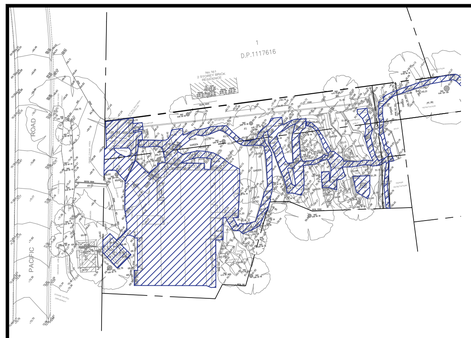
NOT FOR CONSTRUCTION

CIVIL CONSULTING ENGINEERS

PROPOSED ALTERATIONS & ADDITIONS
155 PACIFIC ROAD, PALM BEACH



EXISTING IMPERVIOUS AREA: 609m² (40%)
SCALE = 1 : 500

PROPOSED IMPERVIOUS AREA: 771m² (51%)
SCALE = 1 : 500

STORMWATER DRAINAGE NOTES:

1. ALL PIPES TO BE 100mm ø UNLESS NOTED OTHERWISE.
2. ALL PIPES TO BE uPVC TO AS 1254–2002 UNLESS NOTED OTHERWISE.
3. ALL PIPES TO BE LAYED AT 1 % MINIMUM GRADE UNLESS NOTED OTHERWISE.
4. ALL PIPES SHALL BE LAID ON A 75mm SAND BED, COMPACTED TO 100% S.M.D.D. BELOW PAVEMENTS. (NO COMPACTION REQUIRED BELOW LANDSCAPING). COVER TO SURFACE FROM TOP OF PIPE TO BE 300mm MINIMUM. BACKFILL TO BE ADEQUATELY CONSOLIDATED AROUND PIPES BY METHOD OF RAMMING AND WATERING IN. TRENCHES TO BE FILLED WITH GRANULAR MATERIAL AS SPECIFIED.
5. ALL DOWN PIPES TO BE 100mm ø UNLESS NOTED OTHERWISE.
6. DOWN PIPE LOCATIONS ARE INDICATIVE ONLY. LOCATIONS TO BE CONFIRMED WITH ARCHITECT PRIOR TO COMMENCEMENT WITH WORK.
7. PROVIDE CLEANING EYES AT ALL DOWNPIPES.
8. ALL PITS TO BE CAST INSITU OR, IF PRECAST, APPROVED BY ENGINEER. CAST INSITU PITS TO HAVE 150mm THICK CONCRETE WALLS AND BASE. WALLS TO BE REINFORCED WITH 1 N12 TOP TIE UNLESS NOTED OTHERWISE. CAST INSITU PITS GREATER THAN 1000 DEEP TO BE MINIMUM 900x600 AND TO HAVE 150mm THICK CONCRETE WALLS AND BASE. WALLS TO BE REINFORCED WITH N12 AT 250 EACH WAY UNLESS NOTED OTHERWISE.
9. ALL PITS GREATER THAN 1000mm DEEP SHALL HAVE STEP IRONS AS PER COUNCIL STANDARDS.
10. ALL WORK TO BE IN ACCORDANCE WITH LOCAL COUNCIL STANDARDS AND SPECIFICATIONS.
11. PRIOR TO COMMENCING ANY SITE WORKS THE CONTRACTOR SHALL IMPLEMENT EROSION CONTROL MEASURES TO APPROVED SEDIMENT AND EROSION CONTROL PLAN, EPA GUIDELINES AND COUNCIL SPECIFICATIONS. ALL MEASURES TO REMAIN IN PLACE UNTIL COMPLETION AND STABILIZATION OF THE SITE TO COUNCIL SATISFACTION.
12. ALL LEVELS SHOWN ARE TO AHD UNLESS NOTED OTHERWISE.
13. ENSURE THAT ALL PITS AND STORMWATER PIPES ARE LOCATED CLEAR FROM TREE ROOT SYSTEMS.
14. ALL EXISTING EARTHENWARE PIPES TO BE UPGRADED TO uPVC.
15. ALL WORKS TO BE IN ACCORDANCE WITH AS 3500.3:2018 NATIONAL PLUMBING DRAINAGE CODE PART 3 – STORMWATER DRAINAGE.
16. UNLESS NOTED OTHERWISE, SUB–SOIL DRAINS ARE TO BE INSTALLED IN ACCORDANCE WITH AS3500.3 ALONGSIDE WALLS THAT IMPEDE THE NATURAL FLOW OF GROUNDWATER. THIS MAY ALSO INVOLVE TRENCHING INTO THE CLAY OR ROCK SUBGRADE TO DIRECT GROUNDWATER AWAY FROM STRUCTURES.
17. IF NOT INDICATED ON PLANS, PROVIDE LEAF CATCHERS TO ALL DOWNPIPES.
18. ORIFICE PLATE MUST BE INSTALLED PRIOR TO INSTALLATION OF THE ROOF DRAINAGE SYSTEM AND CONNECTION OF THE SITE STORMWATER SYSTEM TO THE ONSITE DETENTION TANK.
19. EXISTING STORMWATER SYSTEM TO BE CHECKED AND UPGRADED AS REQUIRED IN ACCORDANCE WITH AS 3500.3:2018.
20. CARE SHOULD BE TAKEN WHEN UNDERTAKING WORKS IN THE VICINITY OF SELECTED TREES NOT TO DISTURB THE TREE ROOT SYSTEM. HAND DIGGING OF TRENCHES MAY BE NECESSARY. REFER ARBORISTS REPORT WHERE REQUIRED.
21. CONTRACTOR TO LOCATE ALL EXISTING SERVICES PRIOR TO EXCAVATION AND NOTIFY ENGINEER OF ANY POTENTIAL CLASHES WITH THE PROPOSED DRAINAGE EASEMENT PIPE LINE.
22. ALL SUB–SOIL DRAINAGE TO BE INSTALLED IN ACCORDANCE WITH THE STRUCTURAL AND GEOTECHNICAL REQUIREMENTS, AUSTRALIAN STANDARDS AS 3500.3:2018 AND IS TO BE DIRECTED TO THE SITE DRAINAGE SYSTEM BY MEANS OF GRAVITY DISCHARGE ONLY. DO NOT CONNECT SUB–SOIL PIPES TO AREAS WITH HIGHER SURFACE LEVELS U.N.O..
