# STORMWATER DETAILING

OWNER: MCKENZIE

SITE ADDRESS: LOT 68, 53 MCCROSSIN AVE,
BIRRONG, NSW, 2143

CLIENT JOB NUMBER: 23027

## STORMWATER MANAGEMENT CERTIFICATE

WE, RESIDENTIAL ENGINEERING, HEREBY CERTIFY THAT WE HAVE DESIGNED THE STORMWATER ELEMENTS FOR THE ABOVE PROJECT AND HAVE BEEN CARRIED OUT IN ACCORDANCE WITH THE FOLLOWING AUSTRALIAN STANDARDS:

- AS/NZS 1170.0 STRUCTURAL DESIGN ACTIONS – GENERAL PRINCIPLES
- AS/NZS 1170.1 STRUCTURAL DESIGN ACTIONS – PERMANENT, IMPOSED AND OTHER ACTIONS
- AS/NZS 1170.2 STRUCTURAL DESIGN ACTIONS – WIND ACTIONS
- SATISFACTORY ARRANGEMENTS HAVE BEEN MADE FOR THE DISPOSAL OF STORMWATER PER THE REQUIREMENTS OF CANTERBURY BANKSTOWN COUNCIL;
- THE PROPOSED DEVELOPMENT AND ALTERATIONS TO THE NATURAL SURFACE CONTOURS WILL NOT IMPEDE OR DIVERT NATURAL SURFACE WATER RUNOFF SO AS TO CAUSE A NUISANCE TO ADJOINING PROPERTIES;
- THE PIPED DRAINAGE SYSTEM HAS BEEN DESIGNED IN ACCORDANCE WITH COUNCIL'S STORMWATER DRAINAGE POLICY, TO A MINIMUM ANNUAL EXCEEDANCE PROBABILITY (AEP) OF NOT LESS THAN 5%;
- THE REQUIREMENTS OF SECTIONS 3.3 & 7.4 OF THE ABCB HOUSING PROVISION;
- AUSTRALIAN STANDARDS AS/NZS 3500.3: 2021 PLUMBING AND DRAINAGE PART 3: STORMWATER DRAINAGE;

WE ALSO CERTIFY THAT WE HAVE CURRENT PROFESSIONAL INDEMNITY INSURANCE APPROPRIATE FOR THE SIZE AND SCOPE OF THE PROJECT AND HAVE A GOOD WORKING KNOWLEDGE OF THE RELEVANT CODES AND STANDARDS REFERENCED ABOVE.

RESIDENTIAL ENGINEERING
GERVASE PURICH
FIE AUST. CPENG, NER, BRB, RBP, RPEQ

RESIDENTIAL ENGINEERING
Structural Engineers • Surveying & Geotechnical

NSW
Level 2, 73-75 Dunmore Street, WENTWORTHVILLE, NSW 2145
Unit 8, 12 Jindalee Road, PORT MACQUARIE, NSW 2444
P: +61 2 9896 5494 E: admin@reseng.com.au
www.residentialengineering.com.au
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## GENERAL NOTES

1. ENGINEERS STRUCTURAL DRAWINGS ARE SIGNED & ISSUED ON THE UNDERSTANDING THAT THE BUILDER MAINTAINS IN FORCE, PROPER & ADEQUATE CONTRACT WORKS INSURANCE & PUBLIC LIABILITY INSURANCE DURING THE COURSE OF THE CONSTRUCTION, &/OR ANY MAINTENANCE PERIOD. CLAIMS OF DAMAGE TO ANY ADJACENT PROPERTY OR BUILDING IS NOT THE RESPONSIBILITY OF THE ENGINEER.
2. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL & OTHER CONSULTANTS DRAWINGS & SPECIFICATIONS & WITH SUCH OTHER WRITTEN INSTRUCTIONS AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT. ALL DISCREPANCIES SHALL BE REFERRED TO THE BUILDER/ARCHITECT FOR DECISION BEFORE PROCEEDING WITH THE WORK.
3. ANY SUBSTITUTION IN THESE DOCUMENTS SHALL BE REFERRED TO RESIDENTIAL ENGINEERING FOR DECISION BEFORE PROCEEDING WITH THE WORK.
4. DIMENSIONS SHALL NOT BE OBTAINED BY SCALING THE STRUCTURAL DRAWINGS. REFER TO THE ARCHITECTURAL DRAWINGS FOR DIMENSIONS. ANY SET OUT DIMENSIONS SHOWN ON THESE DOCUMENTS SHALL BE VERIFIED BY THE BUILDER.
5. THE SECTIONS & DETAILS ON THESE DRAWINGS ARE INTENDED TO GIVE THE STRUCTURAL SPECIFICATIONS ONLY. ARCHITECTURAL SECTIONS & DETAILS ON THESE DRAWINGS ARE ILLUSTRATIVE ONLY.
6. THESE DOCUMENTS ARE SIGNED SUBJECT TO CERTIFICATE OF INSPECTION BEING ISSUED BY THIS FIRM. ALL PIERS, SLAB & FOOTING REINFORCEMENT SHALL BE INSPECTED BY THE ENGINEER PRIOR TO THE POURING OF CONCRETE. GIVE 24 HRS NOTICE TO THE ENGINEER.
7. SETTING OUT DIMENSIONS SHOWN ON THE DRAWINGS SHALL BE VERIFIED BY THE BUILDER.
8. DURING CONSTRUCTION THE STRUCTURE SHALL BE MAINTAINED IN A STABLE CONDITION AND NO PART SHALL BE OVERSTRESSED.
9. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CURRENT EDITIONS OF THE AS CODES AND THE BY-LAWS AND ORDINANCES OF THE RELEVANT BUILDING STATE AUTHORITY.
10. THESE STRUCTURAL DETAILS ARE IS BASED ON INFORMATION SUPPLIED BY THE CLIENT. IF ANY ASPECT OF THE SITE PREPARATION OR PROPOSED CONSTRUCTION CHANGES FROM THAT ORIGINALLY ADVISED, THE ENGINEER MUST BE NOTIFIED SO THAT ANY NECESSARY AMENDMENTS CAN BE MADE.
11. DEVELOPMENT APPLICATION DECISION NOTICE – FOR WORK REQUIRING BUILDING APPROVAL, THE DEVELOPMENT APPLICATION DECISION NOTICE, ISSUED BY THE COUNCIL OR BUILDING CERTIFIER MUST BE FORWARDED TO UP PRIOR TO ARRANGING ANY INSPECTIONS WITH THIS OFFICE.
12. TREE PRESERVATION: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ANY PRIOR APPROVAL REQUIRED FROM COUNCIL WITH RESPECT TO POTENTIAL IMPACT ON TREES FOR ANY WORKS SHOWN ON THIS DRAWING PRIOR TO THE COMMENCEMENT OF THOSE WORKS.
13. THIS DRAWING IS NOT TO BE USED FOR SET-OUT PURPOSES – REFER TO ARCHITECTURAL DRAWINGS.

