormwater Pit Symbol] EXISTING GRATED STORMWATER PIT
 - [Down Pipe Symbol] EXISTING DOWN PIPE
 - [Footprint of Existing Building Symbol] FOOTPRINT OF EXISTING BUILDING
 - [Tree Symbol] EXISTING TREE

PROPOSED PAVEMENT PLAN

REDUCTION RATIO 1:250 @ A1
1:500 @ A3



PRELIMINARY DRAWING
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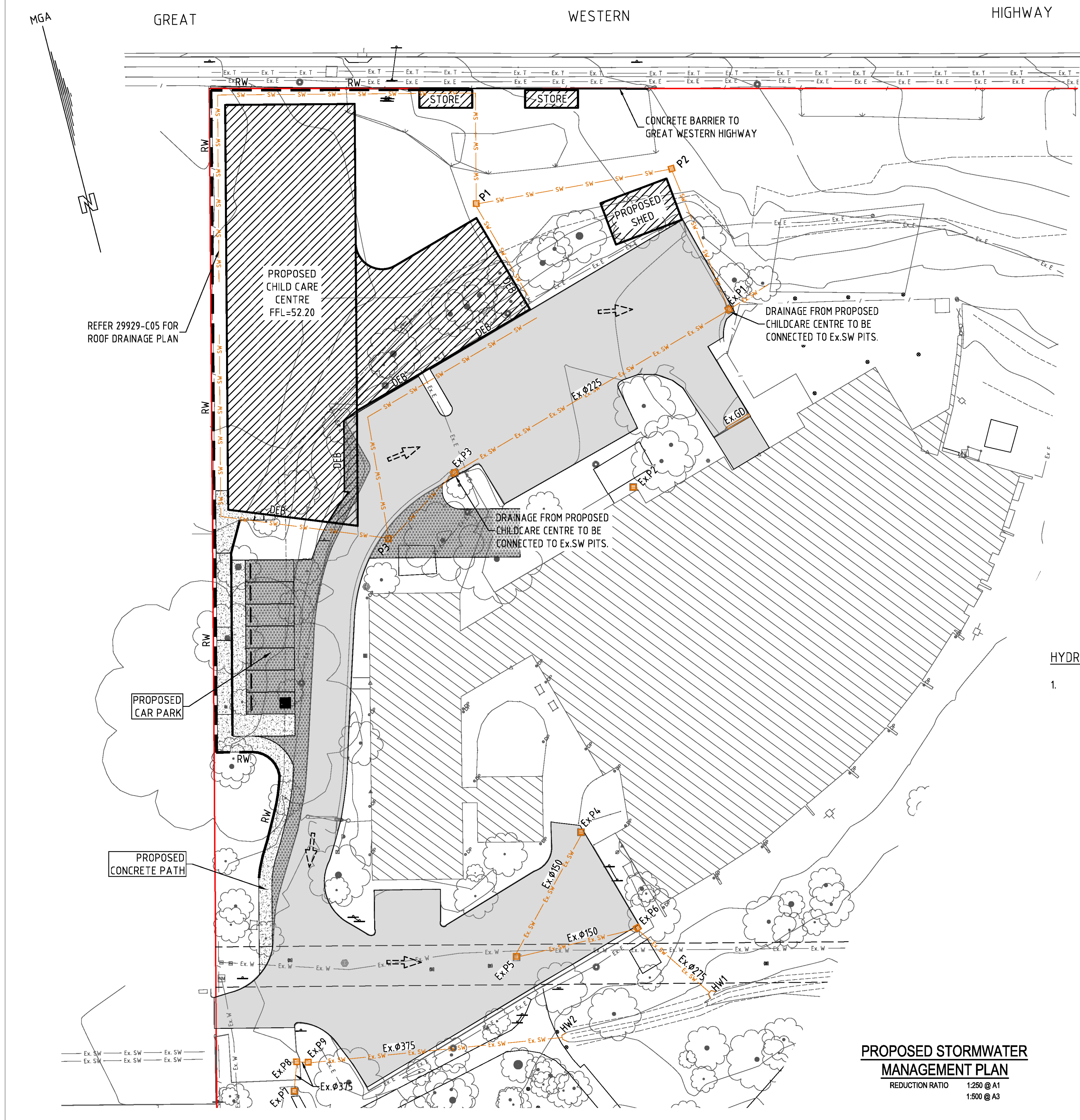
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Client: **HEALTH INFRASTRUCTURE**
Project: **PROPOSED CHILD CARE CENTRE
NEPEAN HOSPITAL REDEVELOPMENT
KINGSWOOD, NSW**
Drawing Title: **PROPOSED PAVEMENT PLAN**

Rev Date Amendment
A 21.11.2018 PRELIMINARY ISSUE

Design	DOS	Certification	
Drawn	LT		
Check	LM	Drawing Number	Revision
Original Sheet Size = A1		29929_C03	A



NOTE:
ALL STORMWATER & SEWER PIPES AND PLUMBING SHALL BE FITTED WITH SLEEVED UNIVERSAL FLEXIBLE COUPLINGS WHERE THEY PASS UNDER FOOTINGS, THROUGH FOOTINGS, THROUGH SLABS AND INTO GROUND. FITTINGS AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH AS3500-2015.

