A3

11 SURREY AVENUE, GEORGES HALL
STORMWATER MANAGEMENT PLANS

STORMWATER DESIGN NOTES

1. ALL DRAINAGE WORKS ARE TO BE IN ACCORDANCE WITH AS/NZS 3500.3 - STORMWATER DRAINAGE, CANTERBURY BANKSTOWN CITY COUNCIL - DEVELOPMENT ENGINEERING STANDARDS - CHAPTER 3.1. .

2. THE SITE IS NOT FLOOD AFFECTED BASED ON A DESKTOP ASSESSMENT OF FLOOD MAP AVAILABLE AT HTTPS://WWW.CBCITY.NSW.GOV.AU/ENVIRONMENT/RIVERS-CREEKS/FLOODPLAIN-MANAGEMENT

3. THE SITE AREA = 452 m2
 - TOTAL SITE EXISTING IMPERVIOUS AREA = 255 m2 (56%)
 - TOTAL SITE PROPOSED IMPERVIOUS AREA = 275 m2 (60.8%)

4. OSD IS NOT REQUIRED FOR THE DEVELOPMENT BASED ON A DESKTOP ASSESSMENT OF CANTERBURY - BANKSTOWN CITY COUNCIL DCP - DEVELOPMENT ENGINEERING STANDARDS - CHAPTER 3.1.

5. RAINWATER TANK IS REQUIRED FOR THE DEVELOPMENT BASED ON A DESKTOP ASSESSMENT OF THE LASTEST BASIX CERTIFICATE.

6. THE POINT OF DISCHARGE SHALL BE VIA NEW STORMWATER CONNECTION TO COUNCIL KERB AND GUTTER SYSTEM.

ABBREVIATIONS

LEVELS

FFL	FINISHED FLOOR LEVEL
IL	INVERT LEVEL
RL	REDUCED LEVEL
H/L	HIGH LEVEL
L/L	LOW LEVEL
+	NEW REDUCED LEVEL
×	EXISTING LEVEL
AHD	AUSTRALIAN HEIGHT DATUM
OFP	OVERLAND FLOW PATH
SSL	STRUCTURAL SLAB LEVEL
SRZ	STRUCTURAL ROOT ZONE
TRZ	TREE ROOT ZONE
UNO	UNLESS NOTED OTHERWISE

FIXTURES

RWO	RAINWATER OUTLET
SWP	STORMWATER PIT (GRATE/SEALED)
PBO	PLANTER BOX OUTLET
CO	CLEAR OUT
GD	GRATED TRENCH DRAIN
RWT	RAINWATER TANK
KIP	KERB INLET PIT

SERVICES LEGEND

- EXISTING WATER MAIN
- EXISTING GAS MAIN
- EXISTING SEWER MAIN
- EXISTING ELECTRICAL SERVICE
- EXISTING STORMWATER PIPEWORK
- STORMWATER PIPEWORK
- RAINWATER PIPEWORK
- SUBSOIL PIPEWORK

ROOF DRAINAGE FIXTURES

RHS	RECTANGULAR HOLLOW SECTION
O/F	OVERFLOW
SP	SPREADER
DP	DOWN PIPE
RH	RAINWATER HEAD
BO	BALCONY OUTLET

SITE LOCALITY PLAN

DRAWING LIST	
DRAWING NUMBER	DRAWING NAME
2024H0016-SW01	COVER SHEET, NOTES & LEGEND
2024H0016-SW02	SEDIMENT AND EROSION CONTROL PLAN
2024H0016-SW03	CATCHMENT PLAN
2024H0016-SW04	GROUND FLOOR PLAN
2024H0016-SW05	BASEMENT FLOOR PLAN
2024H0016-SW06	DETAILS SHEET

