CONCEPT STORMWATER DRAWINGS FOR
170 DERBY STREET, PENRITH NSW 2750

SYMBOLS

RL	PIT SURFACE LEVEL
IL	INVERT LEVEL
TK	TOP OF KERB
B.O.W	BOTTOM OF WALL
T.O.W	TOP OF WALL
SW SW SW	STORMWATER DRAINAGE PIPE
RWT	DOWNPIPE TO RAINWATER TANK
SW	OVERFLOW PIPE FROM RAINWATER TANK
	Ø100 SUBSOIL PIPE
	Ø100 SUBSOIL PIPE
FW	FLOOR WASTE 150X150
FW	FLOOR WASTE 150Ø
RWO	RAINWATER OUTLET 300Ø
PG	PLANTER GRATE
DP	DOWN PIPE
CO	CLEAN OUT
IO	INSPECTION OPENING
VD	VERTICAL DROP
VR	VERTICAL RISER
	CONCRETE COVER JUNCTION PIT
	GRATED INLET PIT
	WIDE GRATED DRAIN
	OVERLAND FLOW PATH
100x 100x	CAST IN SLAB PIPE

NOTES

1. ALL LINES ARE TO BE MIN. 100Ø UPVC @ MIN 1.0% GRADE UNLESS NOTED OTHERWISE.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS. ALL DESIGN LEVELS SHOWN ON PLAN SHALL BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORK.
3. ALL PIPES TO HAVE MIN 200mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS BE HEAVY DUTY GRATES. DIRECT SURFACE FLOW TO ALL GRATED SURFACE INLET PITS.
5. ALL WORK DO BE DONE IN ACCORDANCE WITH AS/NZ 3500.3 (CURRENT EDITION) AND COUNCIL SPECIFICATIONS.
6. LOCATION OF DOWNPIPES & FLOOR WASTES ARE INDICATIVE ONLY. DOWNPIPE & FLOOR WASTE SIZE, LOCATION & QUANTITY TO BE DETERMINED BY BUILDER & IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
7. THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ARCHITECTURAL, LANDSCAPE AND STRUCTURAL AND ALL OTHER RELEVANT CONSULTANT'S PLANS.
8. ALL RAINWATER TANKS TO BE FITTED WITH A FIRST FLUSH DEVICE TO PREVENT POTENTIAL CONTAMINANTS FROM ENTERING THE TANKS.
9. ANY DISCREPANCIES OR OMISSIONS SHALL BE REFERRED TO THE DESIGN ENGINEER FOR RESOLUTION.
10. ALL PITS OR GRATES IN TRAFFICABLE AREAS TO BE HEAVY DUTY.
11. ALL GUTTERS WILL BE FITTED WITH LEAF GUARDS AND SHOULD BE INSPECTED AND CLEANED TO ENSURE LEAF LITTER CANNOT ENTER THE DOWNPIPES
12. PROVIDE EMERGENCY OVERFLOW TO ALL PLANTER BOX AND BALCONIES.
13. ALL PITS WITH DEPTH MORE THAN 1M MUST HAVE IRON STEPS AND TO BE BENCHED AND STREAMLINED
14. PROVIDE STORMWATER GRATE 200Wx200D AT THE BASE OF ALL MECHANICAL SHAFTS AND UNCOVERED STAIRS OR OPENINGS.
15. ENSURE ALL DRAINAGE WORKS ARE AWAY FROM TREE ROOTS
16. SERVICES SHOWN ON THESE PLANS HAVE BEEN LOCATED FROM INFORMATION SUPPLIED BY THE RELEVANT AUTHORITIES AND FIELD INVESTIGATION AND ARE NOT GUARANTEED COMPLETE NOR CORRECT. IT IS THE CLIENT AND CONTRACTOR'S RESPONSIBILITY TO LOCATE ALL PRIOR TO CONSTRUCTION.
17. ALL VARIATIONS TO THE WORKS AS SHOWN ON THE APPROVED DRAWINGS ARE TO BE CONFIRMED BY SMART STRUCTURES AUSTRALIA PRIOR TO COMMENCEMENT OF WORKS.
18. THE MINIMUM SIZES OF THE STORMWATER DRAINS SHALL NOT BE LESS THAN DN90 FOR CLASS 1 BUILDINGS AND DN100 FOR OTHER CLASSES OF BUILDING OR AS REQUIRED BY THE REGULATORY AUTHORITY

AS 3500.3- TABLE 8.2
SIZE OF MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS

DEPTH OF INVERT OF OUTLET	MINIMUM INTERNAL DIMENSIONS (mm)		
	RECTANGULAR		CIRCULAR
	WIDTH	LENGTH	DIAMETER
≤600	450	450	600
>600 ≤900	600	600	900
>900 ≤1200	600	900	1000
>1200	900	900	1000

DRAWING LIST	
DRAWING NUMBER	DRAWING NAME
D00	COVER SHEET, LEGEND & DRAWING SCHEDULE
D01	BASEMENT STORMWATER DRAINAGE PLAN
D02	GROUND FLOOR STORMWATER DRAINAGE PLAN
D03	FIRST FLOOR STORMWATER DRAINAGE PLAN
D04	ROOF STORMWATER DRAINAGE PLAN
D05	STORMWATER DRAINAGE SECTIONS AND DETAILS SHEET 1
D06	STORMWATER DRAINAGE SECTIONS AND DETAILS SHEET 2
D07	PRE & POST DEVELOPMENT CATCHMENT ANALYSIS AND MUSIC MODEL RESULTS
D08	CALCULATIONS SHEET
D10	EROSION AND SEDIMENT CONTROL PLAN AND DETAILS SHEET 1
D11	EROSION AND SEDIMENT CONTROL PLAN AND DETAILS SHEET 2

DIAL 1100 BEFORE YOU DIG

IMPORTANT:
CONTRACTOR TO OBTAIN CURRENT SET OF "DIAL BEFORE YOU DIG" PLANS ON SITE ALL TIMES AND PRIOR TO CONSTRUCTION WORKS

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
1:20 0 0.1 0.2 0.5 1 2
1:50 0 0.25 0.5 1.25 2.5 5
1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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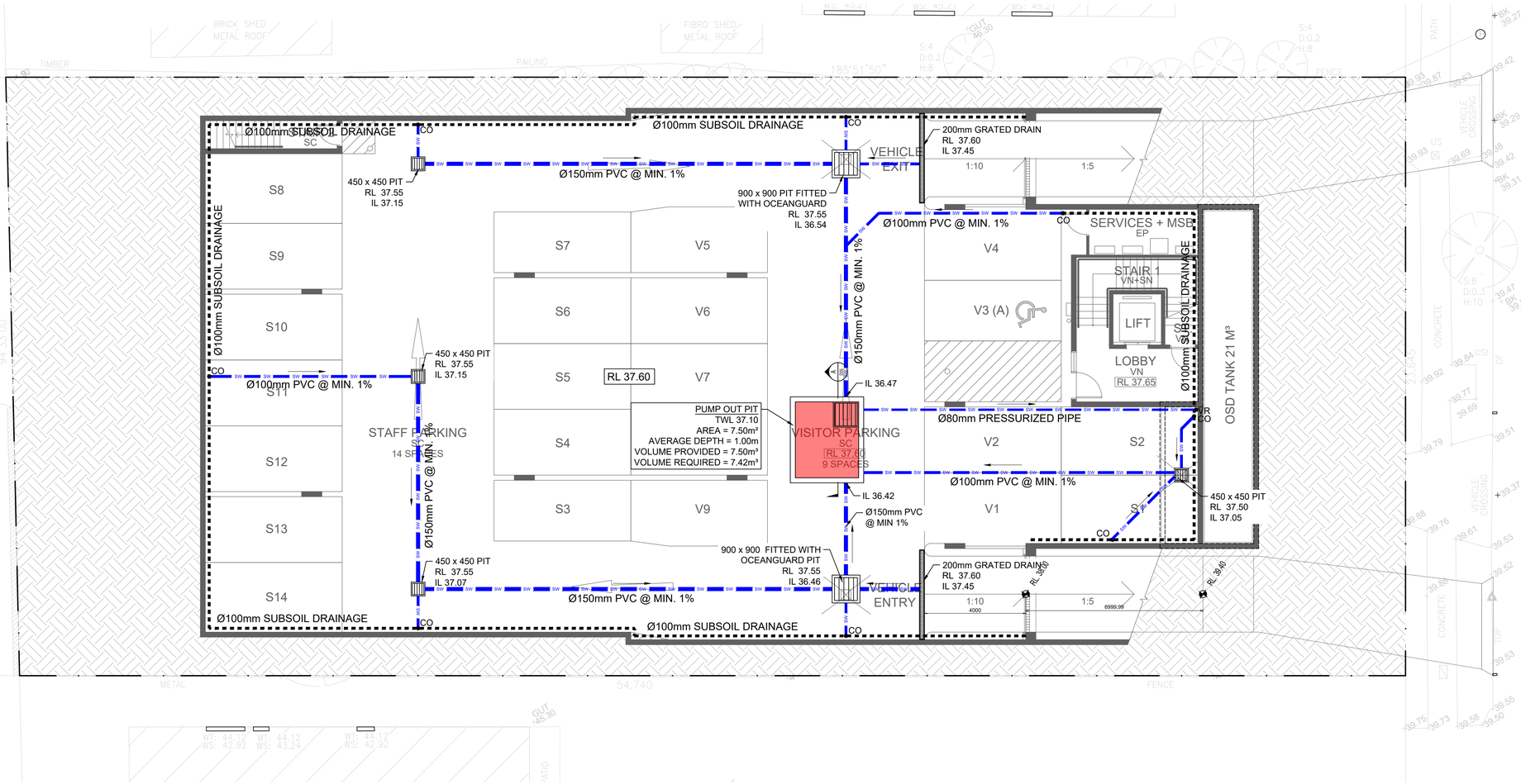
DRAWING TITLE: **COVER SHEET, LEGEND & DRAWING SCHEDULE**