DESIGN NOTE:
ARI = 1 in 20 YEAR STORM
5 MIN. INTERVAL
RAINFALL INTENSITY =180mm/hr
ARI = 1 in 100 YEAR STORM
5 MIN. INTERVAL
RAINFALL INTENSITY =243mm/hr

LEGEND (proposed)

- Ex. SW Ex. SW EXISTING STORMWATER PIPE
- P1 PROPOSED GRATED STORMWATER PIT
- SW SW PROPOSED STORMWATER PIPE
- S S PROPOSED SEWER MAIN LINE
- RW RW PROPOSED RETAINING WALL
- DEB DEB PROPOSED DEEPEDED EDGE BEAM
- Ex.GD EXISTING GRATED DRAIN
- MAJOR OVERLAND FLOW PATH
- FOOTPRINT OF PROPOSED BUILDING
- EXTENT OF EXISTING BITUMEN SEAL
- EXTENT OF PROPOSED BITUMEN SEAL
- EXTENT OF PROPOSED CONCRETE AREA

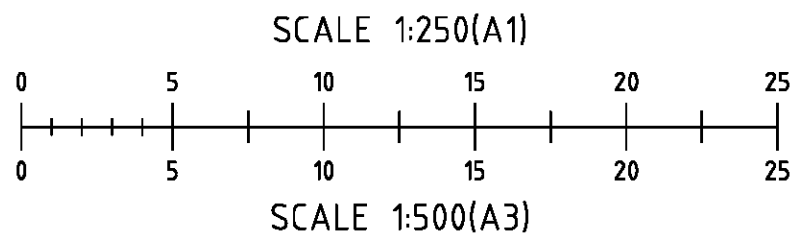
LEGEND (existing)

- EXISTING CADASTRAL BOUNDARIES
- EXISTING TOP / BOTTOM OF BANK
- EXISTING FENCE LINE
- EXISTING GATE
- Ex. T Ex. T EXISTING UNDERGROUND TELECOMMUNICATIONS CABLES
- Ex. E Ex. E EXISTING UNDERGROUND ELECTRICITY CABLES
- Ex. W Ex. W EXISTING UNDERGROUND WATER MAIN
- EXISTING SIGN
- EXISTING LIGHT POLE
- Ex.SMH EXISTING SEWER MAN HOLE
- EXISTING SEWER INSPECTION OPENING
- EXISTING IRRIGATION VALVE
- EXISTING STOP VALVE
- EXISTING WATER METER
- EXISTING BOLLARD
- UP EXISTING UNCLASSIFIED PIT
- Ex.P1 EXISTING GRATED STORMWATER PIT
- Ex.DP EXISTING DOWN PIPE
- FOOTPRINT OF EXISTING BUILDING
- EXISTING TREE

HYDRAULIC CALCULATIONS

- PRE & POST DEVELOPMENT ANALYSIS
DESIGN CALCULATIONS AS PER AS3500.3-2015
A) PRE-DEVELOPED:
 - TOTAL APPLICABLE CATCHMENT AREA (A) = 1,330 m²
 - RAINFALL INTENSITY (h₁₀₀) = 243 mm/hr (5min 100 ARI)
 - Cr = RUNOFF COEFFICIENT FOR ROOF AREA = 1.0
 - Ar = TOTAL ROOF AREA= 0 m²
 - Ci = RUNOFF COEFFICIENT FOR UNROOFED IMPERVIOUS AREA = 0.9
 - Ai = TOTAL UNROOFED IMPERVIOUS AREA= 0 m²
 - Cp = RUNOFF COEFFICIENT FOR PERVIOUS AREA = 0.3
 - Ap = TOTAL PERVIOUS GRASS AREA = 1,330 m²
 - TOTAL FLOW Q_{PRE} = (Cr Ar + Ci Ai + Cp Ap). h₁₀₀ / 3600 = 26.93 l/s
B) POST-DEVELOPED FLOW TO PIT:
 - TOTAL APPLICABLE CATCHMENT AREA (A) = 1,330 m²
 - RAINFALL INTENSITY (h₁₀₀) = 243 mm/hr (5min 100 ARI)
 - Cr = RUNOFF COEFFICIENT FOR ROOF AREA = 1.0
 - Ar = TOTAL ROOF AREA= 995 m²
 - Ci = RUNOFF COEFFICIENT FOR UNROOFED IMPERVIOUS AREA = 0.9
 - Ai = TOTAL UNROOFED IMPERVIOUS AREA= 335 m²
 - Cp = RUNOFF COEFFICIENT FOR PERVIOUS AREA = 0.3
 - Ap = TOTAL PERVIOUS GRASS AREA = 0 m²
 - TOTAL FLOW Q_{POST} = (Cr Ar + Ci Ai + Cp Ap). h₁₀₀ / 3600 = 87.51 l/s