REV.	DES.	DATE	VER.	DESCRIPTION
P1	T.D	23.06.24	N.H	ISSUED FOR DA

STORMWATER MANAGEMENT PLANS

COVER SHEET, NOTES & LEGEND

DRAWING # 2024H0016-SW01 REVISION P1

CLIENT: MASTERS GROUP ASSET HOLDINGS PTY LTD

PROJECT NAME: 11 SURREY AVENUE, GEORGE HALL

PROJECT NORTH POINT

DESIGNER	T.N	DATE CREATED	17.06.2024
ENGINEER	T.N	STATUS	DA
VERIFIER	N.H	SCALE @ A3	N/A

THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW

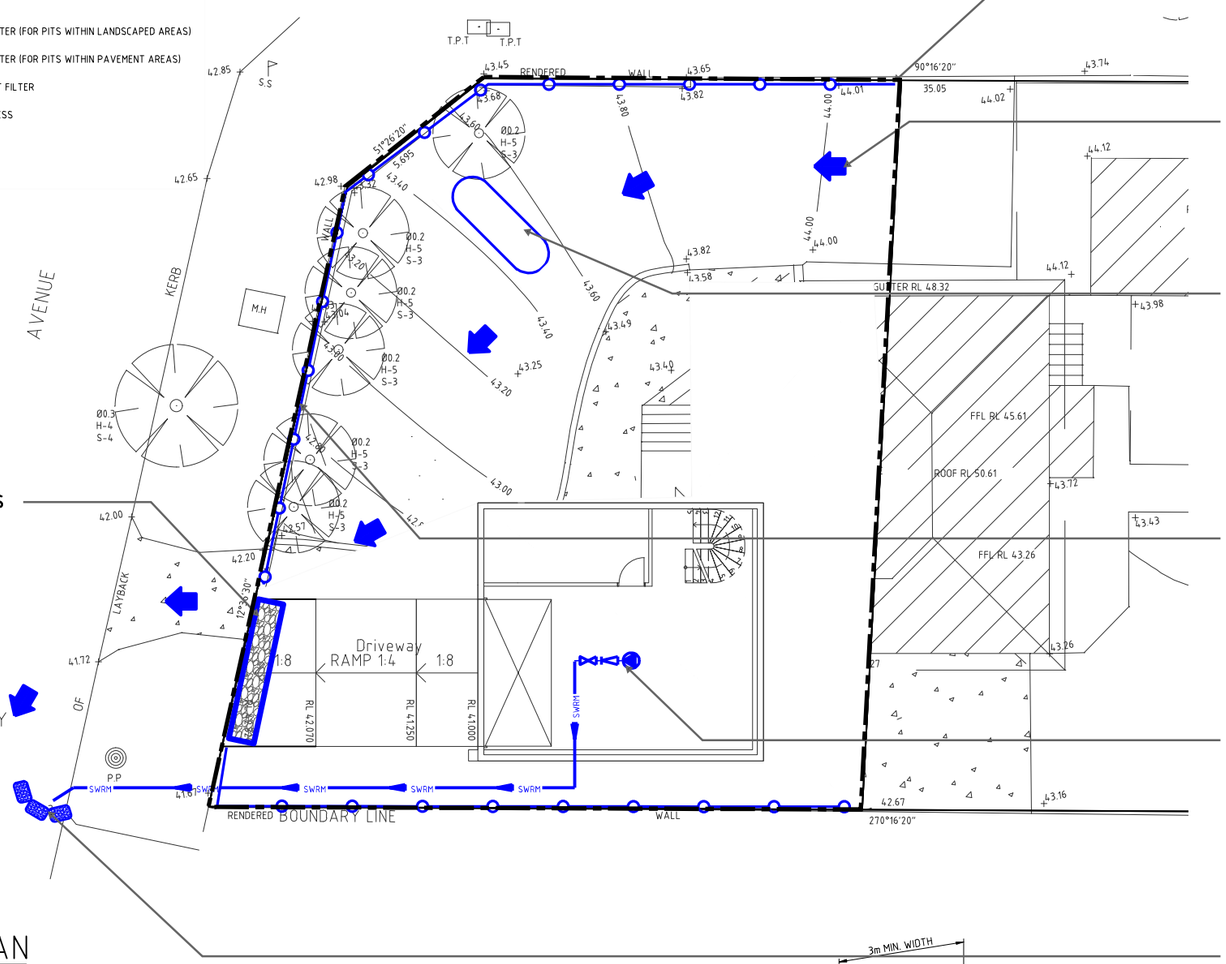
PROJECT SUPERINTENDENT'S SIGNATURE: DATE:

LEOPARD ENGINEERING GROUP
CIVIL AND HYDRAULIC ENGINEERING
ABN 85 653 756 042
E: info.mdmengineers@gmail.com

A3

LEGEND

- SEDIMENT FENCE
- GEOTEXTILE INLET FILTER (FOR PITS WITHIN LANDSCAPED AREAS)
- GEOTEXTILE INLET FILTER (FOR PITS WITHIN PAVEMENT AREAS)
- MESH & GRAVEL INLET FILTER
- STABILISED SITE ACCESS
- STOCK PILE

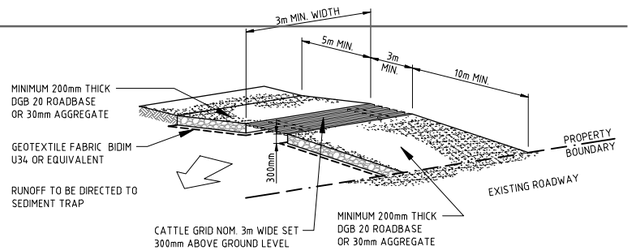


SITE PLAN
SCALE 1: 200

CONSTRUCTION NOTES:

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METRES 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 2 METRES 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 2 METRES DOWNSLOPE.

