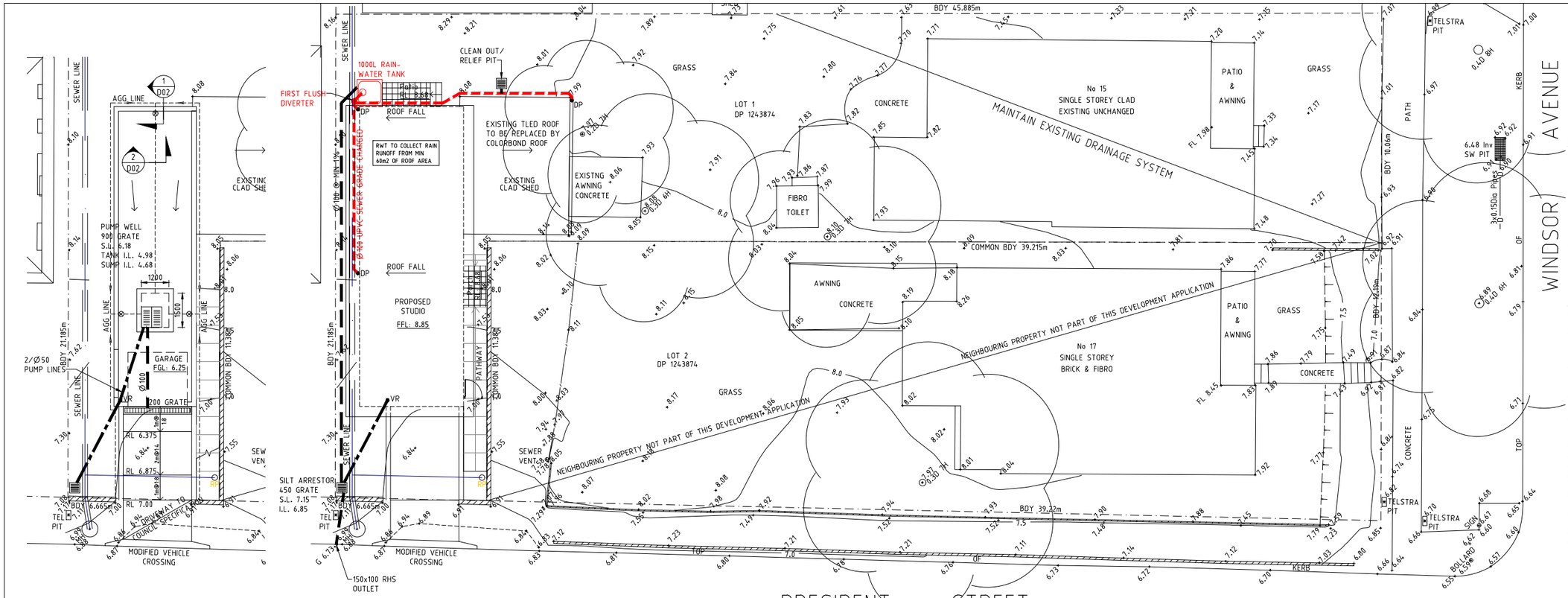


GARAGE DRAINAGE PLAN

SCALE 1:100

DESIGN SUMMARY

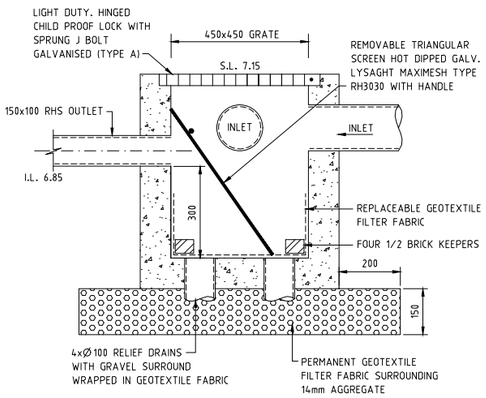
TOTAL SITE AREA = 537m2
PRE DEV. IMP. AREA = 208m2 (39%)
POST DEV. IMP. AREA = 318m2 (59%)
PROPOSED IMPERVIOUS AREA IS LESS THAN 70%, THEREFORE NO O.S.D. IS REQUIRED. IN ACCORDANCE WITH CANTERBURY DCP 2012, SECTION B5.5