PROJECT: 170 DERBY STREET, PENRITH NSW 2750

SHEET NO.	REV.	SCALE @ A1	NORTH	PROJECT NO.
D00	A	NTS		200325
DESIGNED: K.E.	DRAWN: J.E.	AUTHORISED: K.E.		PROJECT START DATE: SEPTEMBER 2020



BASEMENT STORMWATER DRAINAGE PLAN
SCALE 1: 100

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
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1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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35 WATERLOO RD., MACQUARIE PARK, NSW, 2113
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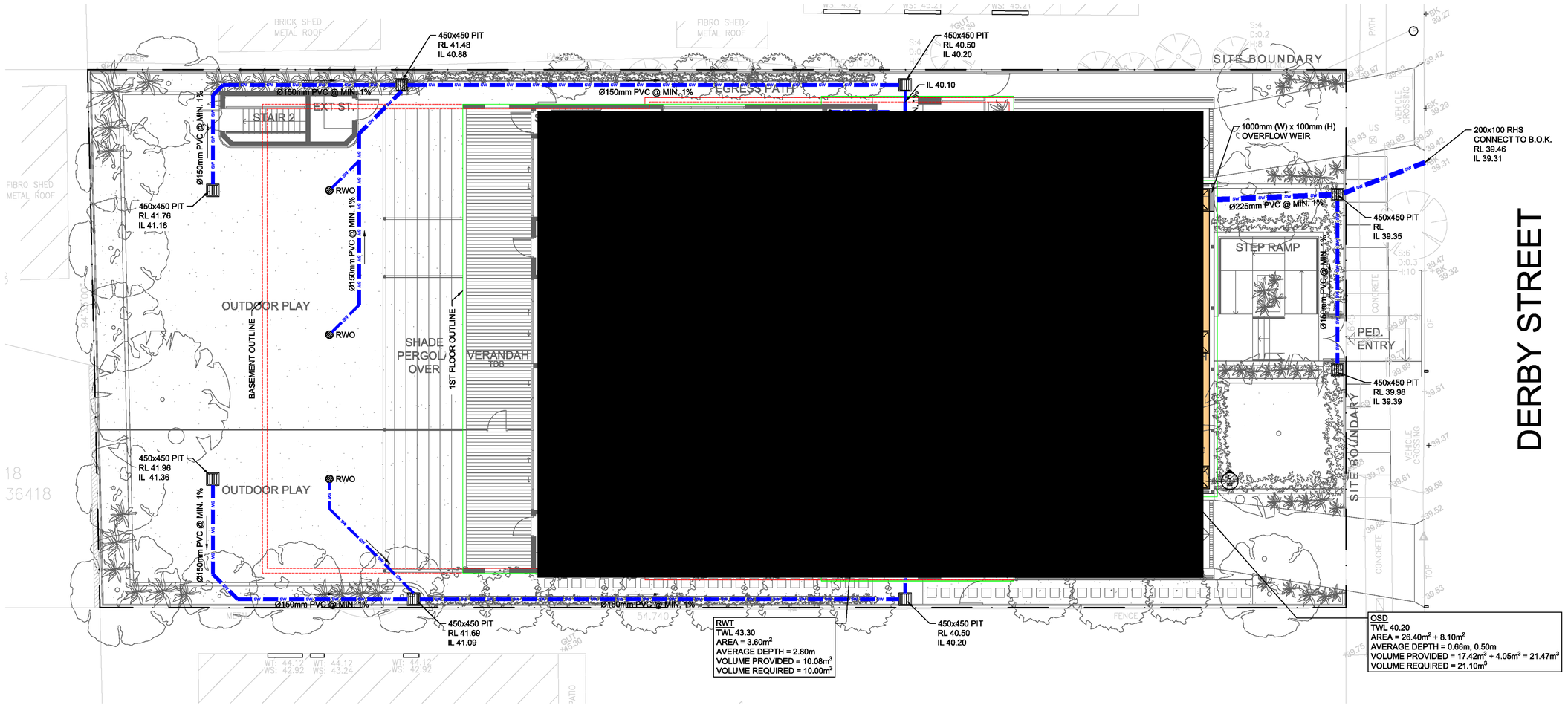
DRAWING TITLE: **BASEMENT STORMWATER DRAINAGE PLAN**

PROJECT: 170 DERBY STREET, PENRITH NSW 2750

SHEET NO.	REV.	SCALE @ A1	NORTH	PROJECT NO.
D01	A	AS SHOWN		200325
DESIGNED: K.E.	DRAWN: J.E.	AUTHORISED: K.E.		PROJECT START DATE: SEPTEMBER 2020



GROUND FLOOR STORMWATER DRAINAGE

SCALE 1: 100

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS

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1:50 0 0.25 0.5 1.25 2.5 5

1:100 0 0.5 1 2.5 5 10

1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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DRAWING TITLE: GROUND FLOOR STORMWATER DRAINAGE PLAN

SHEET NO.	REV.	SCALE @ A1
D02	A	AS SHOWN

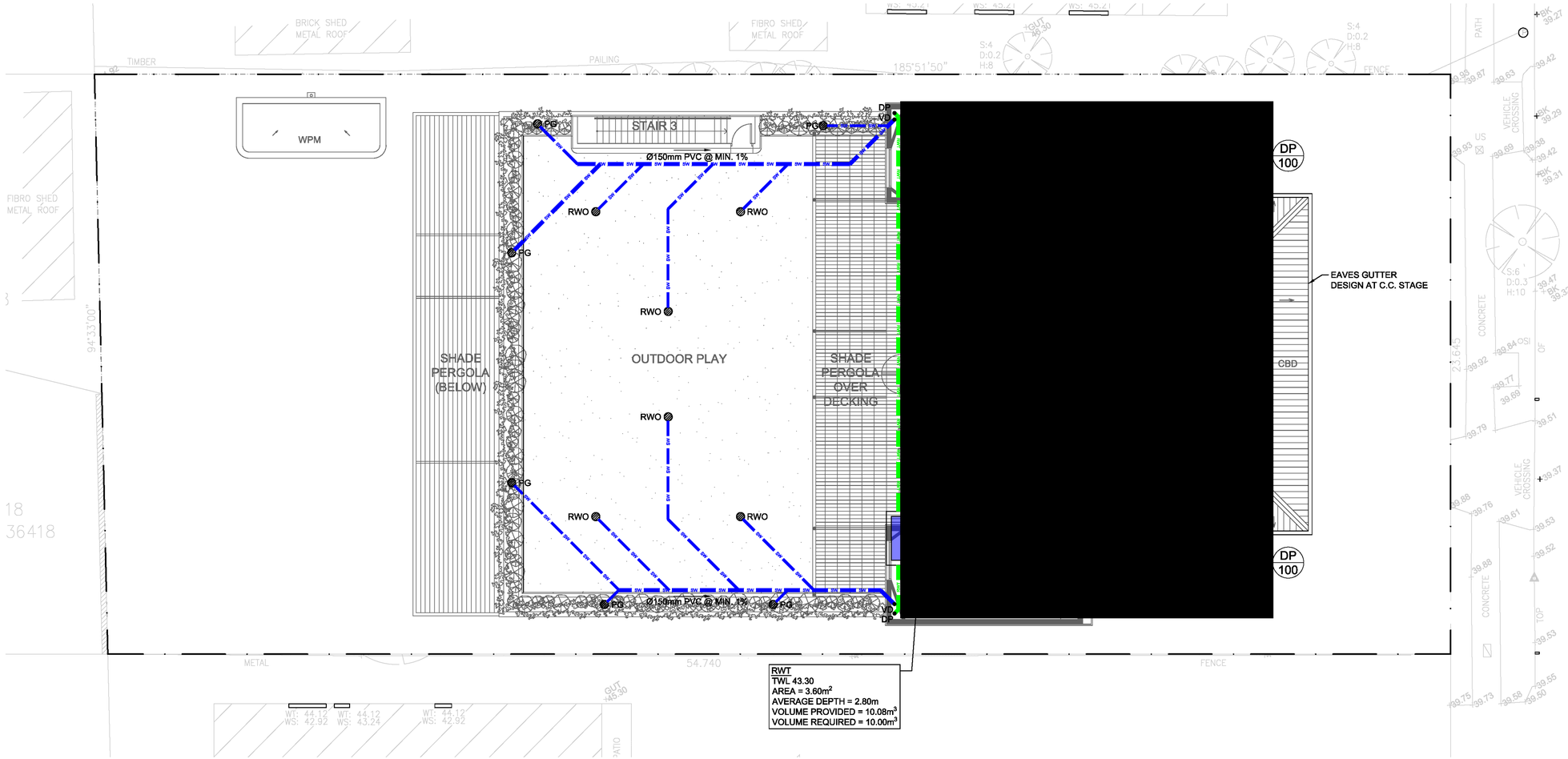
DESIGNED:	DRAWN:	AUTHORISED:
K.E.	J.E.	K.E.