STOCK PILE DETAIL
NOT TO SCALE

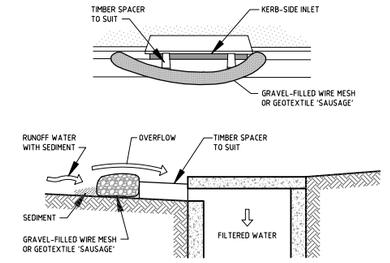


GEOFABRIC MAY BE A WOVEN OR NEEDLE-PUNCHED PRODUCT WITH A MINIMUM CBR BURST STRENGTH (AS3706.4-90) OF 2500 N

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 15m LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3m 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.

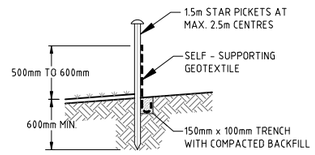
STABILISED SITE ACCESS WITH SHAKER GRID DETAIL
NOT TO SCALE



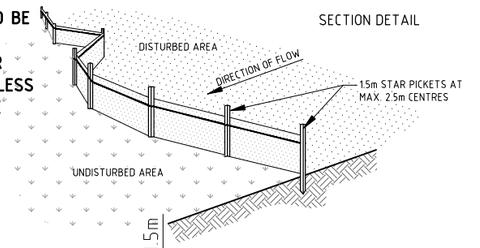
CONSTRUCTION NOTES:

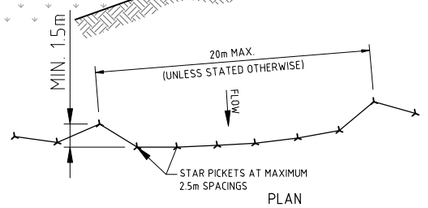
1. INSTALL FILTERS TO KERB INLETS ONLY AT SAG POINTS.
2. FABRICATE A SLEEVE MADE FROM GEOTEXTILE OR WIRE MESH LONGER THAN THE LENGTH OF THE INLET PIT AND FILL IT WITH 25mm TO 50mm GRAVEL.
3. FORM AN ELLIPTICAL CROSS-SECTION ABOUT 150mm HIGH x 400mm WIDE.
4. PLACE THE FILTER AT THE OPENING LEAVING AT 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 DETAIL
NOT TO SCALE



SECTION DETAIL





PLAN

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 1.5 METRE LONG STAR PICKETS INTO THE 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 150-mm OVERLAP.
6. BACKFILL THE TRENCH OVER THE BASE OF THE FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

SEDIMENT FENCE DETAIL
NOT TO SCALE

REV.	DES.	DATE	VER.	DESCRIPTION
P1	T.D	23.06.24	N.H	ISSUED FOR DA

STORMWATER MANAGEMENT PLANS

SEDIMENT AND EROSION CONTROL PLAN

DRAWING # 2024H0016-SW02 | REVISION P1

CLIENT: MASTERS GROUP ASSET HOLDINGS PTY LTD

PROJECT NAME: 11 SURREY AVENUE, GEORGE HALL

PROJECT NORTH POINT

DESIGNER	T.N	DATE CREATED	17.06.2024
ENGINEER	T.N	STATUS	DA
VERIFIER	N.H	SCALE @ A3	1:200

THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW

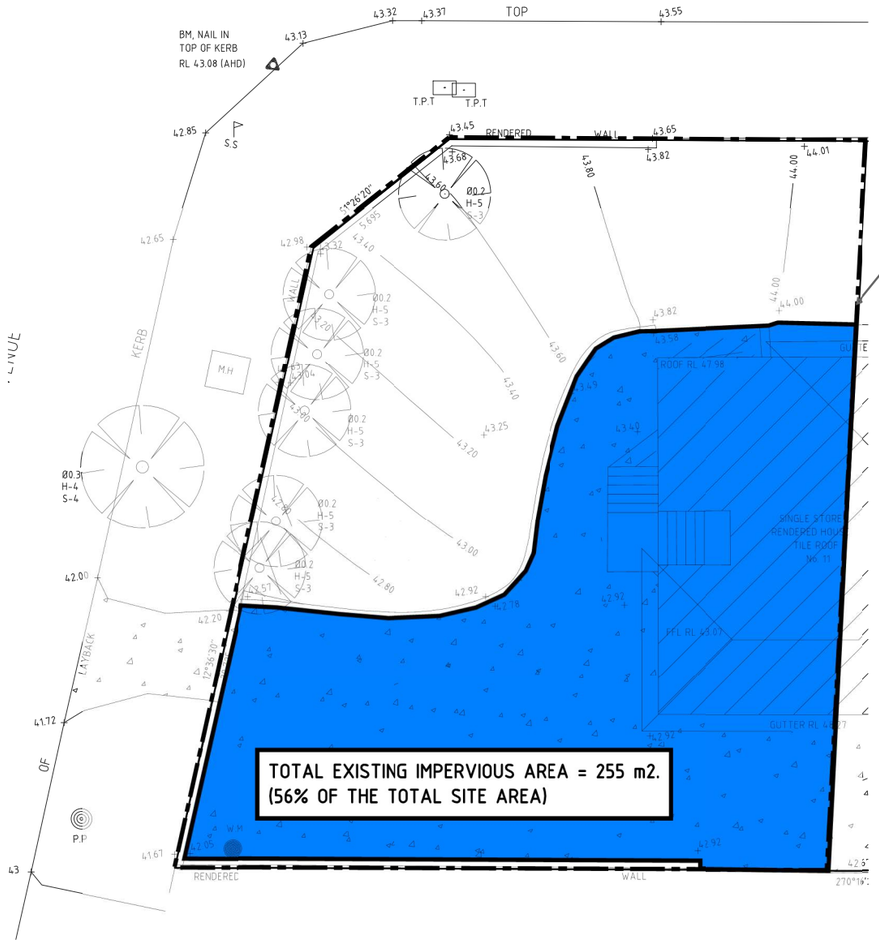
PROJECT SUPERINTENDENT'S SIGNATURE: DATE:

LEOPARD ENGINEERING GROUP
CIVIL AND HYDRAULIC ENGINEERING
ABN 85 653 756 042
E: info.mdmengineers@gmail.com

A3

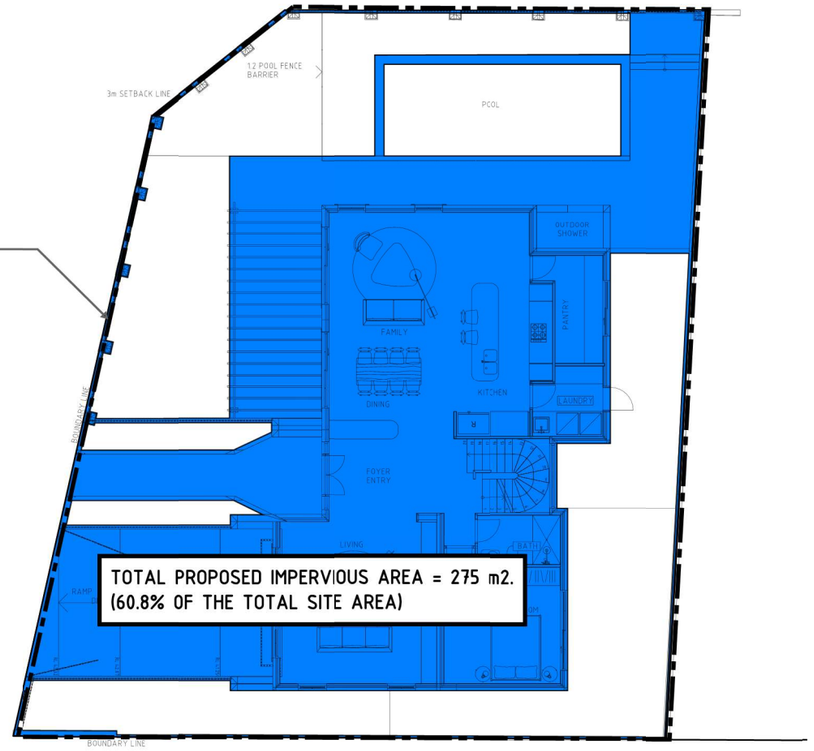
IMPORTANT NOTES:

AS THE TOTAL PROPOSED IMPERVIOUS AREA IS LESS THAN 75% OF THE TOTAL SITE AREA, FOR A SINGLE DWELLING DEVELOPMENT ONSITE DETENTION SYSTEM IS THEREFORE NOT REQUIRED IN ACCORDANCE WITH CANTERBURY BANKSTOWN CITY COUNCIL DEVELOPMENT ENGINEERING STANDARDS - CHAPTER 3.1.



DASH LINE DENOTES BOUNDARY LINE

DASH LINE DENOTES BOUNDARY LINE



PRE-DEVELOPED IMPERVIOUS CATCHMENT PLAN

SCALE 1:200

POST-DEVELOPED IMPERVIOUS CATCHMENT PLAN

SCALE 1:200

REV.	DES.	DATE	VER.	DESCRIPTION
P1	T.D	23.06.24	N.H	ISSUED FOR DA

STORMWATER MANAGEMENT PLANS

CATCHMENT PLAN

DRAWING # 2024H0016-SW03

REVISION P1

CLIENT: MASTERS GROUP ASSET HOLDINGS PTY LTD

PROJECT NAME: 11 SURREY AVENUE, GEORGE HALL

PROJECT NORTH POINT

DESIGNER	T.N	DATE CREATED	17.06.2024
ENGINEER	T.N	STATUS	DA
VERIFIER	N.H	SCALE @ A3	AS SHOWN

THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW

PROJECT SUPERINTENDENT'S SIGNATURE: DATE:

CIVIL AND HYDRAULIC ENGINEERING
ABN 85 653 756 042
E: info.mdmengineers@gmail.com

A3

POOL IS TO BE FITTED WITH HIGH LEVEL OVERFLOW TO SEWER DRAINAGE SYSTEM

DOWNPIPE SERVING BALCONY ABOVE

NEW ACO K100 KLASSIK DRAIN WITH CLASS A GRATE HEEL PROOF OR APPROVED EQUIVALENT

DOWNPIPE SERVING BALCONY ABOVE

SWP
(SILT ARRESTOR PIT)
600X600
RL: 42.05
PIPE IL: 41.50
IL: 41.20

NEW KERB AND GUTTER CONNECTION TO SURREY AVENUE IN ACCORDANCE WITH CANTERBURY-BANKSTOWN COUNCIL'S REQUIRMENTS
IL: 41.45

DENOTES OVERLAND FLOW PATH

DOWNPIPE SERVING BALCONY ABOVE

OUTDOOR SHOWER AREA TO BE COLLECTED AND DISCHARGED TO SEWER DRAINAGE SYSTEM

RAINWATER HARVESTING TANK WITH MINIMUM EFFECTIVE VOLUME IN ACCORDANCE WITH BASIX CERTIFICATE REQUIREMENTS.

VERTICAL - WALL MOUNTED FIRST FLUSH SYSTEM WITH MINIMUM CAPACITY OF 100L.

STORMWATER RISING MAIN FROM BASEMENT, TO BE FITTED WITH REFUX (NON RETURN) VALVE.

DENOTES EXTENT OF 1.0M WIDE EASEMENT FOR DRAINAGE. DESIGNED AND APPROVED UNDER A SEPARATE DA.

GROUND FLOOR PLAN

SCALE 1:100

P1	T.D	19.06.2024	N.H	PRELIMINARY ISSUE
REV.	DES.	DATE	VER.	DESCRIPTION

STORMWATER MANAGEMENT PLANS

GROUND FLOOR PLAN

DRAWING # 2024H0016-SW04

REVISION P1

CLIENT: MASTERS GROUP ASSET HOLDINGS PTY LTD

PROJECT NAME: 11 SURREY AVENUE, GEORGE HALL

PROJECT NORTH POINT

DESIGNER	T.N	DATE CREATED	17.06.2024
ENGINEER	T.N	STATUS	DA
VERIFIER	N.H	SCALE @ A3	1:100

THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW

PROJECT SUPERINTENDENT'S SIGNATURE: DATE:

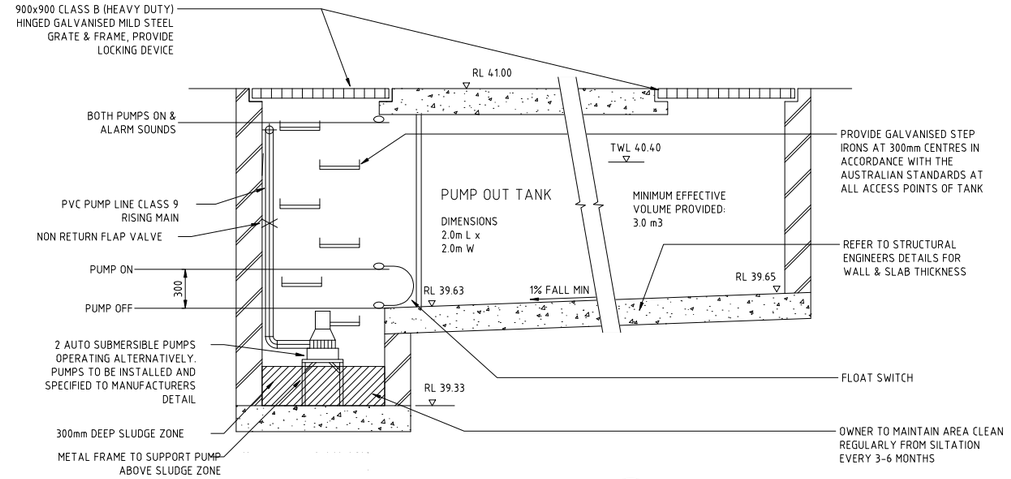
LEOPARD ENGINEERING GROUP
CIVIL AND HYDRAULIC ENGINEERING
ABN 85 653 756 042
E: info.mdmengineers@gmail.com

