

STORMWATER DESIGN CERTIFICATE

PROJECT: PROPOSED CONSTRUCTION OF A GRANNY FLAT

ADDRESS: 5 Normandy Road, Allambie Heights, NSW 2100

CLIENT: RK DESIGN

DRAWINGS NUMBER: 095-ME 21. REV.A

We confirm that Modular Engineers reviewed the above-mentioned drawings and design for the above address by practice and qualified stormwater engineer and the review has been performed in accordance with the provisions of the Building Code of Australia Clause A2.2 and addresses the applicable requirements of the Building Code of Australia, Australian Standard AS/NZS 3500.3.

I, Ali Al-Obaidi from Modular Engineers Pty Ltd, I am a chartered professional engineer in both civil and structural colleges. I am a competent person in structural and civil design, being listed in the National Professional Engineering Register (NPER-5358554) and as such can certify that I am responsible for the stormwater design verification of the above elements described herein and that the design was carried out in accordance with the provisions of the Building Code of Australia and the relevant Australian Standards.

Per: 

Ali Al-Obaidi | Director

PHD, MSc, BSc, MIEAust, CPEng,

NER (No: 5358554), NPER

STORMWATER MANAGEMENT PLAN

EROSION CONTROL

BEFORE EARTHWORKS CAN COMMENCE THE EROSION & SEDIMENT CONTROL MEASURES MUST BE IN PLACE.

DURING THE CONSTRUCTION PERIOD, THESE CONTROL MEASURES WILL NEED TO BE INSPECTED & MAINTAINED REGULARLY, ESPECIALLY AFTER STORM EVENTS, BY THE CONTRACTOR.

ALL WORK IS TO BE CARRIED OUT TO PREVENT EROSION, CONTAMINATION & SEDIMENTATION OF THE STORAGE SITE, SURROUNDING AREAS & DRAINAGE SYSTEMS.

MINIMIZE DISTURBED AREA COVERED WITH NATURAL VEGETATION. ONLY THOSE AREAS DIRECTLY REQUIRED FOR CONSTRUCTION ARE TO BE DISTURBED.

INSTALL EROSION/SEDIMENT CONTROL MEASURES PRIOR TO COMMENCEMENT OF CONSTRUCTION OR EXCAVATION OPERATIONS.

PROVIDE SILT FENCE/STRAW BAIL BARRIERS TO THE LOW SIDE OF ALL EXPOSED EARTH EXCAVATIONS. THE SEDIMENT FENCING MATERIAL TO CYCLONE WIRE SECURITY FENCE. SEDIMENT CONTROL FABRIC SHALL BE AN APPROVED MATERIAL (EG. HUMES PROPEX SILT STOP) STANDING 300mm ABOVE GROUND & EXTENDING 150mm BELOW GROUND.

ISOLATE EXISTING STORMWATER PITS WITH STRAW BALES OR SILT TRAPS TO FILTER ALL INCOMING FLOWS.

DO NOT STOCKPILE EXCAVATED MATERIAL ON THE ROAD WAY.

DIVERT CLEAN WATER FROM UNDISTURBED AREAS AROUND THE WORKING AREAS.

CONSTRUCTION ENTRY/EXIT SHALL BE VIA THE LOCATION NOTED ON THE DRAWING. CONTRACTOR SHALL ENSURE ALL DROPPABLE SOIL & SEDIMENT IS REMOVED PRIOR TO CONSTRUCTION TRAFFIC EXITING SITE. CONTRACTOR SHALL ENSURE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE DO SO IN A FORWARD DIRECTION.

TREAT THE STORMWATER RUNOFF WITH SUSPENDED SOLIDS SO THE DISCHARGE WATER QUALITY TO COUNCIL STORMWATER DRAINAGE SYSTEM HAS A MAXIMUM CONCENTRATION OF SUSPENDED SOLIDS THAT DOES NOT EXCEED 50 MILLIGRAMS PER LITRE IN ACCORDANCE WITH THE PROTECTION OF THE ENVIRONMENT OPERATION ACT (POEO 1997) AND SHALL BE APPROVED BY LOCAL COUNCIL

ADOPT TEMPORARY MEASURES AS MAY BE NECESSARY FOR EROSION & SEDIMENT CONTROL, INCLUDING BUT NOT LIMITED TO THE FOLLOWING: –
– DRAINS: TEMPORARY DRAINS AND CATCH DRAINS.
– SPREADER BANKS OR OTHER STRUCTURES: TO DISPERSE CONCENTRATED RUNOFF.
– SILT TRAPS: CONSTRUCTION AND MAINTENANCE OF SILT TRAPS TO PREVENT DISCHARGE OF SCAURED MATERIAL TO DOWNSTREAM AREAS.

