

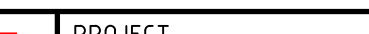
EXPANSION - STAGE 01

CIVIL ENGINEERING WORKS PACKAGE



DRAWN: J. O	DESIGNED: N. NAICKER	JOB MANAGER: N. NAICKER	VERIFIER:
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DRG No.	DRAWING TITLE
DAC101.01	COVER SHEET, DRAWING SCHEDULE AND LOCALITY PLAN
DAC101.11	SPECIFICATION NOTES
DAC101.21	GENERAL ARRANGEMENT PLAN
DAC102.01	SEDIMENT AND SOIL EROSION CONTROL PLAN - SHEET 01
DAC102.02	SEDIMENT AND SOIL EROSION CONTROL PLAN - SHEET 02
DAC102.11	SEDIMENT AND SOIL EROSION CONTROL DETAILS
DAC103.01	BULK EARTHWORKS PLAN - SHEET 01
DAC103.02	BULK EARTHWORKS PLAN - SHEET 02
DAC104.01	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 01
DAC104.02	SITWORKS AND STORMWATER MANAGEMENT PLAN - SHEET 02
DAC104.31	STORMWATER MANAGEMENT DEVICES
DAC107.01	DETAILS SHEET
DAC108.01	CATCHMENT PLAN

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	PROJECT	DRAWING TITLE	JOB NUMBER	
1	ISSUED FOR DEVELOPMENT APPLICATION	JO	JG	NN	04.12.18	 JOHNSTAFF		 Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	NEPEAN PRIVATE HOSPITAL EXPANSION - STAGE 01 1-9 BARBER AVENUE, KINGSWOOD	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION COVER SHEET, DRAWING SCHEDULE AND LOCALITY PLAN	182350
2	RE-ISSUED FOR DEVELOPMENT APPLICATION	JO		NN	26.03.19						
DRAWING SHEET SIZE = A1											

NOTE: ALL CIVIL ENGINEERING CONSTRUCTION WORKS TO BE CARRIED OUT IN ACCORDANCE WITH PENRITH CITY COUNCIL DEVELOPMENT GUIDELINES .THE AFOREMENTIONED GUIDELINES INCLUSIVE OF ALL SPECIFICATIONS TAKE PRECEDENCE OVER NOTES PROVIDED BELOW.

STORMWATER DRAINAGE	
1.	ALL DRAINAGE LINES SHALL BE UPVC (CLASS SN4) SEWER GRADE DRAINAGE PIPE, U.N.O.
2.	ALL DRAINAGE LINES SHALL BE LAID AT 1% MIN. FALL, UNO.
3.	ALL LEVELS ARE AUSTRALIAN HEIGHT DATUM (AHD).
4.	ALL DOWNPIPES GUTTERS TO BE DESIGNED IN ACCORDANCE WITH AS/NZS 3500.3.2 – 2003 'STORMWATER' DRAINAGE.
5.	THE STORMWATER DRAINAGE DESIGN HAS BEEN CARRIED OUT IN ACCORDANCE WITH AS/NZS 3500.3.2-2003 'STORMWATER' DRAINAGE.
6.	ANY VARIATIONS TO THE NOMINATED LEVELS SHALL BE REFERRED TO ENGINEER IMMEDIATELY.
7.	SUBSOIL DRAINAGE SHALL BE PROVIDED TO ALL RETAINING WALLS & EMBANKMENTS, WITH THE LINES FEEDING INTO THE STORMWATER DRAINAGE SYSTEM.
8.	ALL GRATES TO BE GALVANISED STEEL WITH HINGES AND CHILD PROOF LOCK.
9.	ALL GRATES TO BE HEEL SAFE WITHIN AGED CARE DEVELOPMENTS.
10.	THE STORMWATER DRAINAGE IS DESIGNED IN ACCORDANCE WITH COUNCIL'S STORMWATER DRAINAGE GUIDELINES FOR BUILDING DEVELOPMENT.

RAINWATER RE-USE	
1.	PROVIDE RAINWATER RE-USE SYSTEM TO SUPPLY WATER FOR TOILET FLUSHING.
2.	GUTTER GUARD TO BE INSTALLED ON ALL EAVES GUTTERS.
3.	A PERMANENT SIGN IS TO BE LOCATED IN THE VICINITY OF THE TANK STATING THE WATER IS "NON POTABLE WATER" WITH APPROPRIATE HAZARD IDENTIFICATION.
4.	PIPEWORK USED FOR RAINWATER SERVICES SHALL BE COLOURED LILAC IN ACCORDANCE WITH AS1345.
5.	ALL VALVES AND APERTURES SHALL BE CLEARLY AND PERMANENTLY LABELLED WITH SAFETY SIGNS TO COMPLY WITH AS1319.
6.	RAINWATER TANK RETICULATION SYSTEM AND MAINS WATER BYPASS ARRANGEMENT TO BE INSTALLED IN ACCORDANCE WITH AS/NZS 3500.12-2003 AND THE NSW CODE OF PRACTICE : PLUMBING AND DRAINING.
7.	A FIRST FLUSH FILTRATION DEVICE IS TO BE PROVIDED AT RAINWATER TANK.

GENERAL NOTES	
THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH OTHER SUCH WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ANY DISCREPANCY SHALL BE REFERRED TO THE ENGINEER BEFORE PROCEEDING WITH THE WORK.	
ALL DIMENSIONS ARE IN MILLIMETRES & ALL LEVELS ARE IN METRES, UNO (UNLESS NOTED OTHERWISE).	
NO DIMENSION SHALL BE OBTAINED BY SCALING THE DRAWINGS.	
ALL LEVELS AND SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE CHECKED ON SITE PRIOR TO THE COMMENCEMENT OF THE WORK.	
DETAIL SURVEY DATA WAS SUPPLIED BY 'MATTHEW FREEBURN - LAND ENGINEERING & MINING SURVEYOR, DRAWING DATED 13.03.2018.	
EXISTING SERVICES WHERE SHOWN HAVE BEEN PLOTTED FROM SUPPLIED DATA AND SUCH THEIR ACCURACY CAN NOT BE GUARANTEED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ESTABLISH THE LEVEL OF ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF WORK.	
ON COMPLETION OF STORMWATER INSTALLATION, ALL DISTURBED AREAS MUST BE RESTORED TO ORIGINAL CONDITION, INCLUDING KERBS, FOOTPATHS, CONCRETE AREAS, GRAVEL AND GRASSED AREAS AND ROAD PAVEMENTS, UNLESS DIRECTED OTHERWISE.	

ALL STORMWATER MANAGEMENT MEASURES SHOWN ON THIS DRAWING HAVE BEEN PREPARED FOR DEVELOPMENT APPLICATION PURPOSES TO DEMONSTRATE FEASIBILITY. ALL MEASURES WILL BE SUBJECT TO DETAIL DESIGN AT THE CONSTRUCTION CERTIFICATE STAGE AND MAY BE SUBJECT TO VARIATION PROVIDED THAT THE DESIGN INTENT IS MAINTAINED.	
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DESIGN SUMMARY		
CATCHMENT CALCULATIONS:		
	PRE-DEVELOPMENT	POST-DEVELOPMENT
TOTAL AREA	7605m ²	7605m ²
IMPERVIOUS AREA	5345m ² (70.3%)	6826m ² (89.8%)
PERVIOUS AREA	2260m ² (29.7%)	779m ² (10.2%)
SITE DISCHARGE CALCULATIONS:		
EVENT	PRE-DEVELOPMENT (m ³ /s)	POST-DEVELOPMENT (m ³ /s)
20%	0.201	0.145
30%	0.247	0.174
5%	0.29	0.203
2%	0.353	0.239
1%	0.402	0.267
1 EY	0.123	0.145
RAINWATER TANK:		
REUSE DEMAND MET 80.33%		
DEMAND: 282.4 kL/yr		
VOLUME PROVIDED: 25kL		
AS PER PENRITH CITY COUNCIL "WATER SENSITIVE URBAN DESIGN TECHNICAL GUIDELINES" VERSION 3, 2015, WE HAVE ALLOWED 0.4KL/YEAR/M2 FOR IRRIGATION OF LANDSCAPED AREAS. THERE ARE 706M2 OF LANDSCAPED AREAS. THE RAINWATER TANK WAS NOT DESIGNED TO PROVIDE REUSE WATER FOR TOILETS DUE TO THE PURPOSE OF THIS BUILDING (HOSPITAL).		
ON-SITE DETENTION:		
DESIGN BASIS:		
• PRE TO POST DEVELOPMENT CONDITIONS		
BYPASS AREA/PERCENTAGE = 233m ²		
ON-SITE DETENTION STORAGE PROVIDED = 95m ³		
THEREFORE PERMITTED SITE DISCHARGE = 402L/s		
ON-SITE DETENTION SUMMARY:		
• BELOW GROUND TANK		
TOP WATER LEVEL = RL5195		
OVERFLOW LEVEL = RL52.99		
OUTLET PIPE CENTERLINE = RL50.80		
OUTLET PIPE DIAMETER = ø375mm		
STORMWATER MANAGEMENT REQUIREMENTS HAVE BEEN CALCULATED IN ACCORDANCE WITH PENRITH COUNCIL'S STORMWATER DRAINAGE GUIDELINES FOR BUILDING DEVELOPMENT 2016.		
WATER QUALITY:		
MUSIC MODEL SUMMARY (REFER NORTHROP REPORT FOR FURTHER DETAILS -IF REPORT PROVIDED).		
MUSIC MODEL SUMMARY:		
SOURCE NODE	CATCHMENT	AREA
URBAN	ROOF AREA	2103m ²
URBAN	CARPARK	4563m ²
URBAN	LANDSCAPE	706m ²
URBAN	BY-PASS	233m ²
		TOTAL 7605m ²
TREATMENT NOTES:		
• ON-SITE DETENTION TANK		
• STORMWATER 360 'STORMFILTER' CARTRIDGE (14x 460 PSORB)		
• STORMWATER ENVIROPODS (2x ENVIROPOD 200)		
TREATMENT STANDARDS:		
POLLUTANT	REDUCTION STANDARDS	REDUCTION ACHIEVED
GROSS POLLUTANTS	90%	96.2%
TOTAL SUSPENDED SOLIDS	85%	85.5%
TOTAL PHOSPHORUS	60%	66.7%
TOTAL NITROGEN	45%	48.3%
MUSIC MODEL PARAMETERS IN ACCORDANCE WITH PENRITH CITY COUNCIL'S EH003 WATER SENSITIVE URBAN DESIGN (WSUD) POLICY 2013.		
H01 POTENTIAL PONDING NOTED ON LOADING DOCK LEVEL IN 100 YEAR STORM EVENT		

VERIFIER:

JOB MANAGER: N. MAICKER

DESIGNED: N. MAICKER

DRAWN: J.O

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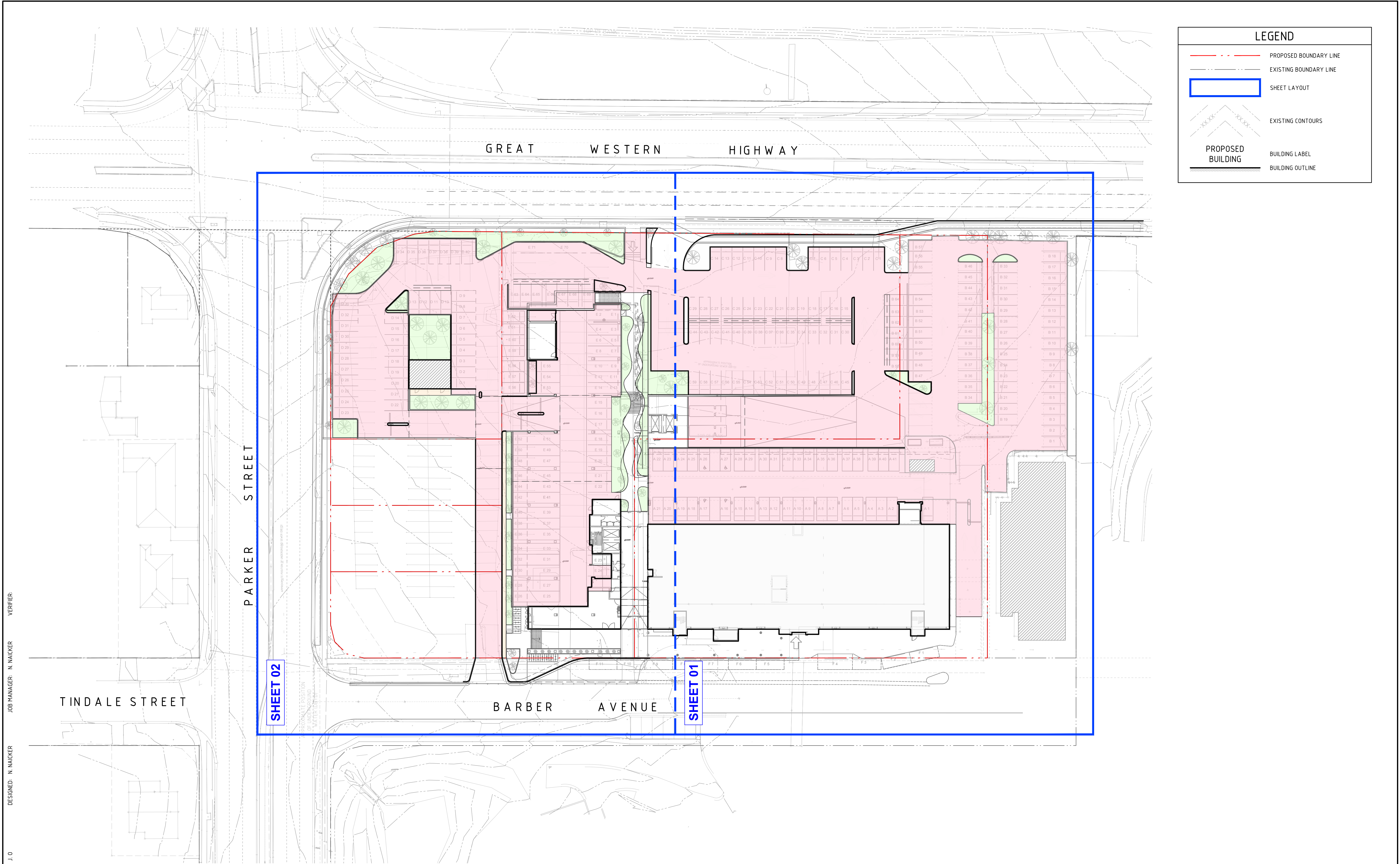
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PROJECT	
NEPEAN PRIVATE HOSPITAL	
EXPANSION - STAGE 01	
1-9 BARBER AVENUE, KINGSWOOD	