PROJECT: 170 DERBY STREET, PENRITH NSW 2750

NORTH

PROJECT NO. 200325

PROJECT START DATE: SEPTEMBER 2020



FIRST FLOOR STORMWATER DRAINAGE PLAN
SCALE 1: 100

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
1:20 0 0.1 0.2 0.5 1 2
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1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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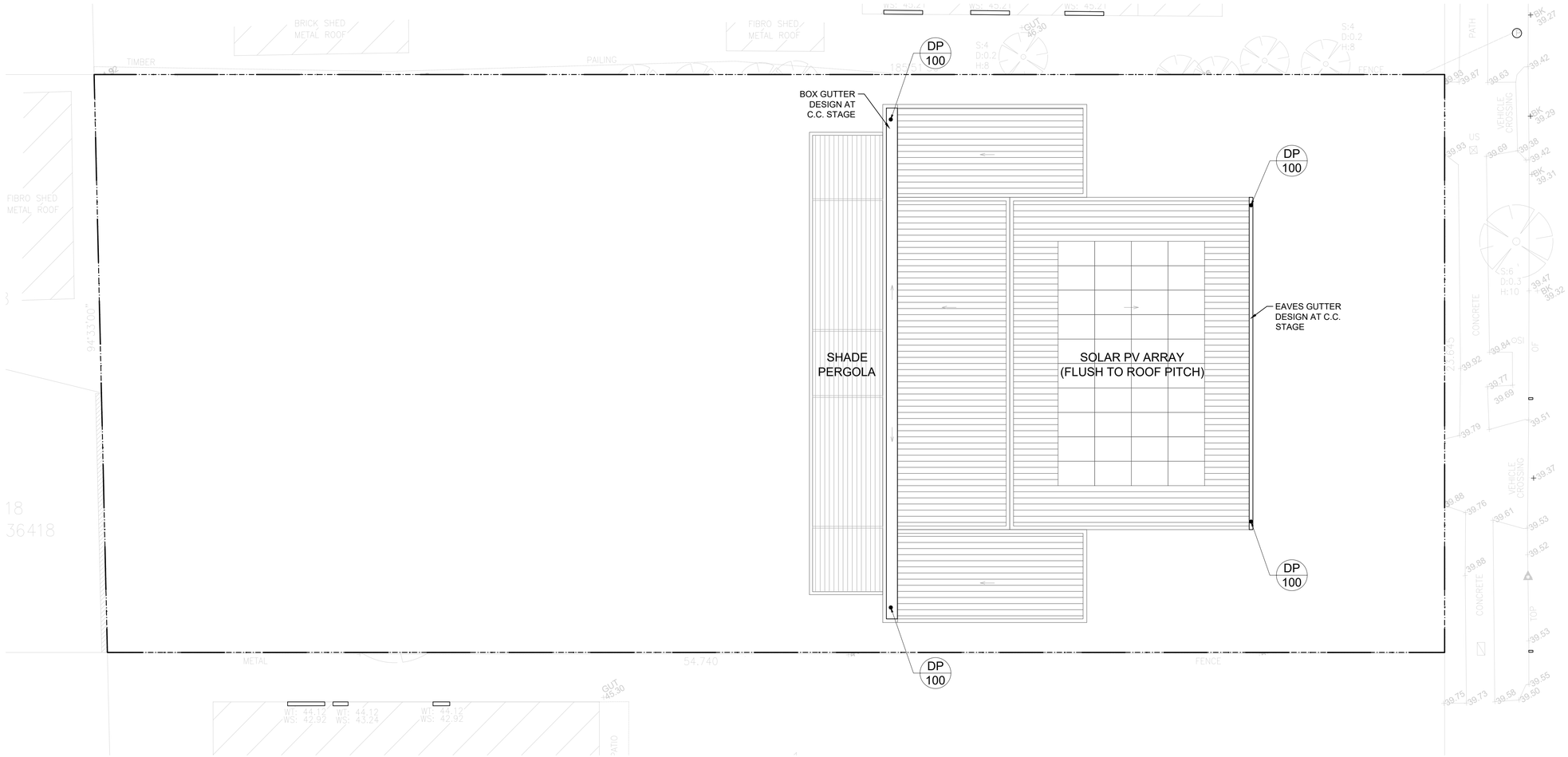
DRAWING TITLE: FIRST FLOOR STORMWATER DRAINAGE PLAN
SHEET NO.: D03
REV.: A
SCALE @ A1: AS SHOWN
DESIGNED: K.E.
DRAWN: J.E.
AUTHORISED: K.E.
NORTH
PROJECT: 170 DERBY STREET, PENRITH NSW 2750
PROJECT NO.: 200325
PROJECT START DATE: SEPTEMBER 2020



ROOF STORMWATER DRAINAGE PLAN
SCALE 1: 100

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS

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1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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DRAWING TITLE: **ROOF STORMWATER DRAINAGE PLAN**

PROJECT: 170 DERBY STREET, PENRITH NSW 2750

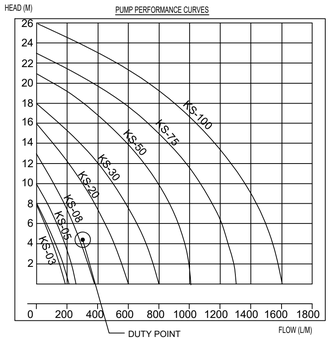
SHEET NO.	REV.	SCALE @ A1	NORTH	PROJECT NO.
D04	A	AS SHOWN		200325

DESIGNED:	DRAWN:	AUTHORISED:	PROJECT START DATE:
K.E.	J.E.	K.E.	SEPTEMBER 2020

PUMP SPECIFICATIONS
STANDARD PUMP-OUT NOTES

THE PUMP-OUT SYSTEM IS DESIGNED TO WORK IN THE FOLLOWING MANNER -

1. A LOW LEVEL FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE BELOW GROUND TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMP.
2. A SECOND FLOAT SHALL BE PROVIDED AT A HIGHER LEVEL, APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL, WHEREBY THE PUMP WILL OPERATE & DRAIN THE TANK TO THE LEVEL OF THE LOW LEVEL FLOAT.
3. A THIRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHOULD ACTIVATE THE ALARM.
4. AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT & A PUMP FAILURE WARNING SIGN WHICH ARE TO BE LOCATED AT THE DRIVEWAY ENTRANCE TO THE BASEMENT LEVEL. THE ALARM SYSTEM SHALL BE PROVIDED WITH A BATTERY BACK-UP IN CASE OF POWER FAILURE.



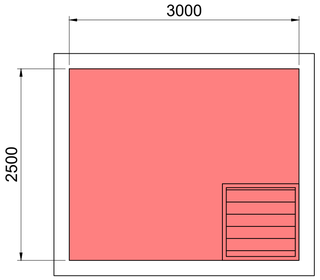
PUMP WELL DETAILS

AREA DRAINING TO SUMP = 89.05m^2
VOLUME BASED ON 100 YEAR ARI 2 HOUR INTENSITY
INTENSITY = 41.8mm/hr
Q = 1 x 41.8mm/hr x 89.05m^2 / 3600 = 1.03L/s
VOLUME REQUIRED = 1.03 x (60x60x2) = 7.42m^3
STORAGE PROVIDED 3.00 x 2.50 x 1.00m= 7.50 m^3

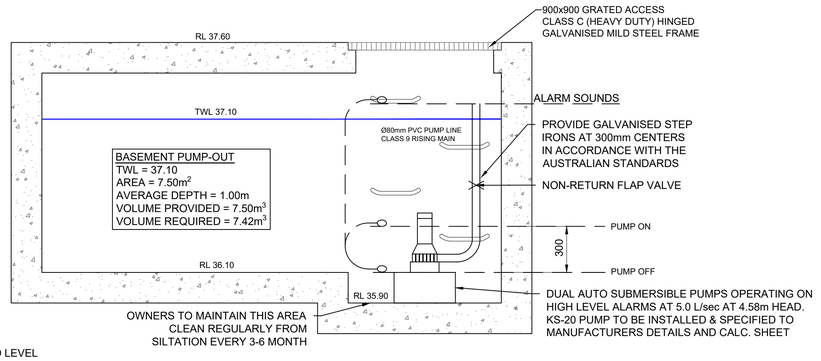
PUMP OUT RATE BASED ON 100 YEAR ARI 5 MIN
INTENSITY = 243mm/hr
Q = 1 x 243 x 89.05 / 3600 = 6.01L/s
MIN. PUMP OUT RATE REQUIRED BY AS 3500.3 = 10.0 L/sec

DUAL KS-20 PUMP OR EQUIVALENT TO BE INSTALLED IN SUMP AND CONNECTED TO CONTROL PANEL WHICH WILL ALLOW FOR THE PUMPS TO OPERATE SIMULTANEOUSLY ON HIGH LEVEL ALARMS AT 5.0L/sec (PER PUMP) AT 4.60m HEAD

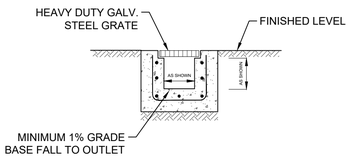
Type	Output		Outlet		Rated Head Capacity		Maximum Head	Maximum Capacity	Weigh	Dimension		
	HP	kW	mm	Inch	M	LPM	M	LPM	Kg	L(mm)	W(mm)	H(mm)
KS-03	1/3	0.25	40	1 1/2"	3	130	8	180	9	188	141	305
KS-04	1/2	0.4	50	2"	5	150	8	220	11	208	140	359
KS-05	1/2	0.4	50	2"	5	160	10	260	14	230	156	375
KS-08	1	0.75	50	2"	6	240	13	380	21	290	180	425
KS-20	2	1.5	80	3"	10	300	16	600	31	278	182	475
KS-30	3	2.2	80	3"	10	500	18	800	42	390	250	450
KS-50	5	3.7	100	4"	10	800	21	1100	48	450	240	530
KS-75	7 1/2	5.6	100	4"	15	800	23	1300	60	550	310	590
KS-100	10	7.5	150	6"	18	900	25	1600	70	550	310	610



