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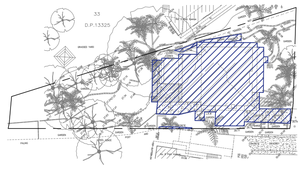
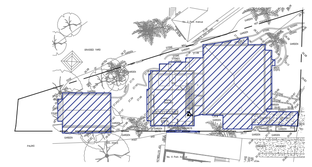


EXISTING IMPERVIOUS AREA: 223.2m² (39%)

SCALE = 1 : 500

CIVIL CONSULTING ENGINEERS

ALTERATIONS & ADDITIONS & SECONDARY DWELLING
4 PARK AVENUE, AVALON



PROPOSED IMPERVIOUS AREA: 303.3m² (53%)

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) COLD WATER TAP FOR WASHING 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.

INFILTRATION/ABSORPTION TRENCH NOTES (METHOD 1):

1. EXCAVATE THE TRENCH ALONG A LEVEL SITE CONTOUR TO PROVIDE AT LEAST 100mm COVER OVER THE TOP OF THE LINER.
2. THE TRENCH FLOOR SHOULD BE LEVEL, EVENLY RAKED, AND HAVE NO LOW SPOTS WHICH WOULD ALLOW 'PONDING'.
3. ALLOW AT LEAST 75mm OVERLAP FOR EACH LENGTH OF EVERTRENCH.
4. IDEALLY, THREE SPREADER BARS (OPTIONAL) SHOULD BE FITTED INTO EACH STANDARD EVERTRENCH LINER, THE FIRST 220mm FROM THE INLET END, THEN EQUALLY SPACED ALONG THE EXCAVATION.
5. CUT THE PIPE ENTRY HOLE IN ONE TRENCH LINER END CAP. AN EASYDRAIN™ PIT BOSS MAY BE USED TO ENSURE A SECURE CONNECTION. FIT THE CAPS TO THE LINER AND CONNECT THE PIPING FROM THE SEPTIC TANK OR SULLAGE DISTRIBUTOR.
6. COVER THE EVERTRENCH WITH GEOTEXTILE FABRIC AND PLACE A QUANTITY OF 20–25mm AGGREGATE MATERIAL ALONG THE TRENCH LINER AND AT BOTH ENDS, SO THAT THE TOP OF THE LINER IS JUST COVERED. RAKE LEVEL.
7. LAY GEOTEXTILE OVER THE AGGREGATE FOR THE FULL LENGTH OF THE TRENCH.
8. COVER THE GEOTEXTILE WITH A LAYER OF APPROVED SANDY LOAM AND LEAVE A MOUND FOR NATURAL COMPACTION. TURF MAY BE LAID OVER THE TRENCH AREA. DO NOT COMPACT THE TRENCH AREA OR EXPOSE IT TO TRAFFIC.
9. THESE TRENCHES ARE GENERALLY LIMITED TO SITES WHERE SOIL IS CONSIDERED PERMEABLE ENOUGH TO 'SOAK UP' THE EXPECTED AMOUNTS OF WASTE–WATER. THE TRENCH SHOULD BE WIDE ENOUGH TO ACCEPT THE SELECTED EVERTRENCH LINER AND DEEP ENOUGH SO THAT THE TOP OF THE SELECTED LINER IS AT LEAST 100mm BELOW THE SOIL SURFACE LEVEL.
10. TRENCH TO BE HAND DUG AROUND TREE ROOT SYSTEM IN ACCORDANCE WITH ARBORIST AND/OR LOCAL COUNCIL REQUIREMENTS.
11. A GEOTECHNICAL ENGINEERS REPORT OR RECOMMENDATIONS MAY BE REQUIRED FOR AREAS OF LOW SOIL INFILTRATION RATES OR FOR LARGER DEVELOPMENTS. THE ENGINEER SHOULD BE NOTIFIEDDURING CONSTRUCTION AND EXCAVATION OF TRENCHES TO CONFIRM SUITABILITY OF SOILS.
12. WHERE POSSIBLE, INSTALL HIGH LEVEL EMERGENCY OVERFLOW PIPE AND CONNECT TO SITE DRAINAGE SYSTEM OR NEAREST DISCHARGE POINT IN ACCORDANCE WITH AS3500.3.2 AND/OR COUNCIL REQUIREMENTS.
13. DO NOT CONNECT SUB–SOIL DRAINAGE LINES THAT ARE LESS THAN 150mm ABOVE THE SURFACE LEVEL OF THE TRENCH. NOTIFY ENGINEER IF THE DEVELOPMENT HAS LOW LAYING SUB–SOIL DRAINAGE LINES..