PROPOSED STORMWATER
MANAGEMENT PLAN
REDUCTION RATIO
1:250 @ A1
1:500 @ A3



PRELIMINARY DRAWING
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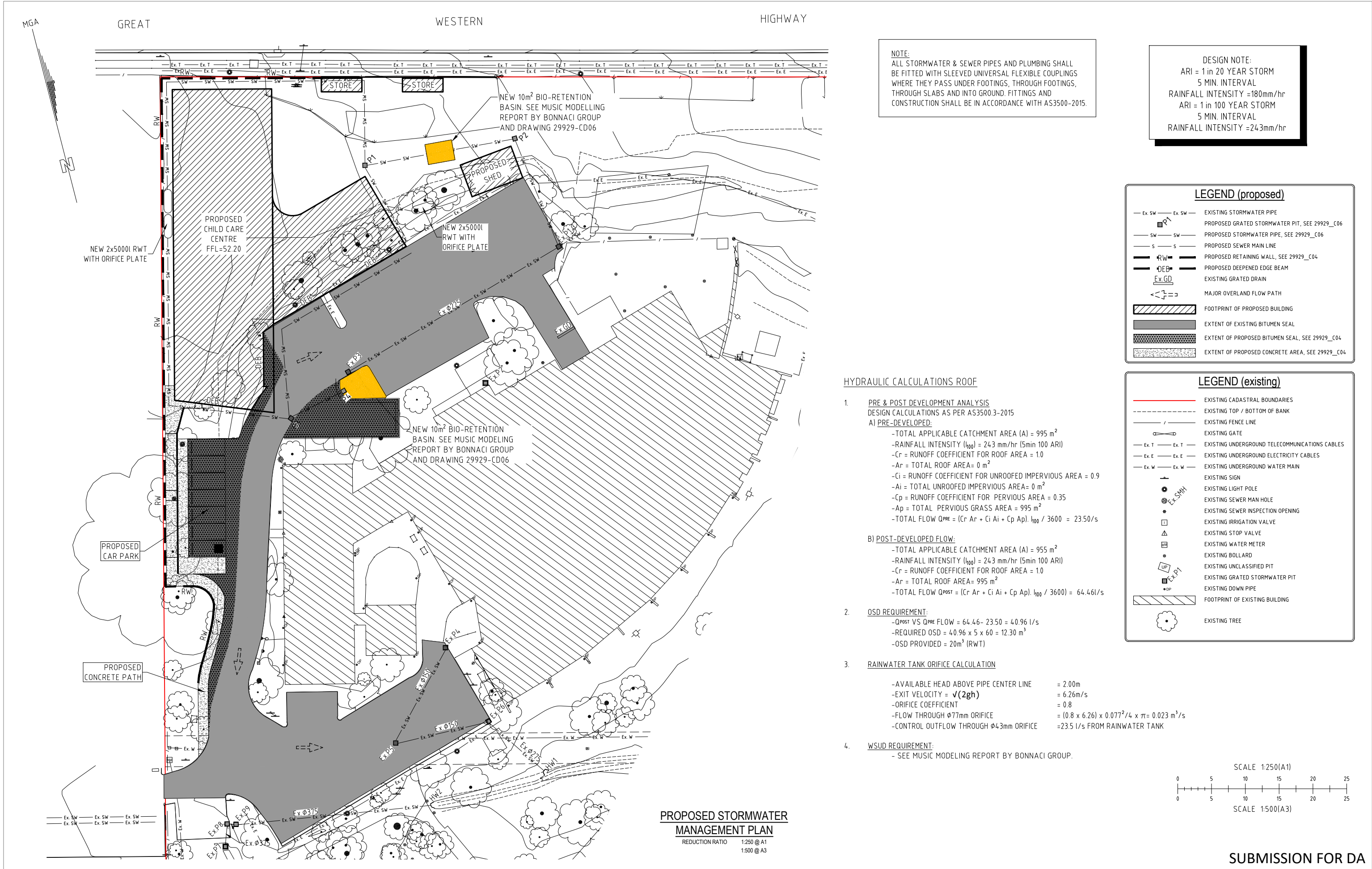
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Client: HEALTH INFRASTRUCTURE
Project: PROPOSED CHILD CARE CENTRE
NEPEAN HOSPITAL REDEVELOPMENT
KINGSWOOD, NSW
Drawing Title: PROPOSED STORMWATER MANAGEMENT PLAN