## GENERAL INSTRUCTIONS

1. THIS SOIL AND WATER MANAGEMENT PLAN IS TO BE READ IN CONJUNCTION WITH OTHER ENGINEERING PLANS RELATING TO THIS DEVELOPMENT.
2. CONTRACTORS WILL ENSURE THAT ALL SOIL AND WATER MANAGEMENT WORKS ARE UNDERTAKEN AS INSTRUCTED IN THIS SPECIFICATION AND CONSTRUCTED FOLLOWING THE GUIDELINES OF "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION", DEPT OF HOUSING, 2004 (BLUE BOOK).
3. ALL SUBCONTRACTORS WILL BE INFORMED OF THEIR RESPONSIBILITIES IN REDUCING THE POTENTIAL FOR SOIL EROSION AND POLLUTION TO DOWNSLOPE AREAS.

## LAND DISTURBANCE INSTRUCTIONS

1. DISTURBANCE TO BE NO FURTHER THAN 5 METRES FROM THE EDGE OF ANY ESSENTIAL ENGINEERING ACTIVITY AS SHOWN ON APPROVED PLANS. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE ZONES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
2. ACCESS AREAS ARE TO BE LIMITED TO A MAXIMUM WIDTH OF 10 METRES THE SITE MANAGER WILL DETERMINE AND MARK THE LOCATION OF THESE ZONES ON-SITE. ALL SITE WORKERS WILL CLEARLY RECOGNISE THESE BOUNDARIES THAT, WHERE APPROPRIATE, ARE IDENTIFIED WITH BARRIER FENCING (UPSLOPE) AND SEDIMENT FENCING (DOWNSLOPE) OR SIMILAR MATERIALS.
3. ENTRY TO LANDS NOT REQUIRED FOR CONSTRUCTION OR ACCESS IS PROHIBITED EXCEPT FOR ESSENTIAL THINNING OF PLANT GROWTH.
4. WORKS ARE TO PROCEED IN THE FOLLOWING SEQUENCE:
   a. INSTALL ALL BARRIER AND SEDIMENT FENCING WHERE SHOWN ON THE PLAN.
   b. CONSTRUCT THE STABILISED SITE ACCESS.
   c. CONSTRUCT DIVERSION DRAINS AS REQUIRED.
   d. INSTALL MESH AND GRAVEL INLETS FOR ANY ADJACENT KERB INLETS.
   e. INSTALL GEOTEXTILE INLET FILTERS AROUND ANY ON-SITE DROP INLET PITS.
   f. CLEAR SITE AND STRIP AND STOCKPILE TOPSOIL IN LOCATIONS SHOWN ON THE PLAN.
   g. UNDERTAKE ALL ESSENTIAL CONSTRUCTION WORKS ENSURING THAT ROOF AND/OR PAVED AREA STORMWATER SYSTEMS ARE CONNECTED TO PERMANENT DRAINAGE AS SOON AS PRACTICABLE.
   h. GRADE LOT AREAS TO FINAL GRADES AND APPLY PERMANENT STABILISATION (LANDSCAPING) WITHIN 20 DAYS OF COMPLETION OF CONSTRUCTION WORKS.
   i. REMOVE TEMPORARY EROSION CONTROL MEASURES AFTER THE PERMANENT LANDSCAPING HAS BEEN COMPLETED.
5. ENSURE THAT SLOPE LENGTHS DO NOT EXCEED 80 METRES WHERE PRACTICABLE. SLOPE LENGTHS ARE DETERMINED BY SILTATION FENCING AND CATCH DRAIN SPACING.
6. ON COMPLETION OF MAJOR WORKS LEAVE DISTURBED LANDS WITH A SCARIFIED SURFACE TO ENCOURAGE WATER INFILTRATION AND ASSIST WITH KEYING TOPSOIL LATER.

## SITE MAINTENANCE INSTRUCTIONS

1. THE SITE MANAGER WILL INSPECT THE SITE AT LEAST WEEKLY AND AT THE CONCLUSION OF EVERY STORM EVENT TO:
   a. ENSURE THAT DRAINS OPERATE PROPERLY AND TO EFFECT ANY NECESSARY REPAIRS.
   b. REMOVE SPILLED SAND OR OTHER MATERIALS FROM HAZARD AREAS, INCLUDING LANDS CLOSER THAN 5 METRES FROM AREAS OF LIKELY CONCENTRATED OR HIGH VELOCITY FLOWS ESPECIALLY WATERWAYS AND PAVED AREAS.
   c. REMOVE TRAPPED SEDIMENT WHENEVER THE DESIGN CAPACITY OF THAT STRUCTURE HAS BEEN EXCEEDED.
   d. ENSURE REHABILITATED LANDS HAVE EFFECTIVELY REDUCED THE EROSION HAZARD AND TO INITIATE UPGRADING OR REPAIR AS NECESSARY.
   e. CONSTRUCT ADDITIONAL EROSION AND/OR SEDIMENT CONTROL WORKS AS MIGHT BECOME NECESSARY TO ENSURE THE DESIRED PROTECTION IS GIVEN TO DOWNSLOPE LANDS AND WATERWAYS. MAKE ONGOING CHANGES TO THE PLAN WHERE IT PROVES INADEQUATE IN PRACTICE OR IS SUBJECTED TO CHANGES IN CONDITIONS ON THE WORK-SITE OR ELSEWHERE IN THE CATCHMENT.
   f. MAINTAIN EROSION AND SEDIMENT CONTROL STRUCTURES IN A FULLY FUNCTIONING CONDITION UNTIL ALL EARTHWORK ACTIVITIES ARE COMPLETED AND THE SITE IS REHABILITATED.
2. THE SITE MANAGER WILL KEEP A LOGBOOK MAKING ENTRIES AT LEAST WEEKLY, IMMEDIATELY BEFORE FORECAST RAIN AND AFTER RAINFALL. ENTRIES WILL INCLUDE:
   a. THE VOLUME AND INTENSITY OF ANY RAINFALL EVENTS.
   b. THE CONDITION OF ANY SOIL AND WATER MANAGEMENT WORKS.
   c. THE CONDITION OF VEGETATION AND ANY NEED TO IRRIGATE.
   d. THE NEED FOR DUST PREVENTION STRATEGIES.
   e. ANY REMEDIAL WORKS TO BE UNDERTAKEN.
   f. THE LOGBOOK WILL BE KEPT ON-SITE AND MADE AVAILABLE TO ANY AUTHORISED PERSON UPON REQUEST. IT WILL BE GIVEN TO THE PROJECT MANAGER AT THE CONCLUSION OF THE WORKS.

## SEDIMENT CONTROL INSTRUCTIONS

1. SEDIMENT FENCES WILL BE INSTALLED AS SHOWN ON THE PLAN AND ELSEWHERE AT THE DISCRETION OF THE SITE MANAGER TO CONTAIN SOIL AS NEAR AS POSSIBLE TO THEIR SOURCE.
2. SEDIMENT FENCES WILL NOT HAVE CATCHMENT AREAS EXCEEDING 900 SQUARE METRES AND HAVE A STORAGE DEPTH OF AT LEAST 0.6 METRES.
3. SEDIMENT REMOVED FROM ANY TRAPPING DEVICES WILL BE RELOCATED WHERE FURTHER POLLUTION TO DOWNSLOPE LANDS AND WATERWAYS CANNOT OCCUR.
4. STOCKPILES ARE NOT TO BE LOCATED WITHIN 5 METRES OF HAZARD AREAS INCLUDING AREAS OF HIGH VELOCITY FLOWS SUCH AS WATERWAYS, PAVED AREAS AND DRIVEWAYS.
5. WATER WILL BE PREVENTED FROM DIRECTLY ENTERING THE PERMANENT DRAINAGE SYSTEM UNLESS THE CATCHMENT AREA HAS BEEN PERMANENTLY LANDSCAPED AND/OR WATER HAS BEEN TREATED BY AN APPROVED DEVICE.
6. TEMPORARY SEDIMENT TRAPS WILL REMAIN IN PLACE UNTIL AFTER THE LANDS THEY ARE PROTECTING ARE COMPLETELY REHABILITATED.
7. ACCESS TO SITES SHOULD BE STABILISED TO REDUCE THE LIKELIHOOD OF VEHICLES TRACKING SOIL MATERIALS ONTO PUBLIC ROADS AND ENSURE ALL-WEATHER ENTRY/EXIT.