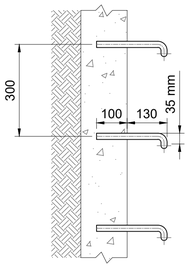
PUMP OUT PIT PLAN VIEW
SCALE NTS



SECTION THROUGH PUMP OUT PIT (A / D01)
SCALE NTS

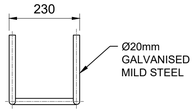


DETAIL
GRATED TRENCH DRAIN
SCALE NTS



SIDE ELEVATION
SCALE NTS

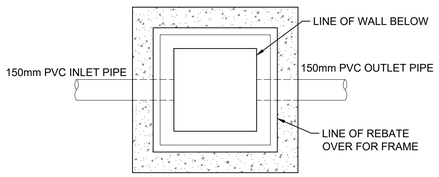
FRONT ELEVATION
SCALE NTS



PLAN VIEW
SCALE NTS

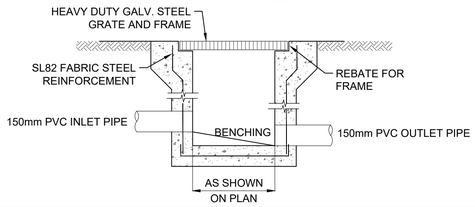
STEP IRON DETAIL
SCALE NTS

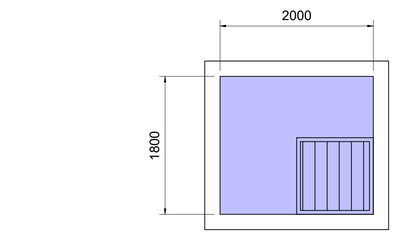
NOTE: INSTALL WHERE PITS ARE DEEPER THAN 900



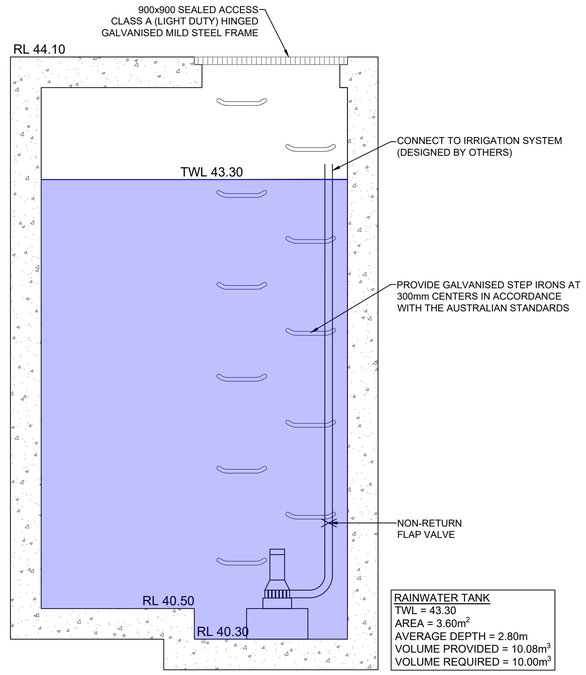
PLAN WITHOUT GRATE

DETAIL
STORMWATER PIT
SCALE NTS





RAINWATER TANK PLAN VIEW
SCALE NTS



SECTION THROUGH RAINWATER TANK (B / D02/D03)
SCALE NTS

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
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1:50 0 0.25 0.5 1.25 2.5 5
1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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SUIT 2.04, L2, BLDG 3,
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DRAWING TITLE: **STORMWATER DRAINAGE SECTIONS AND DETAILS SHEET 1**

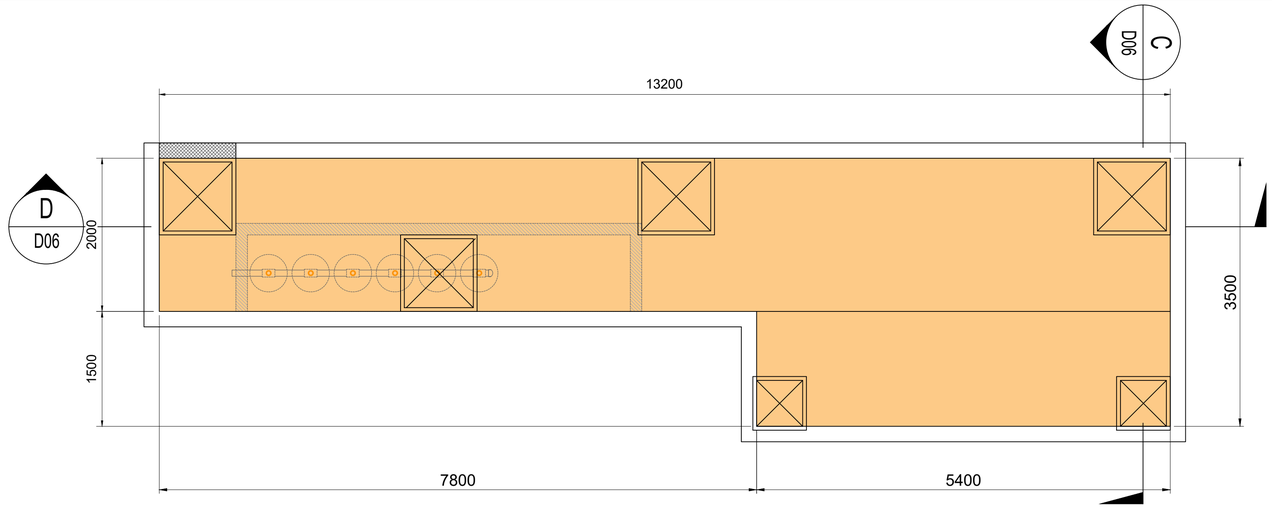
PROJECT: 170 DERBY STREET, PENRITH NSW 2750

SHEET NO.	REV.	SCALE @ A1	NORTH	PROJECT NO.
D05	A	AS SHOWN		200325

DESIGNED:	DRAWN:	AUTHORISED:	PROJECT START DATE:
K.E.	J.E.	K.E.	SEPTEMBER 2020

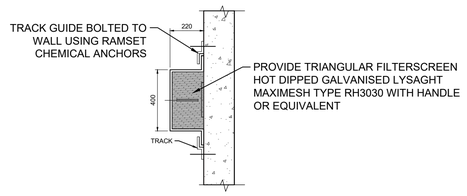
OSD DESIGN NOTE:

BASED ON PENRITH COUNCIL'S ON-SITE STORMWATER DETENTION TECHNICAL SPECIFICATION AN OSD SYSTEM IS REQUIRED FOR THE PROPOSED DEVELOPMENT REFER CALCULATIONS SHEET ON DWG D08 FOR FURTHER DETAILS.

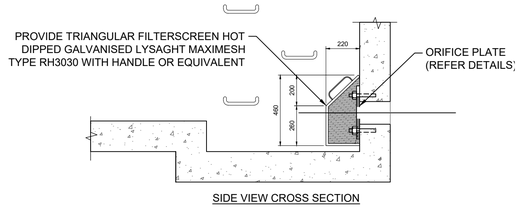


OSD TANK PLAN VIEW

SCALE NTS



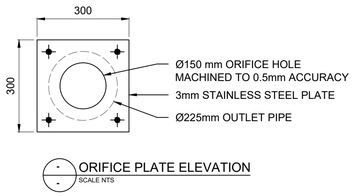
PLAN



SIDE VIEW CROSS SECTION

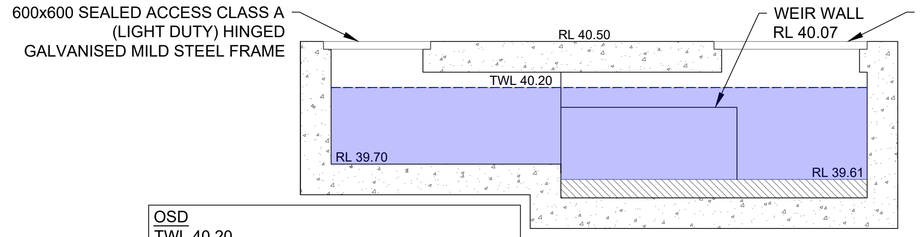
REMOVABLE FILTERSCREEN

SCALE NTS



ORIFICE PLATE ELEVATION

SCALE NTS

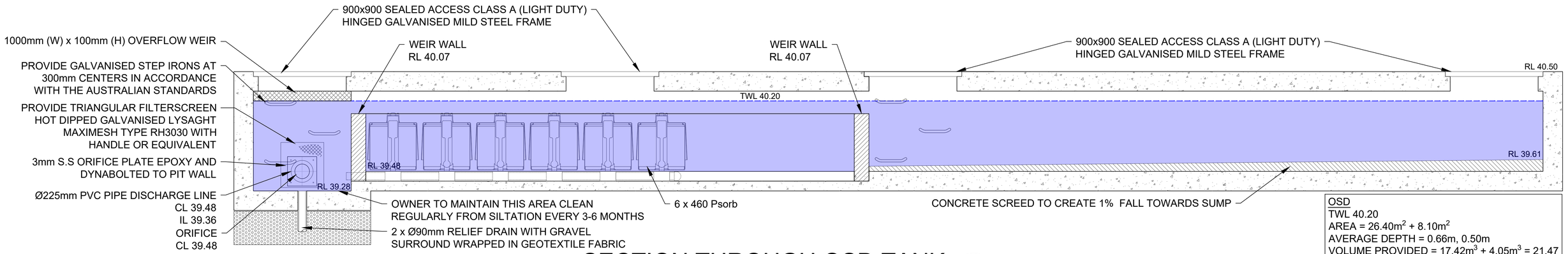


OSD
TWL 40.20
AREA = 26.40m^2 + 8.10m^2
AVERAGE DEPTH = 0.66m, 0.50m
VOLUME PROVIDED = 17.42m^3 + 4.05m^3 = 21.47
VOLUME REQUIRED = 21.00m^3