AFTER RAIN, INSPECT, CLEAN, AND REPAIR IF REQUIRED, TEMPORARY EROSION & SEDIMENT CONTROL MEASURES.

REMOVE TEMPORARY EROSION & SEDIMENT CONTROL MEASURES WHEN THEY ARE NO LONGER REQUIRED.

COMPLY WITH THE REQUIREMENTS OF LANDCOM'S MANAGING URBAN STORMWATER – SOIL AND CONSTRUCTION 'THE BLUE BOOK' LATEST EDITION

THE EROSION & SEDIMENT CONTROL PLAN PROVIDED IS ONLY INDICATIVE. THE CONTRACTOR SHOULD PREPARE A DETAILED ESCP SUITABLE FOR THE SPECIFIC SITE CONDITIONS



DIAL BEFORE YOU DIG SHOULD BE CONTACTED PRIOR TO ANY EXCAVATION ON SITE

TM: TRADE MARK OF THE ASSOCIATION OF DIAL BEFORE YOU DIG SERVICES LTD. USED UNDER LICENSE.

GENERAL NOTES

ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S REQUIREMENTS, BUILDING CODE OF AUSTRALIA, NSW CODE OF PRACTICE AND THE TO THE RELEVANT SERVICE CODES.

THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL AND OTHER CONSULTANTS' DRAWINGS AND SPECIFICATIONS AND WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE SUPERINTENDENT FOR DECISION BEFORE PROCEEDING WITH THE WORK.

ALL DIMENSIONS SHOWN ON THE DRAWINGS ARE IN MILLIMETERS (U.N.O.). DIMENSIONS SHALL NOT BE OBTAINED BY SCALING OF THESE DRAWINGS. USE FIGURED DIMENSIONS ONLY.

BENCHMARKS HAVE BEEN ESTABLISHED WHERE INDICATED ON THE DRAWINGS. ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (A.H.D.). THE CONTRACTOR SHALL UNDERTAKE ALL NECESSARY SURVEY WORK TO ENSURE THAT THE WORKS ARE CONSTRUCTED TO DESIGN LINE AND LEVEL.

SETTING OUT DIMENSIONS AND LEVELS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR.

ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE RELEVANT SAA CODES AND THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING AUTHORITIES.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL SAFETY FENCES, WARNING SIGNS, TRAFFIC DIVERSIONS AND THE LIKE DURING CONSTRUCTION. ALL WORKS TO COMPLY WITH WORK HEALTH AND SAFETY REQUIREMENTS AND OTHER RELEVANT AUTHORITY SAFETY REQUIREMENTS.

NO TREES SHALL BE REMOVED, CUTBACK OR RELOCATED WITHOUT THE WRITTEN INSTRUCTION FROM THE SUPERINTENDENT.

WHERE NEW WORKS ABUT EXISTING THE CONTRACTOR SHALL ENSURE THAT A SMOOTH EVEN PROFILE, FREE FROM ABRUPT CHANGES IS OBTAINED.

ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE DETAILS SHOWN ON THE DRAWINGS AND THESE SPECIFICATIONS.

DESIGN LEVELS GIVEN ARE TO FINISHED SURFACE LEVEL AND INCLUSIVE OF TOPSOIL. (TOPSOIL DEPTH VARIES)

THE CONTRACTOR SHALL ARRANGE ALL SURVEY SETOUT TO BE CARRIED OUT BY A N.A.T.A. REGISTERED SURVEYOR.

CARE IS TO BE TAKEN WHEN EXCAVATING NEAR EXISTING SERVICES. NO MECHANICAL EXCAVATIONS ARE TO BE UNDERTAKEN OVER TELECOMMUNICATIONS OR ELECTRICAL SERVICES. HAND EXCAVATE IN THESE AREAS.

