

Vanuatu Department of Water Resources

Standard Drawings for Direct Gravity-Fed Water Supply Systems

THE ENCLOSED DRAWINGS AND BILL OF QUANTITIES PROVIDE STANDARD CONSTRUCTION DRAWINGS AND MATERIAL LISTS FOR DIRECT GRAVITY-FED WATER SUPPLY INFRASTRUCTURE TO MEET THE STANDARDS AND MINIMUM LEVELS OF SERVICE OUTLINED IN *DESIGN AND CONSTRUCTION STANDARDS FOR RURAL WATER SUPPLY IN VANUATU (2017)*. FOR SPECIFIC DESIGN STANDARDS THE ENGINEER SHOULD REFER TO THE AFOREMENTIONED PUBLICATION. WHERE THERE ARE COMPETING SPECIFICATIONS THE SPECIFICATIONS OUTLINED IN THESE DRAWINGS WILL SUPERSEDE THOSE IN THE AFOREMENTIONED PUBLICATION.


DRAWING NO	DRAWING	DESCRIPTION
DGF- 1.01	DRAWING SCHEDULE AND NOTES	-
DGF- 1.02	BILL OF QUANITIES	-
DGF- 1.03	TAPSTAND	3/4”(20mm) GALVANISED STEEL TAPSTAND REINFORCED CONCRETE APRON AND SOAKAWAY
DGF- 1.04	WASHOUT VALVE CHAMBER	1-½” (40mm) GALVANISED STEEL PIPE AND FITTINGS BLOCK MASONRY WALLS REINFORCED CONCRETE FOOTING AND ROOF
DGF- 1.05	AIR VALVE POST	1” (25mm) AIR RELEASE VALVE ¾” (20mm) GALVANISED STEEL PIPE AND FITTINGS REINFORCED CONCRETE FOOTING POST
DGF- 1.06	1 kL POLY BREAK-PRESSURE TANK	1,100 L POLY TANK 40MM PVC PRESSURE AND 80MM DWV PIPE AND FITTINGS 100mm REINFORCED CONCRETE SLAB ON GRADE
DGF- 1.07	6 kL POLY DISTRIBUTION TANK	6,000 L POLY TANK 50MM PVC PRESSURE AND 80MM DWV PIPE AND FITTINGS 100mm REINFORCED CONCRETE SLAB ON GRADE
DGF- 1.08	10 kL POLY DISTRIBUTION TANK	10,000 L POLY TANK 50MM PVC PRESSURE AND 80MM DWV PIPE AND FITTINGS 100mm REINFORCED CONCRETE SLAB ON GRADE
DGF- 1.09	TANK TIE DOWNS	GALVANISED STEEL EMBEDDED ANCHOR BOLTS PVC-COATED 3mm STEEL WIRE AND FITTINGS

CONCRETE SPECIFICATIONS

- **CONCRETE RATIO** (CEMENT : COARSE SAND : AGGREGATE) FOR ALL REINFORCED AND UNREINFORCED CONCRETE UNLESS OTHERWISE SPECIFIED:
BLACK SAND: 1.5 : 2 : 4
WHITE SAND: 1 : 2 : 4
- **PLASTER RATIO** (CEMENT : FINE SAND) FOR ALL RENDERING WORK UNLESS OTHERWISE SPECIFIED:
1ST COAT: 1 : 4 SPLATTERDASH
FINISH: 1 : 3 SMOOTH FLOAT
- **MORTAR RATIO** (CEMENT : COARSE SAND) FOR ALL MASONRY WORK UNLESS OTHERWISE SPECIFIED:
MORTAR: 1 : 4
- **ALL SAND AND AGGREGATE** TO BE FREE FROM DUST, DIRT, SALT AND OTHER FOREIGN OR ORGANIC MATTER. ALL SAND AND AGGREGATE MUST BE THOROUGHLY WASHED IF SOURCED CLOSE TO THE SEA.
- **AGGREGATE** TO BE WELL GRADED, HARD BROKEN STONE OR CORAL WITH A STONE SIZE OF 20MM OR LESS IN WHICH 95-100% IS RETAINED ON A 4.75MM SIEVE.
- **COARSE WHITE/BLACK SAND** SHALL CONSIST OF HARD SHARP AND ANGULAR GRAINS WITH 95-100% PASSING A 4.75MM SIEVE.
- **FINE WHITE/BLACK SAND** SHALL CONSIST OF HARD, CLEAN GRAINS WITH 95-100% PASSING A 2.36MM SIEVE.
- **CEMENT** SHALL BE FRESH PORTLAND CEMENT AS PER AS/NZS:3972
- **MINIMUM CONCRETE COVER** OF 30MM EXCEPT WHEN A STRUCTURE IS PLACED IN A CORROSIVE ENVIRONMENT (IE SHORELINE, VOLCANO, AGGRESSIVE SOILS) THE MINIMUM COVER MUST BE INCREASED TO 45MM
- **CURING** WILL OCCUR BY ENSURING CONCRETE IS KEPT DAMP FOR 24 HOURS AFTER IT HAS BEGUN TO HARDEN (APPROX 2HRS AFTER MIXING). FOR CONCRETE TANKS OR SPRING BOXES CURING TO CONTINUE FOR 14 DAYS.
- **MINIMUM COMPRESSIVE STRENGTH** SHALL BE 140 KG/CM² IN 7 DAYS
- **REINFORCEMENT** SHALL BE SPECIFIED STEEL OF 500 MPa AND NOT INCLUDE ANY OTHER MATERIALS (IE ROPE, NATURAL FIBER ETC)

PIPE, FITTINGS AND TANKS SPECIFICATIONS

- **MEDIUM DENSITY POLYETHYLENE (MDPE) PIPE** TO CONFORM TO AS/NZS:4130 AND BE INSTALLED IN ACCORDANCE WITH AS/NZS 2033
- **PLASTICIZED AND UNPLASTICIZED POLYVINYL CHLORIDE (PVC AND uPVC) PIPE** TO BE WELL HANDLED AND CONFORM TO AS/NZS:1477 (PRESSURE) AND AS/NZS:1260 (DWV)
- **GALVANISED STEEL (GI) PIPE** SHALL BE MEDIUM OR HEAVY PIPE AS SPECIFIED BY THE ENGINEER IN ACCORDANCE WITH AS/NZS:1074 AND HOT-DIPPED GALVANISED ACCORDING TO AS/NZS:4792
- **METALLIC VALVES** TO CONFORM TO AS/NZS:1628/2638 AND BE IN GOOD FUNCTIONAL CONDITION AT THE TIME OF INSTALLATION
- **AIR VALVES** TO CONFORM TO AS/NZS:4956
- **BURIED PIPE** TO BE A MINIMUM OF 300MM FROM GROUND LEVEL TO CROWN IN A HEAPED TRENCH DEVOID OF FOREIGN OBJECTS AND STONES.
- **POLYETHYLENE/POLYPROPYLENE (PE/PP) TANKS** SHOULD BE OF A MATERIAL THAT COMPLIES WITH AS/NZS4020 AND BE HANDLED CORRECTLY

REVISION	Date	Name	Description	Owner: Vanuatu Department of Water Resources		Drawing Name : DRAWING SCHEDULE & NOTES		Drawing No. : DGF – 1.01	
				Project Name : DGF Standard Drawings				Paper Size & Scale	
								A3	REV 1
				Drafter: K. Davis 01/03/18				-	
				Checked: x. xxxxxx XX/XX/XX					
				Plot Date :					