RAINWATER TANK TO COMPLY WITH BASIX COMMITMENTS

SITE AND ROOF DRAINAGE PLAN

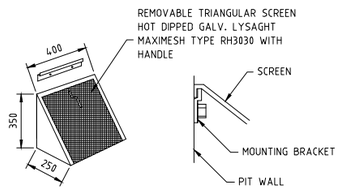
SCALE 1:100

NOTE:
1. MINIMUM ROOF FALL 1% TO OUTLETS
2. WATERPROOF ALL CONCRETE ROOFS
3. PROVIDE SAFETY OVERFLOW TO ALL ROOFS
4. ALL DOWNPIPES CHARGED TO THE RAINWATER TANK ARE TO BE SEALED UP TO GUTTER LEVEL & BE PRESSURE TESTED AND CERTIFIED.
5. ALL DOWNPIPES TO BE CONSTRUCTED OF ONE MATERIAL FOR AESTHETICS REASONS AND PAINTED TO PROTECT THEM AGAINST ULTRA-VIOLET LIGHT DAMAGE.



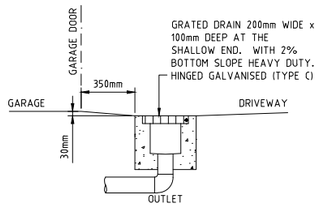
SILT ARRESTOR PIT-SECTION

SCALE 1:10



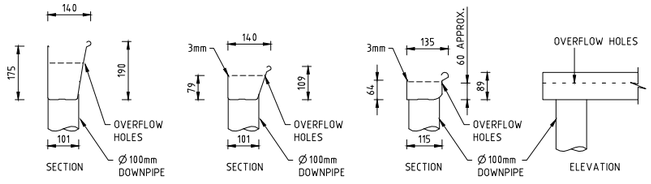
MULTI PURPOSE FILTER SCREEN

SCALE 1:20
PRODUCT CODE: MMMPS (MASCOT ENGINEERING)



TYPICAL GRATE SECTION

SCALE 1:20



ACE GUTTERS

GUTTER	FLOWRATE	VOLUME 1 LM	
NU-LINE ACE	5 L/s	12.6 L	MEASURED TO OVERFLOW HOLES
MINI-LINE	2.5 L/s	7.3 L	MEASURED TO OVERFLOW HOLES
NEW ACE QUAD	1.5 L/s	6.2 L	MEASURED TO OVERFLOW HOLES

MINIMUM GUTTER SIZE TO BE SELECTED

QUAD GUTTER DETAIL

SCALE 1:10

EROSION CONTROL NOTES

1. ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS, AND ALL SILT TRAPS ARE TO HAVE DEPOSITED SILT REMOVED REGULARLY DURING CONSTRUCTION.
2. 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.
3. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADDEN WATER, TO COUNCIL'S STANDARDS
4. 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.
5. ALL TOPSOIL TO BE CONSERVED FOR RE-USE ON SITE