## SOIL EROSION CONTROL INSTRUCTIONS

1. EARTH BATTERS WILL BE CONSTRUCTED WITH AS LOW A GRADIENT AS PRACTICABLE BUT NO STEEPER, UNLESS OTHERWISE NOTED, THAN:
   a. 2(H):1(V) WHERE SLOPE LENGTH LESS THAN 12 METRES
   b. 2.5(H):1(V) WHERE SLOPE LENGTH BETWEEN 12 AND 16 METRES.
   c. 3(H):1(V) WHERE SLOPE LENGTH BETWEEN 16 AND 20 METRES.
   d. 4(H):1(V) WHERE SLOPE LENGTH GREATER THAN 20 METRES.
2. ALL WATERWAYS, DRAINS, SPILLWAYS AND THEIR OUTLETS WILL BE CONSTRUCTED TO BE STABLE IN AT LEAST THE 1:20 YEAR ARI, TIME OF CONCENTRATION STORM EVENT.
3. WATERWAYS AND OTHER AREAS SUBJECT TO CONCENTRATED FLOWS AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUNDCOVER C-FACTOR OF 0.05 (70% GROUND COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION. FLOW VELOCITIES ARE TO BE LIMITED TO THOSE SHOWN IN TABLE 5-1 OF "MANAGING URBAN STORMWATER – SOILS AND CONSTRUCTION", DEPT OF HOUSING 2004 (BLUE BOOK). FOOT AND VEHICULAR TRAFFIC WILL BE PROHIBITED IN THESE AREAS.
4. STOCKPILES AFTER CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.1 (60% GROUND-COVER) WITHIN 10 WORKING DAYS FROM COMPLETION OF FORMATION.
5. ALL LANDS, INCLUDING WATERWAYS AND STOCKPILES, DURING CONSTRUCTION ARE TO HAVE A MAXIMUM GROUND-COVER C-FACTOR OF 0.15 (50% GROUND COVER) WITHIN 20 WORKING DAYS FROM INACTIVITY EVEN THOUGH WORKS MAY CONTINUE LATER.
6. FOR AREAS OF SHEET FLOW USE THE FOLLOWING GROUND COVER PLANT SPECIES FOR TEMPORARY JAPANESE MILLET 20 KG/HA AND OATS 20 KG/HA.
7. PERMANENT REHABILITATION OF LANDS AFTER CONSTRUCTION WILL ACHIEVE A GROUND-COVER C-FACTOR OF LESS THAN 0.1 AND LESS THAN 0.05 WITHIN 60 DAYS. NEWLY PLANTED LANDS WILL BE WATERED REGULARLY UNTIL AN EFFECTIVE COVER IS ESTABLISHED AND PLANTS ARE GROWING VIGOROUSLY. FOLLOW-UP SEED AND FERTILISER WILL BE APPLIED AS NECESSARY.
8. REVEGETATION SHOULD BE AIMED AT RE-ESTABLISHING NATURAL SPECIES. NATURAL SURFACE SOILS SHOULD BE REPLACED AND NON-PERSISTANT ANNUAL COVER CROPS SHOULD BE USED.

## WASTE CONTROL INSTRUCTIONS

1. ACCEPTABLE BINS WILL BE PROVIDED FOR ANY CONCRETE AND MORTAR SLURRIES, PAINTS, ACID WASHING, LIGHTWEIGHT WASTE MATERIALS AND LITTER. CLEARANCE SERVICES WILL BE PROVIDED AT LEAST DISPOSAL OF WASTE WILL BE IN A MANNER APPROVED BY THE SITE MANAGER.
2. ALL POSSIBLE POLLUTANT MATERIALS ARE TO BE STORED WELL CLEAR OF ANY POORLY DRAINED AREAS, FLOOD PRONE AREAS, STREAMBANKS, CHANNELS AND STORMWATER DRAINAGE AREAS. STORE SUCH MATERIALS IN A DESIGNATED AREA UNDER COVER WHERE POSSIBLE AND WITHIN CONTAINMENT BUNDS.
3. ALL SITE STAFF AND SUB-CONTACTORS ARE TO BE INFORMED OF THEIR OBLIGATION TO USE WASTE CONTROL FACILITIES PROVIDED.
4. ANY DE-WATERING ACTIVITIES ARE TO BE CLOSELY MONITORED TO ENSURE THAT WATER IS NOT POLLUTED BY SEDIMENT, TOXIC MATERIALS OR PETROLEUM PRODUCTS.
5. PROVIDE DESIGNATED VEHICULAR WASHDOWN AND MAINTENANCE AREAS WHICH ARE TO HAVE CONTAINMENT BUNDS.

## PLAN SPECIFIC NOTES

1. ALL WORK TO BE IN ACCORDANCE WITH CURRENT AS/NZS3500 STANDARDS & LOCAL COUNCIL POLICIES.
2. DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL & LANDSCAPE PLANS. NOTIFY ENGINEER OF ANY DISCREPANCIES ON SITE.
3. SERVICES ON PLANS HAVE BEEN LOCATED FROM INFORMATION SUPPLIED BY RELEVANT AUTHORITIES & IS NOT GUARANTEED. IT IS THE CLIENT & CONTRACTOR'S RESPONSIBILITY TO LOCATE PRIOR TO CONSTRUCTION.
4. DIAL BEFORE YOU DIG. PRIOR TO COMMENCING WORK.

## ROOF DRAINAGE NOTE

1. AS3500 ROOF DRAINAGE REQUIRES EAVES. GUTTERS TO BE SIZED FOR AEP 5%, 5 MIN. STORM = 160mm/HR. FOR EAVES GUTTERS, AS3500.3:2003 THEN HAS THE FOLLOWING REQUIREMENTS:
   a. FOR TYPICAL STANDARD QUAD LO-FRONT GUTTER WITH $A_e$ = 6165mm² AND GUTTER SLOPE 1:500 AND STEEPER, THIS REQUIRES ONE DOWNPIPE PER 37m² ROOF AREA.
   b. DOWNPIPES TO BE MINIMUM 90mm DIA. OR 100x50mm FOR EAVE GUTTERS SLOPE 1:500 AND STEEPER.
   c. IT IS THE RESPONSIBILITY OF THE PLUMBER AND/ OR BUILDER TO COMPLY WITH THIS. THIS DRAWING SHOWS PRELIMINARY LOCATIONS/ NUMBERS OF DOWNPIPES ONLY WHICH ARE TO BE VERIFIED BY BUILDER/ PLUMBER.
2. ALL ROOF GUTTERS TO HAVE OVERFLOW PROVISION IN ACCORDANCE WITH AS3500.3:2021, SECTIONS 3.5, 3.7 AND APPENDICES G, H & I.