A3

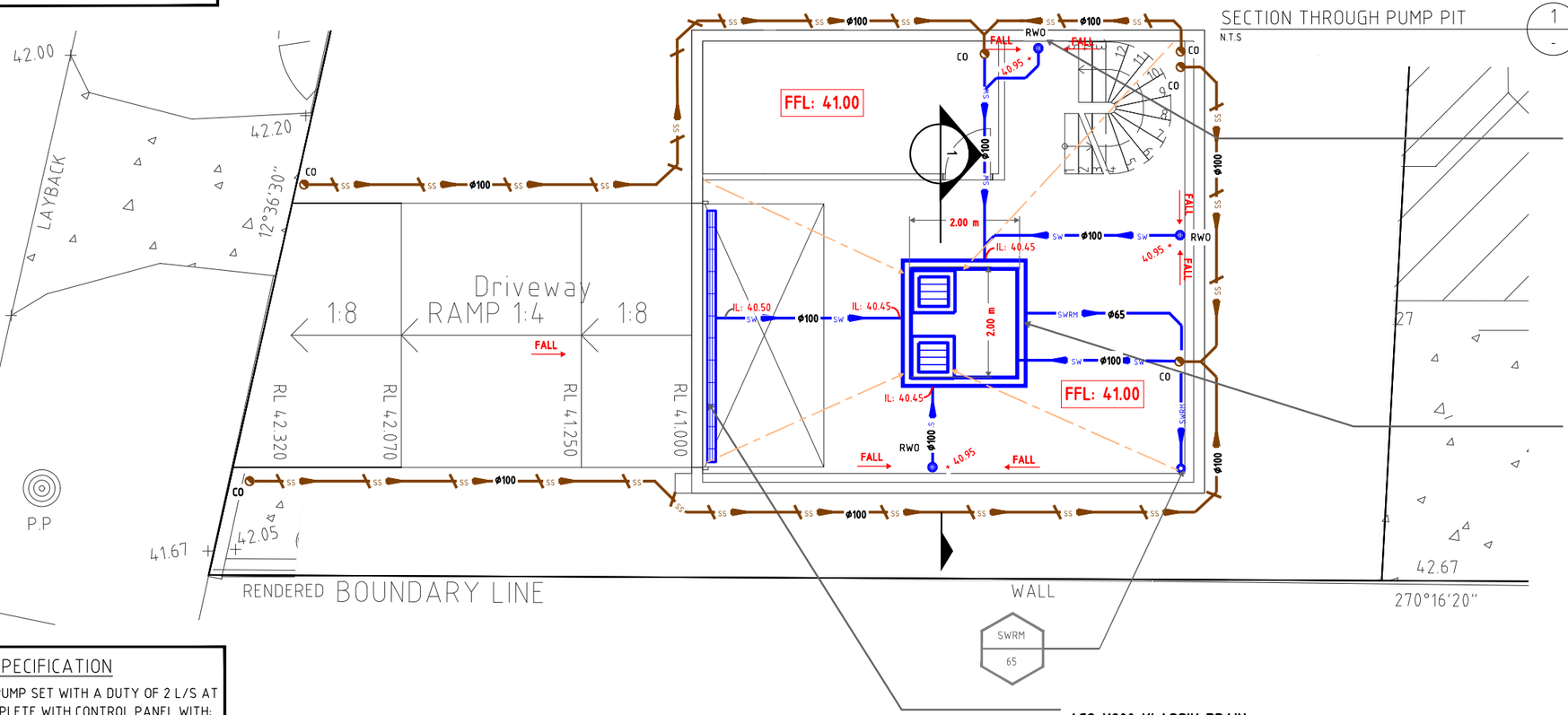
PUMP OUT NOTES

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

1. THE PUMPS SHALL BE PROGRAMMED TO WORK ALTERNATELY ON A DUTY STANDBY ARRANGEMENT SO AS TO ALLOW BOTH PUMPS TO HAVE EQUAL OPERATION LOAD & PUMP LIFE.
2. A LOW LEVEL FLOAT SHALL BE PROVIDED TO ENSURE THAT THE MINIMUM REQUIRED WATER LEVEL IS MAINTAINED WITHIN THE SUMP AREA OF THE TANK. IN THIS REGARD THIS FLOAT WILL FUNCTION AS AN OFF SWITCH FOR THE PUMPS.
3. A SECOND FLOAT SHALL BE PROVIDED AT A HIGHER LEVEL, APPROXIMATELY 300mm ABOVE THE MINIMUM WATER LEVEL WHEREBY ONE OF THE PUMPS WILL OPERATE AND DRAIN THE TANK TO THE LEVEL OF THE LOW LEVEL FLOAT.
4. A THIRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL, WITHIN THE TANK. THIS FLOAT SHOULD START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.
5. AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT & A PUMP FAILURE WARNING SIGNAL 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.
6. PUMP CONTROL SHALL BE IN A LOCKABLE & WEATHER PROOF CABINET.



SECTION THROUGH PUMP PIT 1
N.T.S



SPS 100 TRUFLO RAINWATER OUTLET TO CAPTURE PERIMETER DRAINAGE. SUPPLIED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS. (TYPICAL)

STORMWATER BASEMENT PUMP-OUT SYSTEM WITH MINIMUM EFFECTIVE VOLUME OF 3.0 M3 IN ACCORNDANCE WITH COUNCIL'S ENGINEERING STANDARDS AND AS3500.3.