DRAWING TITLE	
CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION SPECIFICATION NOTES	

JOB NUMBER	
182350	
DRAWING NUMBER	REVISION
DAC101.11	2
DRAWING SHEET SIZE = A1	

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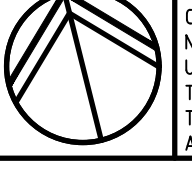
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PROJECT
NEPEAN PRIVATE HOSPITAL
EXPANSION - STAGE 01
1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE
CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION
GENERAL ARRANGEMENT PLAN

JOB NUMBER
182350
DRAWING NUMBER
DAC101.21
REVISION
2
DRAWING SHEET SIZE = A1

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FOR CONTINUATION REFER TO SHEET DAC102.02

LEGEND	
	BOUNDARY LINES
	EASEMENT LINE
	EXISTING CONTOURS
	SEDIMENT FENCE
	SECURITY FENCE
	WIRE MESH AND GRAVEL SEDIMENT FILTER
	DROP INLET SEDIMENT TRAP
	DIVERSION DRAIN (DIRTY)
	STABILISED SITE ACCESS
	STOCKPILE
	SEDIMENT BASIN
	TREES TO BE REMOVED

SEDIMENT BASIN CALCULATIONS:	
PARAMETER	ADOPTED VALUE
TOTAL AREA (ha)	0.76
SOIL TEXTURE GROUP	D or F
DESIGN RAINFALL DEPTH (DAYS)	5
DESIGN RAINFALL DEPTH (PERCENTILE)	75
X-DAY, Y-PERCENTILE RAINFALL EVENT	27.400
Cv	0.560
SETTLING ZONE VOLUME (m³)	116.614
SEDIMENT STORAGE VOLUME (m³)	58.307
TOTAL BASIN VOLUME (m³)	174.922

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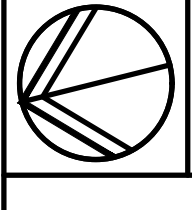
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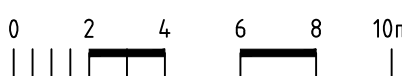
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PROJECT

NEPEAN PRIVATE HOSPITAL
EXPANSION - STAGE 01
1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE

**CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION**
**CONCEPT SEDIMENT AND SOIL
EROSION CONTROL PLAN - SHEET 01**

JOB NUMBER

182350

DRAWING NUMBER

DAC102.01

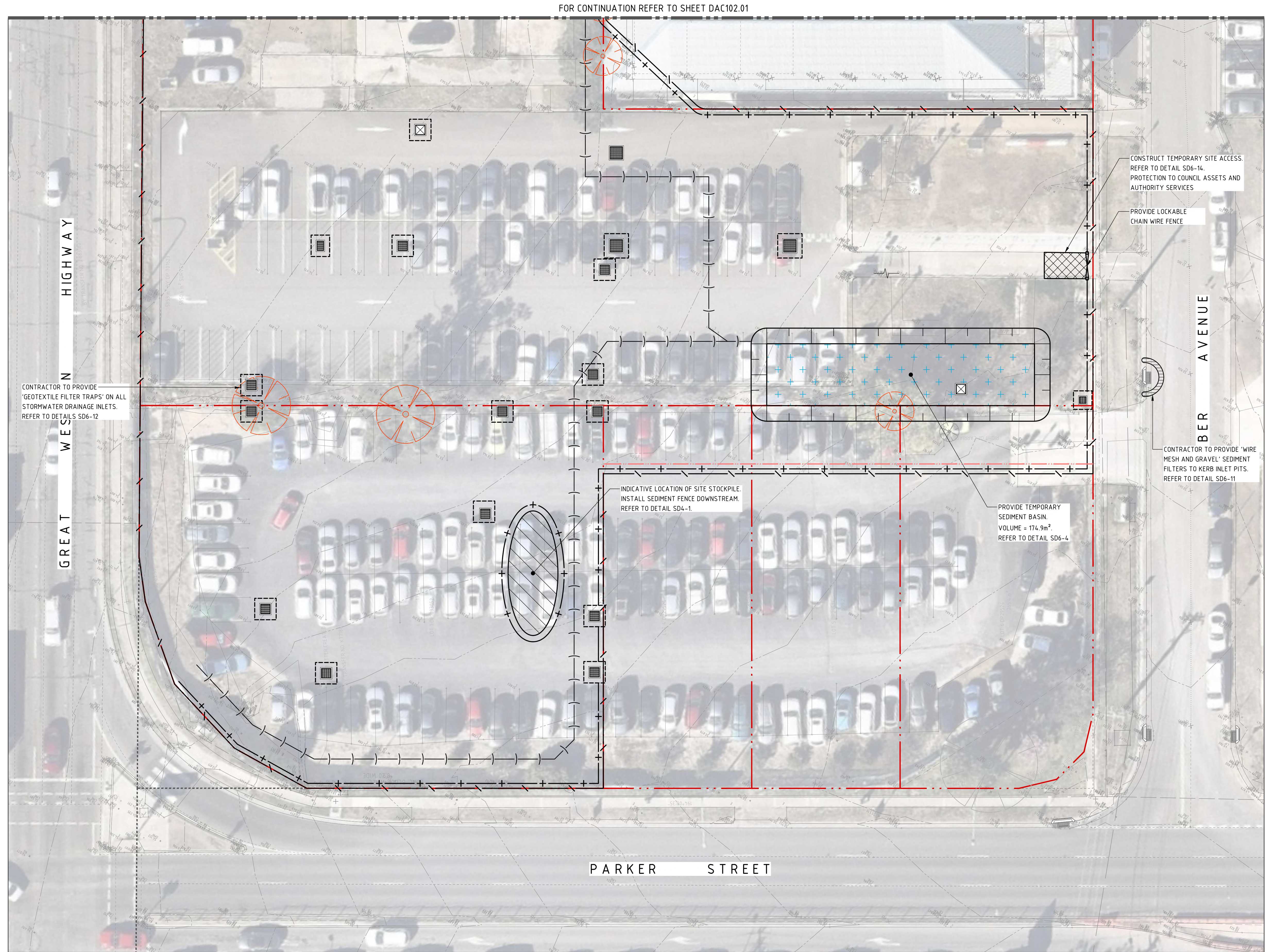
REVISION

2

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DRAWN: J.O. DESIGNED: N. MACKER JOB MANAGER: N. MACKER VERIFIER:

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0 2 4 6 8 10m

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PROJECT

NEPEAN PRIVATE HOSPITAL

EXPANSION - STAGE 01

1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE

CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION

CONCEPT SEDIMENT AND SOIL EROSION CONTROL PLAN - SHEET 02

JOB NUMBER

182350

DRAWING NUMBER

DAC102.02

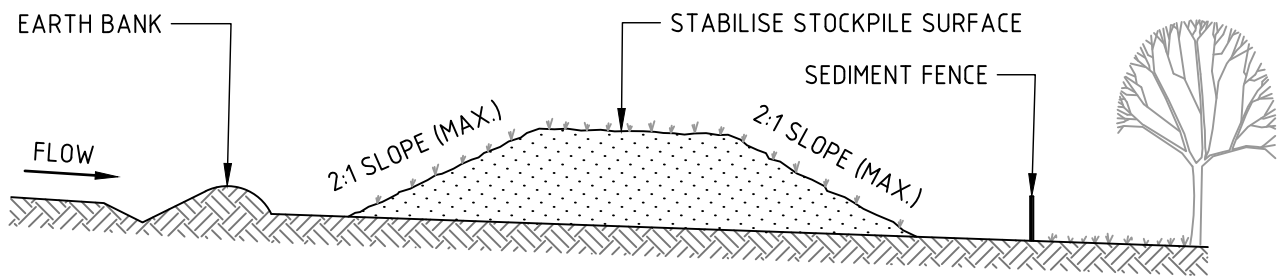
REVISION

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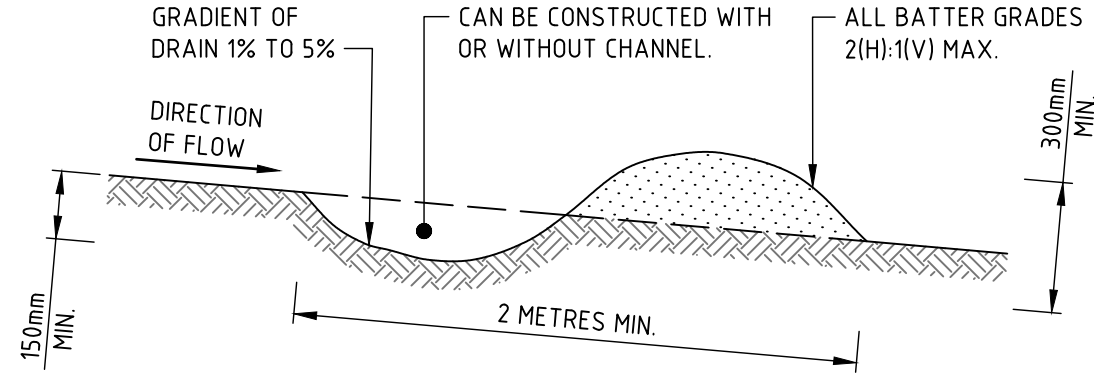
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DRAWN: J.O
JOB MANAGER: N. NACKER
VERIFIER: N. NACKER



CONSTRUCTION NOTES

1. PLACE STOCKPILES MORE THAN 2m (PREFERABLY 5m) FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCT ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2m IN HEIGHT.
4. WHERE THEY ARE TO BE IN PLACE FOR MORE THAN 10 DAYS, STABILISE FOLLOWING THE APPROVED ESCP OR SWMP TO REDUCE THE C-FACTOR TO LESS THAN 0.10.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWING 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2m DOWNSLOPE.

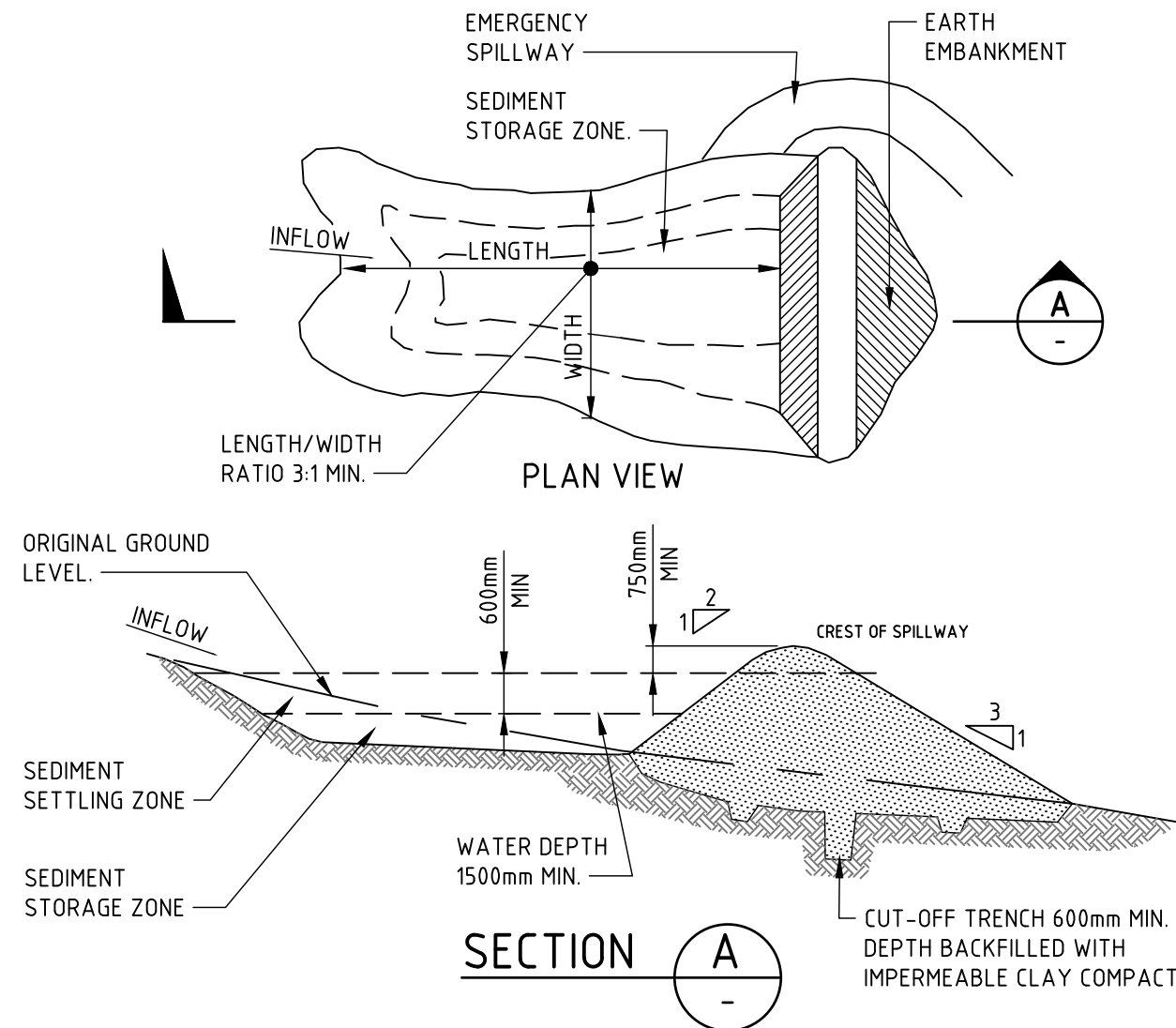
STOCKPILES (SD 4-1)



CONSTRUCTION NOTES

1. BUILD WITH GRADIENTS BETWEEN 1 AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE - WORK AROUND THEM.
3. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.
4. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
5. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
6. COMPLETE PERMANENT OR TEMPORARY STABILISATION WITHIN 10 DAYS OF CONSTRUCTION.