Rev Date Amendment
A 21.11.2018 PRELIMINARY ISSUE

Design DOS Certification
Drawn LT
Check LM Drawing Number
Original Sheet 29929_C04
Size = A1 Revision
A

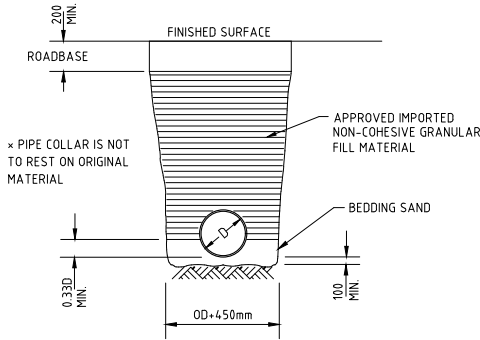


STORMWATER NOTES

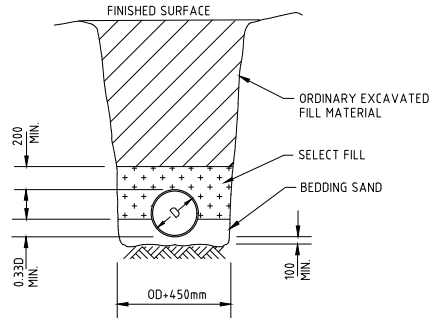
- 1. CONTRACTOR IS TO ADEQUATELY INFORM HIMSELF AS TO THE DEPTH AND LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 2. PIPE IS TO BE LAID AT UNIFORM GRADE BETWEEN INVERT LEVELS SHOWN WITH MINIMUM COVER MAINTAINED UNLESS OTHERWISE APPROVED BY THE SUPERINTENDENT.
- 3. MINIMUM COVER OVER ALL PIPES IN NON-TRAFFICABLE AREAS TO BE 450mm UNO. MINIMUM COVER OVER ALL PIPES IN TRAFFICABLE AREAS TO BE 600mm UNO. WHEN THIS CRITERIA CANNOT BE ACHIEVED, PIPES TO BE ENCASED IN 150 CONCRETE.
- 5. ALL CONNECTIONS TO EXISTING DRAINAGE PITS SHALL BE MADE IN A TRADESMAN-LIKE MANNER AND THE INTERNAL WALL OF THE PIT AT THE POINT OF ENTRY SHALL BE CEMENT RENDERED TO ENSURE A SMOOTH FINISH.
- 6. PRECAST PITS MAY BE USED AS APPROVED BY THE SUPERINTENDENT.
- 7. ALL PIPES SHALL BE RUBBER RING JOINTED CLASS '2' UNLESS NOTED OTHERWISE.

COMPACTION OF BACKFILL

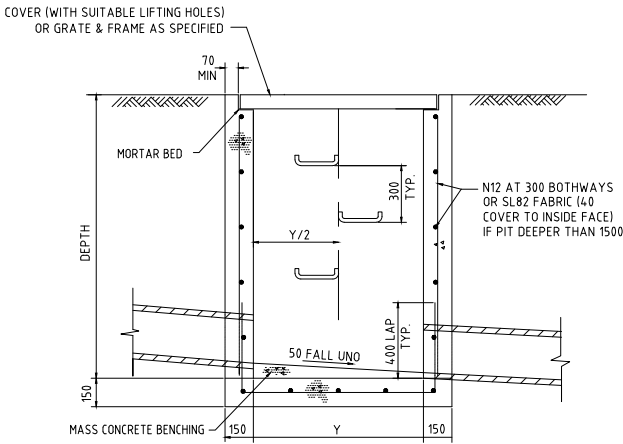
- 1. BEDDING SAND
BEDDING SAND SHALL BE GRANULAR MATERIAL HAVING A LOW PERMEABILITY AND HIGH STABILITY WHEN SATURATED, CONFORMING TO THE GRADING LIMITS FOR BEDDING SAND AS INDICATED IN THE CONTRACT DOCUMENTS. BEDDING SAND SHALL BE COMPACTED TO A DENSITY INDEX OF 70% AS DETERMINED IN ACCORDANCE WITH AS1289.
- 2. APPROVED IMPORTED GRANULAR FILL
ONLY IMPORTED GRANULAR FILL MATERIAL APPROVED BY THE SUPERINTENDENT SHALL BE USED. THIS FILL MATERIAL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 150mm THICK TO A DRY DENSITY OF 95% OF THE STANDARD MAXIMUM DRY DENSITY OF THE MATERIAL AND WITH A MOISTURE CONTENT NO MORE THAN 1% ABOVE OPTIMUM MOISTURE CONTENT AS DETERMINED IN ACCORDANCE WITH AS1289.
- 3. ORDINARY EXCAVATED FILL MATERIAL
ORDINARY EXCAVATED FILL MATERIAL IS EXCAVATED TRENCH MATERIAL THAT IS FREE OF VEGETABLE MATTER, HUMUS, LARGE CLAY LUMPS AND ROCK BOULDERS. THIS FILL MATERIAL SHALL BE COMPACTED IN LAYERS NOT EXCEEDING 300mm THICK, TO A DENSITY OF 90% OF THE STANDRAD MAXIMUM DRY DENSITY OF THE MATERIAL WITH A MOISTURE CONTENT OF NOT MORE THAN 1% ABOVE THE OPTIMUM MOISTURE CONTENT AS DETERMINED IN ACCORDANCE WITH AS1289.