## RAINWATER TANK NOTES:

1. PUMP FOR RAINWATER TANK TO BE CONNECTED TO TOILETS, LAUNDRY AND GARDEN TAP FOR IRRIGATION.
2. PUMP MUST HAVE MAINS WATER BACKUP WITH AN APPROVED BACKFLOW PREVENTION DEVICE. DEVICE TO BE ACCESSIBLE FOR TESTING.
3. A FIRST FLUSH DEVICE OR FILTER BAG IS TO BE INSTALLED.
4. RAINWATER TANK MUST NOT BE CONNECTED TO THE MAIN DRINKING WATER SUPPLY.
5. RAINWATER TANK MUST CONTAIN A BYPASS OF THE PUMP IN THE EVENT OF A POWER FAILURE.
6. RAINWATER TANK MUST BE CONSTRUCTED IN ACCORDANCE WITH AUSTRALIAN STANDARD. AS/NZ 3500.1.2-2015: NATIONAL PLUMBING AND DRAINAGE-WATER SUPPLY-ACCEPTABLE SOLUTIONS, WHICH PROVIDES GUIDANCE ON THE DESIGN OF STORMWATER AND RAINWATER REUSE SYSTEMS.
7. RAINWATER TANK MUST BE PROVIDED WITH AN AIR GAP & BACKFLOW PREVENTION DEVIXE (AS PER AS/NZ3500.1.2 AND AS2845.2).
8. RAINWATER TANK MUST BE KEPT WELL MAINTAINED AND CLEANED IN ACCORDANCE WITH THE MANUFACTURING REQUIREMENTS AND THE REQUIREMENTS OF SYDNEY WATER. ONLY ROOF RUNOFF IS TO BE DIRECTED TOT HE RAINWATER TANK. SURFACE FLOWS ARE NOT TO BE CONNECTED. ALL TANK INLETS & OUTLETS TO HAVE SUITABLE MEASURES TO PREVENT MOSQUITO AND VERMIN ENTRY.

## PIPE SIZE

1. THE MINIMUM PIPE SIZE SHALL BE:
   a. 90mm DIA WHERE THE LINE ONLY RECEIVES ROOFWATER RUNOFF; OR
   b. 100mm DIA WHERE THE LINE RECEIVES RUNOFF FROM PAVED OR UNPAVED AREAS ON THE PROPERTY.
   c. THE MINIMUM PIPE VELOCITY SHOULD BE 0.6 m/S AND A MAXIMUM PIPE VELOCITY OF 6.0 m/S DURING THE DESIGN STORM.

## PIPE GRADE:

1. THE MINIMUM PIPE GRADE SHALL BE:
   a. 1.0% FOR PIPES LESS THAN 225mm DIA (UNO).
   b. 0.5% FOR ALL LARGER PIPES (UNO).
2. PIPES WITH A GRADIENT GREATER THAN 20% WILL REQUIRE ANCHOR BLOCKS AT THE TOP AND BOTTOM OF THE INCLINED SECTION; AND AT INTERVALS NOT EXCEEDING 3.0m.
3. ANCHOR BLOCKS ARE DESIGNED ACCORDING TO CLAUSE 7.9 OF AS3500.3-2021.

## DEPTH OF COVER FOR PVC PIPES:

1. MINIMUM PIPE COVER AS FOLLOWS:

**MINIMUM PIPE COVER – FINISHED SURFACE TO TOP OF PIPE**

| LOCATION | DUCTILE IRON GALVANISED STEEL | PLASTICS |
|---|---|---|
| | MINIMUM COVER, mm | |
| 1. NOT SUBJECT TO VEHICULAR LOADING: | | |
| A. WITHOUT PAVEMENT IN AUSTRALIA – | | |
| i) FOR SINGLE DWELLINGS; OR | 100 | 100 |
| ii) FOR OTHER THAN SINGLE DWELLINGS. | 100 | 300 |
| B. WITHOUT PAVEMENT IN NEW ZEALAND. | 100 | 300 |
| C. WITH PAVEMENT OF BRICK OR UNREINFORCED CONCRETE. | 100* | 100 |
| 2. SUBJECT TO VEHICULAR LOADING: | | |
| A. OTHER THAN ROADS: | | |
| i) WITHOUT PAVEMENT. | 300 | 450 |
| ii) WITH PAVEMENT OF – | | |
| a. REINFORCED CONCRETE FOR HEAVY VEHICULAR LOADING OR | NIL* | 100* |
| b. BRICK OR UNREINFORCED CONCRETE FOR LIGHT VEHICULAR LOADING. | NIL* | 75* |
| B. ROADS – | | |
| i) SEALED; OR | 600 | 600 |
| ii) UNSEALED | 600 | 750 |
| 3. SUBJECT TO CONSTRUCTION EQUIPMENT LOADING OR IN EMBANKMENT CONDITIONS. | 600 | 750 |
| 4. LANDZONE FOR AGRICULTURAL USE. | 600 | 600 |
| * – DENOTES BELOW THE UNDERSIDE OF THE PAVEMENT | | |

2. SEE AS2032 INSTALLATION OF UPVC PIPES FOR FURTHER INFORMATION.
3. CONCRETE PIPE COVER SHALL BE IN ACCORDANCE WITH AS3725-1989 LOADS ON BURIED CONCRETE PIPES, HOWEVER A MINIMUM COVER OF 450mm WILL APPLY.
4. WHERE INSUFFICIENT COVER IS PROVIDED, THE PIPE SHALL BE COVERED AT LEAST 50mm THICK OVERLAY AND SHALL THEN BE PAVED WITH AT LEAST:
   a. 150mm REINFORCED CONCRETE WHERE SUBJECT TO HEAVY VEHICLE TRAFFIC;
   b. 75mm THICKNESS OF BRICK OR 100mm OF CONCRETE PAVING WHERE SUBJECT TO LIGHT VEHICLE TRAFFIC; OR
   c. 50mm THICK BRICK OR CONCRETE PAVING WHERE NOT SUBJECT TO VEHICLE TRAFFIC.

## CONNECTIONS TO STORMWATER DRAINS UNDER BUILDINGS:

1. SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 6.2.8 6.3.6 OF AS3500.3-2021.

## CONNECTIONS TO COUNCIL SYSTEM:

1. IF PROPOSED DRAINAGE SYSTEM IS DESIGNED TO CONNECT TO COUNCIL'S DRAINAGE SYSTEM, IT IS ADVISED THAT A 'WORKS PERMIT' IS OBTAINED FROM THE RESPECTIVE COUNCIL PRIOR TO COMMENCEMENT OF WORKS.