NOTES

1. ALL LINES ARE TO BE Ø100 U.P.V.C @ MIN 1.0% GRADE UNLESS NOTED OTHERWISE. CHARGED LINES TO BE SEWER GRADE & SEALED.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
3. ALL PIPES TO HAVE MIN 150mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS TO BE 450x450 CONCRETE AND ALL PITS IN LANDSCAPED AREAS TO BE 450x450 PLASTIC.
5. PITS LESS THAN 600 DEEP MAY BE BRICK, PRECAST OR CONCRETE.
6. PITS DEEPER THAN 900 MUST BE 900x900 AND HAVE STEP RUNGS AT 300 CENTRES.
7. ALL BALCONIES AND ROOFS TO BE DRAINED AND TO HAVE SAFETY OVERFLOWS IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
8. ALL EXTERNAL SLABS TO BE WATERPROOFED.
9. ALL GRATES TO HAVE CHILD PROOF LOCKS.
10. ALL DRAINAGE WORKS TO AVOID TREE ROOTS.
11. ALL DP'S TO HAVE LEAF GUARDS
12. ALL EXISTING LEVELS TO BE CONFIRMED BY BUILDER PRIOR TO CONSTRUCTION.
13. ALL WORK WITHIN COUNCIL RESERVE TO BE INSPECTED BY COUNCIL PRIOR TO CONSTRUCTION.
14. COUNCIL'S ISSUED FOOTWAY DESIGN LEVELS TO BE INCORPORATED INTO THE FINISHED LEVELS ONCE ISSUED BY COUNCIL.
15. ALL WORK SHALL BE IN ACCORDANCE WITH B.C.A. AND A.S.3500.3.
16. EXISTING STORMWATER PIPE LOCATIONS HAVE BEEN ASSUMED. PLUMBER TO INSPECT PRIOR TO WORKS AND UPGRADE PIPES AS NECESSARY.

SYMBOLS

F.F.L.	FINISHED FLOOR LEVEL
F.G.L.	FINISHED GARAGE LEVEL
T.K.	TOP OF KERB
* 11.0	FINISHED LEVEL
+ 11.0	EXISTING LEVEL
S.L.	SURFACE LEVEL
I.L.	INVERT LEVEL
20 R	ROOF CATCHMENT AREA (m2)
20 I	IMPERVIOUS CATCHMENT AREA (m2)
20 L	LANDSCAPED CATCHMENT AREA (m2)
DP	Ø100 DOWN PIPE OR EQUIVALENT
SP	SPREADER
VD	VERTICAL DROP
VR	VERTICAL RISER
	RAIN WATER HEAD & DOWN PIPE
	CLEAN OUT POINT
SUMP	Ø150 SUMP
	CONCRETE COVER JUNCTION PIT
	GRATED INLET PIT 450x450
	200Wx100D GRATED DRAIN WITH 2% BTM SLOPE
	STORMWATER PIPE
	SUSPENDED STORMWATER PIPE
	CHARGED STORMWATER PIPE
	PUMP LINE
	Ø100 SUBSOIL PIPE
	SILT FENCE
	OVERLAND FLOW

Revisions

D	03/03/25	FOR D.A.
C	24/09/24	WORK IN PROGRESS
B	01/03/24	WORK IN PROGRESS
A	03/12/19	WORK IN PROGRESS

ARCHITECT
ADVANCED ARCHITECTURE & CONSTRUCTION

PROJECT
PROPOSED DEVELOPMENT
15 WINDSOR AVE,
CROYDON PARK

TITLE
SITE AND ROOF DRAINAGE PLAN

1m 0 1 2 3 4 5m
1 : 100 A1

FOR D.A.
CANTERBURY BANKSTOWN COUNCIL

DIAL 1100 BEFORE YOU DIG
NO SUBSURFACE INVESTIGATION HAS BEEN MADE IT IS YOUR RESPONSIBILITY TO OBTAIN SERVICE DIAGRAMS FROM RELEVANT AUTHORITIES

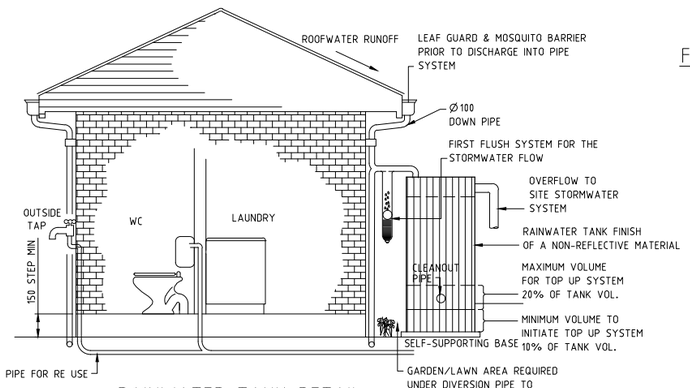
A.C.N. 090 572 973
UNITED CONSULTING ENGINEERS PTY LTD
Civil/Structural Engineers
Office 1, 147-153 Liverpool Road, Burwood NSW, 2134
Telephone: (02) 9715 5111
Facsimile: (02) 9715 6222
Mobile: 0411 453 012
Email: united_eng@bigpond.com