ONSITE DRAINAGE CALCULATIONS – NORTHERN BEACHES COUNCIL (PITTWATER DCP21)	
TOTAL SITE AREA	575 m²
PRE–DEVELOPED IMPERVIOUS AREA	223 m² (39 %)
POST–DEVELOPED IMPERVIOUS AREA	303 m² (53 %)
TOTAL INCREASE IN IMPERVIOUS AREA	80 m² > 50 m²
REQUIRED OSD VOLUME IN ACCORDANCE DCP21	6 m³
REQUIRED RAINWATER VOLUME IN ACCORDANCE DCP21	0 m³
RAINWATER VOLUME (BASIX) REQUIRED	2 m³
OSD DISCHARGE IN ACCORDANCE WITH DCP21	3 L/s
STORMWATER TO COUNCIL POLICY FOR LOW LEVEL PROPERTIES (PDS – POL 136):	
STEP 1 – CONNECTION TO EXISTING SYSTEM: **INADEQUATE**	
STEP 2 – ONSITE ABSORPTION: **INADEQUATE (COLLUVIAL SAND / CLAY SOILS)**	
STEP 3 – GRAVITY EASEMENT PIPE: **EASEMENT REFUSED**	
STEP 4 – LEVEL SPREADER: **INADEQUATE**	
STEP 5 – ALTERNATIVE DISPOSAL METHOD: **CHARGED SYSTEM – INADEQUATE**	
ONSITE DETENTION – ADEQUATE	
PRE DEVELOPMENT SITE DISCHARGE 5 YR 100 YR	 17 l/s (STATE–OF–NATURE) 29 l/s (STATE–OF–NATURE)
POST DEVELOPMENT SITE DISCHARGE 5 YR 100 YR	 11 l/s (7 l/s FROM OSD) 17 l/s (7 l/s FROM OSD)
ONSITE DETENTION DETAILS	
PORTION THROUGH OSD	66 %
ORIFICE SIZE	69 mm ø
TYPE OF CONTROL	BELOW GROUND TANKS
MAXIMUM DISCHARGE TO KERB	N/A
DEPTH TO ORIFICE	1.0 m
OVERFLOW TO STREET	NO
DIMENSION OF OSD TANKS	9.0 m³ x 1.0m AVE DEPTH
PROPOSED OSD VOLUME	9.0 m³ (NOTE: 9.0 m³ REQUIRED)
RAINWATER TANK DETAILS	
VOLUME OF RAINWATER (BASIX)	2.0 m³

TRANSPIRATION/DISPERSION TRENCH NOTES (METHOD 2):

1. EXCAVATE AN AREA 1800mm WIDE AND 300mm DEEP ALONG A LEVEL SITE CONTOUR.
2. EXCAVATE A CENTRAL TRENCH ALONG THE FULL LENGTH OF THE PREPARED AREA FOR THE SELECTED LINER. THE TOP OF THE LINER SHOULD BE LEVEL WITH THE BOTTOM OF THE PREPARED AREA. THE FLOOR SHOULD BE LEVEL, EVENLY RAKED, WITH NO LOW SPOTS.
3. CARRY OUT STEPS 3, 4, 5, 6 & 7 LISTED FOR METHOD 1 (ABSORPTION TRENCH).
4. COVER THE GEOTEXTILE AND FLOOR OF THE WIDER EXCAVATION WITH 100mm OF 10mm AGGREGATE, THEN 100mm OF COARSE SAND, AND FINALLY WITH SANDY LOAM.
5. LEAVE A MOUND FOR NATURAL COMPACTION. TURF MAY BE LAID OVER THE AREA. DO NOT COMPACT THE AREA OR EXPOSE IT TO TRAFFIC.
6. THIS METHOD ARE GENERALLY USED WHERE LOCAL SOIL CONDITIONS CANNOT COPE WITH THE VOLUME OF WASTE–WATER IN THE NORMAL NARROW ABSORPTION TRENCH SYSTEMS. TRANSPIRATION ENCOURAGES TREATED WASTE–WATER TO BE TAKEN UP BY PLANT ROOTS OVER A WIDE AREA, AS WELL AS PERMEATING THE SOIL, OFFERING ADDITIONAL SAFETY FOR SOIL ABSORPTION SYSTEMS. BEDS CONSIST OF STANDARD WIDTH TRENCHES THAT ARE DEEPER THAN NORMAL, WITH THE AREA ABOVE THE SELECTED TRENCH LINER OF MUCH GREATER WIDTH, AND FILLED WITH AGGREGATE TO ALLOW EASIER MOVEMENT OF MOISTURE.