23. ALL PIPES SHOWN ARE INDICATIVE ONLY AND MINIMUM CLEARANCES FROM THE EXTERNAL WALLS OF BUILDINGS, FOR THE EXCAVATION OF TRENCHES, ARE TO BE PROVIDED IN ACCORDANCE WITH AS 3500.3:2018.
24. ANY COMPONENTS OF THE EXISTING SYSTEM PROPOSED TO BE RETAINED ARE TO BE CERTIFIED DURING CONSTRUCTION TO BE IN GOOD CONDITION AND OF ADEQUATE CAPACITY TO CONVEY ADDITIONAL RUNOFF AND BE REPLACED OR UPGRADED IF REQUIRED.
25. ANY CHARGED PIPES MUST BE A MINIMUM OF 100mm (UNLESS NOTED OTHERWSIE) WITH ALL JOINTS MUST BE SOLVENT WELDED. A CLEANING EYE, OR FLUSH OUT POINT, MUST BE PROVIDED AT THE LOW POINT IN THE SYSTEM WITHIN A PIT THAT CAN BE DRAINED TO AN ONSITE DISPERSAL SYSTEM.
26. PROVISION IS TO BE MADE FOR THE COLLECTION AND DISPOSAL IN AN APPROVED MANNER OF ANY OVERLAND FLOW OR SUB–SURFACE FLOW ENTERING THE SUBJECT PROPERTY, OR CONCENTRATED AS A RESULT OF THE PROPOSED WORKS. ANY REDIRECTION OR TREATMENT OF FLOWS ENTERING THE PROPERTY SHALL NOT ADVERSELY AFFECT ANY OTHER PROPERTIES.
27. PREVENT ANY STORMWATER EGRESS INTO ADJACENT PROPERTIES BY CREATING PHYSICAL BARRIERS AND SURFACE DRAINAGE INTERCEPTION.
28. GUTTER GUARDS MUST BE INSTALLED ON ALL GUTTERS TO MINIMISE DEBRIS ENTERING THE SYSTEM.
29. ALL SUB–SOIL DRAINAGES, STRIP DRAINS AND DRAINAGE PITS SHALL DISCHARGE TO THE ESTABLISHED SITE DISCHARGE POINT U.N.O AND BE CONSTRUCTED IN ACCORDANCE WITH AS3500.3:2018 REQUIREMENTS.
30. OVERFLOW PATHS SHALL BE PROVIDED TO ALLOW FOR FLOWS IN EXCESS OF THE CAPACITY OF THE PIPE/DRAINAGE SYSTEM DRAINING THE SITE.
31. WHERE ANY NEW STORMWATER DRAINAGE SYSTEM CROSSES THE FOOTPATH AREA WITHIN ANY ROAD, SEPERATE APPROVAL UNDER SECTION 138 OF THE ROAD ACT 1993 MUST BE OBTAINED FROM COUNCIL FOR THOSE WORKS PRIOR TO THE ISSUE OF ANY CONSTRUCTION CERTIFICATE.
32. CONCEALED DOWNPIPES MUST BE INSTALLED IN ACCORDANCE WITH SECTION 4.5.6 OF AUSTRALIAN STANDARDS AS3500.3:2018 REQUIREMENTS. BUILDER TO ENSURE LOCATIONS DO NOT RESTRICT NORMAL OPERATION OF DOORS, WINDOWS, ACCESS OPENINGS OR OCCUPANCY OF A BUILDING, DO NOT CAUSE NUISANCE OR LEAD TO INJURY OF A PERSON, DO NOT INTERFERE WITH THE STRUCTURAL INTEGRITY OF THE WALL OR COLUMN, AS CLOSE AS PRACTICABLE TO THE SUPPORTING STRUCTURE, ARE PROTECTED FROM MECHANICAL DAMAGE, AT LEAST 100mm CLEAR OF ANY ELECTRICAL CABLE OR GAS PIPE, AT LEAST 50mm FROM ANY OTHER PIPEWORK OR SERVICE. CONCEALED DOWNPIPES TO HAVE INSPECTION OPENINGS THAT EXTEND TO THE FACE OF THE WALL OR SLAB FOR MAINTENANCE. SEAMS AND JOINTS TO BE WATERTIGHT. IF INSPECTION OPENINGS ARE REQUIRED FOR TESTING AND MAINTENANCE PURPOSES, INSPECTION OPENINGS SHALL HAVE A NOMINAL SIZE OF NOT LESS THAT THE NOMINAL DIAMETER OF THE DOWNPIPE.
33. WHERE A DOWNPIPE IS CONNECTED TO A SITE STORMWATER DRAIN LOCATED BELOW A SLAB–ON–GROUND, THE CONNECTION OF A CONCEALED DOWNPIPE SHALL BE LOCATED ABOVE THE LEVEL OF THE FLOOR.
34. SUPPORT SYSTEMS OF DOWNPIPES OR PIPEWORK MUST BE INSTALLED IN ACCORDANCE AUSTRALIAN STANDARDS AS3500.3:2018 REQUIREMENTS.
35. FOR CONCEALED EAVES GUTTERS, U.N.O THE TOP EDGE OF THE FASCIA SHOULD NOT BE LESS THAN 25mm BELOW THE TOP OF THE BACK OF THE GUTTER, OR INTEGRAL FLASHING (TAIL) WITH THE TOP EDGE OF THE FLASHING NOT LESS THAN 25mm ABOVE THE TOP OF THE FASCIA.
36. THE FOLLOWING ABBREVIATIONS DENOTE:

FSL – FINISHED SURFACE LEVEL OR RL – REDUCED LEVEL
IL – INVERT LEVEL OF PIPE
INV. – INVERT LEVEL OF PIT
CL – CENTRELINE OF ORIFICE
TWL – TOP WATER LEVEL

NOTE:
THE BUILDER/CONTRACTOR SHALL LOCATE ALL EXISTING PUBLIC UTILITY SERVICES WITHIN THE SITE, FOOTPATH AREA AND ROAD RESERVE PRIOR TO THE COMMENCEMENT OF ANY WORKS. ALL LOCATIONS AND LEVELS OF SERVICES SHALL BE REPORTED TO THE STORMWATER ENGINEER PRIOR TO THE COMMENCEMENT OF ANY WORKS TO ENSURE THAT THERE ARE NO OBSTRUCTIONS IN THE LINE OF THE DRAINAGE DISCHARGE PIPES.

RAINWATER HARVESTING REQUIREMENTS:

1. CONSIDERING THE ROOF CATCHMENT AREA, LOCATION OF PROPERTY, INTENDED USE OF RAINWATER AND GARDEN SIZE WE RECOMMEND PROVIDING A RAINWATER TANK FOR USE AS PER BASIX REQUIREMENTS, HCCRENS WATER SMART PRACTICE NOTE (N).4) AND THE NSW HEALTH REQUIRMENTS FOR NON DRINKING USE ONLY AS FOLLOWS:
a) TO WATER GARDEN AREAS b) POOL TOP–UP c) TO BASIX REQUIREMENTS.
2. THE TANKS PROVIDED WILL REDUCE PRESSURE ON COUNCIL'S STORMWATER INFRASTRUCTURE.
3. REFERENCES: COOMBES P.J. & KUCZERA G. (2001), "RAINWATER TANK DESIGN FOR WATER SUPPLY & STORMWATER MANAGEMENT." STORMWATER INDUSTRY ASSOCIATION REGIONAL CONFERENCE. PATRICK DUPONT & STEVE SHACKEL, "RAINWATER" AUSTRALIAN GOVERNMENT (2004), "GUIDANCE ON USE OF RAINWATER TANKS".
4. ALL CONNECTIONS TO PLUMBING AND RAINWATER TANKS TO BE IN ACCORDANCE WITH SYDNEY WATERS' GUIDE "INSTALLING A RAINWATER TANK" AVAILABLE AT www.sydneywater.com.au OR
FROM LOCAL COUNCIL GUIDLINES.
5. PROVIDE A DUAL SUPPLY SYSTEM AND BACKFLOW PREVENTION SYSTEM IN ACCORDANCE WITH "BASIX–DESIGN GUIDE FOR SINGLE DWELLINGS' BY NSW DEPARTMENT OF INFRASTRUCTURE, PLANING AND NATURAL RESOURCES AND AS3500.1.
6. IF NOT SPECIFIED ON PLANS, THE FIRST FLUSH SYSTEM IS TO HAVE A MINIMUM SIZE OF 20L PER 100m2 OF ROOF CATCHMENT AREA PRIOR TO ENTERING THE RAINWATER TANK. INDIVIDUAL SITE ANALYSIS IS REQUIRED IN HEAVILY POLLUTED AREAS TO DETERMINE IF LARGER VOLUMES OF FIRST FLUSH RAINWATER ARE TO BE DIVERTED. IF IN DOUBT, CHECK WITH LOCAL HEALTH AUTHORITIES.
7. SCREENED DOWNPIPE RAINWATER HEAD OR OTHER SUITABLE LEAF AND DEBRIS DEVICE TO BE INSTALLED ON EACH DOWNPIPE. SCREEN MESH TO BE 4–6mm AND DESIGNED TO BE SELF–CLEANING.
8. FIRST FLUSH DEVICES, OR APPROVED ALTERATIVE, TO BE INSTALLED WITH AN AUTOMATED DIVERSION AND DRAINAGE SYSTEM, THAT IS, NO MANUAL DIVERSION AND DRAINAGE VALVES. REFER TYPICAL FLUSH OUT PIT FOR DETAILS. THIS SHOULD CATER FOR THE FIRST 1mm OF RAINFALL.
9. BEFORE PURCHASING MATERIALS OR PAINT TO BE USED ON ROOF CATCHMENT AREAS, THE MANUFACTURER'S RECOMMENDATIONS ON LABELS AND BROCHURES FOR RAINWATER TANK SUITABILITY TO BE READ AND ADHERED TO.
10. PRE–STORAGE PITS FOR UNDERGROUND RAINWATER STORAGE TANKS AND FLUSH OUT PITS MAY ASSIST IN LIMITING SILT, AND PREVENT VERMIN, INSECTS (INCLUDING MOSQUITOES) AND DEBRIS FROM ENTERING THE RAINWATER STORAGE AREA.
11. RAINWATER TANK TO BE WATER PROOFED IN ACCORDANCE WITH HB 230–200B
12. BUILDER OR PLUMBER TO ENSURE THE INSTALLATION OF THE RAINWATER TANK SYSTEM IS IN ACCORDANCE WITH THE RELEVANT AUSTRALIAN STANDARDS AND THE RAINWATER TANK DESIGN AND INSTALLATION HANDBOOK – HB 230–2008. IF IN DOUBT CONTACT ENGINEER.
13. NOISE EMISSIONS FROM ANY PUMPS DO NOT EXCEED 5dB(A) ABOVE AMBIENT BACKGROUND NOISE LEVEL MEASURED AT THE ALLOTMENT BOUNDARY.
14. AT THE COMPLETION OF THE WATER SERVICE INSTALLATION AND PRIOR TO HYDROSTATIC TESTING, THE SYSTEM SHALL BE THOROUGHLY FLUSHED TO REMOVE ANY FOREIGN MATTER. THE FLUSHING SHALL BE UNDERTAKEN IN ACCORDANCE WITH AS3500.1:2003 REQUIREMENTS – APPENDIX I, PARAGRAPH I3 AND CONTINUE UNTIL THE FLUSHED WATER RUNS COMPLETELY CLEAR. THE SYSTEM SHALL THEN BE PRESSURE TESTED IN ACCORDANCE WITH CLAUSE 16.3.1.
15. AT THE COMPLETION OF THE WATER SERVICE INSTALLATION THE RAINWATER STORAGE TANKS ARE TO BE TESTED IN ACCORDANCE WITH SECTION 16 OF AS3500.1:2003.

LOCALITY PLAN
NOT TO SCALE

ONSITE DRAINAGE CALCULATIONS – NORTHERN BEACHES COUNCIL WATER MANAGEMENT POLICY (2020)	
TOTAL SITE AREA	1,508 m^2
PRE–DEVELOPED IMPERVIOUS AREA	609 m^2 (40 %)
POST–DEVELOPED IMPERVIOUS AREA	771 m^2 (51 %)
COUNCIL REGION ZONE	REGION 1 – PITTWATER
TOTAL INCREASE IN IMPERVIOUS AREA	162 m^2 > 50 m^2
REQUIRED OSD VOLUME	12 m^3
OSD DISCHARGE REQUIRED	6 L/s
ONSITE DETENTION DETAILS	
PORTION THROUGH OSD	30 %
ORIFICE SIZE	50 mm ø
TYPE OF CONTROL	ABOVEGROUND TANKS
MAXIMUM DISCHARGE TO KERB	N/A
DEPTH TO ORIFICE	1.40 m
OVERFLOW TO STREET	YES
DIMENSION OF OSD TANKS	4 m^3 x 3 KINGSPAN TANKS
PROPOSED OSD VOLUME	12 m^3 (NOTE: 12 m^3 REQUIRED)
RAINWATER TANK DETAILS	
VOLUME OF RAINWATER (BASIX)	901 L MIN. (MAIN DWELLING)
RAINWATER TANK PROVIDED	1,000 L UNDERDECK TANK

MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS AS3500.3:2018 – TABLE 7.5.2.1			
DEPTH TO INVERT OF OUTLET	MINIMUM INTERNAL DIMENSIONS (mm)		
	RECTANGULAR		CIRCULAR
	Width	Length	Diameter ø
≤ 450	350	350	–
≤ 600	450	450	600
> 600 ≤ 900	600	600	900
> 900 ≤ 1200	600	900	1000
> 1200	900	900	1000

SURVEY NOTES:

1. THE EXISTING SITE CONDITIONS SHOWN ON THE FOLLOWING DRAWINGS HAVE BEEN INVESTIGATED BY THE PROJECT SURVEY. THE INFORMATION IS SHOWN TO PROVIDE A BASIS FOR DESIGN. RTS CIVIL CONSLTING ENGINEERS PTY LTD DOES NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF THE SURVEY BASE..
2. SHOULD DISCREPANCIES BE ENCOUNTERED DURING CONSTRUCTION BETWEEN THE SURVEY DATA AND ACTUAL FIELD DATA, CONTACT THE ENGINEER.
3. REFERENCE SHOULD BE MADE DIRECTLY TO THE SURVEYOR BEFORE SETTING OUT.