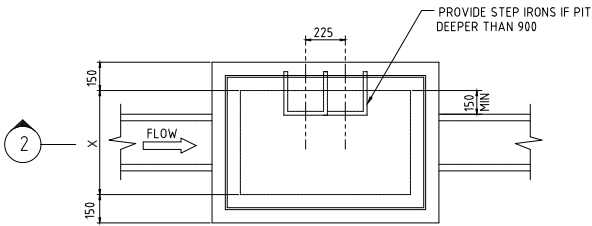
TYPICAL SECTION - TRENCH IN ROADWAY
N.T.S.



TYPICAL SECTION - EARTH FOUNDATION TRENCH
N.T.S.



SECTION 2



PLAN

GRATED INLET PIT
N.T.S.

FLOOD IMPACT ASSESSMENT

- 1. FINISHED FLOOR LEVEL
PROPOSED FSL IS ABOVE THE 1:100YR ARI + 0.5m FREEBOARD.
- 2. FLOODING IMPACT - CATCHMENT
IN ACCORDANCE WITH THE COLLEGE, ORTH AND WERRINGTON CREEKS CATCHMENT OVERLAND FLOW FLOOD STUDY WHICH WAS ADOPTED BY COUNCIL ON 22 MAY 2017, THE SUBJECT SITE (AS A WHOLE) IS WITHIN A THE FLOOD PLANNING AREA BUT NOT NOT IDENTIFIED IN FLOOD PLANNING AREA MAPPING. SEE FIGURE 1.



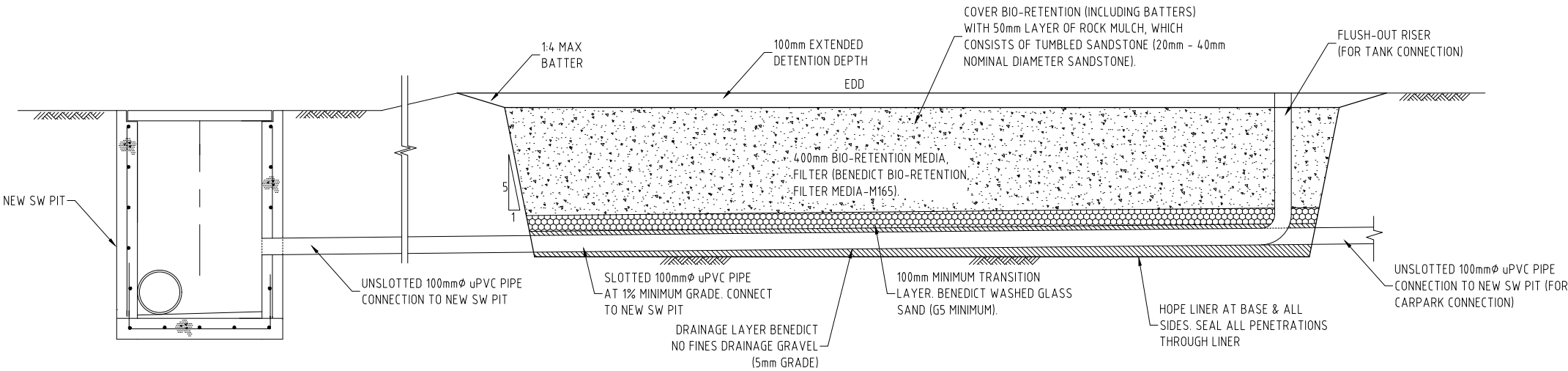
FIGURE 1 - COLLEGE, ORTH AND WERRINGTON CREEKS CATCHMENT OVERLAND FLOW STUDY EXTRACT