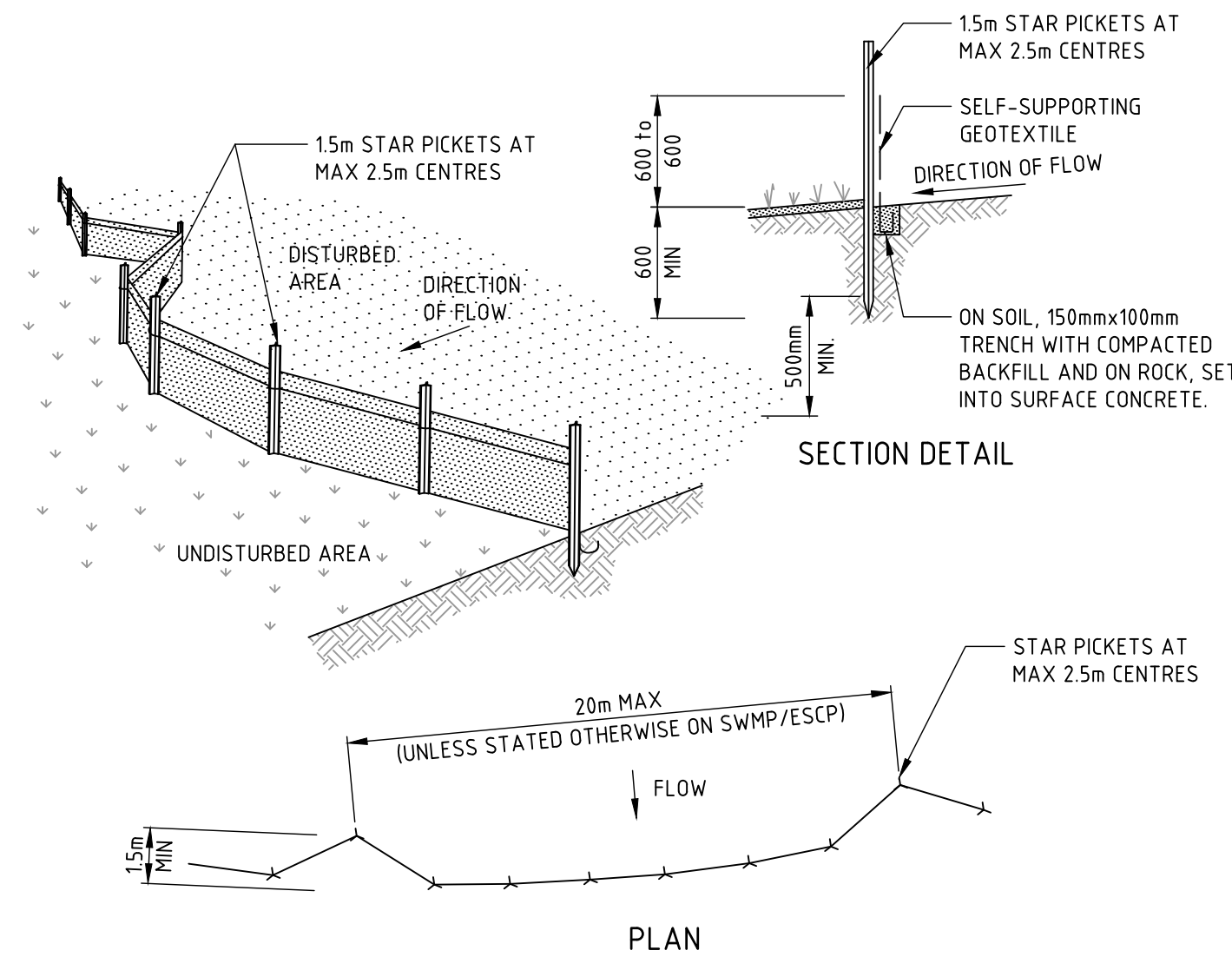
NOTE: ONLY TO BE USED AS TEMPORARY BANK WHERE MAXIMUM UPSLOPE LENGTH IS 80 METRES.
DRAINAGE SWALE - LOW FLOW (SD 5-5)



CONSTRUCTION NOTES

1. REMOVE ALL VEGETATION AND TOPSOIL FROM UNDER THE DAM WALL AND FROM WITHIN THE STORAGE AREA.
2. CONSTRUCT A CUT-OFF TRENCH 500mm DEEP AND 1200mm WIDE ALONG THE CENTRELIN OF THE EMBANKMENT EXTENDING TO A POINT ON THE GULLY WALL LEVEL WITH THE RISER CREST.
3. MAINTAIN THE TRENCH FREE OF WATER AND RECOMPACT THE MATERIALS WITH EQUIPMENT AS SPECIFIED IN THE SWMP TO 95 PER CENT STANDARD PROCTOR DENSITY.
4. SELECT FILL FOLLOWING THE SWMP THAT IS FREE OF ROOTS, WOOD, ROCK, LARGE STONE OR FOREIGN MATERIAL.
5. PREPARE THE SITE UNDER THE EMBANKMENT BY RIPPING TO AT LEAST 100mm TO HELP BOND COMPACTED FILL TO THE EXISTING SUBSTRATE.
6. SPREAD THE FILL IN 100mm TO 150mm LAYERS AND COMPACT IT AT OPTIMUM MOISTURE CONTENT FOLLOWING THE SWMP.
7. CONSTRUCT THE EMERGENCY SPILLWAY.
8. REHABILITATE THE STRUCTURE FOLLOWING THE SWMP.

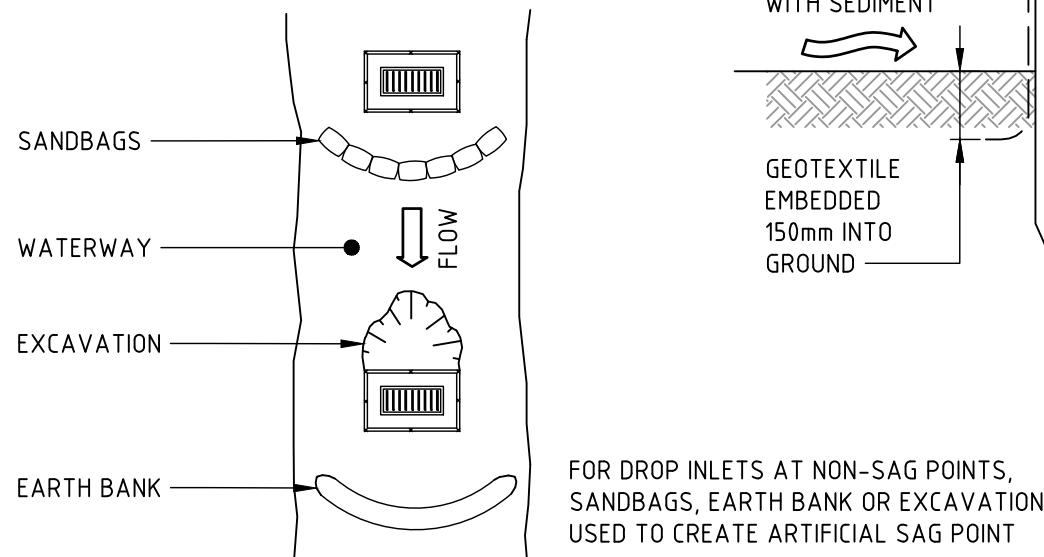
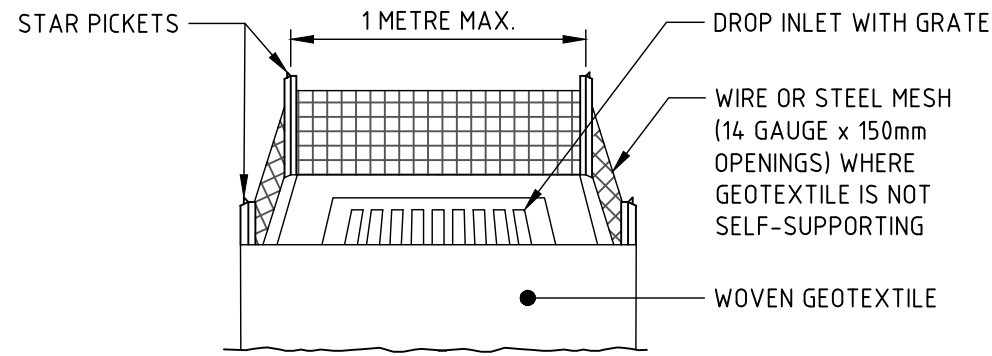
(APPLIES TO 'TYPE D' AND 'TYPE F' SOILS ONLY)
EARTH BASIN - WET (SD 6-4)



CONSTRUCTION NOTES

1. CONSTRUCT SEDIMENT FENCES AS CLOSE AS POSSIBLE TO BEING PARALLEL TO THE CONTOURS OF THE SITE, BUT WITH SMALL RETURNS AS SHOWN IN THE DRAWING TO LIMIT THE CATCHMENT AREA OF ANY ONE SECTION. THE CATCHMENT AREA SHOULD BE SMALL ENOUGH TO LIMIT WATER FLOW IF CONCENTRATED AT ONE POINT TO 50 LITRES PER SECOND IN THE DESIGN STORM EVENT, USUALLY THE 10-YEAR EVENT.
2. CUT A 150mm DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
3. DRIVE 15 METRE LONG STAR PICKETS INTO GROUND AT 2.5 METRE INTERVALS (MAX) AT THE DOWNSLOPE EDGE OF THE TRENCH. ENSURE ANY STAR PICKETS ARE FITTED WITH SAFETY CAPS.
4. FIX SELF-SUPPORTING GEOTEXTILE TO THE UPSLOPE SIDE OF THE POSTS ENSURING IT GOES TO THE BASE OF THE TRENCH. FIX THE GEOTEXTILE WITH WIRE TIES OR AS RECOMMENDED BY THE MANUFACTURER. ONLY USE GEOTEXTILE SPECIFICALLY PRODUCED FOR SEDIMENT FENCING. THE USE OF SHADE CLOTH FOR THIS PURPOSE IS NOT SATISFACTORY.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

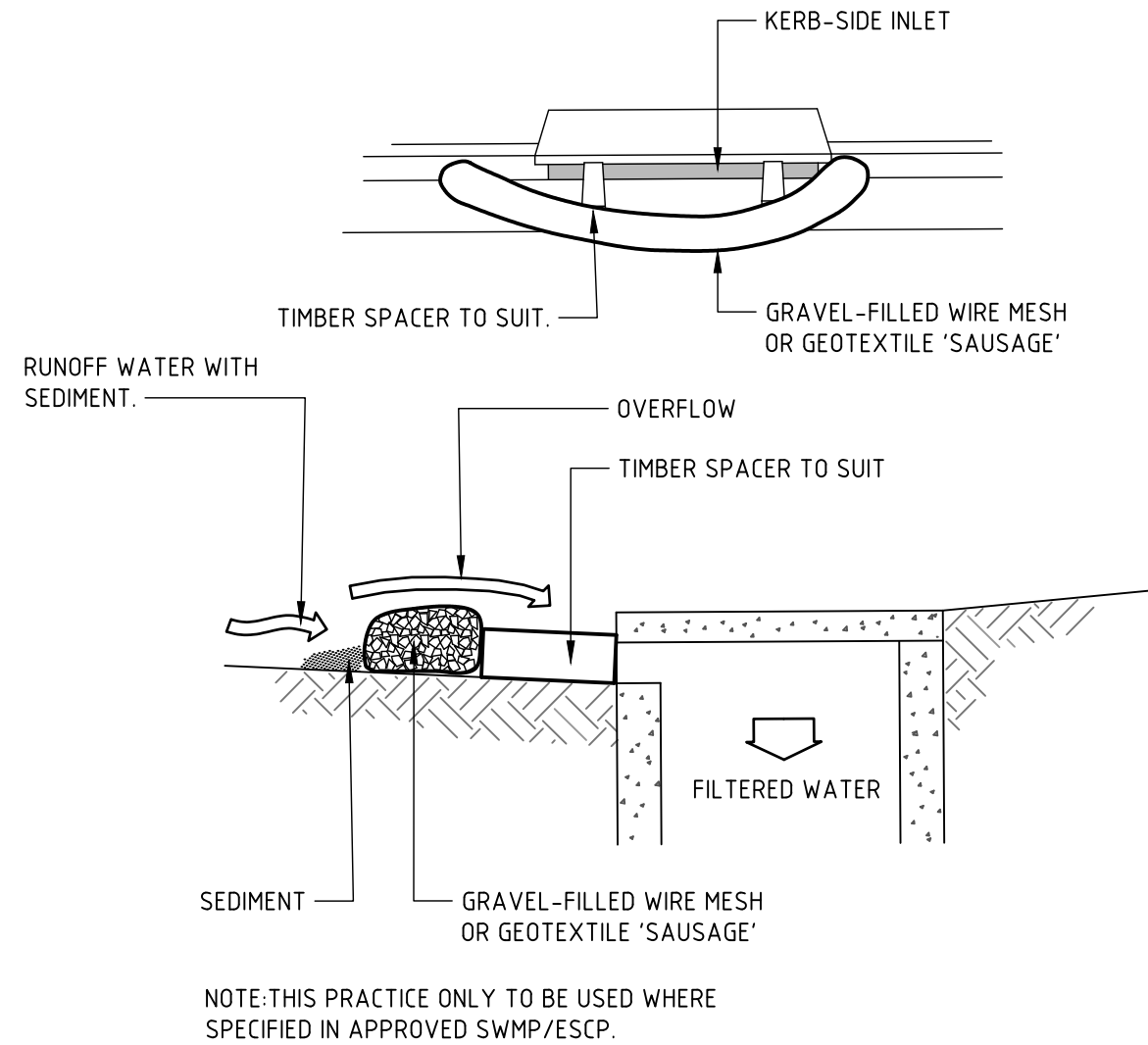
SEDIMENT FENCE (SD 6-8)