ACO K200 KLASSIK DRAIN CLASS D GRATE OR APPROVED EQUIVALENT.

STORMWATER PUMP SET SPECIFICATION

INSTALL ALINE DUAL STORMWATER PUMP SET WITH A DUTY OF 2 L/S AT 6 METERS HEAD OR EQUIVALENT COMPLETE WITH CONTROL PANEL WITH:
- MAIN ISOLATING SWITCH.
- AUTOMATIC ALTERNATION.
- MAN / OFF / AUTO SWITCH FOR EACH PUMP.
- CIRCUIT BREAKERS FOR CONTROL CIRCUIT.
- MANUAL RESET THERMAL OVERLOAD FOR EACH PUMP MOTOR.
- LIGHTS FOR POWER ON / PUMP RUN / PUMP FAIL / HIGH LEVEL.
- COMMON FAULT STROBE LIGHT.
- VOLT FREE CONTACTS FOR BMS CONNECTION.
- AUDIBLE ALARM WITH MUTE BUTTON.
- ALL MOUNTED IN A WEATHERPROOF SHEET METAL ENCLOSURE.

BASEMENT FLOOR PLAN

SCALE 1:100

REV.	DES.	DATE	VER.	DESCRIPTION
P1	T.D	23.06.24	N.H	ISSUED FOR DA

STORMWATER MANAGEMENT PLANS

BASEMENT FLOOR PLAN

DRAWING # 2024H0016-SW05 | REVISION P1

CLIENT: MASTERS GROUP ASSET HOLDINGS PTY LTD

PROJECT NAME: 11 SURREY AVENUE, GEORGE HALL

PROJECT NORTH POINT

DESIGNER	T.N	DATE CREATED	17.06.2024
ENGINEER	T.N	STATUS	DA
VERIFIER	N.H	SCALE @ A3	AS SHOWN

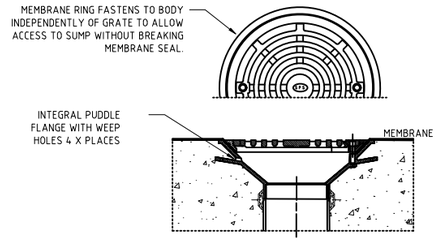
THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW

PROJECT SUPERINTENDENT'S SIGNATURE: DATE:

LEOPARD ENGINEERING GROUP
CIVIL AND HYDRAULIC ENGINEERING
ABN 85 653 756 042
E: info.mdmengineers@gmail.com

A3

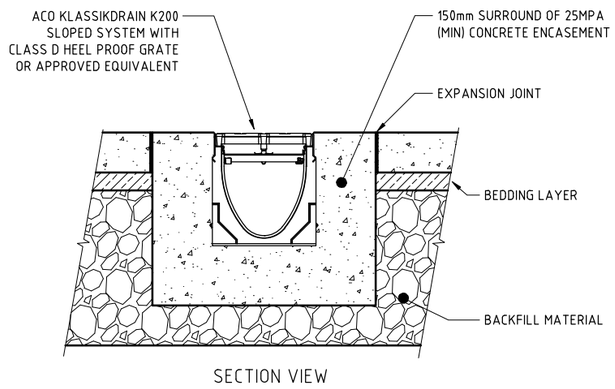
SPECIFICATION CODES:
TIA100F2 (CI BODY, ALUMINIUM FLAT GRATE & MEMBRANE RING)



SPS TRUFLO 100mm RWO WITH FLAT GRATE & MEMBRANE CLAMP

A DWG

N.T.S
(SPS REF 1.03)