THE LOCATIONS OF UNDERGROUND SERVICES SHOWN ON THE DRAWING HAVE BEEN PLOTTED FROM DIAGRAMS PROVIDED BY SERVICE AUTHORITIES. THIS INFORMATION HAS BEEN PREPARED SOLELY FOR THE AUTHORITIES OWN USE AND MAY NOT NECESSARILY BE UPDATED OR ACCURATE.

THE POSITION OF SERVICES AS RECORDED BY THE AUTHORITY AT THE TIME OF INSTALLATION MAY NOT REFLECT CHANGES IN THE PHYSICAL ENVIRONMENT SUBSEQUENT TO INSTALLATION.

MODULAR ENGINEERS DOES NOT GUARANTEE THAT THE SERVICES INFORMATION SHOWN ON THE DRAWING SHOWS MORE THAN THE PRESENCE OR ABSENCE OF SERVICES, AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.

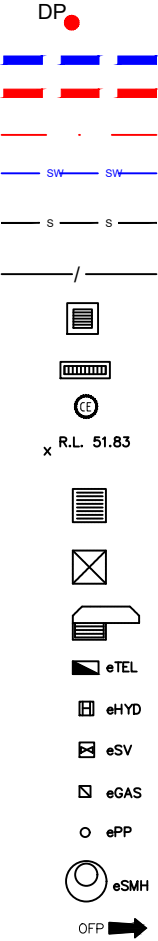
IT IS THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN FROM THE UTILITY SERVICES AUTHORITIES A CURRENT COPY OF UNDERGROUND SERVICES SEARCH FOR THE LOCATION OF ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF ANY WORK AND NOTIFY ANY CONFLICT WITH THE DRAWINGS IMMEDIATELY. CLEARANCE SHALL BE OBTAINED FROM THE RELEVANT REGULATORY AUTHORITY. CONTRACTOR TO KEEP COPY OF UNDERGROUND SERVICES SEARCH ON SITE AT ALL TIMES. ANY DAMAGES TO SERVICES OR SERVICES ADJUSTMENTS SHALL BE CARRIED OUT BY THE CONTRACTOR OR RELEVANT AUTHORITY AT THE CONTRACTOR'S EXPENSE.

VISIT THE SITE BEFORE SUBMITTING THE FINAL TENDER PRICE TO ASSESS 'ON SITE' CONDITIONS. FAILURE TO DO SO WILL FORFEIT ANY CLAIM FOR NOT BEING AWARE OF CONDITIONS AFFECTING THE TENDER.

THE CONTRACTOR SHALL PREPARE ACCURATE WORK-AS-EXECUTED DRAWINGS FOLLOWING THE COMPLETION OF ALL WORKS.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO HAVE IN PLACE & MAINTAIN TRAFFIC FACILITIES AT ALL TIMES DURING CONSTRUCTION.