EXISTING UNDERGROUND SERVICES NOTES:

1. THE LOCATIONS OF UNDERGROUND SERVICES SHOWN IN THIS SET OF DRAWINGS HAVE BEEN PLOTTED FROM SURVEY INFORMATION AND SERVICE AUTHORITY INFORMATION. THE SERVICE INFORMATION HAS BEEN PREPARED ONLY TO SHOW THE APPROXIMATE POSITIONS OF ANY KNOWN SERVICES AND MAY NOT BE AS CONSTRUCTED OR ACCURATE.
2. RTS CIVIL CONSULTING ENGINEERS PTY LTD CANNOT GUARANTEE THE SERVICES INFORMATION SHOWN ON THESE DRAWINGS ACCURATELY INDICATES THE PRESENCE OR ABSENCE OF SERVICES OR THEIR LOCATION AND WILL ACCEPT NO LIABILITY FOR INACCURACIES IN THE SERVICES INFORMATION SHOWN FROM ANY CAUSE WHATSOEVER.
3. CONTRACTORS SHALL TAKE DUE CARE WHEN EXCAVATING ONSITE INCLUDING HAND EXCAVATION WHERE NECESSARY.
4. CONTRACTORS ARE TO CONTACT THE RELEVANT SERVICE AUTHORITY PRIOR TO COMMENCEMENT OF EXCAVATION WORKS.
5. CONTRACTORS ARE TO UNDERTAKE A SERVICES SEARCH, PRIOR TO COMMENCEMENT OF WORKS ON SITE. SEARCH RESULTS ARE TO BE KEPT ON SITE AT ALL TIMES.
6. CONTRACTOR IS TO CONFIRM FINDINGS FOR THE LOCAL COUNCL OR SYDNEY WATER IN RELATION TO THE SEWER OR WATER MAINS LOCATED. CONFIRMATION OF MAINS IS REQUIRED PRIOR TO CONSTRUCTION. POSSIBLE CONFLICT OF SERVICES ARE TO BE REPORTED TO THE SUPERINTENDENT OR ENGINEER FOR FURTHER DIRECTIONS.

EXTERNAL NOTES:

1. ALL ACTIVITIES AND WORKS EXTERNAL TO THE SITE, OR THAT AFFECT PUBLIC ROADS, ARE TO BE CARRIED OUT IN ACCORDANCE WITH COUNCIL'S CODES AND STANDARDS.
2. PUBLIC FOOTPATHS SHALL BE RECONSTRUCTED TO THE SATISFACTION OF COUNCIL'S DIRECTOR OF ENGINEERING SERVICES. A ROAD OPENING PERMIT SHALL BE OBTAINED FOR ALL WORKS CARRIED OUT IN A PUBLIC OR COUNCIL CONTROLLED LAND.
3. RESTORATION OF LANDSCAPING, ROADS AND PATHS SHALL BE TO COUNCIL'S REQUIREMENTS. ALL OTHER RESTORATION SHALL BE TOTHE SATISFACTION OF THE AFFECTED PARTIES.
4. WHERE WORKS ARE UNDERTAKEN ON PUBLIC ROADS, ADEQUATE TRAFFIC CONTROL AND DIRECTIONS TO MOTORISTS SHALL BE PROVIDED BY OTHERS.

DRAWING SCHEDULE:

www.dialbeforeyoudig.com.au
DIAL 1100 BEFORE YOU DIG

NO INVESTIGATION OF UNDERGROUND SERVICES HAS BEEN MADE. ALL RELEVANT AUTHORITIES SHOULD BE NOTIFIED PRIOR TO ANY EXCAVATION ON OR NEAR THE SITE

DEVELOPERS & EXCAVATORS MAY BE HELD FINANCIALLY RESPONSIBLE BY THE ASSET OWNER SHOULD THEY DAMAGE UNDERGROUND NETWORKS.

CARELESS DIGGING CAN:DIGGING CAN:

- CAUSE DEATH OR SERIOUS INJURY TO WORKERS AND THE GENERAL PUBLIC
- INCONVENIENCE USERS OF ELECTRICITY, GAS, WATER AND COMMUNICATIONS
- LEAD TO CRIMINAL PROSECUTION AND DAMAGES CLAIMS
- CAUSE EXPENSIVE FINANCIAL LOSSES TO BUSINESS
- CUT OFF EMERGENCY SERVICES
- DELAY PROJECT COMPLETION TIMES WHILE THE DAMAGE IS REPAIRED

MINIMISE YOUR RISK AND DIAL BEFORE YOU DIG. – TEL. 1100

ALL DIMENSIONS MUST BE VERIFIED ON SITE BY BUILDER BEFORE COMMENCING WITH WORK.

A1 ORIGINAL

Rev:	Date:	Description:	Reviewed:
A	30.11.21	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M

Issued for: DEVELOPMENT APPLICATION

Approved by:
Date : 30.11.21
Rhys Mikhail
Director | Principal Engineer | NER: 2570982 | RPEQ: 17480
BEng (Civil) Hons MIEAust CPEng NER RPEQ APEC IntPE(Aus)

Title:	Initial:	Date:
DESIGN	R.M	12.11.2021
DRAWN	S.M	12.11.2021
CHECKED	R.M	18.11.2021
APPROVED	R.M	18.11.2021

CIVIL CONSULTING ENGINEERS
STORMWATER • CIVIL • FLOOD MITIGATION
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Architect: CM STUDIO cm

Client: GREADER LAMBERT–SMITH

Project and Drawing Title:
155 PACIFIC ROAD, PALM BEACH
COVERPAGE, NOTES & CALCULATIONS

Local Council: NORTHERN BEACHES

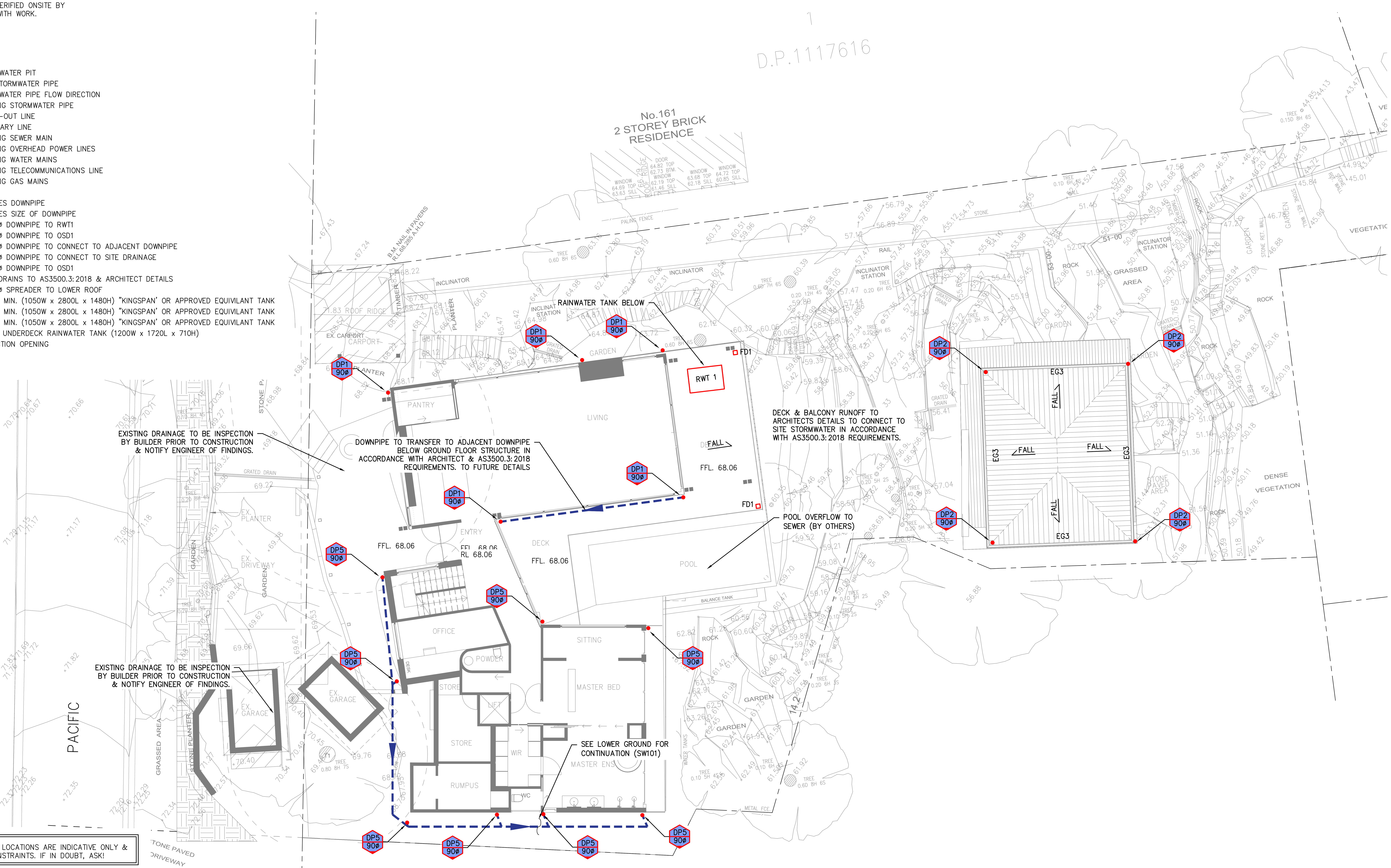
Project Number:	Drawing ID:	Issue:
211102	CP100	A