CONSTRUCTION NOTES

1. FABRICATE A SEDIMENT BARRIER MADE FROM GEOTEXTILE OR STRAW BALES.
2. FOLLOW STANDARD DRAWING 6-7 AND STANDARD DRAWING 6-8 FOR INSTALLATION PROCEDURES FOR THE STRAW BALES OR GEOFABRIC. REDUCE THE PICKET SPACING TO 1 METRE CENTRES.
3. IN WATERWAYS, ARTIFICIAL SAG POINTS CAN BE CREATED WITH SANDBAGS OR EARTH BANKS AS SHOWN IN THE DRAWING.
4. DO NOT COVER THE INLET WITH GEOTEXTILE UNLESS THE DESIGN IS ADEQUATE TO ALLOW FOR ALL WATERS TO BYPASS IT.

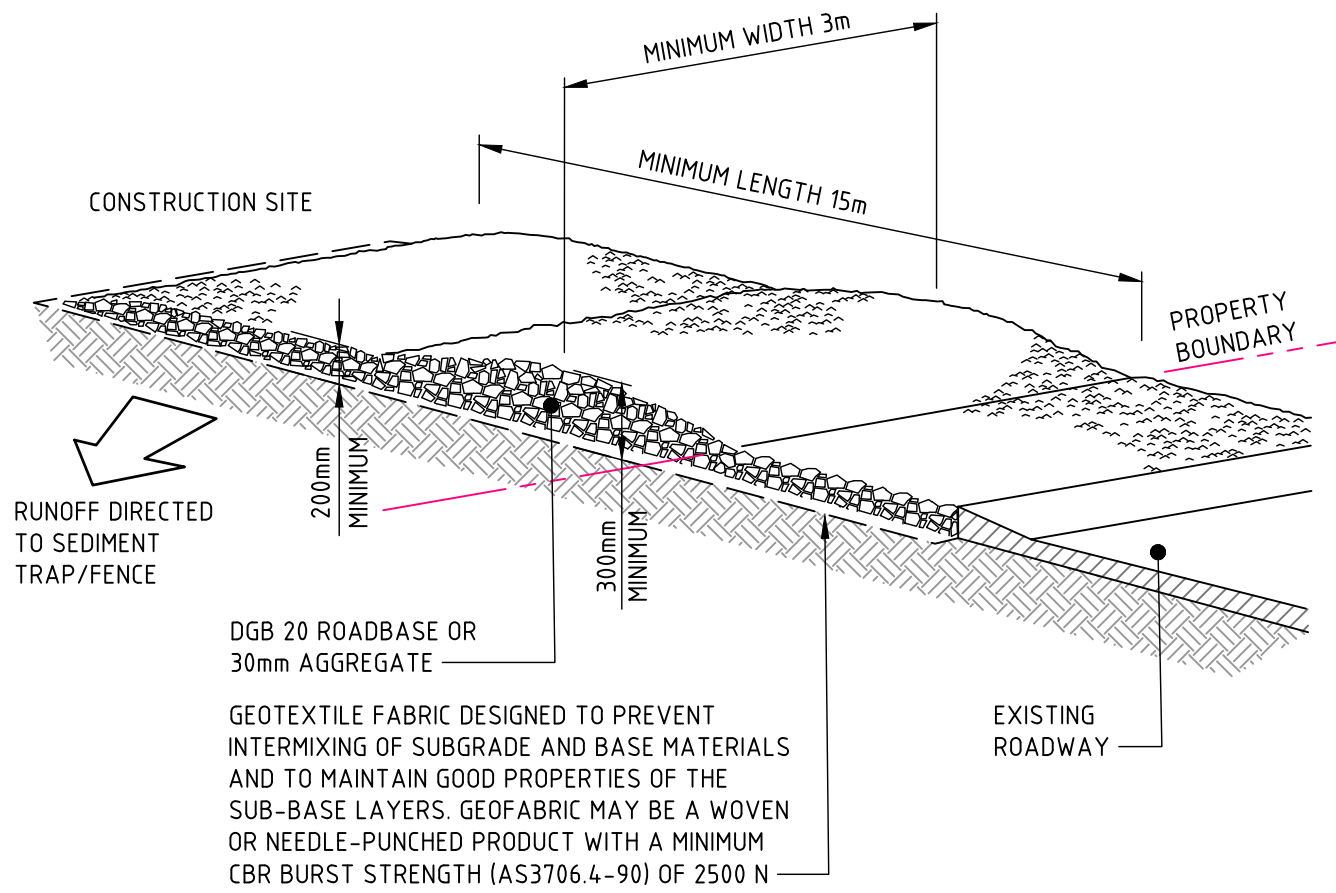
GEOTEXTILE INLET FILTER (SD 6-12)



CONSTRUCTION NOTES

1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT LEAST A 100mm SPACE BETWEEN IT AND THE KERB INLET. MAINTAIN THE OPENING WITH SPACER BLOCKS.
5. FORM A SEAL WITH THE KERB TO PREVENT SEDIMENT BYPASSING THE FILTER.
6. SANDBAGS FILLED WITH GRAVEL CAN SUBSTITUTE FOR THE MESH OR GEOTEXTILE PROVIDING THEY ARE PLACED SO THAT THEY FIRMLY ABUT EACH OTHER AND SEDIMENT-LADEN WATERS CANNOT PASS BETWEEN.

MESH AND GRAVEL INLET FILTER (SD 6-11)



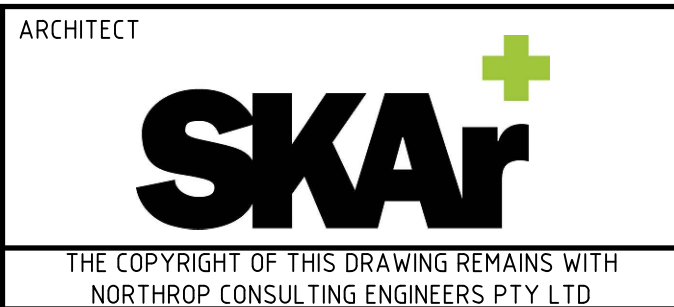
CONSTRUCTION NOTES

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200mm THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30mm AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METRES LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABILISED ACCESS, CONSTRUCT A HUMP IN THE STABILISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

STABILISED SITE ACCESS (SD 6-14)

NOT FOR CONSTRUCTION

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT
1	ISSUED FOR DEVELOPMENT APPLICATION	JO	JG	NN	04.12.18	
2	RE-ISSUED FOR DEVELOPMENT APPLICATION	JO		NN	26.03.19	



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PROJECT
NEPEAN PRIVATE HOSPITAL
EXPANSION - STAGE 01
1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE
CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION
SEDIMENT AND SOIL EROSION
CONTROL DETAILS

JOB NUMBER	182350
DRAWING NUMBER	REVISION
DAC102.11	2
DRAWING SHEET SIZE = A1	

DRAWN: J.O. DESIGNED: N. MACKER JOB MANAGER: N. MACKER VERIFIER:

GREAT WESTERN HIGHWAY

BARBER AVENUE

FOR CONTINUATION REFER TO SHEET DAC103.02

LEGEND

- BOUNDARY LINES
- 999m TO - 15.0m
 - 15.0m TO - 10.0m
 - 10.0m TO - 5.0m
 - 5.0m TO - 2.0m
 - 2.0m TO - 1.0m
 - 1.0m TO - 0.5m
 - 0.5m TO - 0.25m
 - 0.25m TO - 0.0m

- 0.0m TO 0.25m
- 0.25m TO 0.5m
- 0.5m TO 1.0m
- 1.0m TO 2.0m
- 2.0m TO 5.0m
- 5.0m TO 10.0m
- 10.0m TO 15.0m
- 15.0m TO 999m

EARTHWORKS NOTES:

- REFER SPECIFICATIONS NOTES FOR EARTHWORKS GENERAL REQUIREMENTS.
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL / RELEVANT AUTHORITY SPECIFICATIONS AND DETAILS.
- CAD FILES / DTM FILES TO BE SUPPLIED IN AUTOCAD FORMAT FOR SETOUT PURPOSES (UPON REQUEST).
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- NO ALLOWANCE HAS BEEN MADE FOR BULKING FACTORS. NOTE ALL VOLUMES DEPICTED ARE SOLID VOLUMES ONLY AND MAY NOT REFLECT DETAILED EARTHWORKS.
- NO ALLOWANCE HAS BEEN MADE FOR DETAILED EARTHWORKS; ie SERVICE TRENCHING, DETAILED EXCAVATION, FOOTINGS, RETAINING WALLS AND THE LIKE.
- THE CONTRACTOR SHALL USE FINAL SURFACE LEVELS AND TYPICAL PAVEMENT DETAILS FOR ACTUAL EARTHWORKS LEVELS.
- BULK EARTHWORKS VOLUMES ARE BASED ON FINISHED SURFACE LEVELS TRANSLATED DOWN 300mm.
- APPROXIMATE BULK EARTHWORK VALUES AS FOLLOWS:
 - CUT 5,720 cu m
 - FILL 1,845 cu m
 - BALANCE 3,875 cu m
- TEMPORARY BATTER SLOPES FOR EXCAVATIONS TO BE IN ACCORDANCE WITH GEOTECHNICAL ENGINEERS ADVICE AND RECOMMENDATIONS. CONTRACTOR TO CONFIRM ADEQUACY WITH GEOTECHNICAL ENGINEER.

GENERAL NOTES:

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SCALE 1:200@A1

0 2 4 6 8 10m

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PROJECT

NEPEAN PRIVATE HOSPITAL

EXPANSION - STAGE 01

1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE

CIVIL ENGINEERING WORKS

DEVELOPMENT APPLICATION

BULK EARTHWORKS PLAN

- SHEET 01

JOB NUMBER

182350

DRAWING NUMBER

DAC103.01

REVISION

2

DRAWING SHEET SIZE = A1

DRAWN: J.O
DESIGNED: N. MAICKER
JOB MANAGER: N. MAICKER
VERIFIER:

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1	ISSUED FOR DEVELOPMENT APPLICATION	JO	JG	NN	04.12.18
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PROJECT

NEPEAN PRIVATE HOSPITAL
EXPANSION - STAGE 01
1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE

CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION
BULK EARTHWORKS PLAN
- SHEET 02