## ABOVE GROUND PIPEWORK:

1. SHALL BE CARRIED OUT IN ACCORDANCE WITH APPENDIX M.12 OF AS3500.3-2021.

## PIT SIZES AND DESIGN:

1. MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS AS FOLLOWS:

**MINIMUM INTERNAL DIMENSIONS FOR STORMWATER AND INLET PITS**

| DEPTH TO OUTLET | MINIMUM INTERNAL DIMENSIONS, mm | | |
|---|---|---|---|
| | RECTANGULAR | | CIRCULAR |
| | WIDTH | LENGTH | DIAMETER |
| ≤450 | 350 | 350 | – |
| ≤600 | 450 | 450 | 600 |
| >600 ≤900 | 600 | 600 | 900 |
| >900 ≤1200 | 600 | 900 | 1000 |
| >1200 | 900 | 900 | 1000 |

2. ALL PIPES SHOULD BE CUT FLUSH WITH THE WALL OF THE PIT.
3. PITS GREATER THAN 600mm DEEP SHALL HAVE A MINIMUM ACCESS OPENING OF 600 x 600mm.
4. THE GRATED COVERS OF PITS LARGER THAN 600 x 600mm ARE TO BE HINGED TO PREVENT THE GRATE FROM FALLING INTO THE PIT.
5. THE BASE OF THE DRAINAGE PITS SHOULD BE AT THE SAME LEVEL AS THE INVERT OF THE OUTLET PIPE. RAINWATER SHOULD NOT BE PERMITTED TO POND WITHIN THE STORMWATER SYSTEM.
6. CONTINUOUS TRENCH DRAINS ARE TO BE OF WIDTH NOT LESS THAN 150mm AND DEPTH NOT LESS THAN 100mm. THE BARS OF THE GRATING ARE TO BE PARALLEL TO THE DIRECTION OF SURFACE FLOW.
7. PITS BETWEEN 1.2m AND 6m ARE TO HAVE STEP IRONS IN ACCORDANCE WITH AS1657. FOR PITS GREATER THAN 6m OTHER MEANS OF ACCESS MUST BE PROVIDED.
8. PVC PITS WILL ONLY BE PERMITTED IF THEY ARE NOT A GREATER SIZE THAN 450 x 450mm (MAXIMUM DEPTH 450mm) AND ARE HEAVY DUTY.
9. IN-SITU PITS ARE TO BE CONSTRUCTED ON A CONCRETE BED OF AT LEAST 150mm THICK. THE WALLS ARE TO BE DESIGNED TO MEET THE MINIMUM REQUIREMENTS OF CLAUSE 7.5.5.1 OF AS3500.3-2021. PITS DEEPER THAN 1.8m SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE.
10. GRATES ARE TO BE GALVANISED STEEL GRID TYPE. GRATES ARE TO BE OF HEAVY-DUTY TYPE IN AREAS WHERE THEY MAY BE SUBJECT TO VEHICLE LOADING.

RESIDENTIAL ENGINEERING
Structural Engineers • Surveying & Geotechnical
NSW
Level 2, 73-75 Dunmore Street, WENTWORTHVILLE, NSW 2145 P: +61 2 9896 5494 E: admin@reseng.com.au
Unit B, 12 Jindalee Road, PORT MACQUARIE, NSW 2444 www.residentialengineering.com.au
RESIDENTIAL ENGINEERING PTY LTD | ACN 612 899 829 | ABN 36 612 899 829 | TRADING AS RESIDENTIAL ENGINEERING



APPROVED BY:
GERVASE PURICH
FIEAust, C.P.Eng., NER, BPB, RPEQ

CLIENT REF: 23027
DATE: 12/07/2024
DRAWN: OE
SCALE:

FOR: MCKENZIE
SITE ADDRESS: LOT 68, 53 MCCROSSIN AVE, BIRRONG, NSW, 2143

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## LEGEND

| | |
|---|---|
| DP | 90mm DOWNPIPE |
| | 450x450 SILT ARRESTOR PIT |
| | SURFACE DRAIN |
| SW SW | STORMWATER PIPE |
| RW RW | CHARGED RAINWATER PIPE |

## RAINFALL AND ROOF AREAS

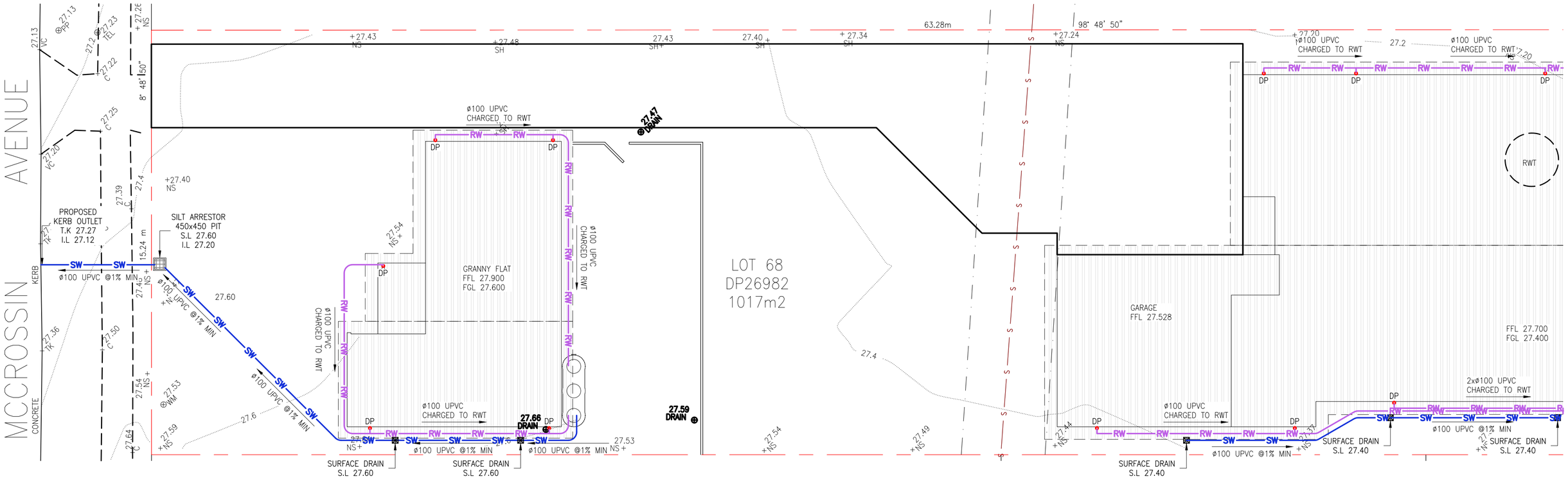
AS PER AS3500.3

| CALCULATIONS | |
|---|---|
| AEP 5% 5MIN | 160mm/HR |
| AEP 1% 5MIN | 202mm/HR |
| EAVE GUTTER EFFECTIVE XSEC AREA | 6165mm² |
| CATCHMENT AREA PER DOWNPIPE | 37m² |
| **UPPER ROOF** | |
| ROOF AREA | 190+84m² |
| ROOF PITCH | 17°, 5° |
| ROOF AREA MULTIPLIER | 1.15, 1.04 |
| AREA x SLOPE | 219+88m² |
| MINIMUM AMOUNT OF DOWNPIPES | 6+3 |
| **LOWER ROOF** | |
| ROOF AREA | 36+44m² |
| ROOF PITCH | 17°, 5° |
| ROOF AREA MULTIPLIER | 1.15, 1.04 |
| AREA x SLOPE | 42+46m² |
| MINIMUM AMOUNT OF DOWNPIPES | 2+2 |

SITE AREA: 1,012m2
IMPERVIOUS AREA: 545m2 (54%)
IMPERVIOUS AREA < 66%,

OSD IS NOT REQUIRED

| THESE DETAILS HAVE BEEN PREPARED IN ACCORDANCE WITH ARCHITECTURAL | |
|---|---|
| DESIGN NAME: | – |
| PREPARED BY: | GREEN HOMES |
| DRAWING/JOB No. | 23027 |
| REVISION/ISSUE: | D |
| DATED: | 21/05/2024 |