NOTES:
1. U.N.O REFER TO THE COVERPAGE CP100 SERIES FOR DETAILED NOTES AND CALCULATIONS.
2. ALL DIMENSIONS SHALL BE VERIFIED ONSITE BY BUILDER BEFORE COMMENCING WITH WORK.

NOT FOR CONSTRUCTION

LEGEND

	STORMWATER PIT
	NEW STORMWATER PIPE
	STORMWATER PIPE FLOW DIRECTION
	EXISTING STORMWATER PIPE
	FLUSH–OUT LINE
	BOUNDARY LINE
S	EXISTING SEWER MAIN
OHP	EXISTING OVERHEAD POWER LINES
W	EXISTING WATER MAINS
T	EXISTING TELECOMMUNICATIONS LINE
G	EXISTING GAS MAINS
DP1 100ø	DENOTES DOWNPIPE
	DENOTES SIZE OF DOWNPIPE
DP1	90mmø DOWNPIPE TO RWT1
DP2	90mmø DOWNPIPE TO OSD1
DP3	90mmø DOWNPIPE TO CONNECT TO ADJACENT DOWNPIPE
DP4	90mmø DOWNPIPE TO CONNECT TO SITE DRAINAGE
DP5	90mmø DOWNPIPE TO OSD1
FD1	DECK DRAINS TO AS3500.3:2018 & ARCHITECT DETAILS
SP1	90mmø SPREADER TO LOWER ROOF
OSD1	4,000L MIN. (1050W x 2800L x 1480H) "KINGSPAN' OR APPROVED EQUIVILANT TANK
OSD2	4,000L MIN. (1050W x 2800L x 1480H) "KINGSPAN' OR APPROVED EQUIVILANT TANK
OSD3	4,000L MIN. (1050W x 2800L x 1480H) "KINGSPAN' OR APPROVED EQUIVILANT TANK
RWT1	1,000L UNDERDECK RAINWATER TANK (1200W x 1720L x 710H)
IO	INSPECTION OPENING



WARNING! CARE WHEN DIGGING AROUND TREE ROOTS. HAND DIGGING ONLY! MAY REQUIRE ARBORIST SUPERVISION.

GROUND FLOOR & STUDIO ROOF STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

NOTE:
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DIAL 1100 BEFORE YOU DIG

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Rev:	Date:	Description:	Reviewed:
A	30.11.21	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M

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RTS CIVIL CONSULTING ENGINEERS
STORMWATER • CIVIL • FLOOD MITIGATION
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Architect: CM STUDIO cm

Client: GREADER LAMBERT–SMITH

Project and Drawing Title:
155 PACIFIC ROAD, PALM BEACH
GROUND FLOOR & STUDIO ROOF
STORMWATER MANAGEMENT PLAN

Local Council: NORTHERN BEACHES

Project Number:	Drawing ID:	Issue:
211102	SW100	A

NOT FOR CONSTRUCTION

NOTES:
1. U.N.O REFER TO THE COVERPAGE CP100 SERIES FOR DETAILED NOTES AND CALCULATIONS.
2. ALL DIMENSIONS SHALL BE VERIFIED ONSITE BY BUILDER BEFORE COMMENCING WITH WORK.

LEGEND

- STORMWATER PIT
- NEW STORMWATER PIPE
- STORMWATER PIPE FLOW DIRECTION
- EXISTING STORMWATER PIPE
- FLUSH–OUT LINE
- BOUNDARY LINE
- S — EXISTING SEWER MAIN
- OHP — EXISTING OVERHEAD POWER LINES
- W — EXISTING WATER MAINS
- T — EXISTING TELECOMMUNICATIONS LINE
- G — EXISTING GAS MAINS