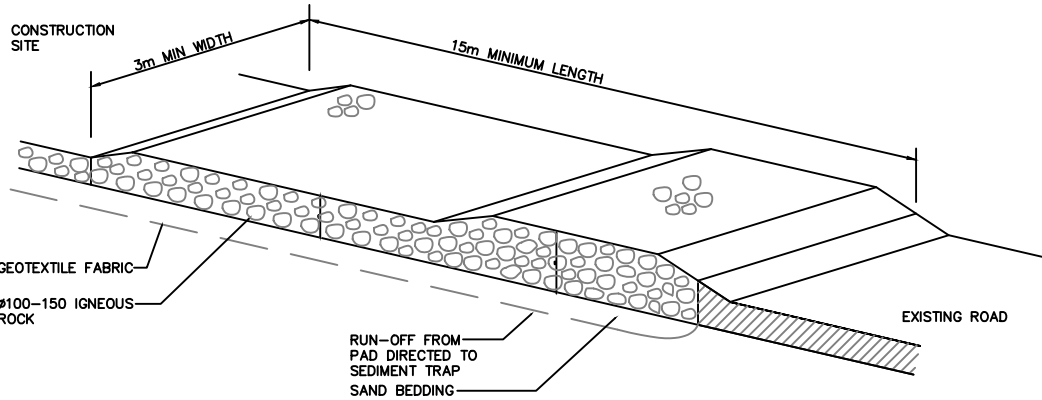
LEGEND



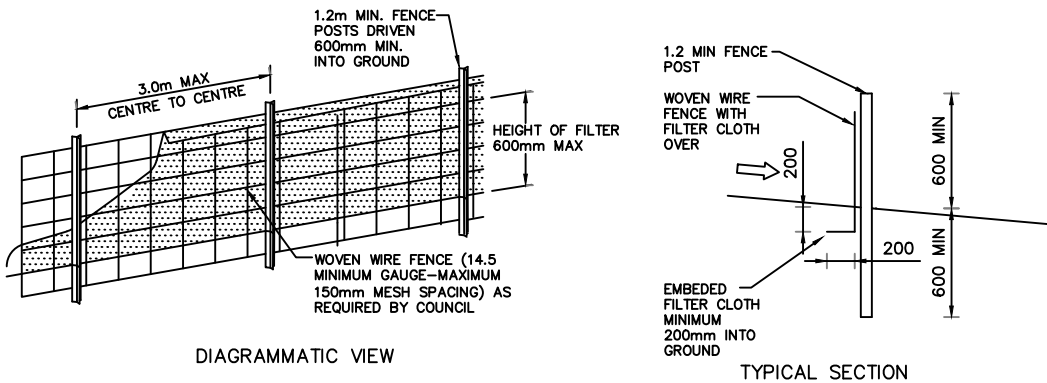
ABBREVIATIONS:

ø or DIA	DIAMETER	OFF	OVERLAND FLOW PATH
CBR	CALIFORNIA BEARING RATIO	OSD	ON-SITE DETENTION
CH	CHAINAGE	R	RADIUS
CL	CENTER LINE	RCP	REINFORCED CONCRETE PIPE
CO	CLEAR OUT	RL	REDUCED LEVEL
DD	DISH DRAIN	RW	RETAINING WALL
DDO	DISH DRAIN OUTLET	RWT	RAINWATER TANK
DP	DOWNSPIPE	SJ	SAWN CONTROL JOINT
e	EXISTING	SMH	SEWER MAN HOLE
FFL	FINISHED FLOOR LEVEL	SW	STORMWATER
GTD	GRATED TRENCH DRAIN	SWP	STORMWATER PIT
GSP	GRATED SURFACE INLET PIT	SWRM	STORMWATER RISING MAIN
HYD	HYDRANT	SV	STOP VALVE
IJ	ISOLATING JOINT	TK	TOP OF KERB
IL	INVERT LEVEL	TOW	TOP OF WALL
IP	INTERSECTION POINT	TWL	TOP WATER LEVEL
KIP	KERB INLET PIT	TP	TANGENT POINT
KO	KERB OUTLET	UPVC	UNPLASTICISED POLYVINYL
K&G	KERB & GUTTER	CHLORIDE	
KR	KERB RETURN	UNO	UNLESS NOTED OTHERWISE
LS	LONGITUDINAL SECTION	FF	FIRST FLUSH DEVICE
NGL	NATURAL GROUND LEVEL	Typ	TYPICAL

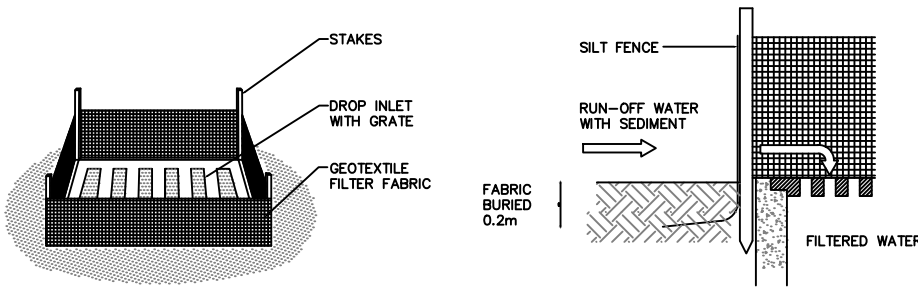
DOWNPIPE
STORMWATER GRAVITY LINE
STORMWATER CHARGED LINE
SUBSOIL LINE
EXISTING STORMWATER LINE
AUTHORITY SEWER LINE
SEDIMENT FENCE
GRATED SURFACE INLET PIT
GRATED TRENCH DRAIN
CLEANING EYE
PROPOSED SPOT LEVEL
EXISTING GRATED SURFACE INLET PIT
EXISTING JUNCTION PIT
EXISTING KERB INLET PIT
EXISTING TELSTRA PIT
EXISTING HYDRANT
EXISTING STOP VALVE
EXISTING GAS VALVE
EXISTING POWER POLE
EXISTING SEWER MANHOLE
OVERLAND FLOW PATH