3. FLOODING IMPACT - OVERLAND FLOW

GENERAL HEIGHT OF NEW BUILDING TO BE APPROXIMATELY 0.5m - 1.0m BELOW EXISTING NATURAL SURFACE LEVELS. ALL ROOF WATER COLLECTED DIRECTED TO NEW 12,500L RWT WITH ORIFICE PLATE SO THAT POST DEVELOPMENT FLOW DOES NOT EXCEED PRE-DEVELOPMENT FLOW. SITE ABOVE 1:100YR FLOOD LEVEL, THEREFORE NO IMPACT ON EXISTING OVERLAND FLOW PATH.

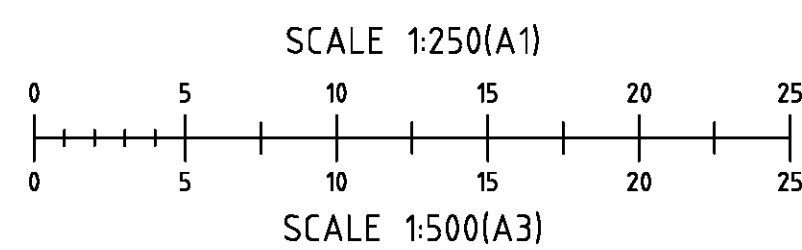
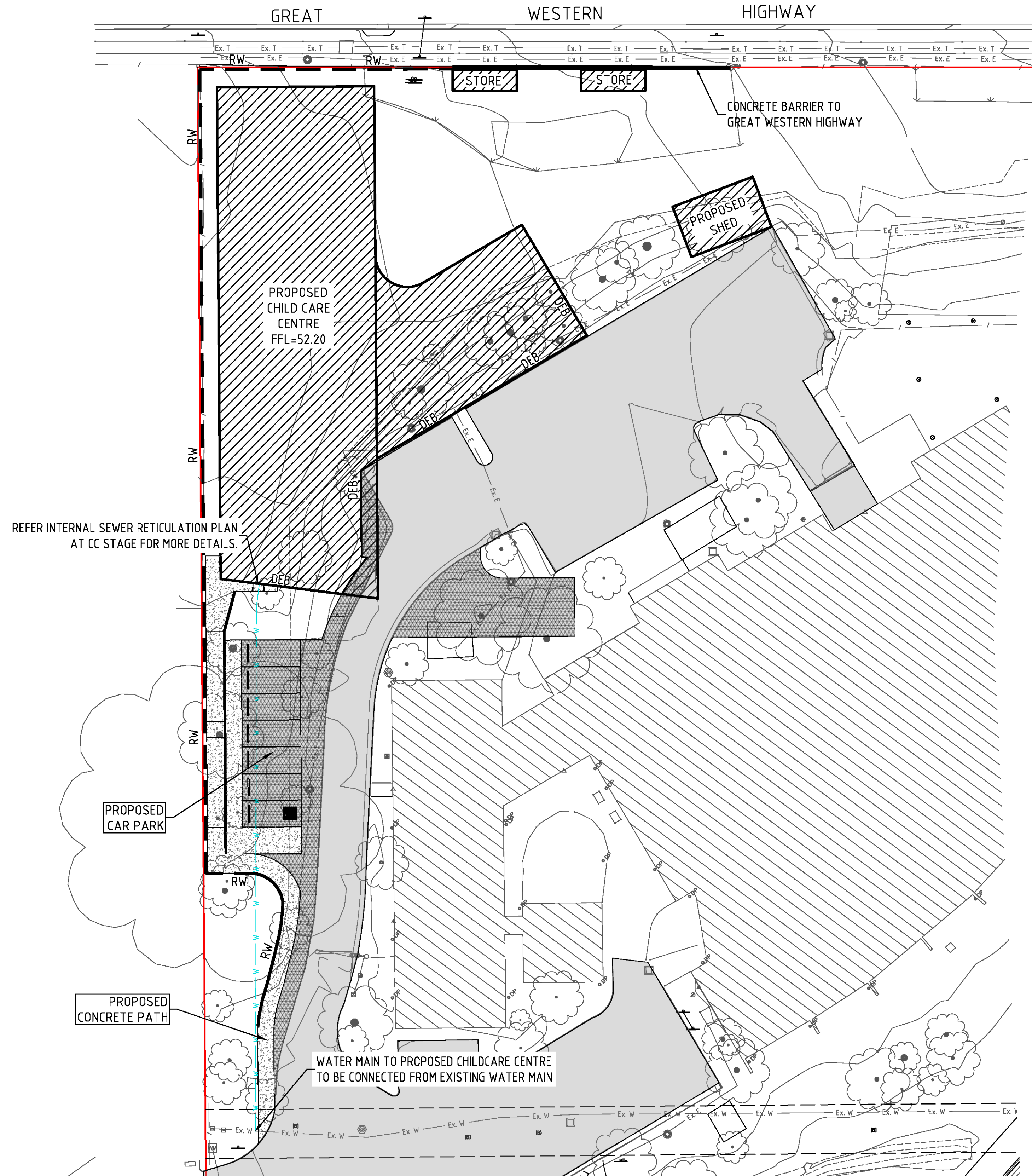
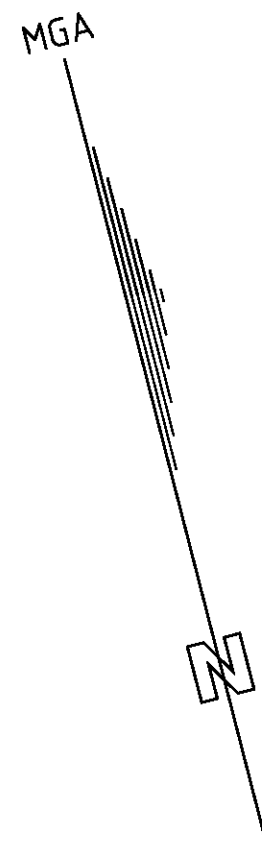
4. WATER SENSITIVE URBAN DESIGN