# STORMWATER DRAINAGE PLAN


RESIDENTIAL ENGINEERING
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APPROVED BY:
GERVASE PURICH
FIEAust, C.P.Eng., NER, BPB, RPEQ

CLIENT REF: 23027
DATE: 12/07/2024
DRAWN: OE
SCALE: 1:100

FOR: MCKENZIE

SITE ADDRESS: LOT 68, 53 MCCROSSIN AVE, BIRRONG, NSW, 2143

| DRAWN | DATE | AMENDMENT | REV |
|---|---|---|---|
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JOB No: CS4969-SW
ISSUE: -
SHEET No: 03 of 06

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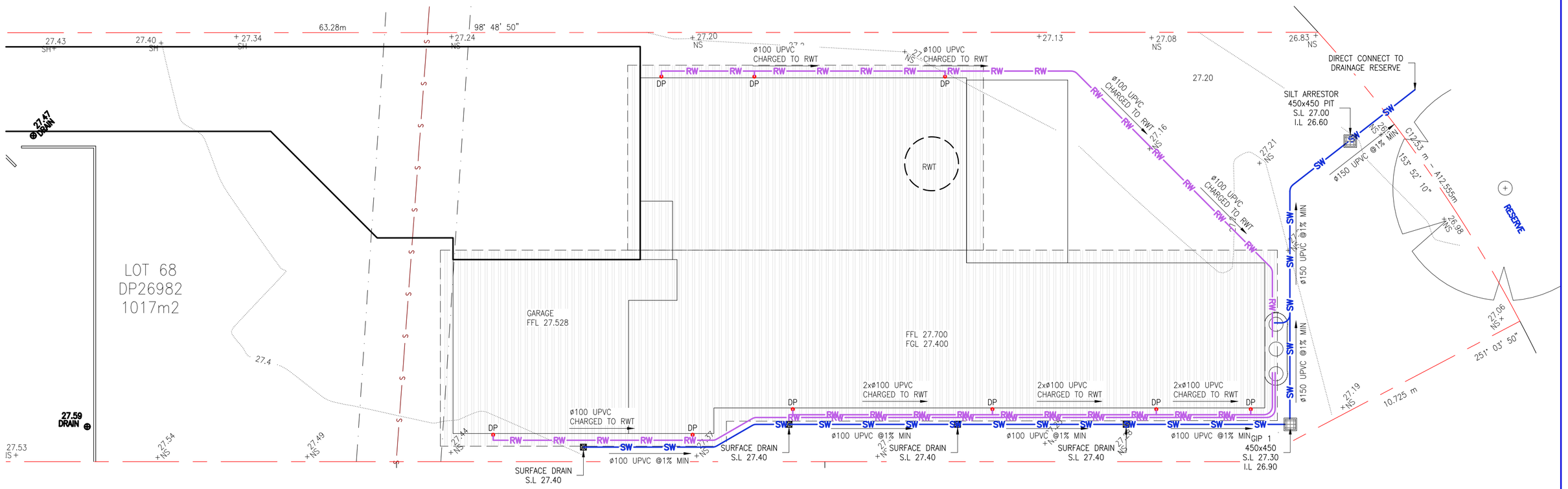


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FOR: MCKENZIE
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ISSUE: -
SHEET No: 04 of 06

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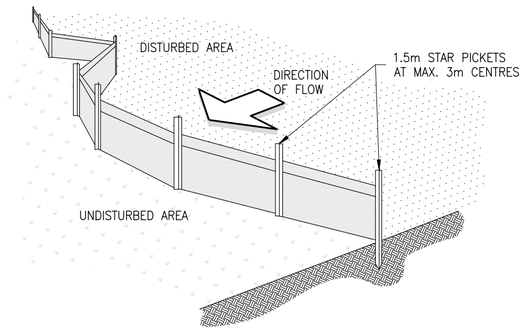
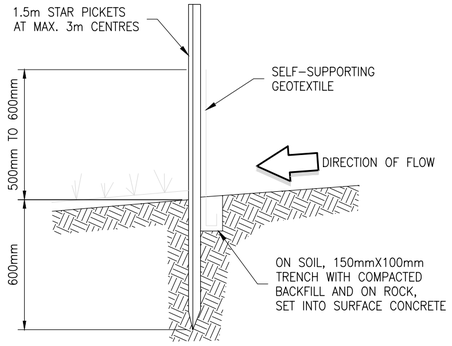


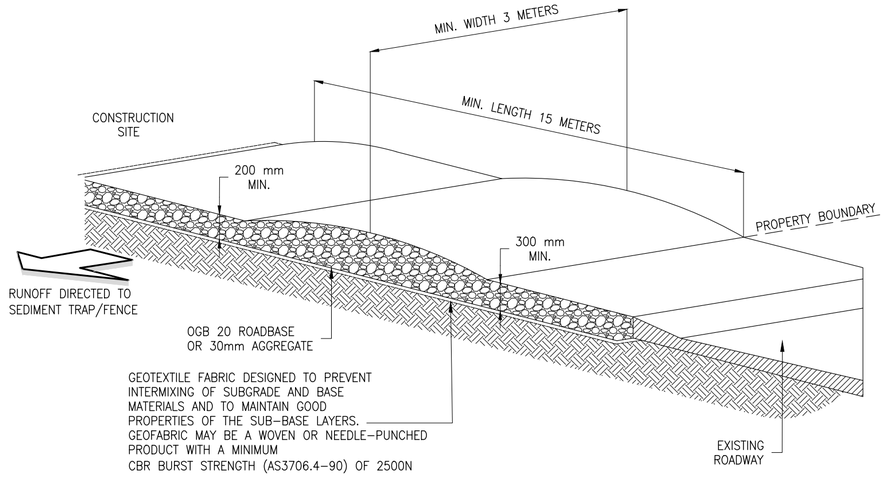




SECTION DETAIL

**CONSTRUCTION NOTES**

1. CONSTRUCT SEDIMENT FENCE AS CLOSE AS POSSIBLE TO PARALLEL TO THE CONTOURS OF THE SITE.
2. DRIVE 1.5 METRE LONG STAR PICKETS INTO GROUND, 2.5 METRES APART.
3. DIG A 150 MM DEEP TRENCH ALONG THE UPSLOPE LINE OF THE FENCE FOR THE BOTTOM OF THE FABRIC TO BE ENTRENCHED.
4. FIX SELF-SUPPORTING GEOTEXTILE TO UPSLOPE SIDE OF POSTS WITH WIRE TIES OR AS RECOMMENDED BY GEOTEXTILE MANUFACTURER.
5. JOIN SECTIONS OF FABRIC AT A SUPPORT POST WITH A 150 MM OVERLAP.
6. BACKFILL TRENCH OVER BASE OF FABRIC AND COMPACT IT THOROUGHLY OVER THE GEOTEXTILE.