JOB NUMBER

182350

DRAWING NUMBER

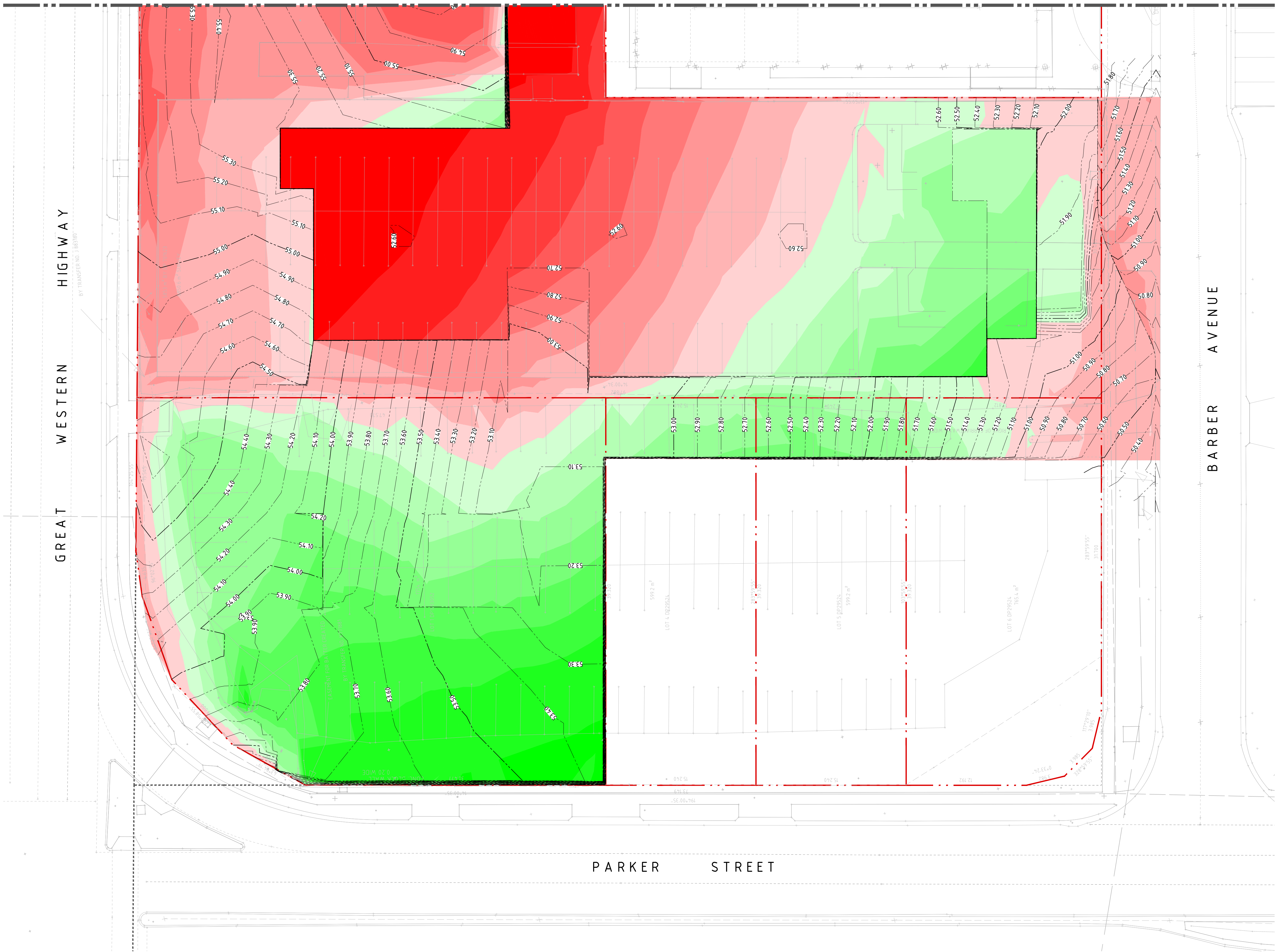
DAC103.02

REVISION

2

DRAWING SHEET SIZE = A1

FOR CONTINUATION REFER TO SHEET DAC103.01



LEGEND

BOUNDARY LINES

- 999m TO - 15.0m

- 15.0m TO - 10.0m

- 10.0m TO - 5.0m

- 5.0m TO - 2.0m

- 2.0m TO - 1.0m

- 1.0m TO - 0.5m

- 0.5m TO - 0.25m

- 0.25m TO - 0.0m

0.0m TO 0.25m

0.25m TO 0.5m

0.5m TO 1.0m

1.0m TO 2.0m

2.0m TO 5.0m

5.0m TO 10.0m

10.0m TO 15.0m

15.0m TO 999m

EARTHWORKS NOTES:

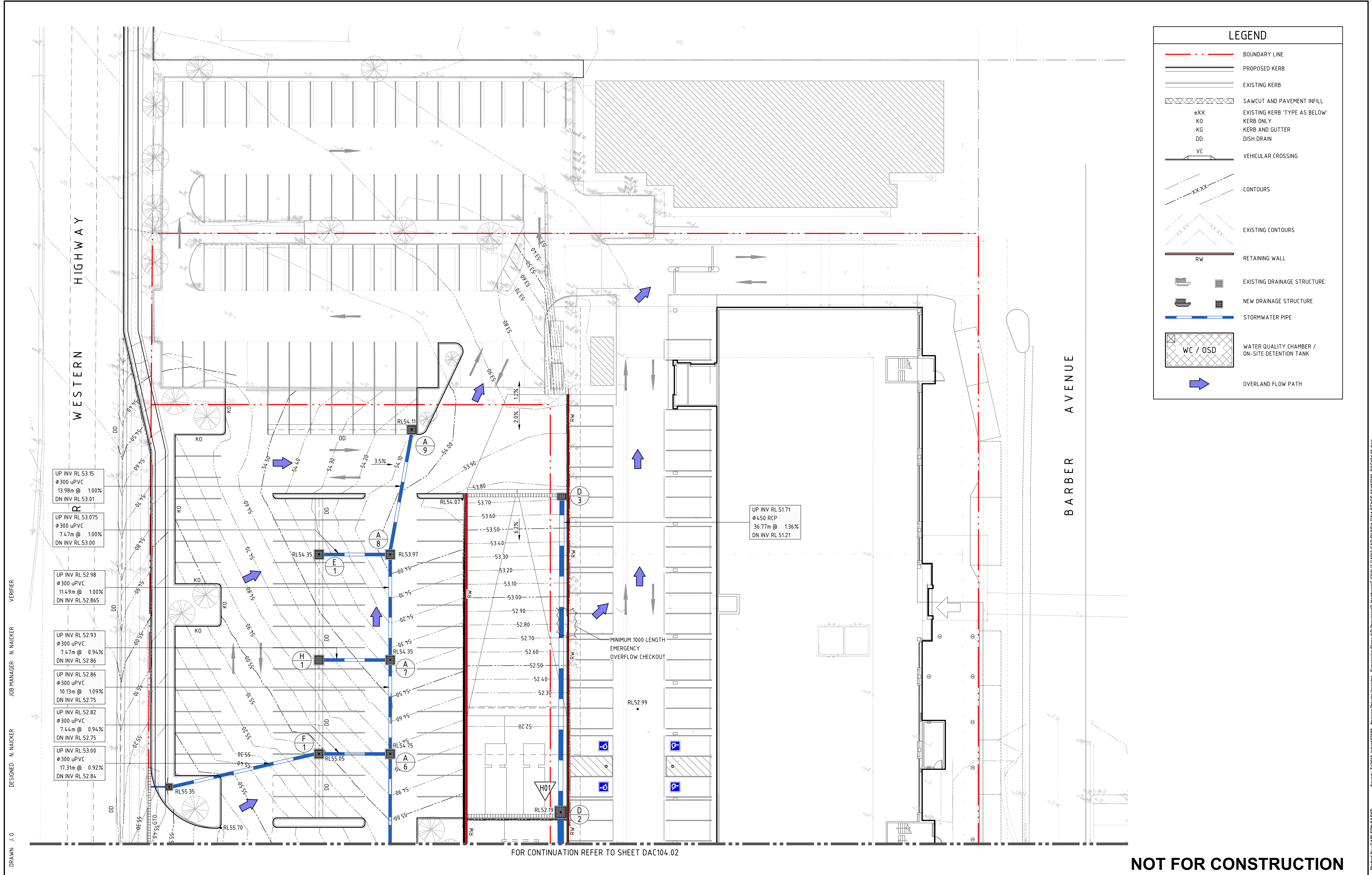
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 - BALANCE 3,875 cu.m
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DATE

CLIENT

ARCHITECT

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JOHNSTAFF

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SCALE 1:200@A1

0

2

4

6

8

10m

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PROJECT

NEPEAN PRIVATE HOSPITAL

EXPANSION - STAGE 01

1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE

CIVIL ENGINEERING WORKS

DEVELOPMENT APPLICATION

SITWORKS AND STORMWATER

MANAGEMENT PLAN - SHEET 01

JOB NUMBER

182350

DRAWING NUMBER

DAC104.01

REVISION

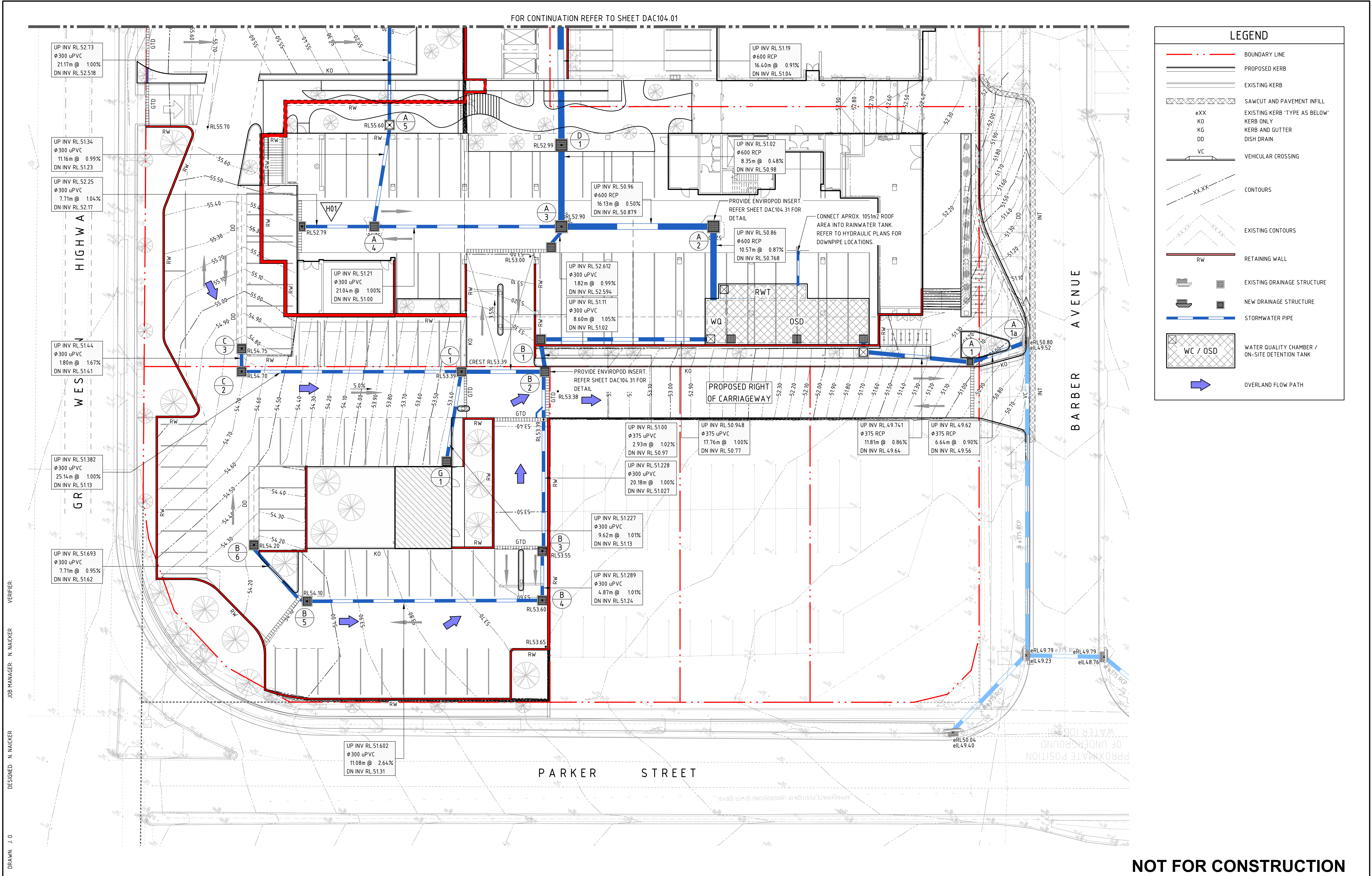
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DRAWING SHEET SIZE = A1

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DRAWN: J.O
DESIGNED: N. MAICKER
JOB MANAGER: N. MAICKER
VERIFIER:

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1	ISSUED FOR DEVELOPMENT APPLICATION	JO	JG	NN	04.12.18
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SCALE 1:200@A1