SECTION THROUGH OSD TANK

SCALE NTS

C D02



OSD
TWL 40.20
AREA = 26.40m^2 + 8.10m^2
AVERAGE DEPTH = 0.66m, 0.50m
VOLUME PROVIDED = 17.42m^3 + 4.05m^3 = 21.47
VOLUME REQUIRED = 21.00m^3

SECTION THROUGH OSD TANK

SCALE NTS

D D02

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
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1:50 0 0.25 0.5 1.25 2.5 5
1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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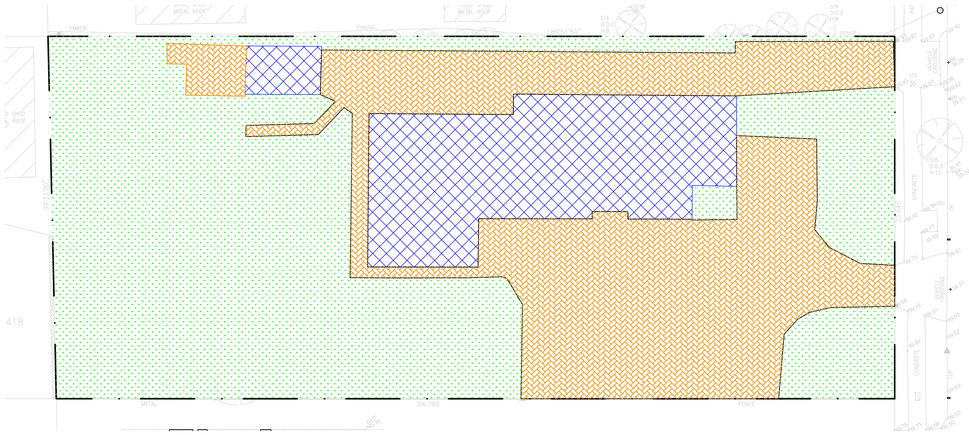
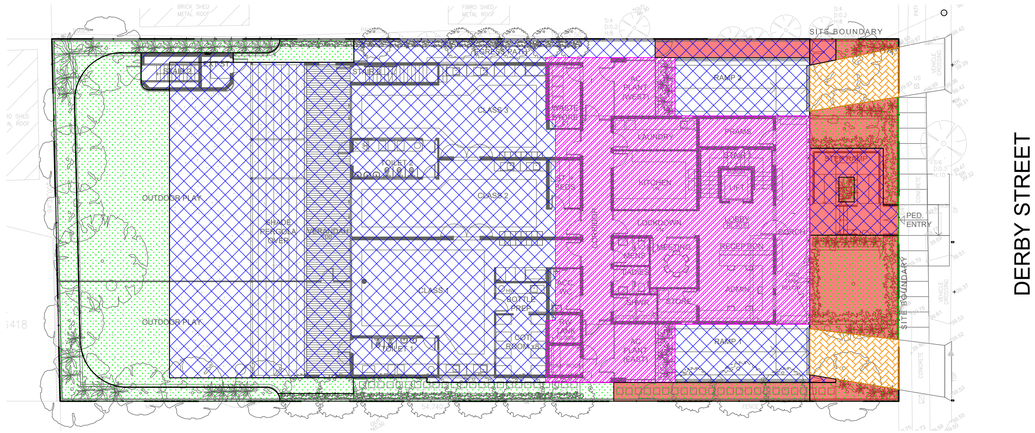
DRAWING TITLE: STORMWATER DRAINAGE SECTIONS AND DETAILS SHEET 2

PROJECT: 170 DERBY STREET, PENRITH NSW 2750

SHEET NO.	REV.	SCALE @ A1	NORTH	PROJECT NO.
D06	A	AS SHOWN		200325
DESIGNED: K.E.	DRAWN: J.E.	AUTHORISED: K.E.		PROJECT START DATE: SEPTEMBER 2020



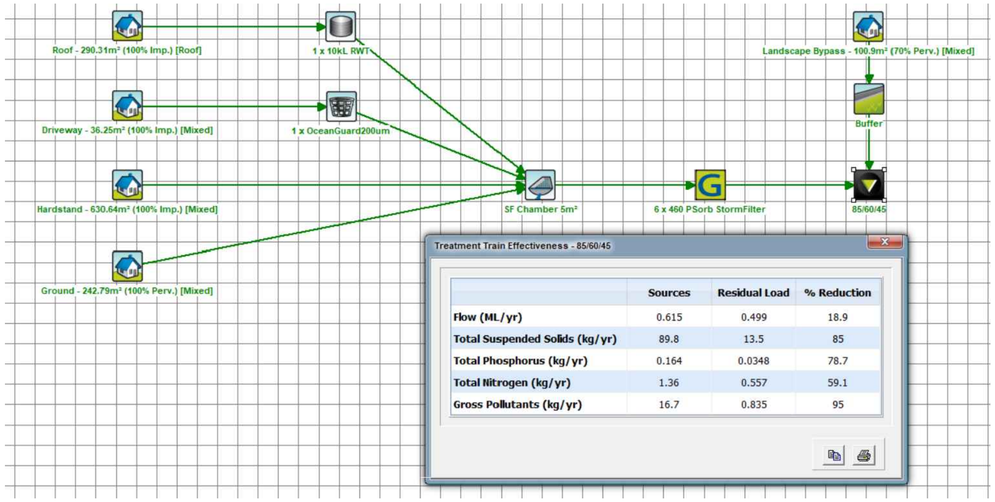
PRE DEVELOPMENT CATCHMENT PLAN
SCALE 1: 200



POST DEVELOPMENT CATCHMENT PLAN
SCALE 1: 200

PRE DEVELOPMENT CATCHMENT ANALYSIS:	
TOTAL SITE AREA:	1300.89 m²
ROOF	213.41 m²
HARDSTAND	432.55 m²
LANDSCAPE	654.93 m²

POST DEVELOPMENT CATCHMENT ANALYSIS:	
TOTAL SITE AREA:	1300.89 m²
AREA DRAINING TO OSD	1171.97 m²
-ROOF	290.31 m²
-HARDSTAND	618.28 m²
-LANDSCAPE	227.13 m²
-DRIVEWAY	36.25 m²
AREA BYPASSING OSD	128.92 m²
-IMPERVIOUS	43.19 m²
-PERVIOUS	85.73 m²



	Sources	Residual Load	% Reduction
Flow (ML/yr)	0.615	0.499	18.9
Total Suspended Solids (kg/yr)	89.8	13.5	85
Total Phosphorus (kg/yr)	0.164	0.0348	78.7
Total Nitrogen (kg/yr)	1.36	0.557	59.1
Gross Pollutants (kg/yr)	16.7	0.835	95

MUSIC MODEL RESULTS

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
1:20 0 0.1 0.2 0.5 1 2
1:50 0 0.25 0.5 1.25 2.5 5
1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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DRAWING TITLE: PRE & POST DEVELOPMENT CATCHMENT ANALYSIS AND MUSIC MODEL RESULTS

PROJECT: 170 DERBY STREET, PENRITH NSW 2750

SHEET NO.	REV.	SCALE @ A1	NORTH	PROJECT NO.
D07	A	AS SHOWN		200325
DESIGNED: K.E.	DRAWN: J.E.	AUTHORISED: K.E.		PROJECT START DATE: SEPTEMBER 2020

OSD DESIGN DETAILS:

BASED ON PENRITH COUNCIL'S ON-SITE STORMWATER DETENTION TECHNICAL SPECIFICATION AN OSD SYSTEM IS REQUIRED FOR THE PROPOSED DEVELOPMENT. DUE TO DESIGN AND SITE'S CONSTRAINTS,COUNCIL'S DEVELOPMENT TEAM WAS CONSULTED TO AGREE IF OSD SYSTEM CAN BE SIZED THROUGH A DRAINS MODELING. IT WAS AGREED WITH THE DEVELOPMENT ENGINEER, JAKE, THAT A DRAINS MODEL (ILSAX) CAN BE USED IN LIEU OF SIMPLIFIED METHOD IN DETERMINING SITE STORAGE REQUIREMENT (SSR) AND PERMISSIBLE SITE DISCHARGE(PSD).

A DRAINS MODEL ILSAX METHOD WAS USED TO SIZE THE ON-SITE DETENTION SYSTEM.
BASED ON THE DRAINS MODEL'S RESULTS(SHOWN ON THIS PAGE), WITH INCORPORATION OF A MIN 21.2m³ OF AN OSD TANK, THERE WILL BE NO INCREASE IN RUNOFF FROM THE SITE AS A RESULT OF THE DEVELOPMENT UNDER ALL DURATIONS FOR ALL THE STORMS UP TO AND INCLUDING 1% AEP EVENT.