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:

CP100 – COVER PAGE, NOTES & CALCULATIONS
SW100 – LOWER GROUND & GROUND STORMWATER MANAGEMENT PLAN
SW101 – FIRST FLOOR & ROOF STORMWATER MANAGEMENT PLAN
SW200 – STORMWATER DRAINAGE DETAILS

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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:
C	16.10.20	AMENDED OSD TANK LOCATION	R.M
B	12.10.20	AMENDED OSD TANK DETAILS	R.M
A	01.10.20	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M

Issued for: DEVELOPMENT APPLICATION

Approved by:

Date : 16.10.20

Rhys Mikhail .....
Director BE (Civil) Hons MIEAust CPEng NER RPEQ
(RTS Civil Consulting Engineers Pty Ltd)

Title:	Initial:	Date:
DESIGN	R.M	31.08.2020
DRAWN	S.M	31.08.2020
CHECKED	R.M	01.10.2020
APPROVED	R.M	01.10.2020

CIVIL CONSULTING ENGINEERS
STORMWATER • CIVIL • FLOOD MITIGATION
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Architect: cm studio

Client: ELIZA & GREG VINEY

Project and Drawing Title: 4 PARK AVENUE, AVALON
COVERPAGE, NOTES & CALCULATIONS

Local Council: NORTHERN BEACHES COUNCIL

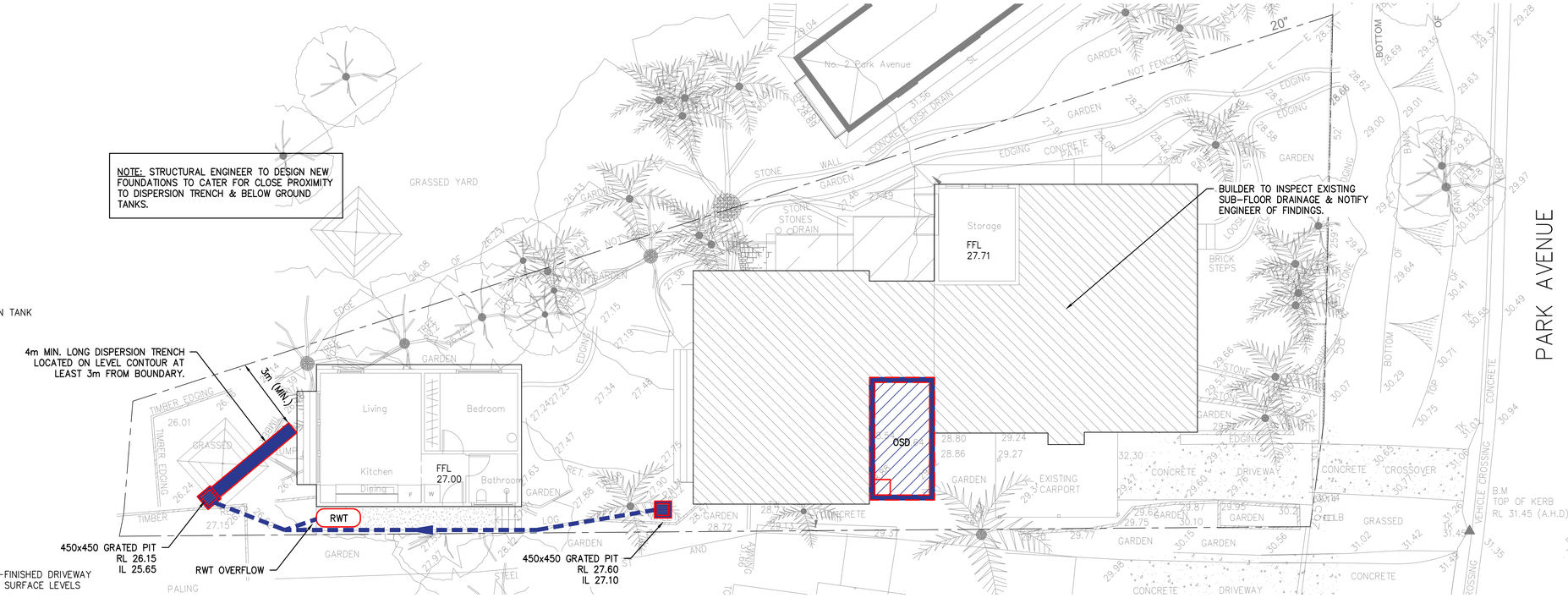
Project Number:	Drawing ID:	Issue:
200714	CP100	C

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

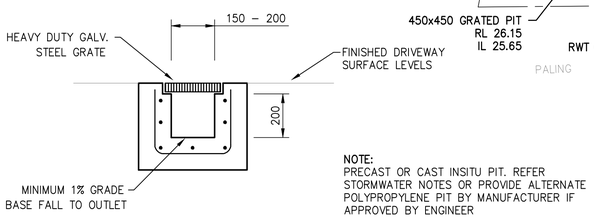
LEGEND

	STORMWATER PIT
	NEW STORMWATER PIPE
	STORMWATER PIPE FLOW DIRECTION
	EXISTING STORMWATER PIPE
	FLUSH-OUT LINE
	BOUNDARY LINE
E	EXISTING ELECTRICITY
DP1 100ø	DENOTES DOWNPIPE
	DENOTES SIZE OF DOWNPIPE
EG1	UPPER HOUSE EAVES GUTTER
EG2	LOWER HOUSE EAVES GUTTER
EG3	VERANDAH EAVES GUTTER
DP1	90mmø DOWNPIPE TO OSD
DP2	100mmø DOWNPIPE TO RWT
RWT	2,000L MIN. RAINWATER TANK (BASIX)
OSD	9,000L ONSITE STORMWATER DETENTION TANK
GD1	150mm MIN. GRATED DRAIN
AH1	ACCESS HATCH
AH2	ACCESS HATCH