TEMPORARY CONSTRUCTION EXIT (RUBBLE ALTERNATIVE)
NOT TO SCALE




SEDIMENT FENCE DETAIL
NOT TO SCALE



SUMP SEDIMENT TRAP
NOT TO SCALE

REVISIONS				
REV.	DATE	DETAILS	ENG.	DFT.
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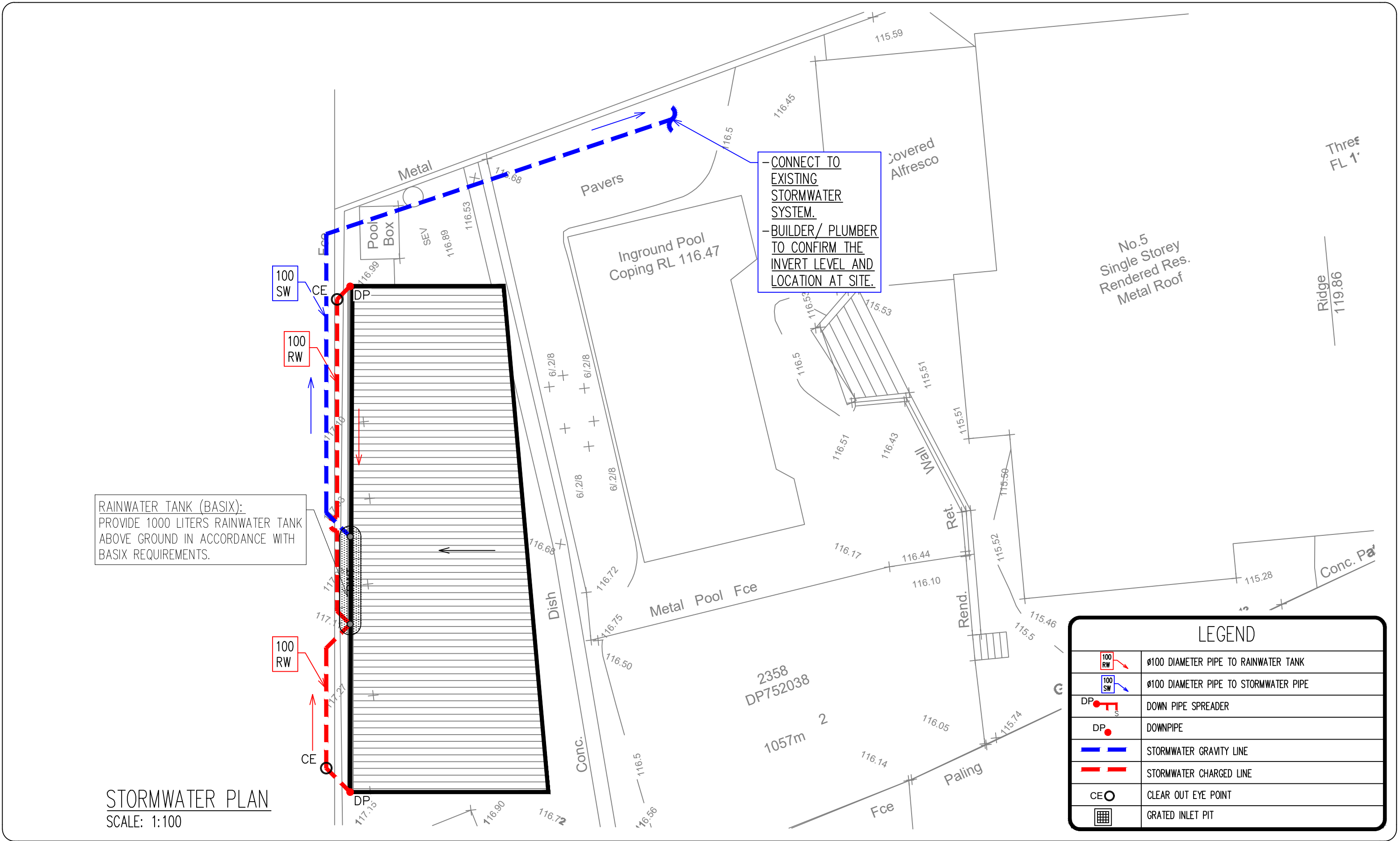
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DRAWN	ALI	DRAWING TITLE			
DESIGNED	ALI	TITLE PAGE, NOTES & DETAILS			
CHECKED	ALI	JOB NO.	ME-2021-S095	DRAWN NO.	SIZE
DATE	10/12/21			STW001	A3