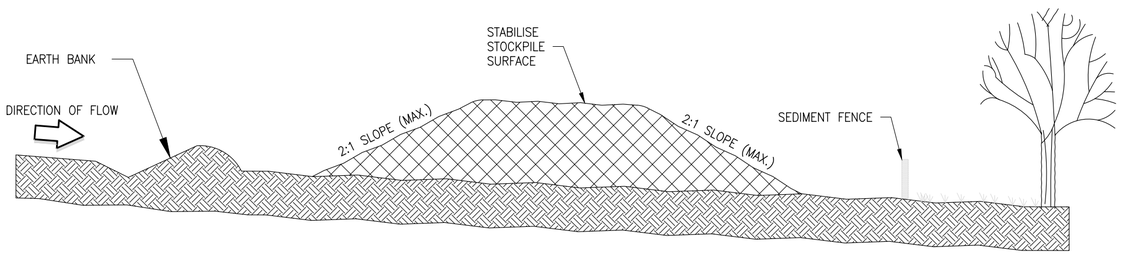
## DETAIL – SEDIMENT FENCING




**CONSTRUCTION NOTES**

1. STRIP THE TOPSOIL, LEVEL THE SITE AND COMPACT THE SUBGRADE.
2. COVER THE AREA WITH NEEDLE-PUNCHED GEOTEXTILE.
3. CONSTRUCT A 200-MM THICK PAD OVER THE GEOTEXTILE USING ROAD BASE OR 30-MM AGGREGATE.
4. ENSURE THE STRUCTURE IS AT LEAST 15 METERS LONG OR TO BUILDING ALIGNMENT AND AT LEAST 3 METRES WIDE.
5. WHERE A SEDIMENT FENCE JOINS ONTO THE STABLISED ACCESS, CONSTRUCT A HUMP IN THE STABLISED ACCESS TO DIVERT WATER TO THE SEDIMENT FENCE.

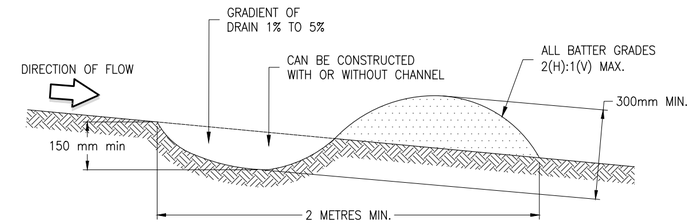
## DETAIL – TEMPORARY STABILISED SITE ACCESS




**CONSTRUCTION NOTES**

1. PLACE STOCKPILES MORE THAN 2 (PREFERABLY 5) METERS FROM EXISTING VEGETATION, CONCENTRATED WATER FLOW, ROADS AND HAZARD AREAS.
2. CONSTRUCTED ON THE CONTOUR AS LOW, FLAT, ELONGATED MOUNDS.
3. WHERE THERE IS SUFFICIENT AREA, TOPSOIL STOCKPILES SHALL BE LESS THAN 2 METERS IN HEIGHT.
4. REHABILITATE IN ACCORDANCE WITH THE SWMP/ ESCP.
5. CONSTRUCT EARTH BANKS (STANDARD DRAWINGS 5-5) ON THE UPSLOPE SIDE TO DIVERT WATER AROUND STOCKPILES AND SEDIMENT FENCES (STANDARD DRAWING 6-8) 1 TO 2 METERS DOWNSLOPE.

## DETAIL – TOPSOIL STOCKPILE




NOTE: ONLY TO BE USED AS TEMPORARY BANK
WHERE MAXIMUM UPSLOPE LENGTH IS 80 METERS

**CONSTRUCTION NOTES**

1. BUILD WITH GRADIENTS BETWEEN 1 PERCENT AND 5 PERCENT.
2. AVOID REMOVING TREES AND SHRUBS IF POSSIBLE – WORK AROUND THEM.
3. BUILD THE DRAINS WITH CIRCULAR, PARABOLIC OR TRAPEZOIDAL CROSS SECTIONS, NOT V SHAPED.
4. ENSURE THE BANKS ARE PROPERLY COMPACTED TO PREVENT FAILURE.
5. COMPLETE PERMANENT OR TEMPORARY STABILIZATION WITHIN 10 DAYS OF CONSTRUCTION.
6. ALL OUTLETS FROM DISTURBED LANDS ARE TO FEED INTO A SEDIMENT BASIN OR SIMILAR.
7. DISCHARGE RUNOFF COLLECTED FRO UNDISTURBED LANDS INTO EITHER A STABILISED OR UNDISTURBED DISPOSAL SITE WITHIN THE SAME SUBCATCHMENT AREA FROM WHICH THE WATER ORIGINATED.
8. COMPACT BANKS WITH A SUITABLE IMPLEMENT IN SITUATIONS WHERE THEY ARE REQUIRED TO FUNCTION FOR MORE THAN FIVE DAYS.
9. ENSURE THE STRUCTURES ARE FREE OF PROJECTIONS OR OTHER IRREGULARITIES THAT COULD IMPEDE WATER FLOW.

## DETAIL – EARTH BANK (LOW FLOW)

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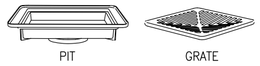
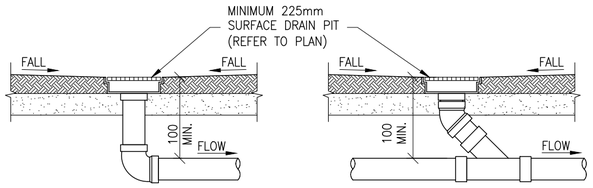
## TRASH SCREEN NOTES

- MAXIMESH SCREENS MUSH BE PLACED SUCH THAT THE LONG AXIS OF THE OVAL SHAPED HOLES ARE ORIENTED HORIZONTALLY WITH THE PROTRUDING LIP ANGLES UPWARDS AND FACING TOWARDS THE OUTLET.
- MAXIMESH TO BE GALVANISED LYSAGHT RH3030 MAXIMESH CAGE (OR EQUIVALENT)
- THE SCREEN IS TO BE FORMED BY WELDING TWO TRIANGULAR MAXIMESH (OR EQUIVALENT) PANELS TO A RECTANGULAR FRONT MAXIMESH PANEL (OR EQUIVALENT).