0 2 4 6 8 10m

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PROJECT

NEPEAN PRIVATE HOSPITAL

EXPANSION - STAGE 01
1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE

**CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION**

**SITeworks AND STORMWATER
MANAGEMENT PLAN - SHEET 02**

JOB NUMBER

182350

DRAWING NUMBER

DAC104.02

REVISION

2

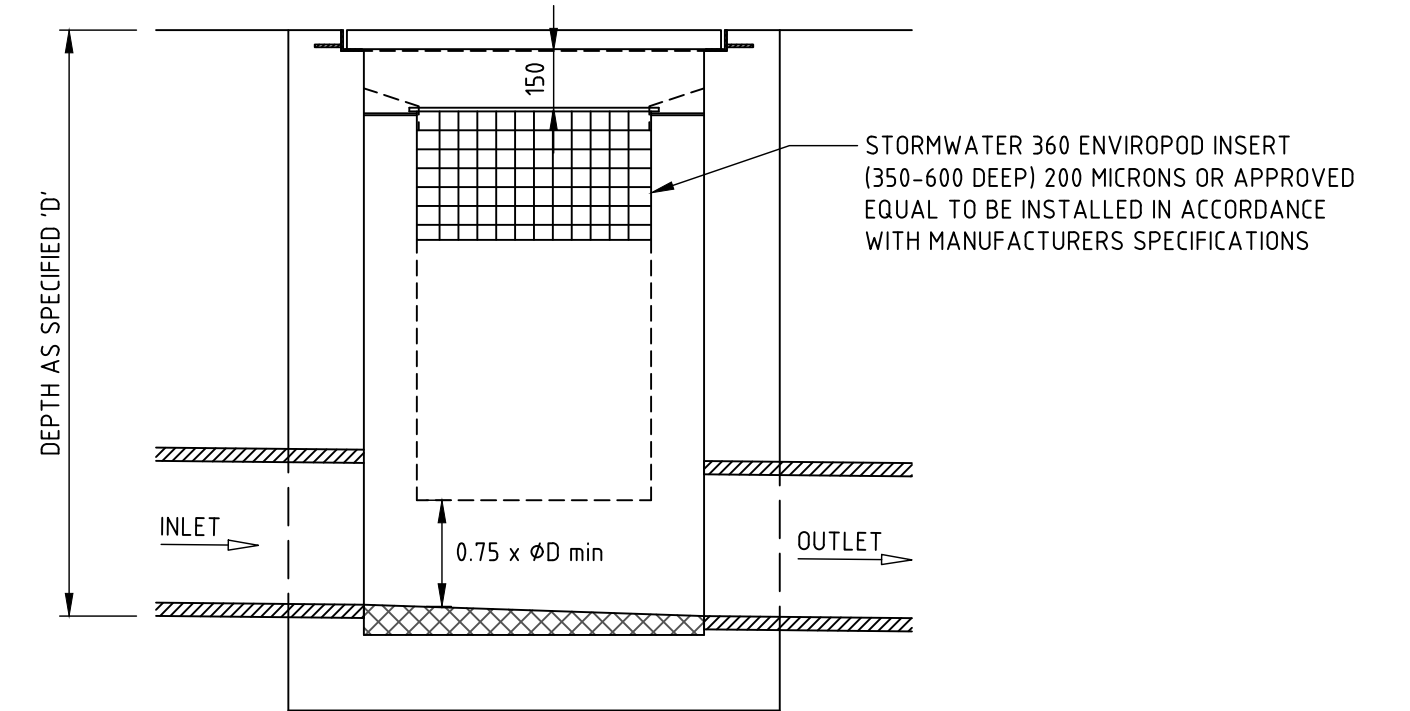
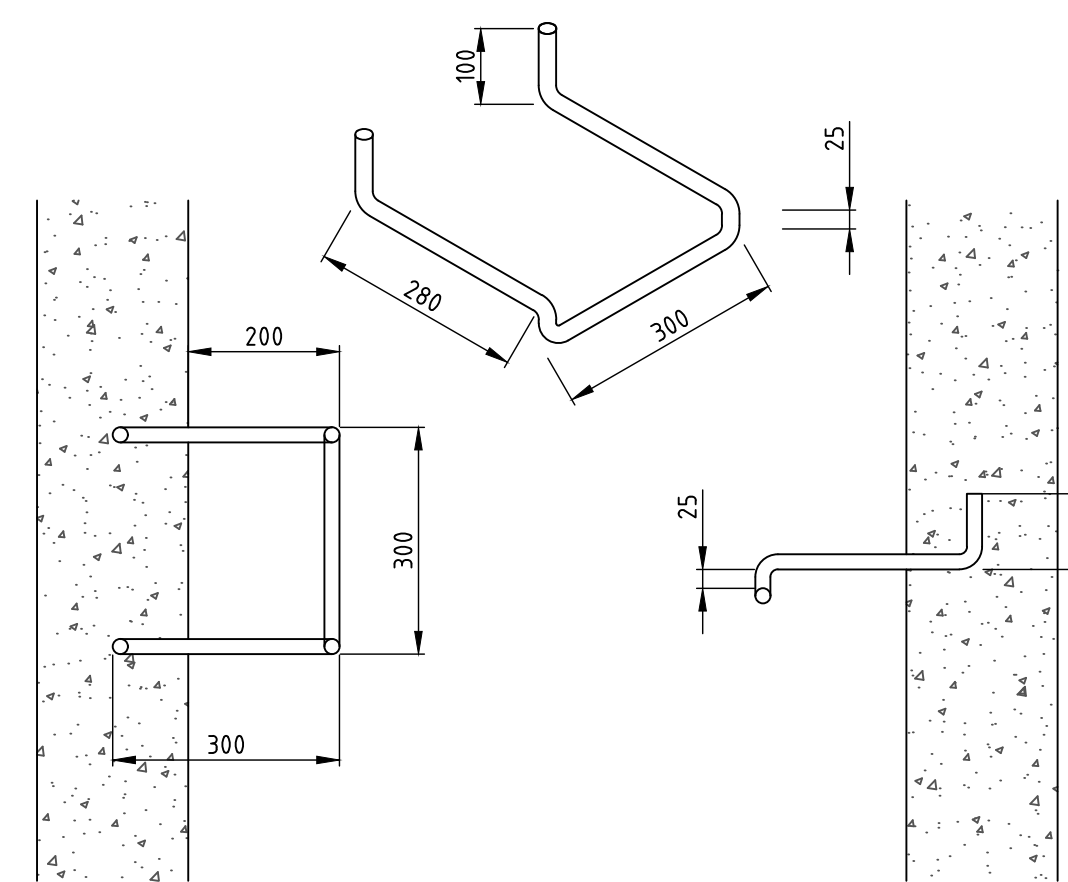
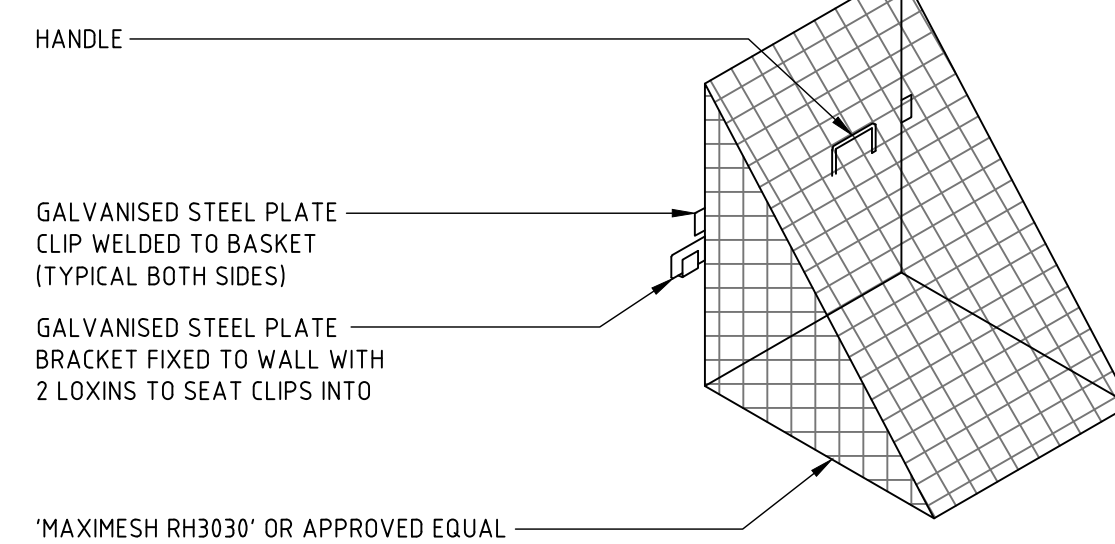
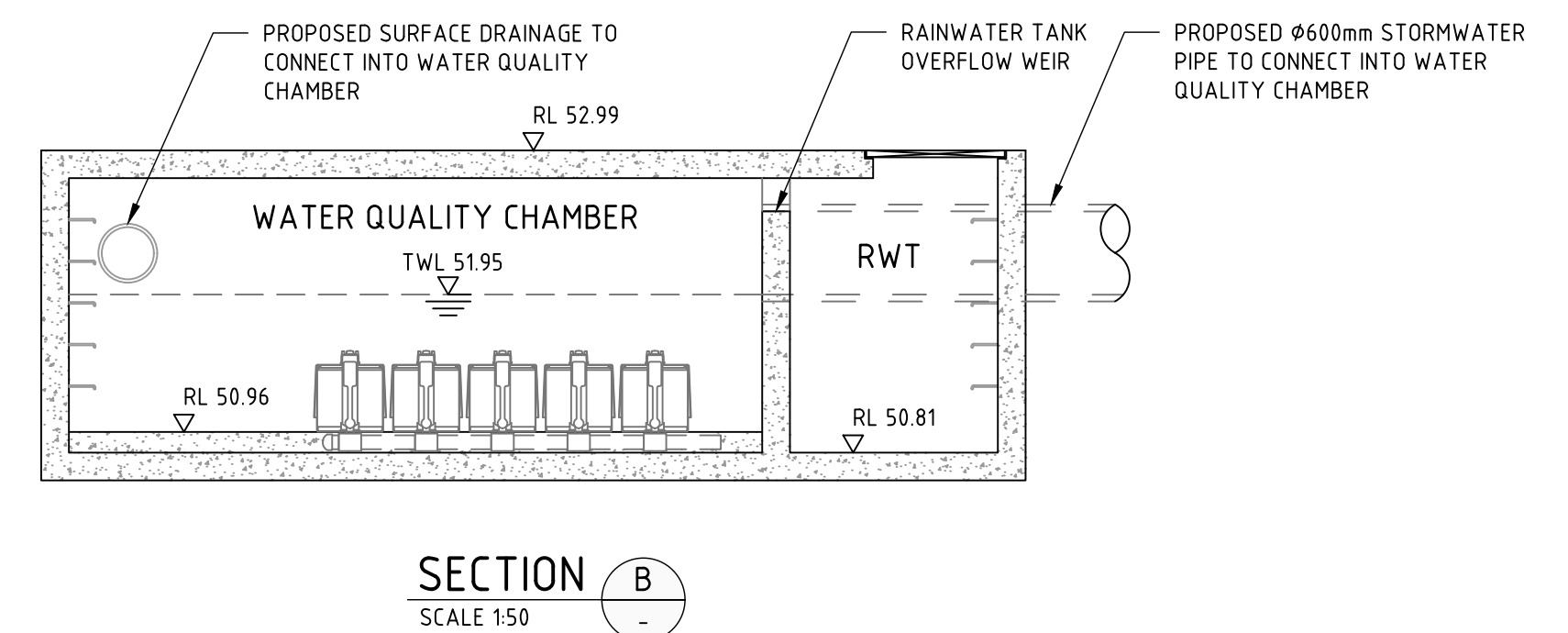
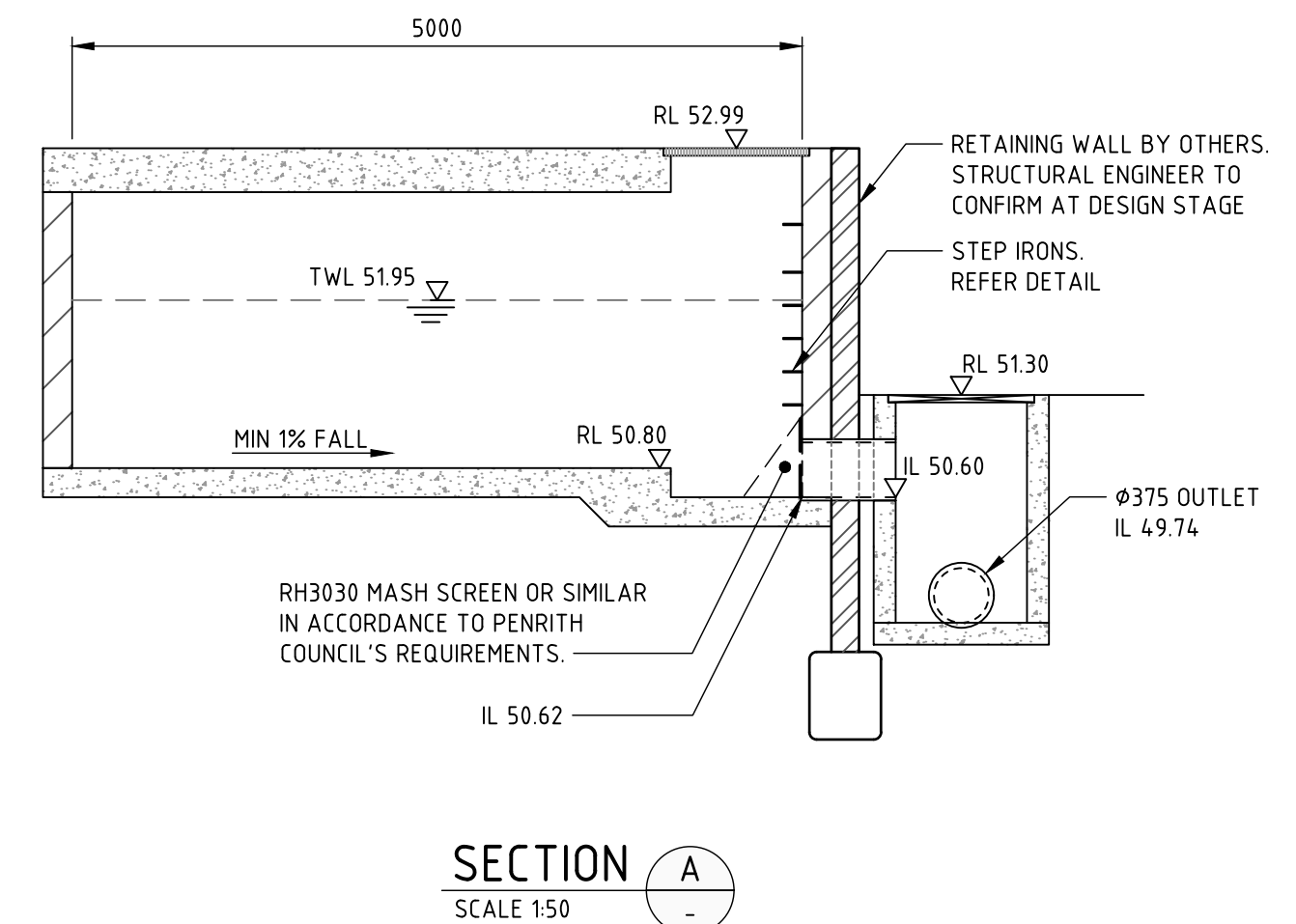
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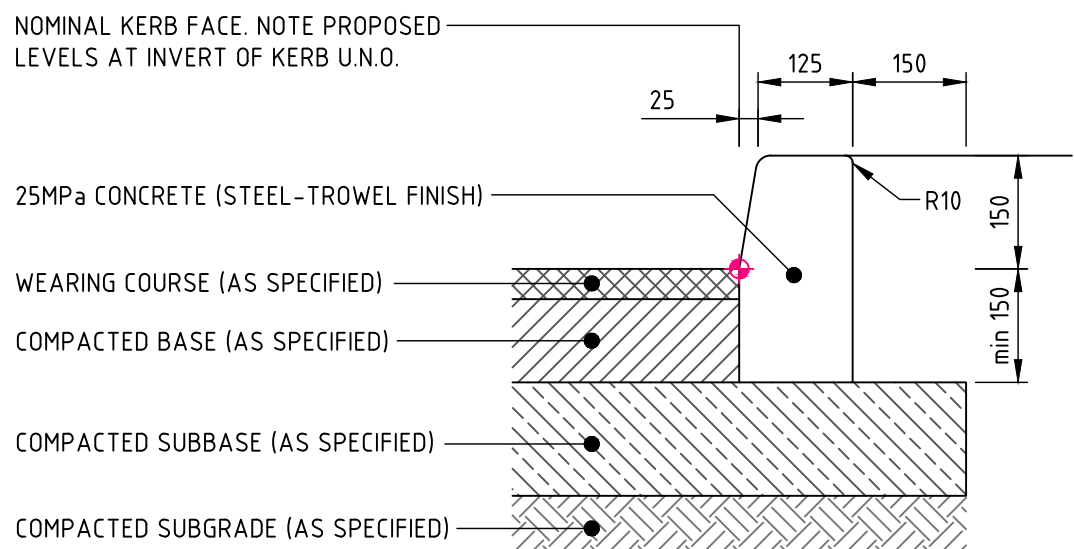
ENSURE MINIMUM 70mm CLEARANCE ACHIEVED BETWEEN ENVIROPOD CAGE AND PIT WALLS / FLOORS.