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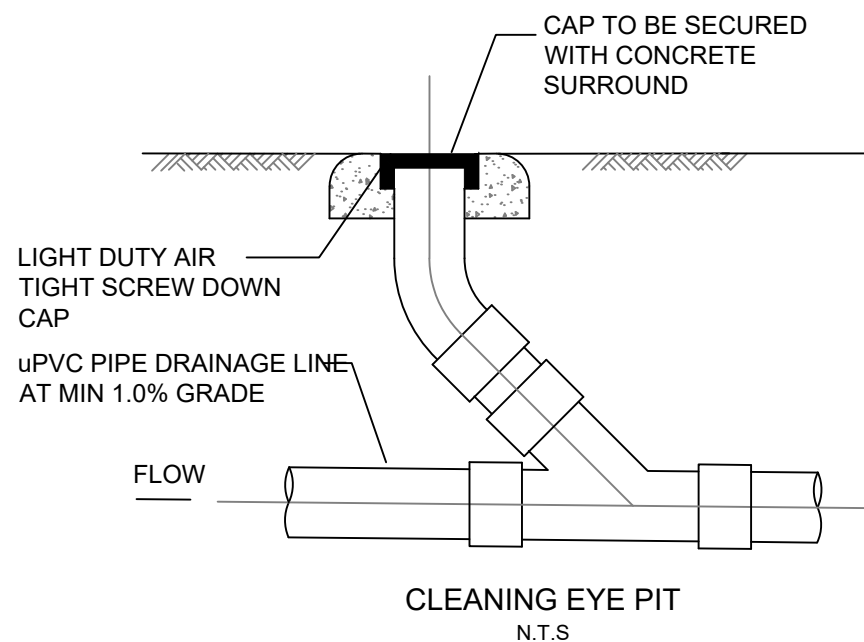
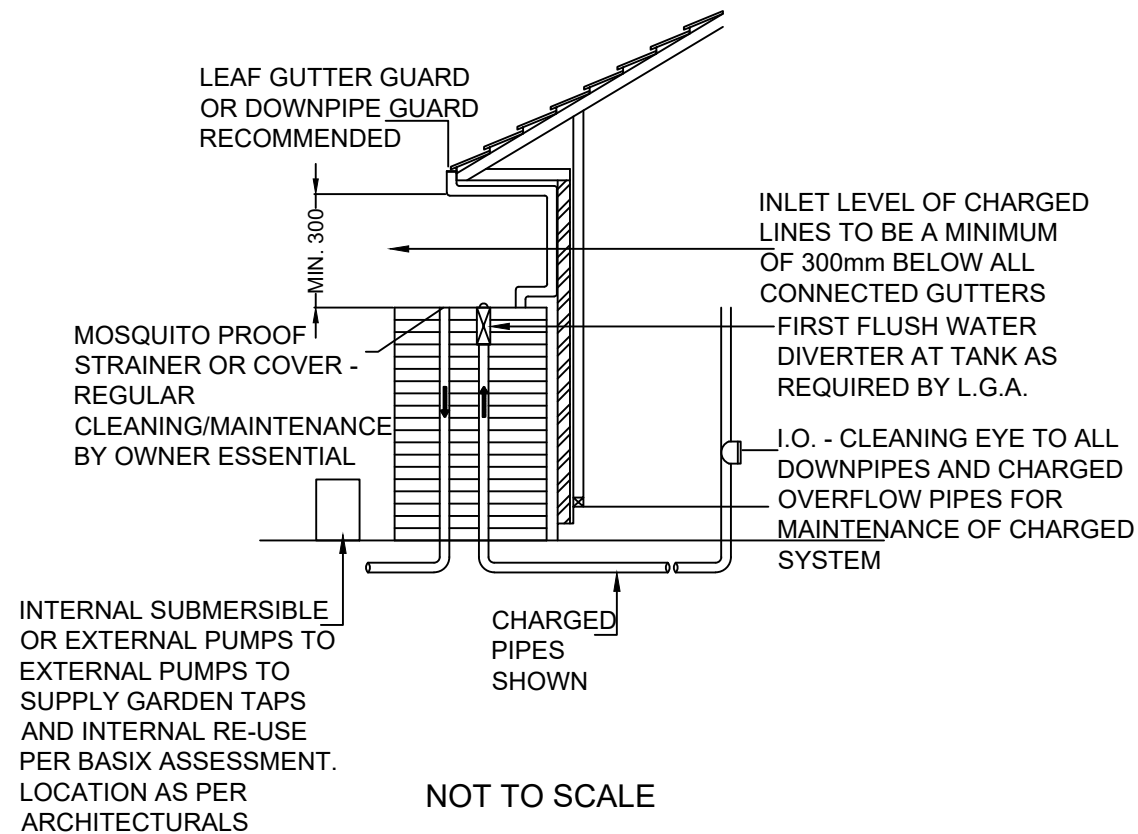
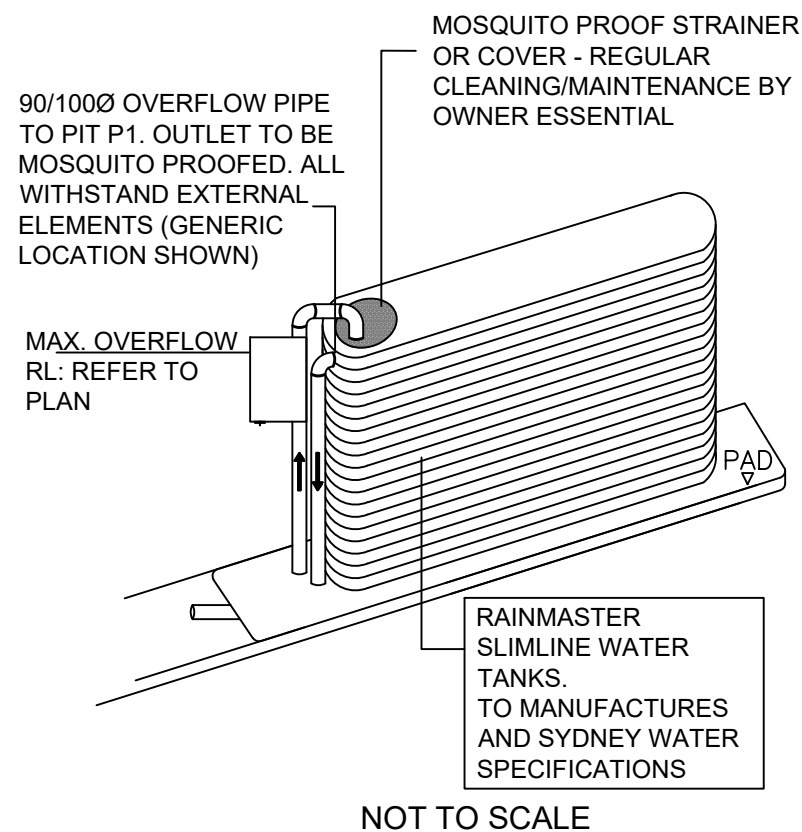
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RAINWATER RECYCLING TANKS