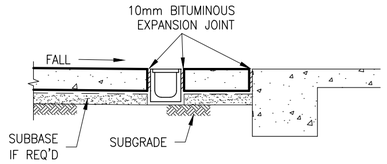



TYPICAL SURFACE DRAIN PIT
NTS



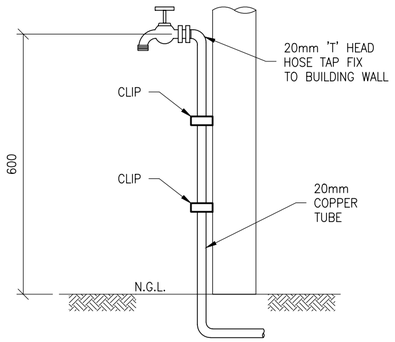

## TYPICAL IN GRASSED/PAVED AREAS SURFACE DRAIN DETAILS 'SD'

SCALE 1:20



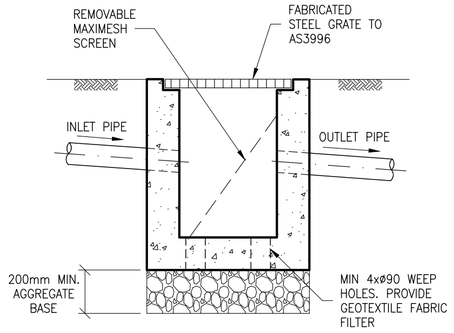

## TYPICAL GRATED DRAIN DETAIL

SCALE 1:20



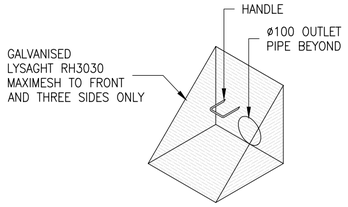

## HOSE TAP DETAIL

SCALE 1:10



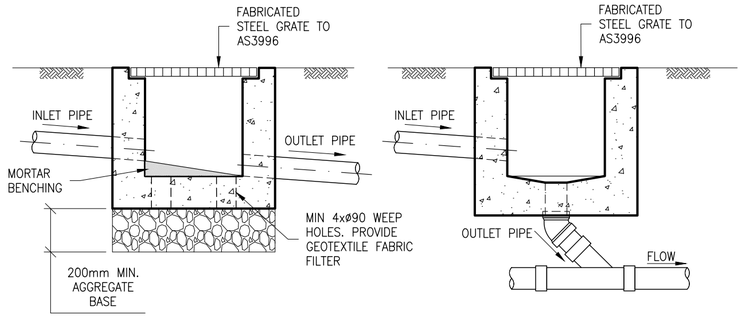

## TYPICAL SILT ARRESTOR DETAIL

SCALE 1:20



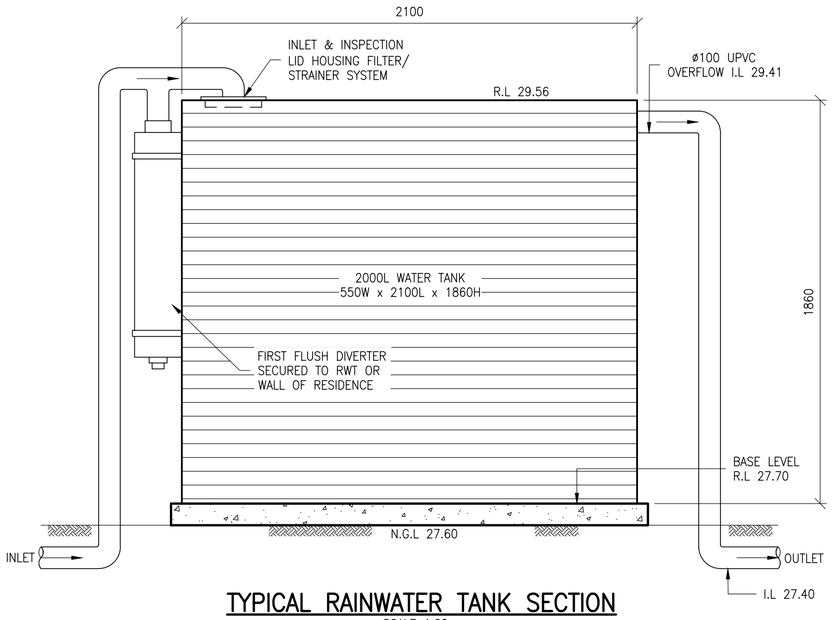

## TRASH SCREEN CAGE DETAIL

N.T.S.



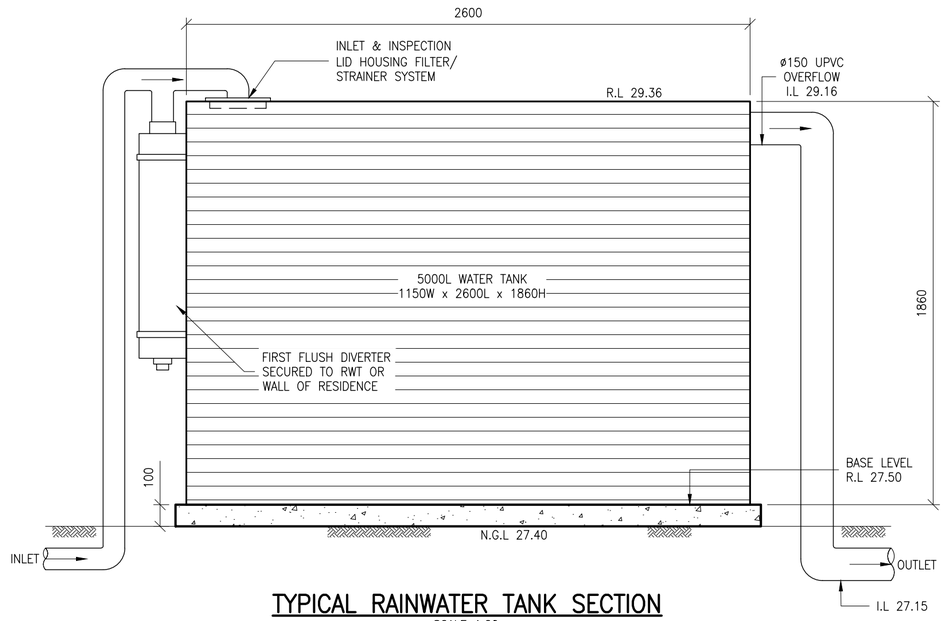

## TYPICAL GRATED INLET PIT DETAILS 'GIP'

SCALE 1:20



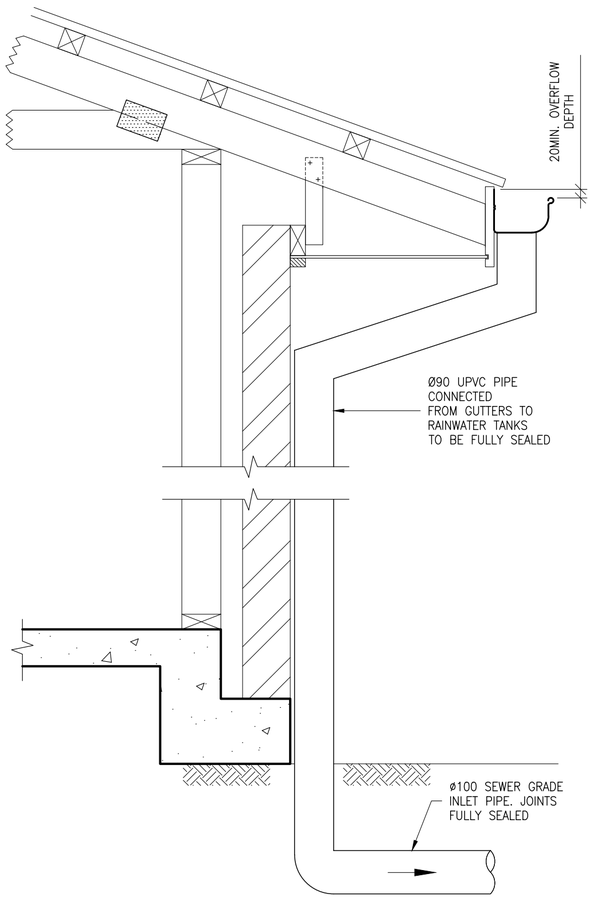

## TYPICAL RAINWATER TANK SECTION

SCALE 1:20




## TYPICAL RAINWATER TANK SECTION

SCALE 1:20




## TYPICAL CHARGED DOWNPIPE OVERFLOW

SCALE 1:10

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