Approved: Mark Anthony Boudib MIEAust, CPEng, NER

North | Designed: MAB | Drawn: JSB | Checked: MAB | Scale: 1:100 U.N.O. | Drawing No: 18MB7693/D01 | Sheet: 1 of 2 | Issue: D

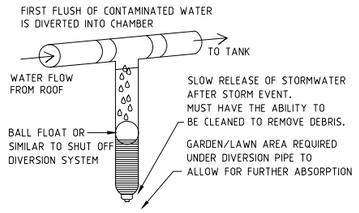
STORAGE TANK NOTES

1. TANK WATER TAPS SHALL BE MARKED "RAINWATER NOT TO BE USED FOR HUMAN CONSUMPTION"
2. MINIMUM TANK SIZE 1000 LITRES
3. RAINWATER TANKS SHALL BE CONNECTED TO MAINS WATER SUPPLY AS BACKUP
4. THE PUMPS ARE TO BE INSULATED IN ACCORDANCE WITH COUNCIL POLICY
5. PUMPS SHALL PROVIDE MINIMUM 150 kPa PRESSURE
6. THE APPLICANT MUST CONNECT THE RAINWATER TANK TO:
   - ALL TOILETS IN THE DEVELOPMENT
   - AT LEAST ONE OUTDOOR TAP IN THE DEVELOPMENT (NOTE: NSW HEALTH DOES NOT RECOMMEND THAT RAINWATER BE USED FOR HUMAN CONSUMPTION IN AREAS WITH POTABLE WATER SUPPLY.)
7. RAINWATER TANKS TO BE CLEANED OUT EVERY 6 MONTHS
8. WATER TANK TO BE THE SAME COLOUR, OR A COLOUR COMPLEMENTARY TO THE DWELLING
9. TOP OF TANK TO BE BELOW TOP OF NEAREST FENCE, OR 1.8 METRES, WHICHEVER IS LESSER.
10. THE WATER TANK SHOULD BE LOCATED AT LEAST 900mm FROM ANY PROPERTY BOUNDARY
11. PLUMBING FROM THE WATER TANK IS TO BE KEPT SEPARATE FROM THE RETICULATED WATER SUPPLY SYSTEM
12. TANK TO BUILT ON SELF-SUPPORTING BASE
13. PROVIDE BACK-FLOW PREVENTION DEVICE AT MAINS WATER METER
14. ROOF DRAINING TO TANK MUST NOT CONTAIN LEAD, TAR BASED PAINTS OR ASBESTOS
15. WATER TO BE DRAWN FROM ANAEROBIC ZONE OF TANK



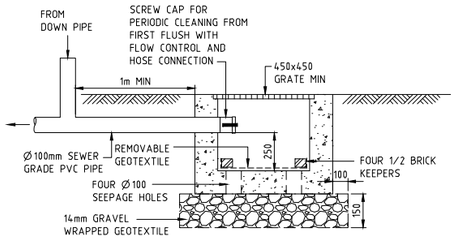
RAINWATER TANK DETAIL

N.T.S.
INSTALLATION OF TANKS TO BE IN ACCORDANCE WITH MANUFACTURER SPECIFICATION.