DP1 100ø — DENOTES DOWNPIPE; DENOTES SIZE OF DOWNPIPE

DP1	90mmø DOWNPIPE TO RWT1
DP2	90mmø DOWNPIPE TO OSD1
DP3	90mmø DOWNPIPE TO CONNECT TO ADJACENT DOWNPIPE
DP4	90mmø DOWNPIPE TO CONNECT TO SITE DRAINAGE
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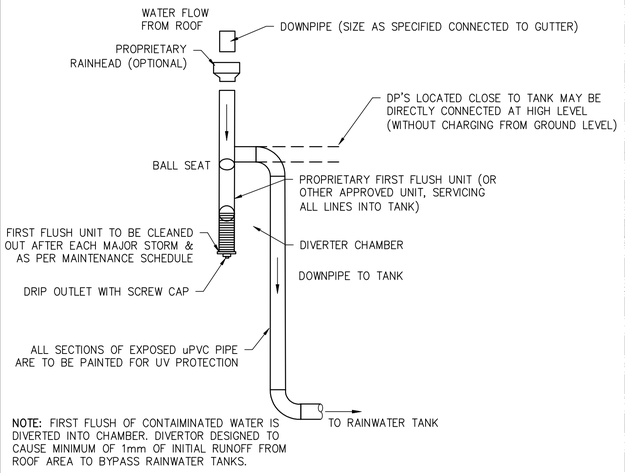
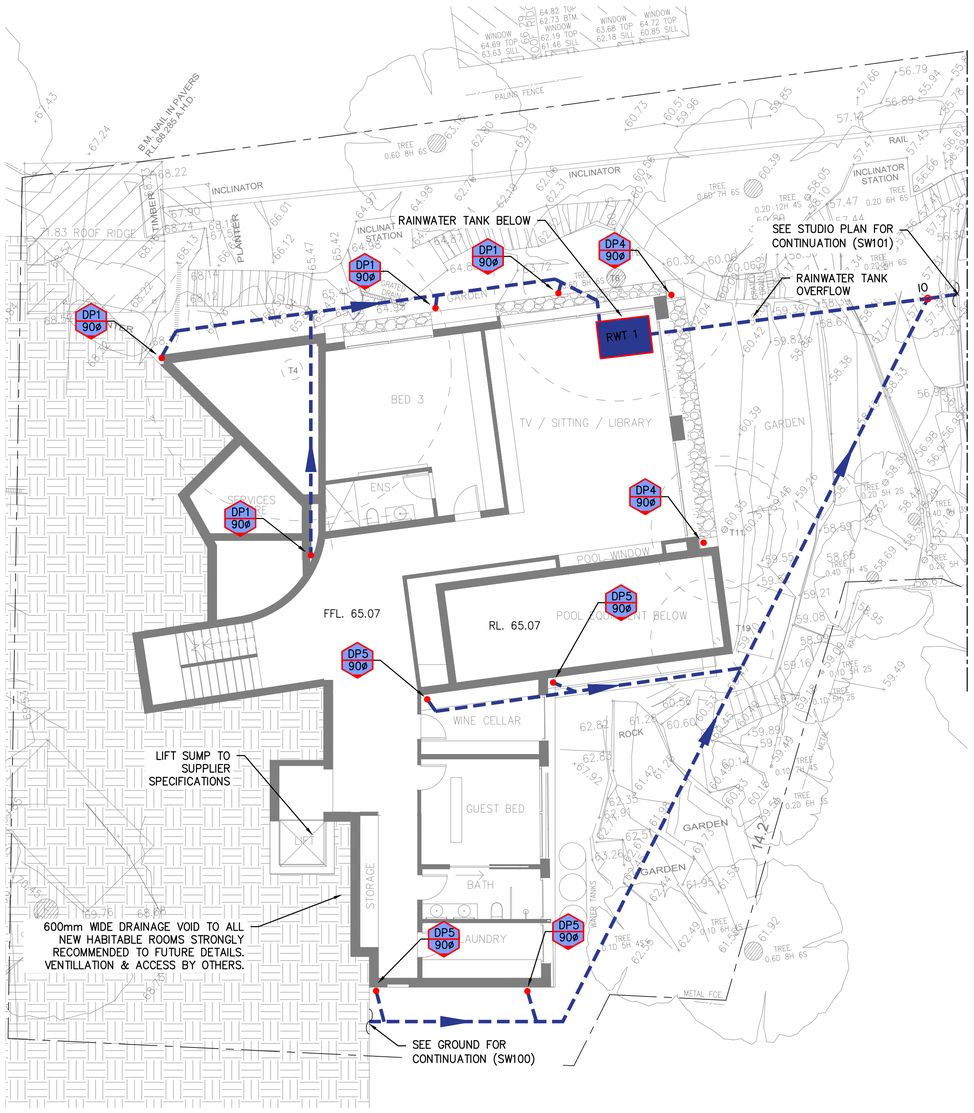
IO	INSPECTION OPENING



NOTE: FIRST FLUSH OF CONTAIMINATED WATER IS DIVERTED INTO CHAMBER. DIVERTOR DESIGNED TO CAUSE MINIMUM OF 1mm OF INITIAL RUNOFF FROM ROOF AREA TO BYPASS RAINWATER TANKS.

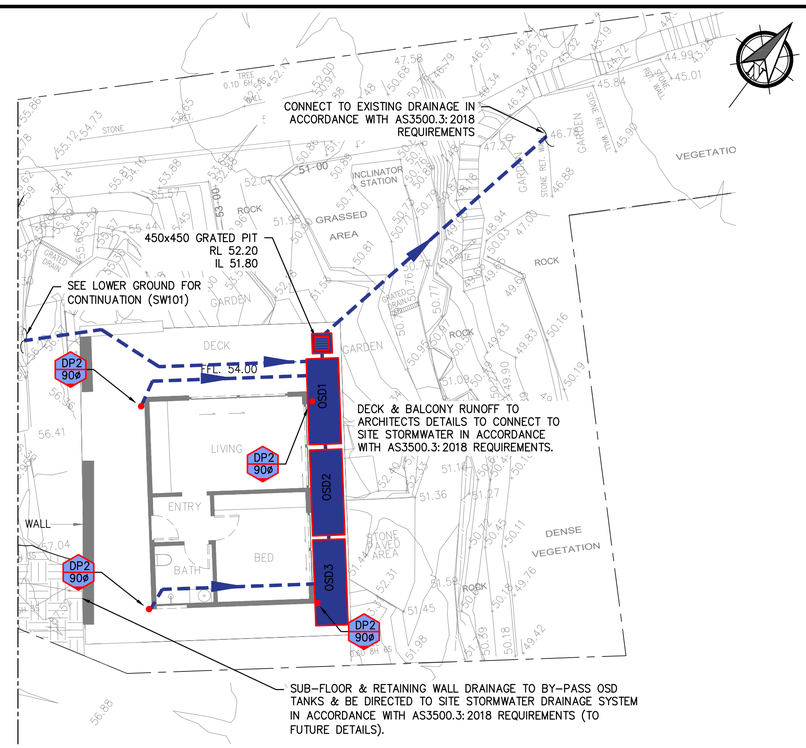
TYPICAL WALL MOUNTED FIRST FLUSH DETAIL

NOT TO SCALE



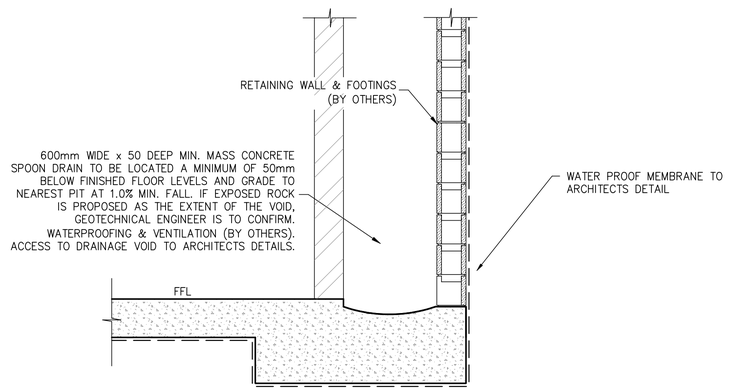
LOWER GROUND STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100



STUDIO STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100



DRAINAGE VOID DETAIL (TYP.)

SCALE = 1 : 20

NOTE: PIT, PIPE & DOWNPIPE LOCATIONS ARE INDICATIVE ONLY & MAY VARY DUE TO CONSTRAINTS. IF IN DOUBT, ASK!

WARNING! CARE WHEN DIGGING AROUND TREE ROOTS. HAND DIGGING ONLY! MAY REQUIRE ARBORIST SUPERVISION.