LOWER GROUND STORMWATER MANAGEMENT PLAN

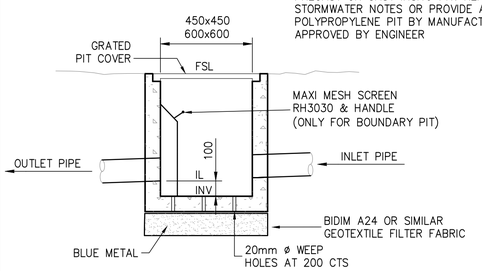
SCALE = 1 : 100



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:
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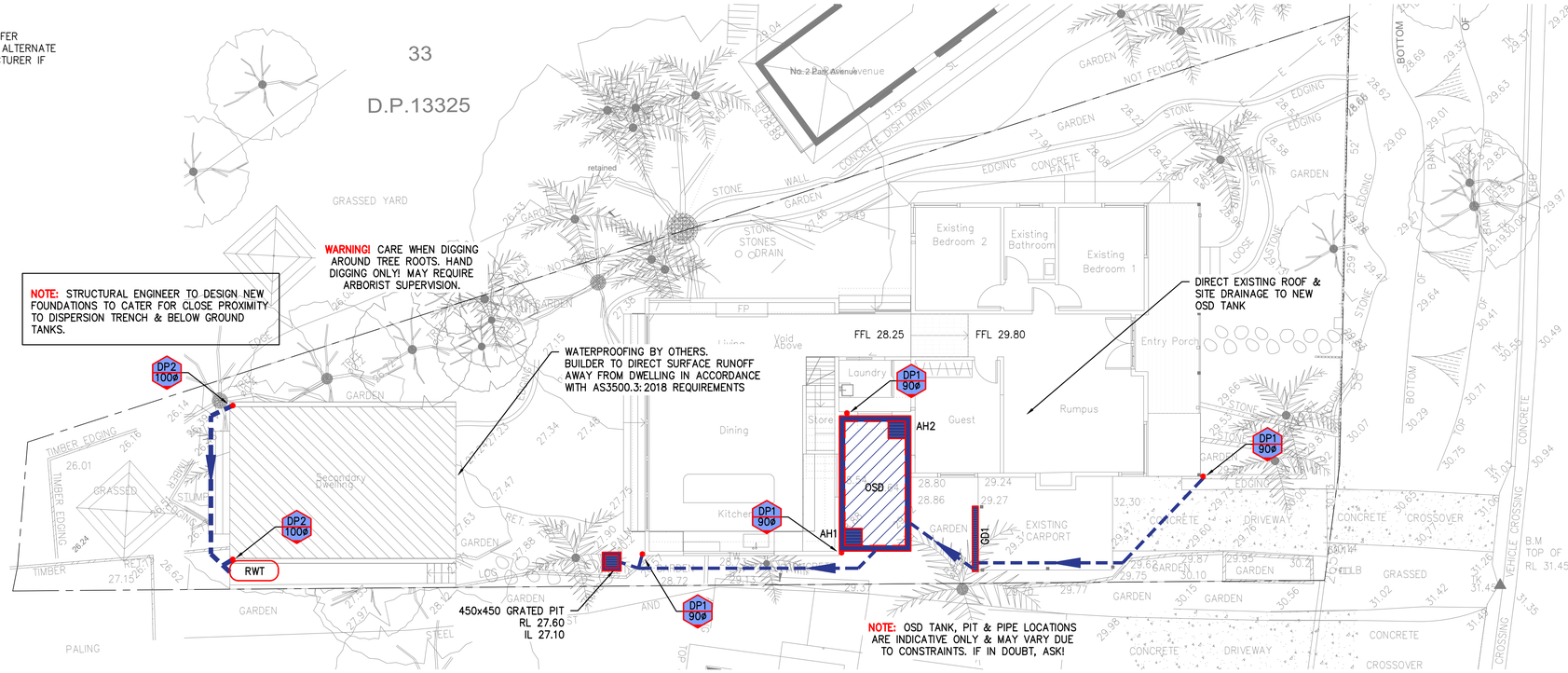
33

D.P.13325



GROUND STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

DIAL 1100 BEFORE YOU DIG

A1 ORIGINAL

Rev:	Date:	Description:	Reviewed:
C	16.10.20	AMENDED OSD TANK LOCATION	R.M
B	12.10.20	AMENDED OSD TANK DETAILS	R.M
A	01.10.20	STORMWATER MANAGEMENT PLAN FOR DA SUBMISSION	R.M

Issued for: DEVELOPMENT APPLICATION

Approved by:

Date : 16.10.20

Rhys Mikhail

Director BE (Civil) Hons MIEAust CPEng NER RPEQ (RTS Civil Consulting Engineers Pty Ltd)