ALL ROOF AREAS TO BE DIRECTED TO NEW OSD RWT TANKS THEN BIO-RETENTION BASIN. SEE DETAIL. ADDITIONAL CARPARK RUNOFF TO BE DIRECTED TO NEW SW BIO-RETENTION BASIN. SEE DETAIL.



BIO-RETENTION BASIN TYPICAL SECTION
N.T.S.

SUBMISSION FOR DA



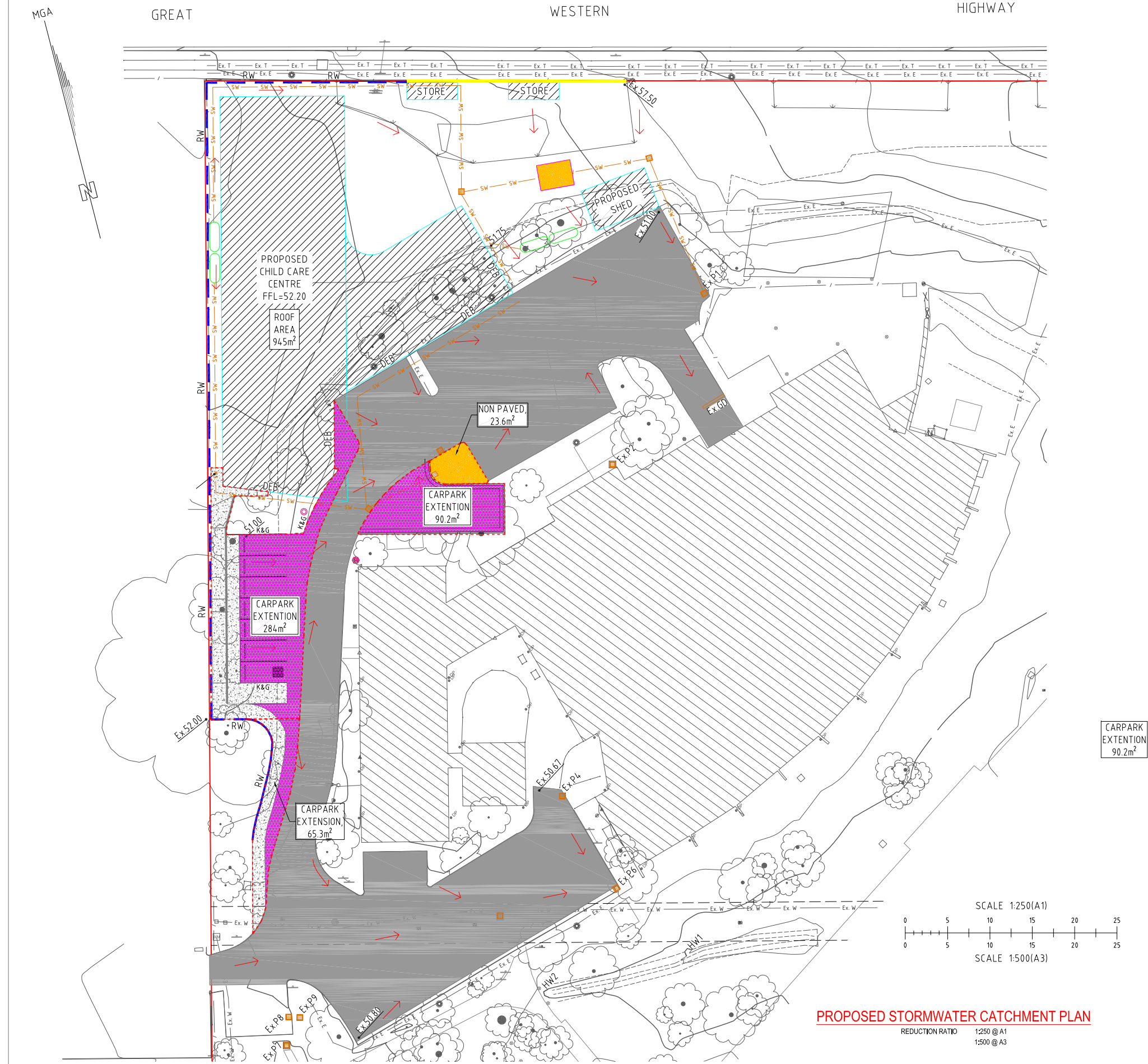
PROPOSED WATER RETICULATION PLAN

REDUCTION RATIO 1:250 @ A1
1:500 @ A3

LEGEND (proposed)	
	PROPOSED WATER MAIN LINE
	PROPOSED RETAINING WALL
	PROPOSED DEEPEDED EDGE BEAM
	FOOTPRINT OF PROPOSED BUILDING
	EXTENT OF EXISTING BITUMEN SEAL
	EXTENT OF PROPOSED BITUMEN SEAL
	EXTENT OF PROPOSED CONCRETE AREA

LEGEND (existing)	
	EXISTING CADASTRAL BOUNDARIES
	EXISTING TOP / BOTTOM OF BANK
	EXISTING FENCE LINE
	EXISTING GATE
	EXISTING UNDERGROUND TELECOMMUNICATIONS CABLES
	EXISTING UNDERGROUND ELECTRICITY CABLES
	EXISTING UNDERGROUND WATER MAIN
	EXISTING SIGN
	EXISTING LIGHT POLE
	EXISTING SEWER MAN HOLE
	EXISTING SEWER INSPECTION OPENING
	EXISTING IRRIGATION VALVE
	EXISTING STOP VALVE
	EXISTING WATER METER
	EXISTING BOLLARD
	EXISTING UNCLASSIFIED PIT
	EXISTING GRATED STORMWATER PIT
	EXISTING DOWN PIPE
	FOOTPRINT OF EXISTING BUILDING
	EXISTING TREE

PRELIMINARY DRAWING
Not to be used for construction purposes