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MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS AS3500.3: 2018 – TABLE 7.5.2.1

DEPTH TO INVERT OF OUTLET	MINIMUM INTERNAL DIMENSIONS (mm)		
	RECTANGULAR		CIRCULAR
	Width	Length	Diameter ø
≤ 450	350	350	–
≤ 600	450	450	600
> 600 ≤ 900	600	600	900
> 900 ≤ 1200	600	900	1000
> 1200	900	900	1000

DIAL 1100 BEFORE YOU DIG

A1 ORIGINAL

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A	30.11.21	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M

Issued for: DEVELOPMENT APPLICATION

Approved by:

Date : 30.11.21

Rhys Mikhail

Director | Principal Engineer | NER: 2570082 | RPEQ: 17480
BEng (Civil) Hons MIEAust CPEng NER RPEQ APEC IntPE(Aus)

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RTS CIVIL CONSULTING ENGINEERS
STORMWATER • CIVIL • FLOOD MITIGATION
ABN: 81 615 065 588 Phone: 0490 507 300 Email: admin@rtscivil.com.au Web: rtscivil.com.au

Architect: CM STUDIO cm

Client: GREADER LAMBERT–SMITH

Project and Drawing Title: 155 PACIFIC ROAD, PALM BEACH
LOWER GROUND & STUDIO
STORMWATER MANAGEMENT PLAN

Local Council: NORTHERN BEACHES

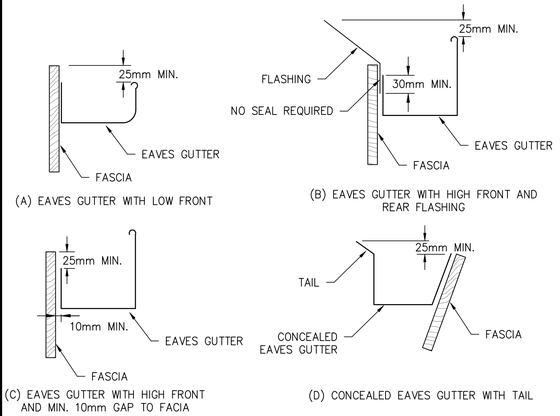
Project Number:	Drawing ID:	Issue:
211102	SW101	A

NOTES:
1. U.N.O REFER TO THE COVERPAGE CP100 SERIES FOR DETAILED NOTES AND CALCULATIONS.
2. ALL DIMENSIONS SHALL BE VERIFIED ONSITE BY BUILDER BEFORE COMMENCING WITH WORK.

NOT FOR CONSTRUCTION

LEGEND

	STORMWATER PIT
	NEW STORMWATER PIPE
	STORMWATER PIPE FLOW DIRECTION
	EXISTING STORMWATER PIPE
	FLUSH–OUT LINE
	BOUNDARY LINE
S	EXISTING SEWER MAIN
OHP	EXISTING OVERHEAD POWER LINES
W	EXISTING WATER MAINS
T	EXISTING TELECOMMUNICATIONS LINE
G	EXISTING GAS MAINS
DP1 100ø	DENOTES DOWNPIPE
	DENOTES SIZE OF DOWNPIPE
DP1	90mmø DOWNPIPE TO RWT1
DP2	90mmø DOWNPIPE TO OSD1
DP3	90mmø DOWNPIPE TO CONNECT TO ADJACENT DOWNPIPE
DP4	90mmø DOWNPIPE TO CONNECT TO SITE DRAINAGE
DP5	90mmø DOWNPIPE TO OSD1
FD1	DECK DRAINS TO AS3500.3:2018 & ARCHITECT DETAILS
SP1	90mmø SPREADER TO LOWER ROOF
OSD1	4,000L MIN. (1050W x 2800L x 1480H) "KINGSPAN" OR APPROVED EQUIVILANT TANK
OSD2	4,000L MIN. (1050W x 2800L x 1480H) "KINGSPAN" OR APPROVED EQUIVILANT TANK
OSD3	4,000L MIN. (1050W x 2800L x 1480H) "KINGSPAN" OR APPROVED EQUIVILANT TANK
RWT1	1,000L UNDERDECK RAINWATER TANK (1200W x 1720L x 710H)
IO	INSPECTION OPENING



EAVES GUTTER OVERFLOW METHODS

SCALE: 1:20

LEVEL 1 STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

ROOF STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

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Architect: CM STUDIO cm

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Project and Drawing Title:
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LEVEL 1 & ROOF
STORMWATER MANAGEMENT PLAN

Local Council: NORTHERN BEACHES

Project Number:	Drawing ID:	Issue:
211102	SW102	A

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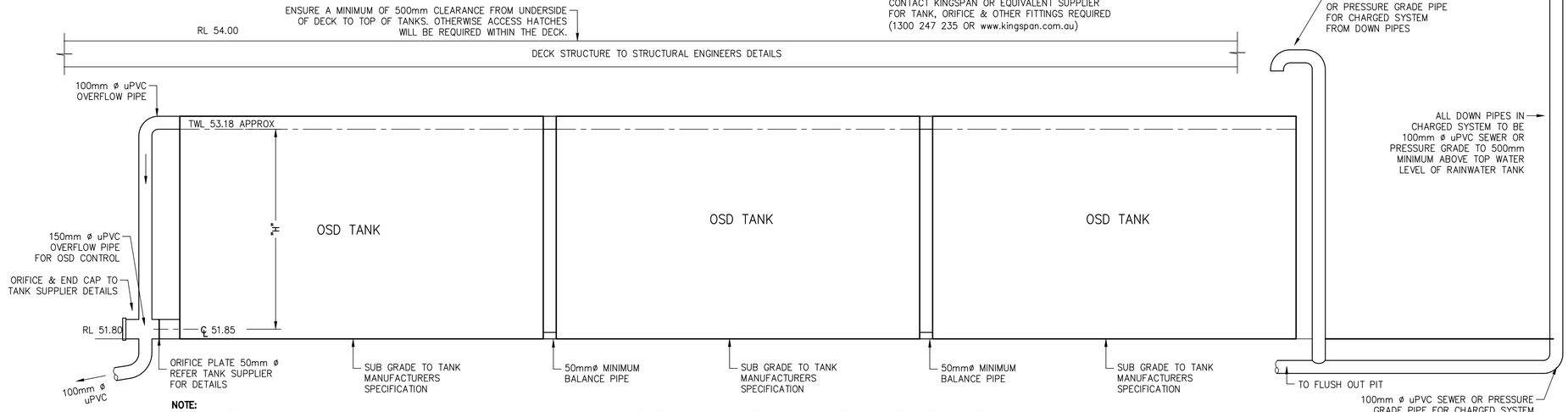
NOT FOR CONSTRUCTION

NOTE:
CONTACT KINGSPAN OR EQUIVALENT SUPPLIER FOR TANK, ORIFICE & OTHER FITTINGS REQUIRED (1300 247 235 OR www.kingspan.com.au)

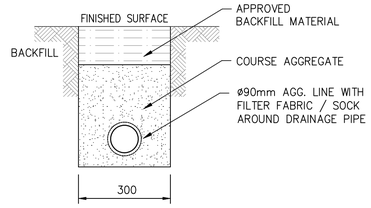


NOTE:
H = 1.40m (SHOULD HEIGHT TO ORIFICE CHANGE, BUILDER TO NOTIFY ENGINEER FOR ORIFICE ADJUSTMENT)

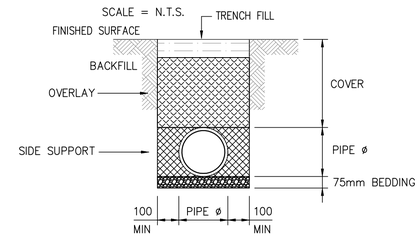
TYPICAL SECTION ONSITE DETENTION TANK

NOT TO SCALE

NOTE: MOSQUITO PROOF MESH TO BE PROVIDED AT ALL END POINTS OF CHARGED LINES AND RAINWATER TANK.