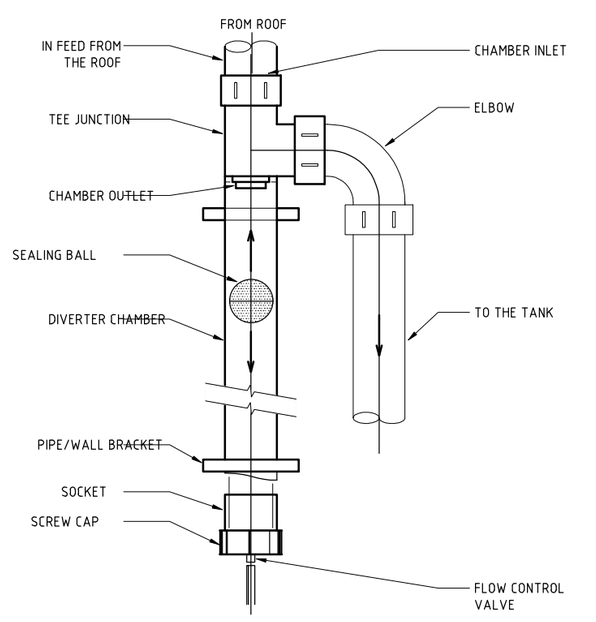


SECTION VIEW

TRENCH GRATE (200mm WIDE) CLASS D

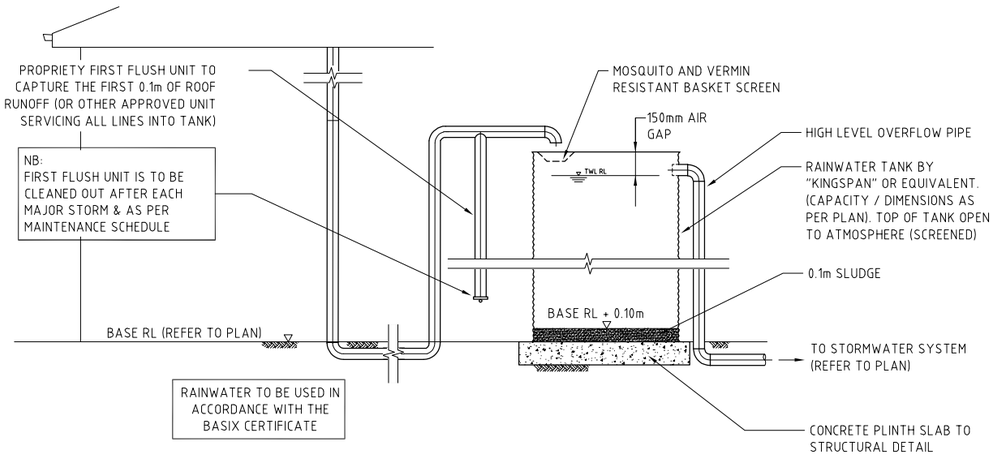
N.T.S

PUMP-OUT TANK CALCULATION BASED ON AS 3500.3	
ARI Rainfall Intensity (mm/hr)	36.80
Coeffient of Runoff	1
TANK SIZE	
Nominate Pumpout Tank Length (m)	2.00
Nominate Pumpout Tank Width (m)	2.00
Minimum Effective Depth (m)	0.75
D = V/(L*W)	
TANK VOLUME	
Catchment Area [A] Discharging to Pump (m2)	72.00
Peak Discharge (Rational Method) [Q] (l/h/m2)	36.80
Q = Cr*I	
Volume For 2 Hour Storm (m3)	5.30
V_2hour = Q*Tc*Ac (Tc = 2hour)	
Pump Capacity For 30 Minutes Storm (m3)	3.60
Assumed Pump Duty of 2l/s @ 10m Head	
Design Storage Required [V] (m3)	3.00
V-design = V_2hour - PC_30 minutes (AS3500.3)	



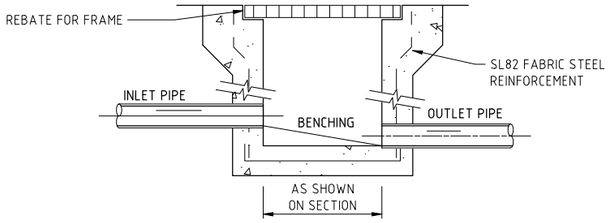
DOWNPIPE FIRST FLUSH DIVERTER

N.T.S

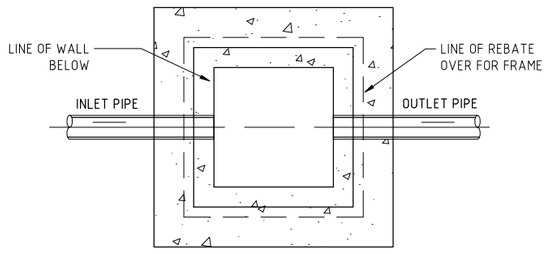


ABOVE GROUND RAINWATER STORAGE TANK

N.T.S



SECTION



PLAN WITHOUT GRATE

TYPICAL GRATED INLET PIT

N.T.S

REV.	DES.	DATE	VER.	DESCRIPTION
P1	T.D	23.06.24	N.H	ISSUED FOR DA

STORMWATER MANAGEMENT PLANS

DETAILS SHEET

DRAWING # 2024H0016-SW06 REVISION P1

CLIENT: MASTERS GROUP ASSET HOLDINGS PTY LTD

PROJECT NAME: 11 SURREY AVENUE, GEORGE HALL

PROJECT NORTH POINT

DESIGNER	T.N	DATE CREATED	17.06.2024
ENGINEER	T.N	STATUS	DA
VERIFIER	N.H	SCALE @ A3	N/A

THIS DRAWING IS NOT TO BE USED FOR TENDER/CONSTRUCTION UNLESS ENDORSED BELOW

PROJECT SUPERINTENDENT'S SIGNATURE: DATE:

CIVIL AND HYDRAULIC ENGINEERING
ABN 85 653 756 042
E: info.mdmengineers@gmail.com