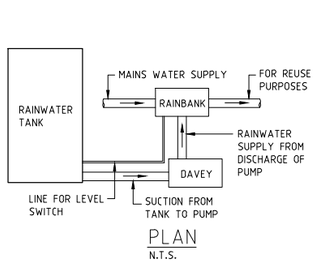
FIRST FLUSH WATER DIVERTER DETAIL

NTS



CLEAN OUT/RELIEF PIT

N.T.S.
NOTE: CLEAN OUT/ RELIEF PIT TO BE LOCATED AT LOWEST POINT OF CHARGED LINE



PLAN

N.T.S.

SIGNAGE FOR RAINWATER TANKS AND OUTLETS

-DIMENSIONS: 120mm X 150mm
-background colour should be YELLOW.
-text is WHITE on a BLACK background;
-tap symbol is BLACK.

Revisions		
D	03/03/25	FOR D.A.
C	24/09/24	WORK IN PROGRESS
B	01/03/24	WORK IN PROGRESS
A	03/12/19	WORK IN PROGRESS

EROSION CONTROL NOTES

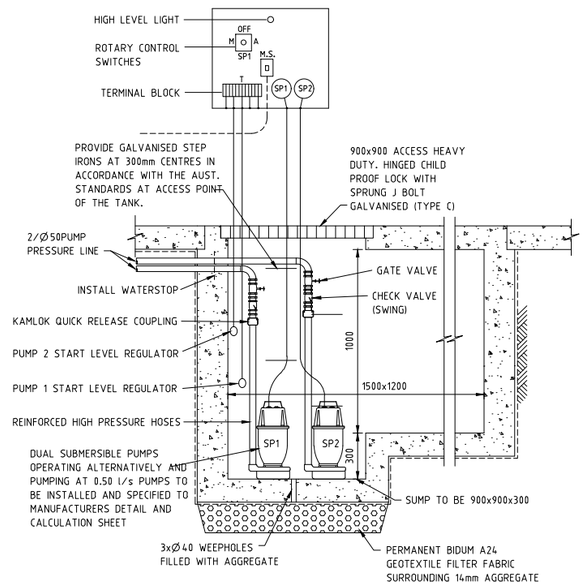
1. ALL EROSION AND SILTATION CONTROL DEVICES ARE TO BE PLACED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION WORKS, AND ALL SILT TRAPS ARE TO HAVE DEPOSITED SILT REMOVED REGULARLY DURING CONSTRUCTION.
2. ALL TREES ARE TO BE PRESERVED UNLESS INDICATED OTHERWISE ON THE ARCHITECT'S OR LANDSCAPE ARCHITECT'S DRAWINGS. EXISTING GRASS COVER SHALL BE MAINTAINED EXCEPT IN AREAS CLEARED FOR BUILDINGS, PAVEMENTS ETC.
3. INSTALL TEMPORARY SEDIMENT BARRIERS TO ALL INLET PITS LIKELY TO COLLECT SILT LADDEN WATER, TO COUNCIL'S STANDARDS
4. 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.
5. ALL TOPSOIL TO BE CONSERVED FOR RE-USE ON SITE