Title:	Initial:	Date:
DESIGN	R.M	31.08.2020
DRAWN	S.M	31.08.2020
CHECKED	R.M	01.10.2020
APPROVED	R.M	01.10.2020

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**

Client: ELIZA & GREG VINEY

Project and Drawing Title: 4 PARK AVENUE, AVALON
LOWER GROUND & GROUND STORMWATER MANAGEMENT PLAN

Local Council: NORTHERN BEACHES COUNCIL

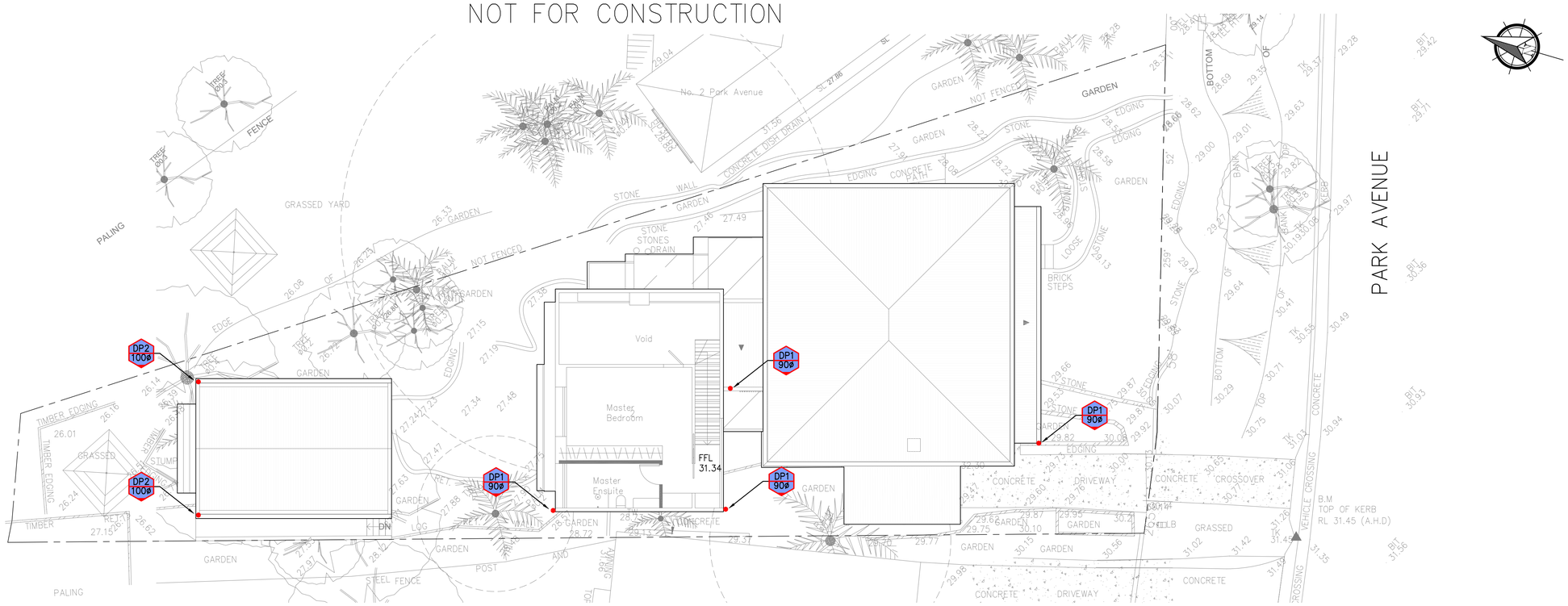
Project Number:	Drawing ID:	Issue:
200714	SW100	C

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

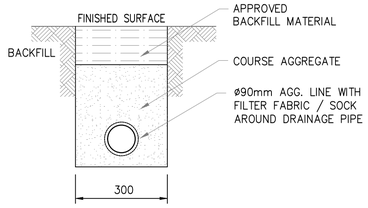
LEGEND

	STORMWATER PIT
	NEW STORMWATER PIPE
	STORMWATER PIPE FLOW DIRECTION
	EXISTING STORMWATER PIPE
	FLUSH-OUT LINE
	BOUNDARY LINE
E	EXISTING ELECTRICITY
DP1 100ø	DENOTES DOWNPIPE
	DENOTES SIZE OF DOWNPIPE
EG1	UPPER HOUSE EAVES GUTTER
EG2	LOWER HOUSE EAVES GUTTER
EG3	VERANDAH EAVES GUTTER
DP1	90mmø DOWNPIPE TO OSD
DP2	100mmø DOWNPIPE TO RWT
RWT	2,000L MIN. RAINWATER TANK (BASIX)
OSD	9,000L ONSITE STORMWATER DETENTION TANK
GD1	150mm MIN. GRATED DRAIN
AH1	ACCESS HATCH
AH2	ACCESS HATCH