- TANK SHAPE AND DEVICES ARE DIGRAMATIC ONLY
- ANY MODIFICATIONS TO TANK VOLUME, INLET, OUTLET, OR OTHER DETAILS MUST BE APPROVED BY ENGINEER
- STORMWATER LINES FROM DOWNPIPES FROM ROOF AREAS ONLY TO RAINWATER TANKS
- TANK TO COMPLY WITH AS1546.1, AND INSTALLED IN ACCORDANCE WITH MANUFACTURES INSTALLATION
- FIRST FLUSH WATER DIVERTER TO COMPLY WITH SYDNEY WATER & COUNCIL DCP'S.
- AN APPROVED SWITCH SYSTEM SIMILAR TO "RAINBANK' TO BE USED VIA MAINS. PUMPS TO MANUFACTURES SPECIFICATIONS
- ALL JOINTS TO BE SOLVANT WELDED
- ALL EXPOSED PIPEWORK TO BE PAINTED TO WITHSTAND EXTERNAL ELEMENTS
- CLIENT TO BE RESPONSIBLE FOR MAINTENANCE SYSTEM OF CHARGED PIPELINES
- STRUCTURAL DETAILS FOR TANKS BASE BY QUALIFIED STRUCTURAL ENGINEER, AS REQUIRED BY MANUFACTURER
- ENSURE ALL DRAINAGE WORKS ARE AWAY FROM TREE ROOTS