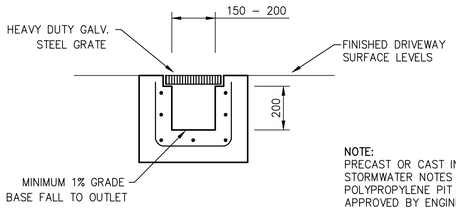
TYPICAL SUB–SOIL TRENCH DETAIL



TYPICAL uPVC PIPE TRENCH DETAIL

SCALE = N.T.S.

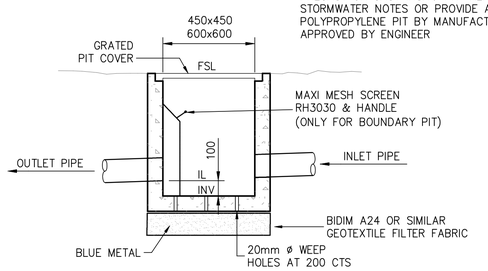
NOTE – STANDARD uPVC PIPE TRENCH:
SUITABLE BEDDING TO AS2032:
1. SAND FREE FROM ROCK OR OTHER HARD AND SHARP OBJECTS THAT WOULD BE RETAINED ON 13.2 SIEVE.
2. CRUSHED ROCK OR GRAVEL OF APPROVED GRADING UP TO MAXIMUM SIZE OF 14mm.
3. THE EXCAVATED MATERIAL MAY BE USED IF IT IS FREE FROM ROCK OR HARD MATTER AND BROKEN UP SO THAT IT CONTAINS NO SOIL LUMPS HAVING ANY DIMENSIONS GREATER THAN 75mm WHICH WOULD PREVENT ADEQUATE COMPACTION OF THE BEDDING.
SIDE SUPPORT: MATERIAL FOR PIPE SUPPORT SHOULD BE ADEQUATELY TAMPED IN LAYERS OF NOT MORE THAN 150mm.
OVERLAY: PIPE OVERLAY MATERIAL SHOULD BE LEVELED AND TAMPED IN LAYERS TO A MINIMUM HEIGHT OF 150mm ABOVE THE CROWN OF PIPE.
COVER: FOR MIN COVER REFER TO AS3500.3: 2018.



NOTE:
PRECAST OR CAST INSITU PIT. REFER STORMWATER NOTES OR PROVIDE ALTERNATE POLYPROPYLENE PIT BY MANUFACTURER IF APPROVED BY ENGINEER

TYPICAL DRIVEWAY GRATED DRAIN (GD)

SCALE = 1 : 20

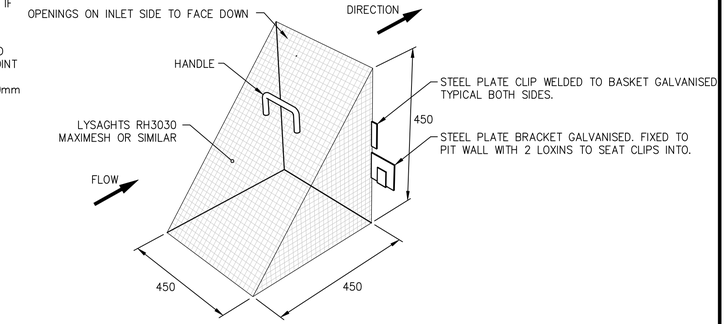


NOTE:
PRECAST OR CAST INSITU PIT. REFER STORMWATER NOTES OR PROVIDE ALTERNATE POLYPROPYLENE PIT BY MANUFACTURER IF APPROVED BY ENGINEER

TYPICAL PIT DETAIL

SCALE = 1 : 20

NOTE:
THIS CAN BE ANY TYPICAL PIT PROVIDED OR IF NEEDED TO BE FITTED AT LOW POINT OF SITE AND THERE IS NO ADEQUATE DISCHARGE POINT NEARBY, PROVIDE 300mm SUMP. CONTACT ENGINEER IF IN DOUBT.



MAXI MESH SCREEN DETAIL

SCALE = N.T.S.

SECTION THROUGH INSPECTION OPENING DENOTED I.O. ON PLAN

SCALE = 1 : 20

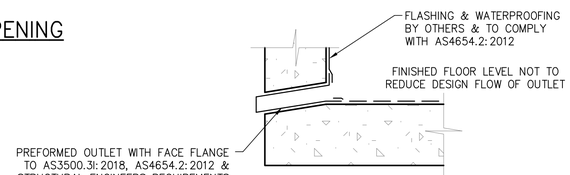
FIRST FLUSH DETAIL – INGROUND

SCALE = 1 : 20

CHARGED SYSTEM FLUSH OUT PIT DETAIL

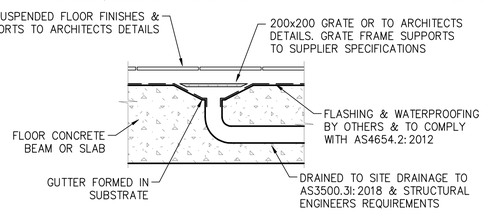
SCALE = 1 : 20

NOTE:
FLOOR DRAINS TO BE INSTALLED WITHIN ALL PLANTERS AND PATIOS TO ARCHITECTS DETAILS AND AS3500.3 REQUIREMENTS. FLOOR DRAINS ARE TO DRAIN BY GRAVITY TO THE NEAREST DRAINAGE STRUCTURE AND MUST BE LOCATED AT LEAST 500mm ABOVE CONNECTION POINT. BALCONY HOB TO ARCHITECT DETAILS. ENSURE ALL BALCONIES ARE FITTED WITH 2 x 50mmø SPITTER PIPES TO ACT AS OVERFLOW POINT IN ACCORDANCE WITH AS4564.2: 2012 REQUIREMENTS.
IF IN DOUBT, CONTACT THE ENGINEER.



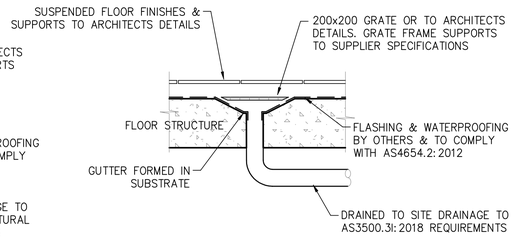
PREFORMED OUTLET TO PARAPET OR BALCONY OVERFLOW

NOT TO SCALE



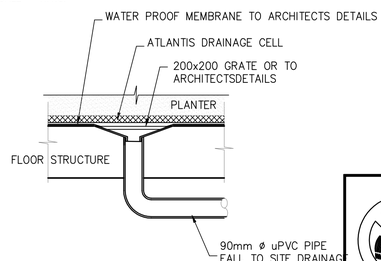
STANDARD FLOOR PATIO DRAIN

SCALE = 1 : 20



STANDARD FLOOR DRAIN (OPTION FOR BALCONIES ONLY)

SCALE = 1 : 20



STANDARD FLOOR DRAIN

SCALE = 1 : 20

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