FIRST FLOOR STORMWATER MANAGEMENT PLAN

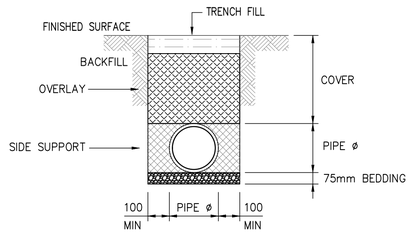
SCALE = 1 : 100



TYPICAL SUB-SOIL TRENCH DETAIL

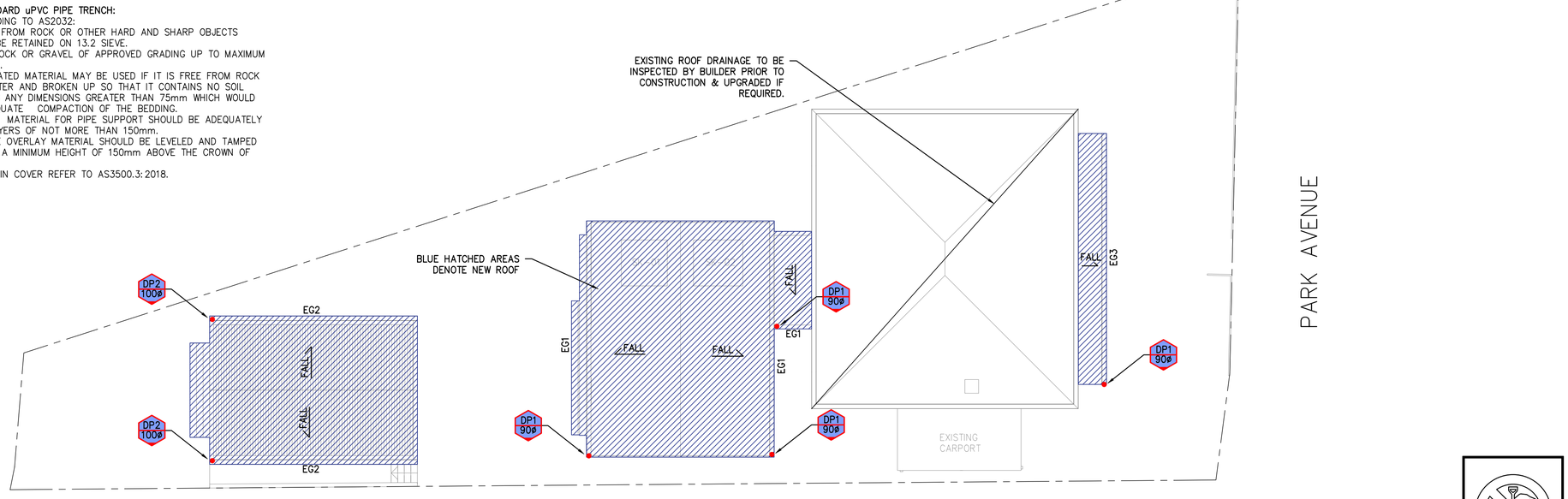
SCALE = N.T.S.

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.



TYPICAL uPVC PIPE TRENCH DETAIL

SCALE = N.T.S.



ROOF STORMWATER MANAGEMENT PLAN

SCALE = 1 : 100

NOTE:
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DIAL 1100 BEFORE YOU DIG

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Architect: cm studio

Client: ELIZA & GREG VINEY

Project and Drawing Title: 4 PARK AVENUE, AVALON
FIRST FLOOR & ROOF STORMWATER MANAGEMENT PLAN