TOTAL SITE AREA: 1300.89 m^2

PRE-DEVELOPMENT CATCHMENT CONDITIONS:
IMPERVIOUS AREA = 645.96 m^2
PERVIOUS AREA = 654.93 m^2

POST DEVELOPMENT CATCHMENT CONDITIONS:

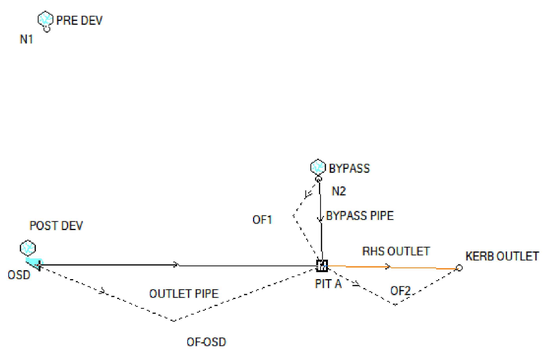
TOTAL AREA DRAINING TO OSD = 1171.97m^2
- ROOF AREA (IMPERVIOUS) = 290.31 m^2
- DRIVEWAY AREA (IMPERVIOUS) = 36.25 m^2
- HARDSTAND AREA (IMPERVIOUS) = 618.28 m^2
- LANDSCAPE AREA (PERVIOUS) = 227.13 m^2

TOTAL AREA BYPASSING OSD = 128.92 m^2
- IMPERVIOUS AREA(BYPASSING) = 43.19 m^2
- PERVIOUS AREA (BYPASSING) = 85.73 m^2

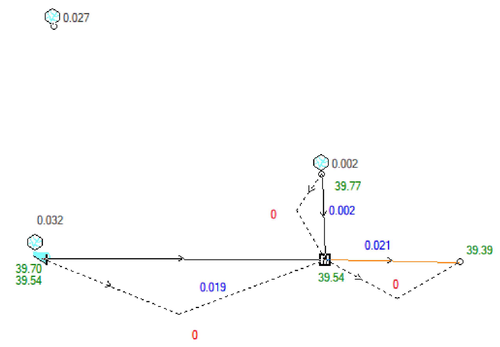
BASED ON THE DESIGN POLICY THE RUN-OFF FROM THE SITE AFTER DEVELOPMENT IS NOT TO EXCEED THE RUN-OFF FROM THE TOTAL SITE PRIOR TO THE DEVELOPMENT FOR ALL STORM DURATIONS UP TO 1% AEP STORM EVENT.

ALSO THE PSD IS LIMITED TO MAXIMUM 25l/s DURING 10% AEP AS STORMWATER DISCHARGE POINT IS PROPOSED TO BE TO THE LEVEL OF KERB IN FRONT OF SITE.

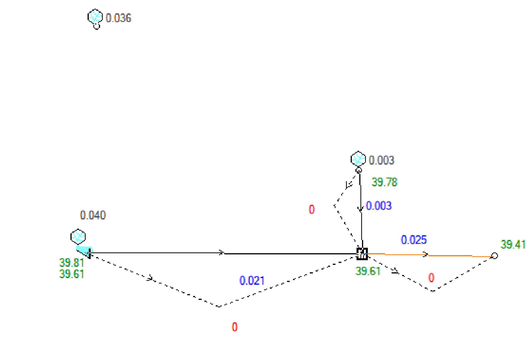
ON-SITE DETENTION DRAINS DESIGN SUMMARY				
STORM EVENT	PRE-DEVELOPMENT (l/s)	OSD OUTFLOW + BYPASS (l/s)	OSD VOL. (m^3)	Top Water Level (m AHD)
5 YR ARI (20% AEP)	27	21	5.5	39.7
10 YR ARI (10% AEP)	36	25	9.2	39.81
20 YR ARI (5% AEP)	44	28	12.4	39.9
50 YR ARI (2% AEP)	53	32	16.9	40.03
100 YR ARI (1% AEP)	61	35	21.1	40.15



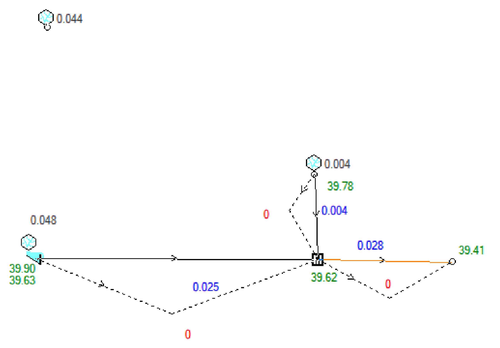
DRAINS MODEL



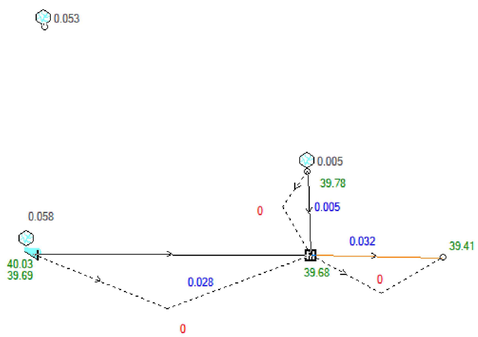
5 YEAR ARI (20% AEP) POST DEVELOPMENT - DRAINS MODEL



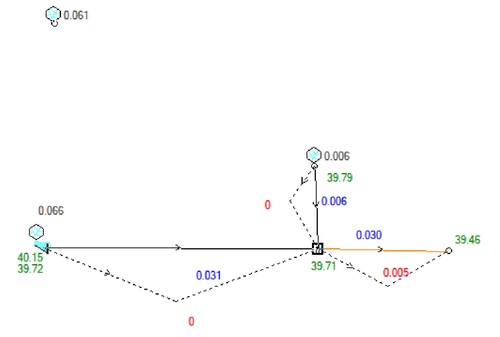
10 YEAR ARI (10% AEP) POST DEVELOPMENT - DRAINS MODEL



20 YEAR ARI (5% AEP) POST DEVELOPMENT - DRAINS MODEL



50 YEAR ARI (2% AEP) POST DEVELOPMENT - DRAINS MODEL



100 YEAR ARI (1% AEP) POST DEVELOPMENT - DRAINS MODEL

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
1:20 0 0.1 0.2 0.5 1 2
1:50 0 0.25 0.5 1.25 2.5 5
1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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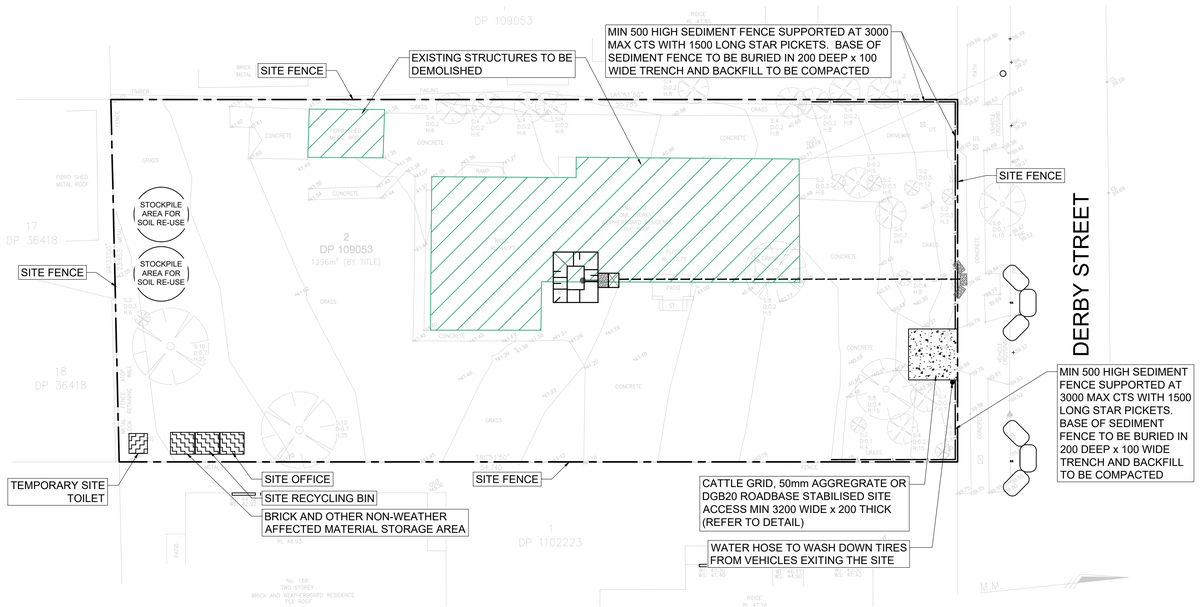
DRAWING TITLE: CALCULATIONS SHEET

PROJECT: 170 DERBY STREET, PENRITH NSW 2750

SHEET NO.	REV.	SCALE @ A1	NORTH	PROJECT NO.
D08	A	AS SHOWN		200325
DESIGNED: K.E.	DRAWN: J.E.	AUTHORISED: K.E.		PROJECT START DATE: SEPTEMBER 2020



EROSION AND SEDIMENT CONTROL PLAN
SCALE 1: 200

EROSION CONTROL NOTES

1. ALL EROSION & SEDIMENT CONTROL MEASURES ARE TO BE INSTALLED AND MAINTAINED IN ACCORDANCE WITH 'MANAGING URBAN STORMWATER, 3RD EDITION' PRODUCED BY THE NSW DEPARTMENT OF HOUSING.
2. ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION AND REMOVED REGULARLY DURING CONSTRUCTION
3. ALL TREES ARE TO BE PRESERVED UNLESS INDICATED OTHERWISE ON THE ARCHITECT'S OR LANDSCAPE ARCHITECT'S DRAWINGS. EXISTING GRASS COVER SHALL BE MAINTAINED EXCEPT IN AREAS CLEARED FOR BUILDINGS, PAVEMENTS ETC- CONTRACTOR TO MINIMISE DISTURBED AREAS.
4. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADDEN WATER
5. NOT WITHSTANDING DETAILS SHOWN, IT IS THE CONTRACTORS SOLE RESPONSIBILITY TO ENSURE THAT ALL SITE ACTIVITIES COMPLY WITH THE REQUIREMENTS OF THE CLEAN WATERS ACT.
6. ALL DISTURBED AREAS AND STOCKPILES TO BE STABILISED WITHIN 14 DAYS. ALL STOCKPILES TO BE CLEAR FROM DRAINS, GUTERS AND FOOTPATHS.
7. TOPSOIL TO BE STRIPPED, STOCKPILED AND RE-SPREAD ON COMPLETION OF EARTHWORKS. NONE TO BE REMOVED.
8. NO DISTURBANCE OF SITE PERMITTED OTHER THAN IMMEDIATE AREA OF THE WORKS.
9. DRAINAGE IS TO BE CONNECTED TO STORMWATER SYSTEM AS SOON AS POSSIBLE.