NOTES

1. ALL LINES ARE TO BE Ø100 U.P.V.C @ MIN 1.0% GRADE UNLESS NOTED OTHERWISE. CHARGED LINES TO BE SEWER GRADE & SEALED.
2. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE & LEVEL ALL EXISTING SERVICES PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS.
3. ALL PIPES TO HAVE MIN 150mm COVER IF LOCATED WITHIN PROPERTY.
4. ALL PITS IN DRIVEWAYS TO BE 450x450 CONCRETE AND ALL PITS IN LANDSCAPED AREAS TO BE 450x450 PLASTIC.
5. PITS LESS THAN 600 DEEP MAY BE BRICK, PRECAST OR CONCRETE.
6. PITS DEEPER THAN 900 MUST BE 900x900 AND HAVE STEP RUNGS AT 300 CENTRES.
7. ALL BALCONIES AND ROOFS TO BE DRAINED AND TO HAVE SAFETY OVERFLOWS IN ACCORDANCE WITH RELEVANT AUSTRALIAN STANDARDS.
8. ALL EXTERNAL SLABS TO BE WATERPROOFED.
9. ALL GRATES TO HAVE CHILD PROOF LOCKS.
10. ALL DRAINAGE WORKS TO AVOID TREE ROOTS.
11. ALL DP'S TO HAVE LEAF GUARDS
12. ALL EXISTING LEVELS TO BE CONFIRMED BY BUILDER PRIOR TO CONSTRUCTION.
13. ALL WORK WITHIN COUNCIL RESERVE TO BE INSPECTED BY COUNCIL PRIOR TO CONSTRUCTION.
14. COUNCIL'S ISSUED FOOTWAY DESIGN LEVELS TO BE INCORPORATED INTO THE FINISHED LEVELS ONCE ISSUED BY COUNCIL.
15. ALL WORK SHALL BE IN ACCORDANCE WITH B.C.A. AND A.S.3500.3.
16. EXISTING STORMWATER PIPE LOCATIONS HAVE BEEN ASSUMED. PLUMBER TO INSPECT PRIOR TO WORKS AND UPGRADE PIPES AS NECESSARY.

SYMBOLS

F.F.L.	FINISHED FLOOR LEVEL
F.G.L.	FINISHED GARAGE LEVEL
T.K.	TOP OF KERB
* 11.0	FINISHED LEVEL
+ 11.0	EXISTING LEVEL
S.L.	SURFACE LEVEL
I.L.	INVERT LEVEL
20 R	ROOF CATCHMENT AREA (m2)
20 I	IMPERVIOUS CATCHMENT AREA (m2)
20 L	LANDSCAPED CATCHMENT AREA (m2)
DP	Ø100 DOWN PIPE OR EQUIVALENT
SP	SPREADER
VD	VERTICAL DROP
VR	VERTICAL RISER
	RAIN WATER HEAD & DOWN PIPE
	CLEAN OUT POINT
SUMP	Ø150 SUMP
	CONCRETE COVER JUNCTION PIT
	GRATED INLET PIT 450x450
	200Wx100D GRATED DRAIN WITH 2% BTM SLOPE
	STORMWATER PIPE
	SUSPENDED STORMWATER PIPE
	CHARGED STORMWATER PIPE
	PUMP LINE
	Ø100 SUBSOIL PIPE
	SILT FENCE
	OVERLAND FLOW



SECTION THROUGH PUMP WELL

SCALE 1:20

STANDARD PUMP OUT DESIGN NOTES

THE PUMP SHALL BE PROGRAMMED TO WORK ALTERNATIVELY SO AS TO ALLOW BOTH PUMPS TO HAVE AN EQUAL OPERATION LOAD AND PUMP LIFE.

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 PUMPS.

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.

A THIRD FLOAT SHALL BE PROVIDED AT A HIGH LEVEL WHICH IS APPROXIMATELY THE ROOF LEVEL OF THE BELOW GROUND TANK. THIS FLOAT SHOULD START THE OTHER PUMP THAT IS NOT OPERATING AND ACTIVATE THE ALARM.

AN ALARM SYSTEM SHALL BE PROVIDED WITH A FLASHING STROBE LIGHT AN 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.

MINIMUM PUMP OUT REQUIREMENTS - COUNCIL REQUIRES MINIMUM 3m3 PER 50m2 OF DRIVEWAY THEREFORE 20m2 REQUIRES 1.20 m3 OF STORAGE

PUMP WELL DETAILS

SUMP SIZE AND PUMP SIZE BASE ON 100 YEAR 1 HOUR STORM INTENSITY IS 89 mm/hr, AREA DRAINING TOWARDS SUMP IS 20m2
Q=CIA/3600 = 1.0x89x20/3600 = 0.50 L/s
VOLUME REQUIRED IS 0.50x(60x60) = 1800 litres
STORAGE PROVIDED 1500x1200x1000 = 1800 litres
THEREFORE ADEQUATE STROAGE PROVIDED

USE DUAL ZSS-040 PUMPS
TO BE INSTALLED IN SUMP AND CONNECTED TO CONTROL PANEL WHICH WILL ALLOW FOR THE PUMPS TO ACT ALTERNATIVELY AT 2.5m HEAD

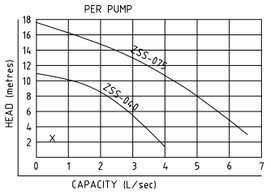
PUMPS USED MUST BE CLASS ONE, ZONE 2.