Local Council: NORTHERN BEACHES COUNCIL

Project Number:	Drawing ID:	Issue:
200714	SW101	C

NOTES:
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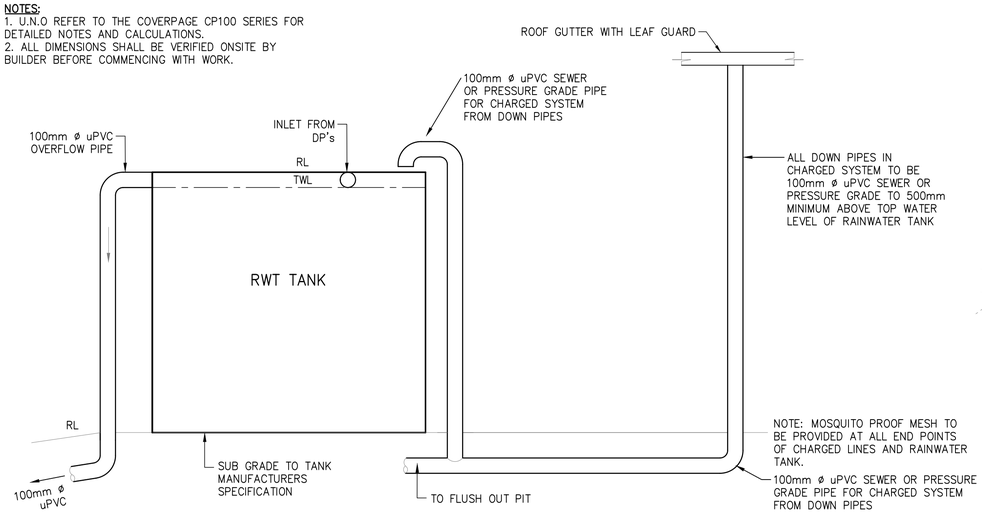
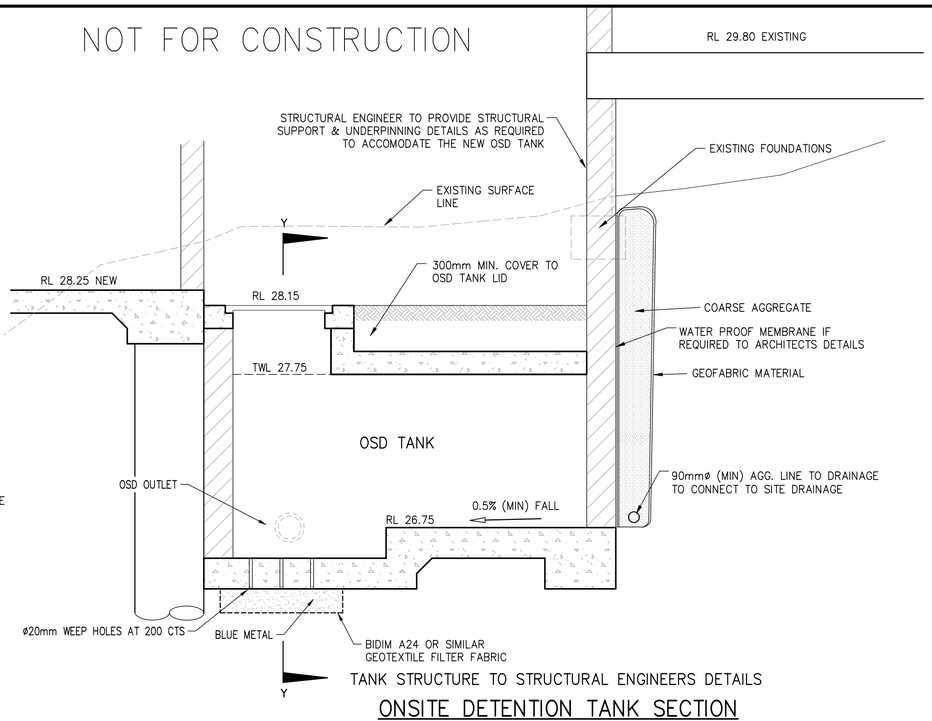
NOT FOR CONSTRUCTION



TYPICAL SECTION RAINWATER TANK

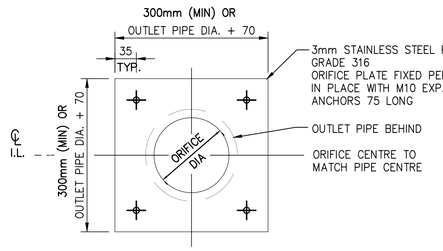
NOT TO SCALE



TANK STRUCTURE TO STRUCTURAL ENGINEERS DETAILS

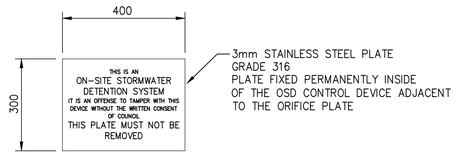
ONSITE DETENTION TANK SECTION

SCALE 1:20



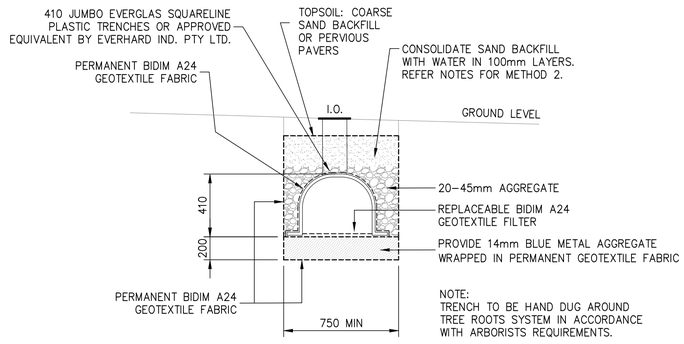
ORIFICE PLATE DETAIL

SCALE = N.T.S.



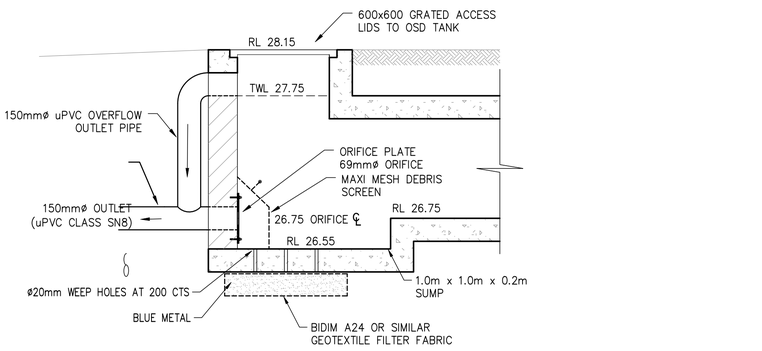
ORIFICE PLATE WARNING SIGN

SCALE = N.T.S.