NON-COMPLIANCE MAY RESULT IN A $1500 FINE

SYMBOLS

31.09TK — EXISTING LEVELS

SILT FENCE

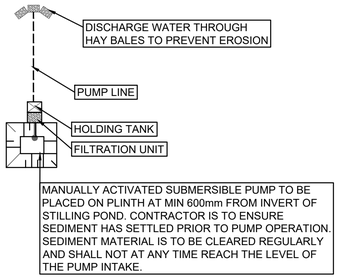
SITE FENCE

STABILISED SITE ACCESS

Ø50 PUMP LINE

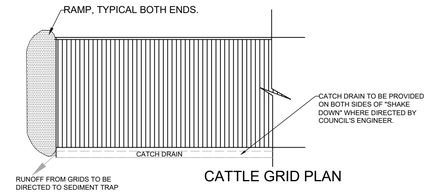
EXISTING STRUCTURE TO BE DEMOLISHED

SANDBAG SEDIMENT TRAP

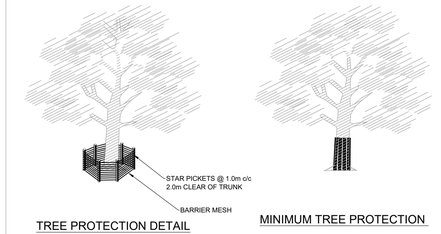


NOTES THIS DRAWING

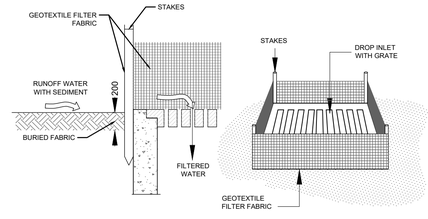
1. ALL DOCUMENTS WILL BE SUBMITTED TO COUNCIL FOR APPROVAL.
2. ALL SEDIMENT CONTROL MEASURES ARE TO BE IN PLACE.
3. INSTALLATION OF SILT FENCING, SEDIMENTATION BARRIERS AROUND DRAINS.
4. FENCING IS TO BE 1.8m(min) HEIGHT, PLACED AROUND THE SITE UNTIL THE WORK COMPLETE.
5. THE SITE GATES WILL BE LOCATED AT DERBY STREET.
6. THE HARDSTAND AREAS OR CATTLE GRIDS WILL BE PLACED AT THE SITE ENTRANCES AND EXITS. TO REMOVE THE BULK OF DIRT AND MUD THAT MAY ACCUMULATE ON TRUCK TYRES.
7. CONTRACTOR WILL CONDUCT REGULAR STREET SWEEPS ALONG THE ACCESS ROUTE TO ENSURE THE ROADS ADJACENT TO THE SITE ENTRANCES ARE KEPT CLEAN OF ANY DIRT AND DEBRIS.
8. REGULAR ENVIRONMENTAL INSPECTIONS WILL BE CARRIED OUT BY CONTRACTOR'S PERSONNEL TO ENSURE COMPLIANCE WITH THIS PLAN.



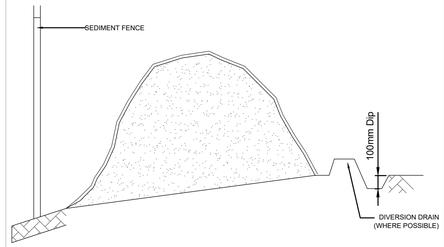
CATTLE GRID ALTERNATIVE



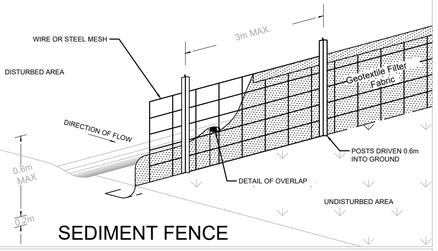
TREE PROTECTION DETAIL



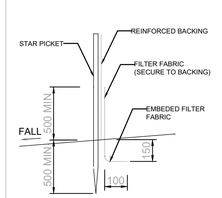
GEOTEXTILE FILTER FABRIC DROP INLET SEDIMENT TRAP



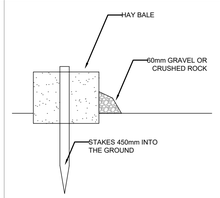
SOIL STOCK PILE



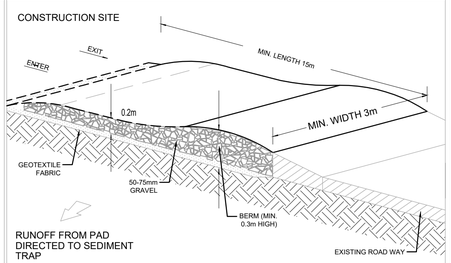
SEDIMENT FENCE



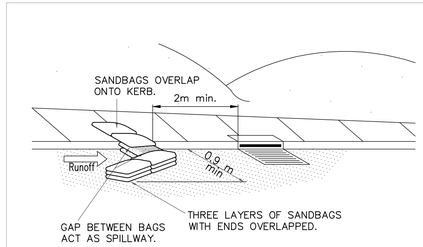
SILT FENCE DETAIL



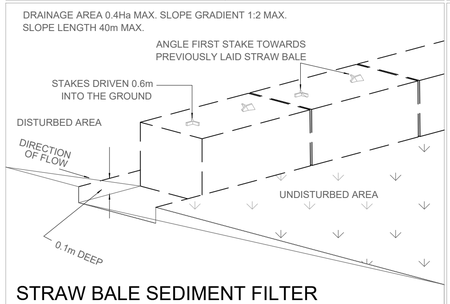
HAY BALE DETAIL



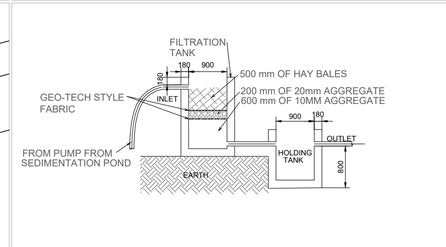
TEMPORARY CONSTRUCTION EXIT



SANDBAG KERB INLET SEDIMENT TRAP



STRAW BALE SEDIMENT FILTER



NOTE: HAY TO BE CHANGED EVERY DAY
GEO-TECH, SAND, AND BLUE METAL, TO BE CHANGED WEEKLY

TYPICAL DETAIL OF FILTRATION UNIT

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
1:20 0 0.1 0.2 0.5 1 2
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CLIENT: MONTESSORI ACADEMY

ARCHITECT: CULLEN FENG ARCHITECTS

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info@smartstructs.com.au | www.smartstructs.com.au

DRAWING TITLE: **EROSION AND SEDIMENT CONTROL PLAN AND DETAILS SHEET 1**

PROJECT: 170 DERBY STREET, PENRITH NSW 2750

SHEET NO.	REV.	SCALE @ A1	NORTH	PROJECT NO.
D10	A	AS SHOWN		200325
DESIGNED: K.E.	DRAWN: J.E.	AUTHORISED: K.E.		PROJECT START DATE: SEPTEMBER 2020

GENERAL INSTRUCTIONS:

SWM01
THESE PLANS PRESENT A CONCEPTUAL SOIL AND WATER MANAGEMENT PLAN (SWMP) ONLY AND SHOWS A POSSIBLE WAY OF MANAGING SOIL AND EROSION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ESTABLISHMENT AND MANAGEMENT OF THE SITE AND PREPARING A DETAILED PLAN AND OBTAINING APPROVAL FROM THE RELEVANT AUTHORITY PRIOR TO THE COMMENCEMENT OF ANY WORKS.

SWM02
THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE ENGINEERING PLANS AND ANY OTHER PLANS, WRITTEN INSTRUCTIONS, SPECIFICATION OR DOCUMENTATION THAT MAY BE ISSUED AND RELATING TO DEVELOPMENT OF THE SUBJECT SITE.

SWM03
THE CONTRACTOR WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE CONSISTENT WITH ' MANAGING URBAN STORMWATER - SOILS AND CONSTRUCTION' - ALSO KNOWN AS ' THE BLUE BOOK'.

SWM04
ALL BUILDERS AND SUB-CONTRACTORS SHALL BE INFORMED OF THEIR RESPONSIBILITIES IN MINIMISING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS.

EROSION CONTROL:

SWM05
WATER SHALL BE PREVENTED FROM ENTERING THE PERMANENT DRAINAGE SYSTEM UNTIL SEDIMENT CONCENTRATION IS LESS THEN OR EQUAL TO 50MG/L, IE THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/ OR ANY LIKELY SEDIMENT HAS BEEN FILTERED THROUGH AND APPROVED STRUCTURE.

SWM06
ANY SAND USED IN THE CONCRETE CURING PROCESS (SPREAD THE SURFACE WILL BE REMOVED AS SOON AS POSSIBLE AND WITHIN 10 WORKING DAYS FROM PLACEMENT.

SWM07
ACCEPTABLE RECEPTORS WILL BE CONSTRUCTED FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WEIGHT WASTE MATERIALS AND LITTER.

SWM08
'SEDIMENT' FENCING WILL BE INSTALLED AS INDICATED ON THE PLANS AND AT THE DIRECTION OF SITE SUPERINTENDENT TO ENSURE CONTAINMENT OF SEDIMENT. THE SEDIMENT FENCING WILL OUTLET OR OVERFLOW UNDER STABILISED CONDITIONS INTO THE SEDIMENT BASIN, TO SAFELY CONVEY WATER INTO A SUITABLE FILTERING SYSTEM SHOULD THE PORES IN THE FABRIC BLOCK.