LEGEND (proposed)

- P1 PROPOSED GRATED STORMWATER PIT
- RW PROPOSED RETAINING WALL, SEE 29929_C04
- DEB PROPOSED DEEPEENED EDGE BEAM
- Ex.GD EXISTING GRATED DRAIN
- 52.05 PROPOSED SURFACE FINISH LEVEL
- Ex.52.05 EXISTING SPOT LEVEL
- EXISTING SPOT LEVEL
- FOOTPRINT OF PROPOSED BUILDING
- EXTENT OF EXISTING BITUMEN SEAL
- EXTENT OF PROPOSED BITUMEN SEAL, SEE 29929_C04
- EXTENT OF PROPOSED CONCRETE AREA, SEE 29929_C04
- K&G PROPOSED KERB & GUTTER, SEE 29929_C04

LEGEND (existing)

- EXISTING CADASTRAL BOUNDARIES
- EXISTING TOP / BOTTOM OF BANK
- EXISTING FENCE LINE
- EXISTING GATE
- Ex. T EXISTING UNDERGROUND TELECOMMUNICATIONS CABLES
- Ex. E EXISTING UNDERGROUND ELECTRICITY CABLES
- Ex. W EXISTING UNDERGROUND WATER MAIN
- EXISTING SIGN
- EXISTING LIGHT POLE
- Ex.SMH EXISTING SEWER MAN HOLE
- EXISTING SEWER INSPECTION OPENING
- EXISTING IRRIGATION VALVE
- EXISTING STOP VALVE
- EXISTING WATER METER
- EXISTING BOLLARD
- UP EXISTING UNCLASSIFIED PIT
- Ex.P1 EXISTING GRATED STORMWATER PIT
- Ex.DP EXISTING DOWN PIPE
- FOOTPRINT OF EXISTING BUILDING
- EXISTING TREE

PROPOSED STORMWATER CATCHMENT PLAN

REDUCTION RATIO 1:250 @ A1
1:500 @ A3

SUBMISSION FOR DA