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE	CLIENT	ARCHITECT	SCALE	PROJECT	DRAWING TITLE	JOB NUMBER					
1	ISSUED FOR DEVELOPMENT APPLICATION	JO	JG	NN	04.12.18	 JOHNSTAFF	 SKAR	ALL DIMENSIONS TO BE VERIFIED ON SITE BEFORE COMMENCING WORK. NORTHROP ACCEPTS NO RESPONSIBILITY FOR THE USABILITY, COMPLETENESS OR SCALE OF DRAWINGS TRANSFERRED ELECTRONICALLY. THIS DRAWING MAY HAVE BEEN PREPARED USING COLOUR, AND MAY BE INCOMPLETE IF COPIED TO BLACK & WHITE	 NORTHROP Sydney Level 11 345 George Street, Sydney NSW 2000 Ph (02) 9241 4188 Fax (02) 9241 4324 Email sydney@northrop.com.au ABN 81 094 433 100	NEPEAN PRIVATE HOSPITAL EXPANSION - STAGE 01 1-9 BARBER AVENUE, KINGSWOOD	CIVIL ENGINEERING WORKS DEVELOPMENT APPLICATION STORMWATER MANAGEMENT DEVICES	182350				
2	RE-ISSUED FOR DEVELOPMENT APPLICATION	JO		NN	26.03.19								DRAWING NOT TO BE USED FOR CONSTRUCTION UNLESS VERIFICATION SIGNATURE HAS BEEN ADDED.	THE COPYRIGHT OF THIS DRAWING REMAINS WITH NORTHROP CONSULTING ENGINEERS PTY LTD.	DRAWING NUMBER DAC104.31	REVISION 2
														SCALE VARIES	DRAWING SHEET SIZE = A1	

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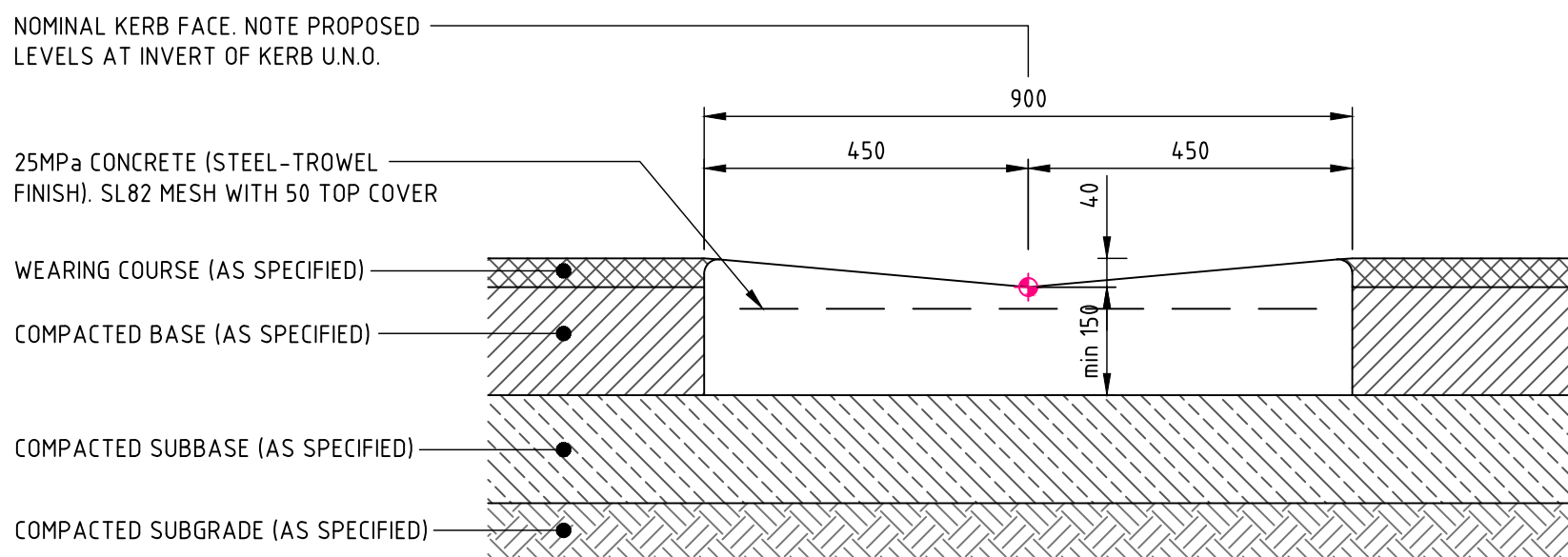
Printed by : CARLTON PASAE
 Round : 1:520 to J005182350 - Expansion Stage 110-DrawingStd-Northrop-C-CIVILZ-CAD FILES11-DAT1-STAGE 011182350_DAC 104.31.009

DESIGNED: J.O
DRAWN: J.O
VERIFIED: N. NAICKER
JOB MANAGER: N. NAICKER



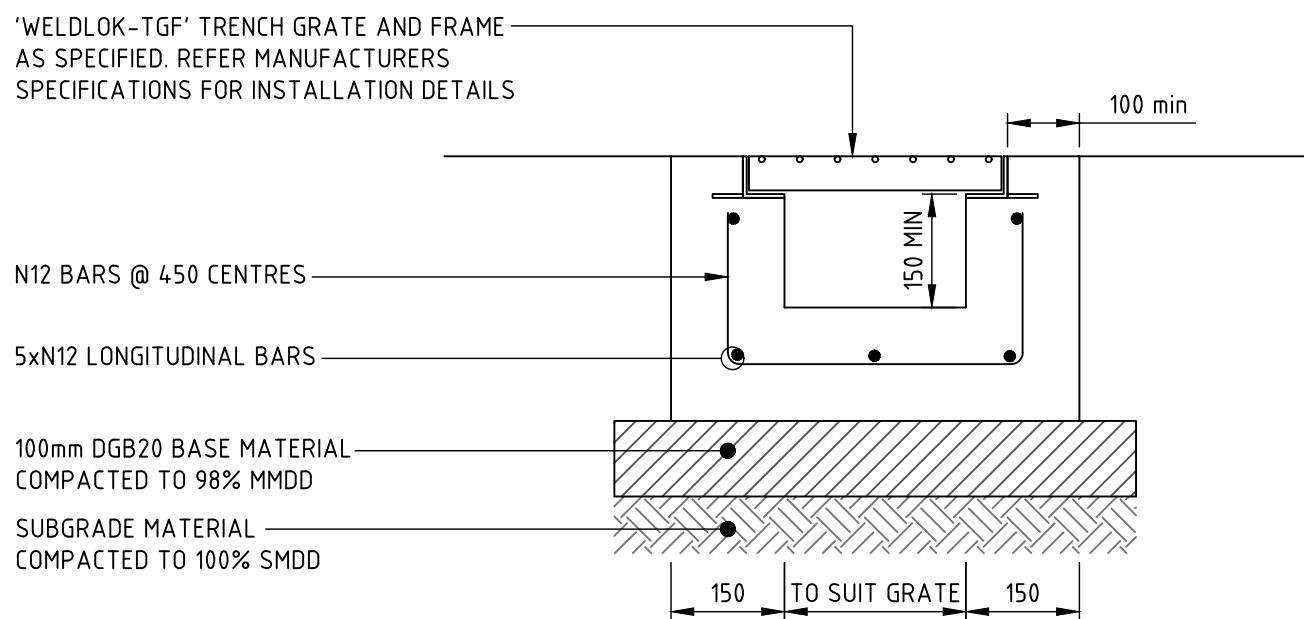
KERB ONLY 'KO'

EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS
ALL RADII TO BE 20mm U.N.O.



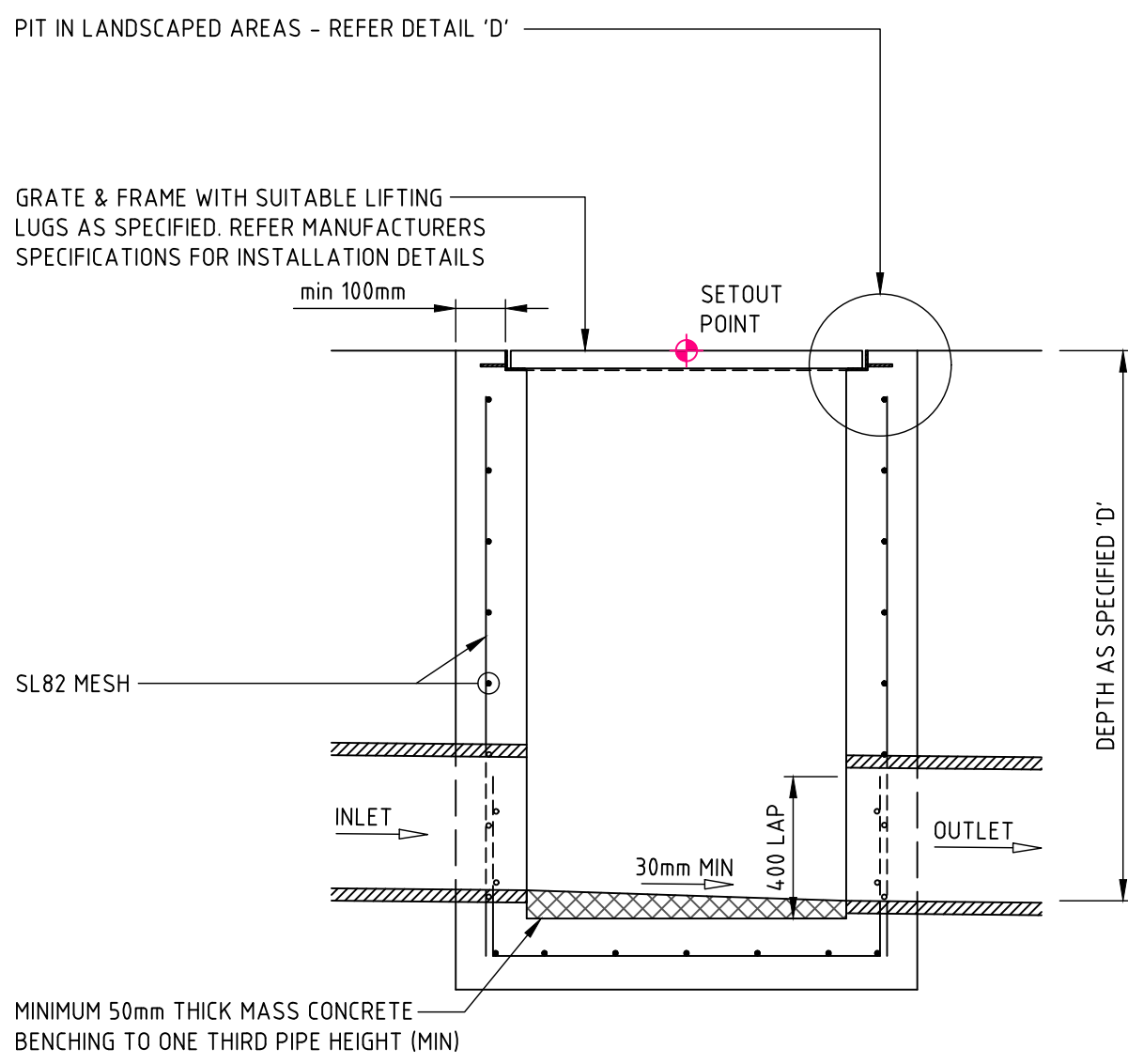
DISH DRAIN - 900 WIDE 'DD'

EXPANSION JOINTS @ MAX 12m CTRS / TOOL JOINTS @ MAX 3m CTRS
ALL RADII TO BE 20mm U.N.O.