SWM09
THE SEDIMENT BASINS WILL BE CONSTRUCTED WITH THE MINIMUM WET SEDIMENT CAPACITY OF CUM CUBIC METERS AND DESIGNED TO REMAIN STABLE IN AT LEAST THE 1 IN CDJSE YEAR CRITICAL DURATION STORM EVENT. ARTIFICIAL FLOCCULATION OF THE FINER PARTICLES MAY NOT BE NECESSARY IN THIS INSTANCE.

SWM10
STOCKPILES SHOULD NOT BE LOCATED WITHIN 5M OF TREES AND HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS, DRAINAGE LINES, PAVED AREAS AND DRIVEWAYS. WHERE THEY ARE WITHIN 5M FROM SUCH AREAS, SPECIAL SEDIMENT CONTROL MEASURES SHOULD BE TAKEN TO MINIMISE POSSIBLE POLLUTION TO DOWNSTREAM WATERS. MEASURE SHOULD ALSO BE APPLIED TO PREVENT THE EROSION OF THE STOCKPILE.

SWM11
ALL CUT AND FILL BATTERS ARE TO BE SEEDED AND MULCHED WITHIN 14 DAYS OF COMPLETION OF FORMATION.

SWM12
ANY EXISTING TREES WHICH FORM PART OF THE FINAL LANDSCAPING PLAN WILL BE PROTECTED FROM CONSTRUCTION ACTIVITIES BY -
A. PROTECTING THEM WITH BARRIER FENCING OR SIMILAR MATERIALS INSTALLED OUTSIDE THE DRIP LINE,
B. ENSURING THAT NOTHING IS NAILED TO THEM,
C. PROHIBITING PAVING GRADING SEDIMENT WASH OR PLACING OF STOCKPILES WITHIN THE DRIP LINE EXCEPT UNDER THE FOLLOWING CONDITIONS :

1. ENCROACHMENT ONLY OCCURS ON ONE SIDE AND NO CLOSER TO THE TRUNK THAN EITHER 1.5 METRES OR HALF THE DISTANCE BETWEEN THE OUTER EDGE OF THE DRIP LINE AND THE TRUNK, WHICH EVER IS THE GREATER,
2. A DRAINAGE SYSTEM THAT ALLOWS AIR AND WATER TO CIRCULATE THROUGH THE ROOT ZONE (E.G. A GRAVEL BED) IS PLACED UNDER ALL FILL LAYERS OF MORE THAN 300 MILLIMETRES DEPTH,
3. CARE IS TAKEN.

SWM13
DURING WINDY WEATHER, LARGE DISTURBED UNPROTECTED AREAS SHOULD BE KEPT MOIST (NOT WET) BY SPRINKLING WITH WATER TO KEEP DUST UNDER CONTROL.

SWM14
TEMPORARY PROTECTION FROM EROSIVE FORCES WILL BE UNDERTAKEN ON LANDS WHERE FINAL SHAPING HAS NOT BEEN COMPLETED BUT WORKS ARE UNLIKELY TO PROCEED FOR PERIODS OF TWO MONTHS OR MORE (EG. ON TOP SOIL STOCKPILES). THIS MAY BE ACHIEVED WITH A VEGETATIVE COVER. A RECOMMENDED LISTING OF PLANT SPECIES FOR SOIL AND WATER MANAGEMENT NOTES:
TEMPORARY COVER IS -
I) AUTUMN/WINTER SOWING -OATS/RYECORN AT 20KG/HA
-JAPANESE MILLET AT 10KG/HA
II) SPRING/SUMMER SOWING -JAPANESE MILLET AT 20KG/HA
- OATS/RYECORN AT 10 KG/HA

SWM15
DIVERSION BANKS/ CHANNELS WILL BE REHABILITATED AS SOON AS POSSIBLE AND WITHIN 5 WORKING DAYS FROM THEIR FINAL SHAPING. OTHER THAN IN THE WINTER MONTHS, SUITABLE MATERIALS'S INCLUDE TURF GRASSES SUCH S COUCH OR KIKUYU. DURING WINTER, OR AT OTHER TIMES WHEN TEMPORARY REHABILITATION (MORE THAN 3 MONTHS) IS REQUIRED, IT IS SUGGESTED THAT HESSIAN CLOTH IS USED BUT ONLY IF TACKED WITH APPROPRIATE PEGS AND AN ANIONIC BITUMEN EMULSION. FOOT AND VEHICULAR TRAFFIC SHOULD BE KEPT AWAY FROM THESE AREAS.

SWM16
UNDERTAKE SITE DEVELOPMENT WORKS IN ACCORDANCE WITH THE ENGINEERING PLANS. WHERE POSSIBLE, PHASE DEVELOPMENT SO THAT LAND DISTURBANCE IS CONFINED TO AREAS OF WORKABLE SIZE.

CONSTRUCTION SEQUENCE

SWM17
WHERE PRACTICAL, THE SOIL EROSION HAZARD ON THE SITE SHOULD BE KEPT AS LOW AS POSSIBLE. TO THIS END, WORKS SHOULD BE UNDERTAKEN IN THE FOLLOWING SEQUENCE -
I) INSTALL INLET SEDIMENT TRAPS TO ALL GULLY PITS FRONTING THE SITE,
II) INSTALL A 1.8M CHAIN WIRE FENCE AROUND THE BOUNDARIES AND ATTACH HESSIAN CLOTH OR SIMILAR TO IT ON THE WINDWARD SIDE (TIES AT THE TOP, CENTRE AND BOTTOM AND AT 1M INTERVALS OR AS INSTRUCTED BY THE SUPERINTENDENT),
III) INSTALL GEOFABRIC SEDIMENT FENCE AND SEDIMENT TRAPS AROUND ALL PERMANENT STORMWATER RETICULATION STRUCTURES AS SHOWN ON THE PLAN,
IV) CONSTRUCT STABILISED CONSTRUCTION ENTRANCE AS SHOWN ON THE PLAN OR TO LOCATION AS DETERMINED BY SUPERINTENDENT,
V) INSTALL DIVERSION BANKS ALONG THE BOUNDARY WHERE REQUIRED, REHABILITATE DISTURBED LANDS DOWNSLOPE FROM THE BASINS WITHIN 20 WORKING DAYS,
VI) ENSURE THAT THE SEDIMENT BASIN IS DIRECTED ONTO A TURFED AREA AND DRAINS TO A SUITABLE LOCATION. A TEMPORARY STORMWATER LINE MAY BE NECESSARY TO CONVEY THE FLOWS TO THIS LOCATION. CONSTRUCT DIVERSION CHANNELS AT THE BOUNDARY TO DRAIN INTO THE SEDIMENT BASIN AS SHOWN ON PLANS.
VII) AT COMPLETION STABILISE SITE AND DECOMMISSION SEDIMENT BASIN AND ALL EROSION CONTROL DEVICES.

SWM18
TEMPORARY SOIL AND WATER MANAGEMENT STRUCTURES WILL BE REMOVED ONLY AFTER THE LANDS THEY ARE PROTECTING ARE REHABILITATED.

SWM19
FINAL SITE LANDSCAPING WILL BE UNDERTAKEN AS SOON AS POSSIBLE AND WITHIN 20 WORKING DAYS FROM COMPLETION OF CONSTRUCTION ACTIVITIES.

SITE INSPECTION AND MAINTENANCE

SWM 20
AT LEAST WEEKLY AND AFTER EVERY RAIN FALL EVENT, THE CONTRACTOR WILL INSPECT THE SITE AND ENSURE THAT -
I) DRAINS AND ALL SEDIMENT CONTROL DEVICES OPERATE EFFECTIVELY AND INITIATE REPAIR OR MAINTENANCE AS REQUIRED,
II) RECEPTORS FOR CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHINGS, LIGHT-WIGHT WASTE MATERIALS AND LITTER ARE TO BE EMPTIED AS NECESSARY. DISPOSAL OF WASTE SHALL BE IN A MANOR APPROVED BY THE SUPERINTENDENT,
III) SPILL SAND (OR OTHER MATERIALS) IS REMOVED FROM HAZARD AREAS, INCLUDING LIKELY AREAS OF CONCENTRATED OR HIGH VELOCITY FLOWS SUCH AS WATERWAYS, GUTTERS, PAVED AREAS AND DRIVEWAYS,
IV) SEDIMENT IS REMOVED FROM BASINS AND / OR TRAPS WHEN LESS THAN 20M^3 OF TRAPPING CAPACITY REMAIN PER 1000M^2 OF DISTRIBUTED LANDS, AND OR LESS THAN 500 DEPTH REMAINS IN THE SETTLING ZONE. ANY COLLECTED SEDIMENT WILL BE DISPOSED IN AREAS WHERE FURTHER POLLUTION TO DOWN SLOPE LANDS AND WATERWAYS IS UNLIKELY,
V) REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND INITIATE UPGRADING OR REPAIR AS APPROPRIATE.

SWM 21
THE CONTRACTOR SHALL PROVIDE ALL MONITORING CONTROL AND TESTING.

No.	Description	Date	Issued by	Checked by
A	ISSUED FOR D.A.	07.12.20	J.E.	K.E.

SCALE BARS
1:20 0 0.1 0.2 0.5 1 2
1:50 0 0.25 0.5 1.25 2.5 5
1:100 0 0.5 1 2.5 5 10
1:200 0 1 2 5 10 20

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DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN AND DETAILS SHEET 2

SHEET NO.	REV.	SCALE @ A1
D11	A	NTS
DESIGNED: K.E.	DRAWN: J.E.	AUTHORISED: K.E.

PROJECT
170 DERBY STREET, PENRITH
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NORTH

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