NOTES:

DRAINAGE

- ALL PIPES TO BE LAID ON 75mm SAND BED WITH THE BARRELS FULLY SUPPORTED
- 100mm AND 150mm DIAMETER PIPES TO BE LAID ON MINIMUM 1% GRADE
- MINIMUM DEPTH OF COVER FOR PIPES NOT SUBJECT TO VEHICULAR LOADING TO BE 300mm
- ALL DRAINAGE PIPES LAID UNDER PAVEMENT SHALL BE REINFORCED CONCRETE WITH RUBBER RING JOINTS
- BACKFILL TRENCHES WITH COMPACTED SAND OR APPROVED AGGREGATE MATERIAL
- ALL PITS TO HAVE 600x600mm INTERNAL DIMENSIONS (U.N.O.)
- SILT ARRESTORS TO HAVE 900x900mm INTERNAL DIMENSIONS
- HEAVY DUTY GALV. STEEL GRATES AND COVERS ARE TO BE PROVIDED IN TRAFFICABLE AREAS
- HEEL & WHEELCHAIR SAFE GRATE COVERS ARE TO BE PROVIDED IN PEDESTRIAN AREAS
- PIT GRATE TO BE TYPE WELDLOK OR APPROVED EQUIVALENT
- ALL PITS GREATER THAN 900mm DEEP SHALL BE PROVIDED WITH A CHILD-PROOF LOCKING CLIP
- ALL PITS SHALL BE MAINTAINED REGULARLY
- ALL PITS TO BE BENCHED MIN. 20mm TO INVERT OF OUTLET
- Ø100 SUBSOIL DRAINAGE PIPE WRAPPED IN FABRIC SOCK TO BE PROVIDED IN ALL LANDSCAPED AREAS & BEHIND RETAINING WALLS AND CONNECTED TO THE NEAREST STORMWATER PIT.
- COMPRESSIVE STRENGTH f_c FOR CAST IN SITU CONCRETE TO BE A MINIMUM OF 20MPa AT 28 DAYS
- PROVIDE CLEANING EYES TO ALL DOWNPIPES NOT DIRECTLY CONNECTED TO PITS
- ISOLATED JOINTS TO BE PROVIDED TO ISOLATE CONCRETE PAVEMENTS FROM PITS
- ALL TRENCH GRATES PROVIDED SHALL HAVE A MINIMUM CLEAR WIDTH OF 200mm
- STORMWATER DRAINAGE CONNECTIONS TO THE MAIN SYSTEM SHALL BE TO THE REQUIREMENTS AND THE SATISFACTION OF LOCAL COUNCIL

UPPER LEVEL

- INSTALL Ø65mm uPVC SPITTER PIPES 20mm ABOVE SURFACE LEVEL FOR BALCONY AND CONCRETE ROOF AREAS TO ALLOW FOR EMERGENCY OVERFLOW INCASE OF BLOCKAGES DURING HEAVY STORMS. PLUMBER TO CONFIRM LOCATION DURING CONSTRUCTION.
- BALCONY, TERRACE & CONCRETE ROOF AREAS TO BE FITTED WITH RAINWATER OUTLETS AND CONNECTED TO NEAREST DOWNPIPE WHERE REQUIRED (TYP).
- DOWNPIPES (DP) SHOWN ON PLAN ARE TO BE Ø100mm uPVC OR 100x75 U.N.O. (TYP).
- CHARGED DOWNPIPES SHOWN ON PLAN MUST BE SEWER GRADE Ø100mm uPVC WITH ALL JOINTS SOLVENT WELDED TO A LEVEL 1200mm ABOVE THE RAINWATER TANK INLET R.L. (TYP).
- PROPOSED DOWNPIPE LOCATIONS ARE NOMINAL AND TO BE CONFIRMED DURING CONSTRUCTION (TYP).
- INSTALL DOWNPIPE WITH SPREADER PIPE (SP) (IF REQUIRED) TO DISPERSE STORMWATER ONTO LOWER ROOF AREAS EFFECTIVELY.

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STORMWATER DETAILS AND NOTES