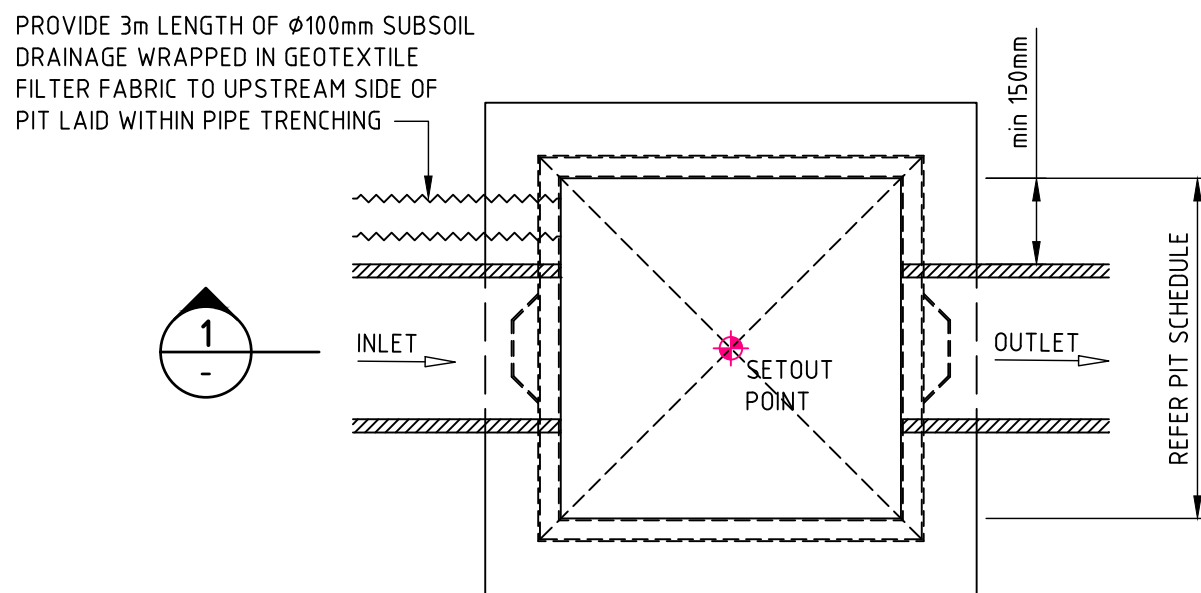


GRADED TRENCH DRAIN 'GTD'

GRADED TRENCH DRAIN TO HAVE MINIMUM 150mm CLEARANCE AND 1% LONGITUDINAL FALL.
GRATE CLASS TO BE CLASS 'B' HEELSAFE IN PEDESTRIAN AREAS AND CLASS 'D' IN TRAFFICKED AREAS UNLESS NOTED OTHERWISE ON PLAN

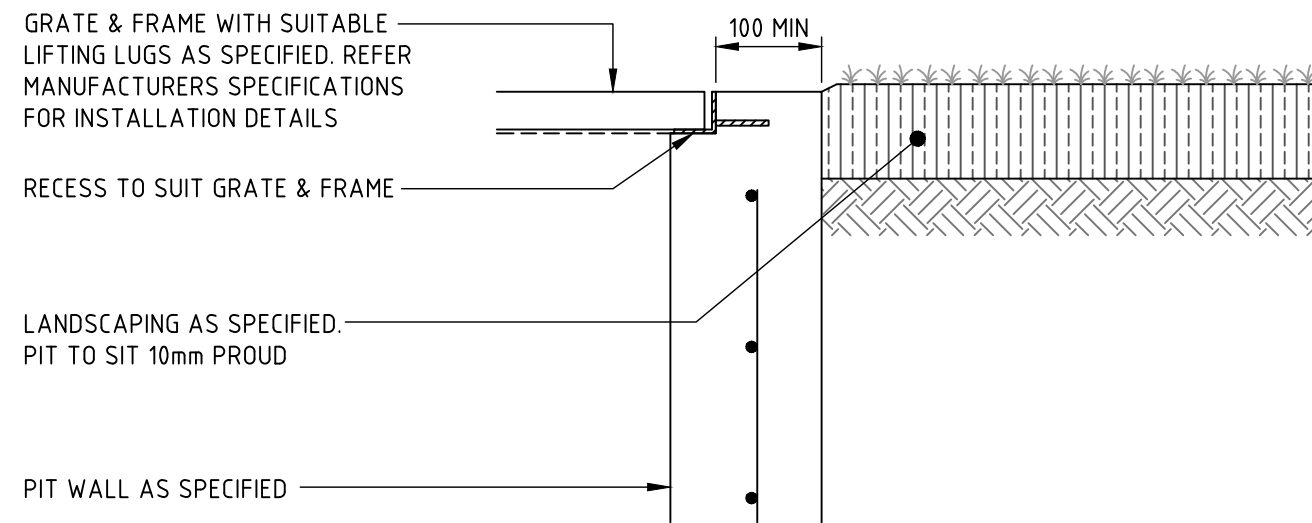


SECTION 1

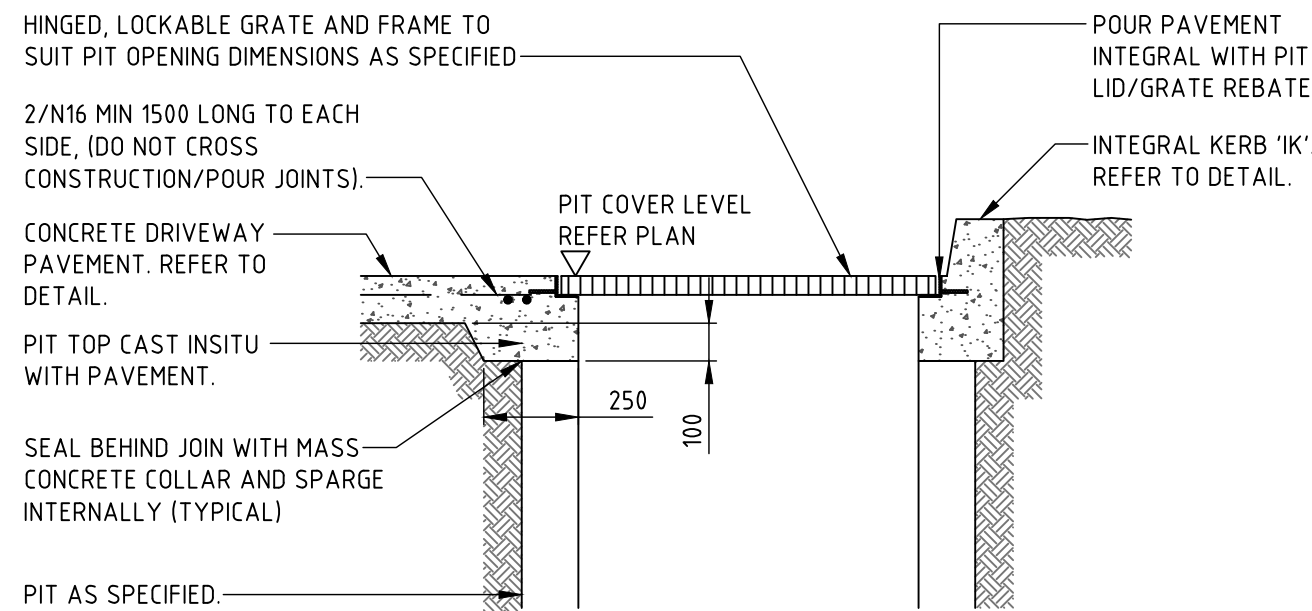


PLAN
SURFACE INLET 'SIP' / JUNCTION PIT 'JP'

PIT STRUCTURE TO BE 200mm THICK UNLESS SHOWN OTHERWISE. DRILL AND EPOXY PLASTIC PROPRIETARY STEP IRONS IN ACCORDANCE WITH AUSTRALIAN STANDARDS AND MANUFACTURERS SPECIFICATIONS (PITS > 1000mm DEPTH).
REFER PIT INTERFACE DETAIL 'F' FOR CORNER REINFORCEMENT



PIT INTERFACE - DETAIL 'D'



GRATE AND FRAME
(PIT IN VEHICULAR PAVEMENT)

NOT FOR CONSTRUCTION

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ARCHITECT

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SCALE VARIES

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PROJECT

NEPEAN PRIVATE HOSPITAL

EXPANSION - STAGE 01

1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE

CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION

DETAILS SHEET

JOB NUMBER

182350

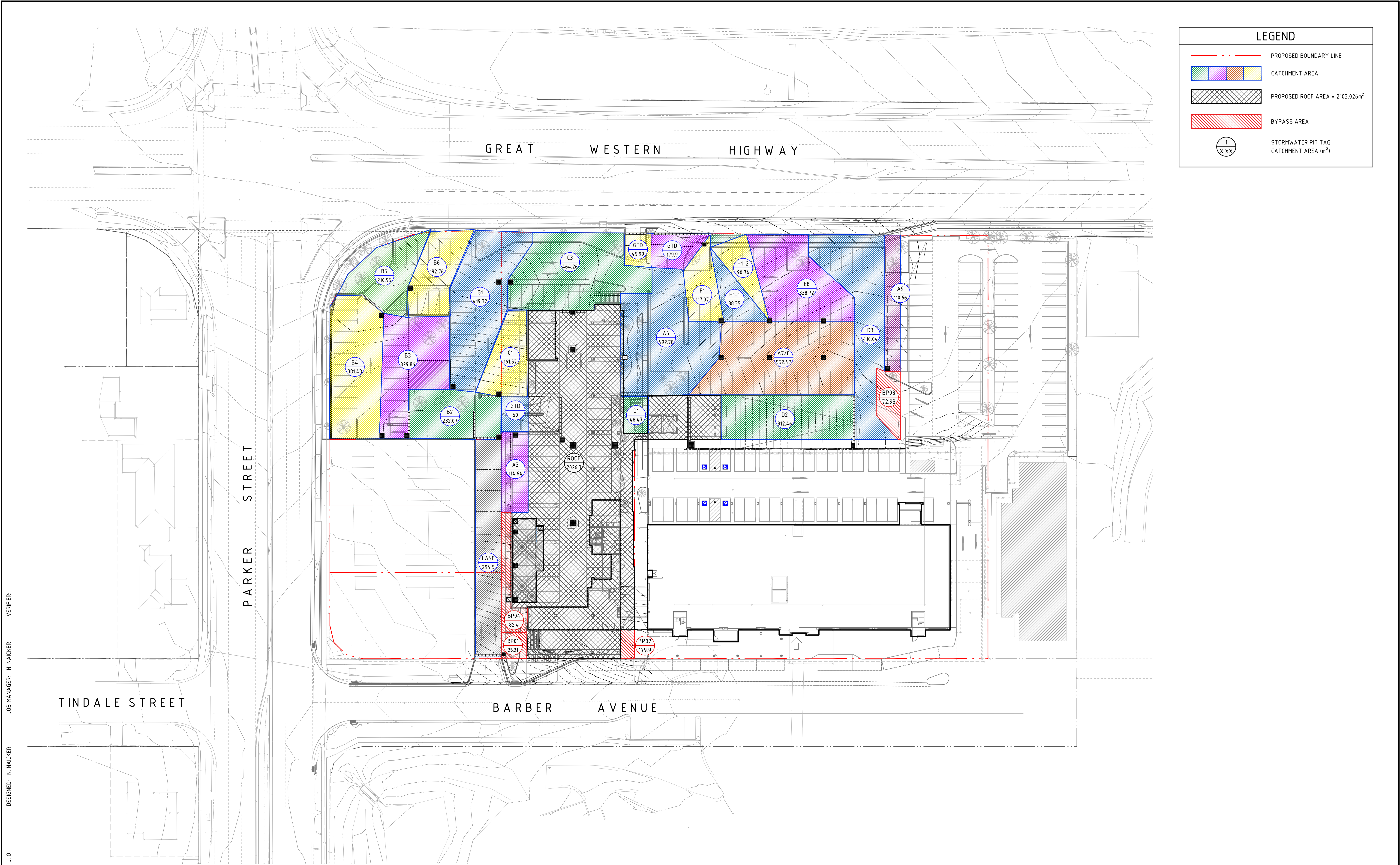
DRAWING NUMBER

DAC107.01

REVISION

2

DRAWING SHEET SIZE = A1



LEGEND

PROPOSED BOUNDARY LINE

CATCHMENT AREA

PROPOSED ROOF AREA = 2103.026m²

BYPASS AREA

1
X.XX

STORMWATER PIT TAG
CATCHMENT AREA (m²)

DRAWN: J. O. DESIGNED: N. MACKER JOB MANAGER: N. MACKER VERIFIER:

REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE
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SCALE 1:400@A1

0 4 8 12 16 20m

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PROJECT

NEPEAN PRIVATE HOSPITAL

EXPANSION - STAGE 01

1-9 BARBER AVENUE, KINGSWOOD

DRAWING TITLE

CIVIL ENGINEERING WORKS
DEVELOPMENT APPLICATION

CATCHMENT PLAN

JOB NUMBER

182350

DRAWING NUMBER

DAC108.01

REVISION

2

DRAWING SHEET SIZE = A1

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