SECTION X–X

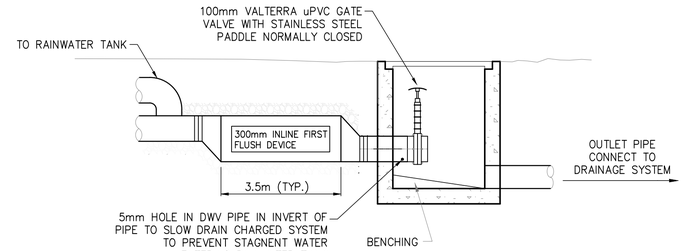
NOT TO SCALE



TANK STRUCTURE TO STRUCTURAL ENGINEERS DETAILS

ONSITE DETENTION TANK SECTION 'Y–Y'

NTS

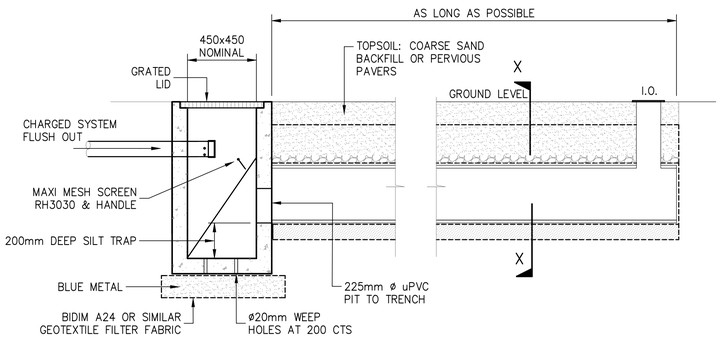


FIRST FLUSH DETAIL – INGROUND

SCALE = 1 : 20

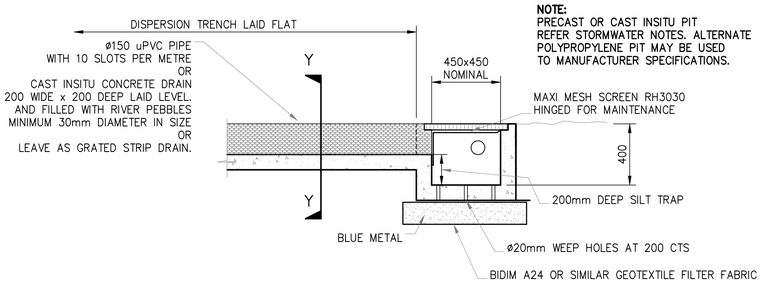
NOTE:
PRECAST OR CAST INSITU PIT. REFER STORMWATER NOTES OR PROVIDE ALTERNATE POLYPROPYLENE PIT BY MANUFACTURER IF APPROVED BY ENGINEER

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.



DISPERSION TRENCH LONGITUDINAL SECTION

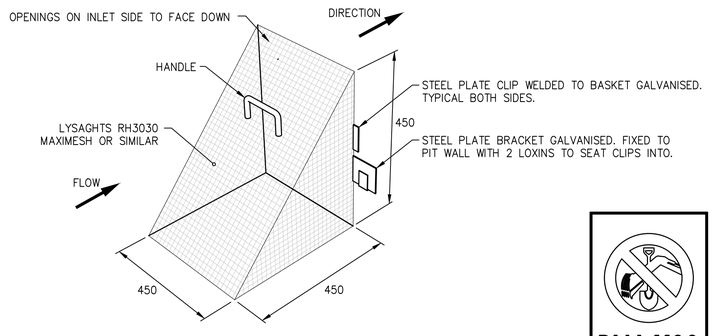
NOT TO SCALE



NOTE:
PRECAST OR CAST INSITU PIT REFER STORMWATER NOTES. ALTERNATE POLYPROPYLENE PIT MAY BE USED TO MANUFACTURER SPECIFICATIONS.

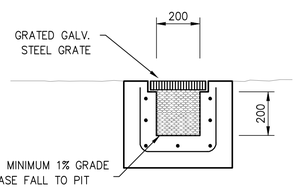
DISPERSION TRENCH LONGITUDINAL SECTION (OPTIONAL)

NOT TO SCALE



MAXI MESH SCREEN DETAIL

SCALE = N.T.S.



SECTION Y–Y OPTIONAL

NOT TO SCALE

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Project and Drawing Title:
4 PARK AVENUE, AVALON
STORMWATER DRAINAGE DETAILS

Local Council: NORTHERN BEACHES COUNCIL

Project Number:	Drawing ID:	Issue:
200714	SW200	C