COMPONENTS
1. TWO(2) PUMPS OMEGA SUBMERSIBLE PUMPS (240v)
2. ONE(1) PUMPS START CONTROL PANEL (CONTROL DESIGN TO ALTERNATE PUMPS ON START ON CONSECUTIVE START OPERATION)
3. TWO(2) GATE VALVES (BRONZE)
4. TWO(2) CHECK VALVES (SWING TYPE) (BRONZE)
5. TWO(2) SETS OF DISCHARGE HOSES WITH KAMLOK QUICK RELEASE COUPLINGS
6. ALL IN TANK PIT/PIPE AND PIPE FITTINGS, BRACKETS/SUPPORTS, HD GAL. CHAINS
7. FOUR(4) KWIK START KENRAHN MERCURY LEVEL FLOAT REGULATORS
8. INSTALLATION IN PROVIDED TANK/PIT

OPTIONS
1. TANK PACKAGE/COVERS/MANHOLE, ALARM BELL, LOW LEVEL ALARM REGULATOR

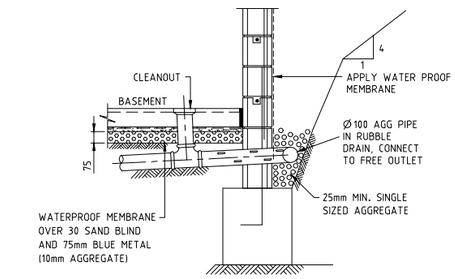
MODEL - ALINE	OUTLET SIZE	MAX FLOW	MAX HEAD	MOTOR SIZE	WEIGHT	POWER
OMEGA ZSS-040	50mm	3.9 L/sec	11m	0.40 kW	11 kg	240v
OMEGA ZSS-075	50mm	6.6 L/sec	18m	0.75 kW	18 kg	240v

PUMP SPECIFICATIONS



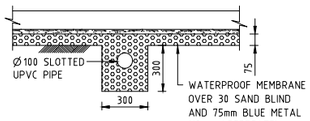
PUMP PERFORMANCE CURVES

SCALE 1:20



SECTION 1 / D01

SCALE 1:20



SECTION 2 / D01

SCALE 1:20

1m 0 1 2 3 4 5m
1 : 100 A1

FOR D.A.
CANTERBURY BANKSTOWN COUNCIL

DIAL 1100 BEFORE YOU DIG
NO SUBSURFACE INVESTIGATION HAS BEEN MADE
IT IS YOUR RESPONSIBILITY TO OBTAIN SERVICE DIAGRAMS FROM RELEVANT AUTHORITIES

ARCHITECT
ADVANCED ARCHITECTURE & CONSTRUCTION

PROJECT
PROPOSED DEVELOPMENT
15 WINDSOR AVE,
CROYDON PARK

TITLE
DRAINAGE DETAILS PAGE

A.C.N. 090 572 973
UNITED
UNITED CONSULTING ENGINEERS PTY LTD
Civil/Structural Engineers
Office 1, 147-153 Liverpool Road, Burwood NSW, 2134
Telephone: (02) 9715 5111
Facsimile: (02) 9715 6222
Mobile: 0411 453 012
Email: united_eng@bigpond.com

Approved: *Mark Anthony Boudib MIEAust, CPEng, NER*

North	Designed	Drawn	
	MAB	JSB	
	Checked	Scale	
	MAB	1:100 U.N.O.	
	Drawing No	Sheet	Issue
	18MB7693/D02	2 of 2	D