

## 1. GENERAL

THE CONSUMER SHALL SUPPLY TO PWC THREE (3) COPIES OF THE FINAL BUILDING DRAWINGS OF THE SUBSTATION FOR INSPECTION AND COMMENT BEFORE STARTING CONSTRUCTION. PWC WILL INSPECT THE DRAWINGS AND PROVIDE COMMENTS IN ORDER TO ASSIST THE CONSUMER IN PROVIDING ACCOMMODATION TO MEET THE REQUIREMENTS OF PWC. THE INSPECTION OF THE CONSUMERS' DRAWINGS AND THE COMMENTS THEREON IN NO WAY RELIEVES THE CONSUMER FROM THE RESPONSIBILITY OF PROVIDING THE SUBSTATION ACCOMMODATION REQUIRED AND SHOWN ON THE CONSTRUCTION DRAWINGS.

THE BUILDING DRAWINGS PREPARED BY THE CONSUMERS' CONSULTANT AND SUBMITTED TO PWC FOR CONSIDERATION SHOULD SHOW ALL THE DETAILS WHICH ARE RELEVANT TO THE CONSTRUCTION OF THE SUBSTATION. IN ADDITION DETAILS OF CONSTRUCTION ADJACENT TO THE SUBSTATION MAY BE REQUIRED WHERE CONSIDERED NECESSARY.

THE SITING OF THE SUBSTATION AND ANY OTHER BUILDING (FIRE SOURCE FEATURE) MUST COMPLY WITH THE REQUIREMENTS OF THE BUILDING CODE OF AUSTRALIA.

THE PWC SUBSTATION CONSTRUCTION DRAWINGS ARE INTENDED ONLY AS A GUIDE TO MEET BASIC ACCOMMODATION REQUIREMENTS.

A PROFESSIONALLY QUALIFIED STRUCTURAL ENGINEER MUST CERTIFY THAT THE SUBSTATION FLOOR, WALLS, CEILING AND/OR ROOF SLAB TOGETHER WITH ANY EXTERNAL LOADS TRANSFERRED TO THE SUBSTATION BUILDING ELEMENTS HAVE BEEN DESIGNED TO WITHSTAND ALL IMPOSED LOADS TO ALL RELEVANT AUSTRALIAN STANDARDS. IT IS EMPHASISED THAT REQUIREMENTS OF THE STATUTORY BODIES MUST BE MET. ADDITIONALLY, PRIOR TO HANDOVER OF THE SUBSTATION CHAMBER TO PWC, A QUALIFIED BUILDING CERTIFIER MUST CHECK THE SUBSTATION CHAMBER AND CERTIFY IN WRITING THAT PWC REQUIREMENTS HAVE BEEN MET.

REFERENCE IS MADE TO THE REQUIREMENTS OF ALL OTHER STATUTORY BODIES, THE SUBSTATION SHALL WITH REGARD TO ACCESS AND EGRESS REQUIREMENTS BE THE RESPONSIBILITY OF THE CONSUMER, NOT PWC.

## 2. CONSTRUCTION

THE WHOLE OF THE SUBSTATION CHAMBER SHALL BE OF FIRE RESISTANCE LEVEL (FRL) 240/240/240 CONSTRUCTION. COMPLETE ISOLATION FROM THE REMAINDER OF THE CONSUMERS' PREMISES BY A MINIMUM OF 200mm SUITABLY REINFORCED CONCRETE FILLED CEMENT BLOCKS OR EQUIVALENT. THE FLOORS AND CEILINGS BEING OF REINFORCED CONCRETE NOT LESS THAN 170mm THICK.

THE SUBSTATION AND ASSOCIATED CHAMBERS SHALL BE MADE PROOF AGAINST THE ENTRY OF BIRDS AND RATS. ALL NECESSARY HORIZONTAL AND VERTICAL DAMP COURSES SHALL BE PROVIDED AND THE CHAMBERS SHALL BE WATERTIGHT AND DRY BEFORE ACCEPTANCE FOR EQUIPPING. WHERE WALLS RETAIN EARTH OR BACK-FILLING, PARTICULAR ATTENTION MUST BE PAID TO THE STRUCTURAL ADEQUACY AND WATERPROOFING OF SUCH WALLS. REFER SECTION 3.

THE WATERPROOFING OF THE SUBSTATION CHAMBER SHALL BE SUCH THAT ITS EFFECTIVENESS SHALL NOT BE IMPAIRED BY THE DRILLING FOR THE FIXING OF EXPANSION BOLTS FOR THE ATTACHMENT OF EQUIPMENT TO EITHER WALLS, FLOOR OR CEILING.

NO SERVICES, INCLUDING BUT NOT LIMITED TO DRAINS, DUCTS, DOWNPIPES, ELECTRICAL CABLES, HIGH OR LOW PRESSURE SUPPLY PIPES, FIRE SERVICES OR ALARM SYSTEMS, ELECTRICAL AND TELEPHONE CABLES, OR CONDUITS ETC. OTHER THAN THOSE REQUIRED BY PWC, MAY OCCUR WITHIN THE SUBSTATION AND ASSOCIATED CHAMBERS. THIS PROVISION WILL BE RIGIDLY ENFORCED.

## 3. WALLS

ALL SUBSTATION WALLS BELOW GROUND LEVEL AND BUILT AGAINST NATURAL EXCAVATION ARE TO BE SEPARATED BY A DRAINED CAVITY AT LEAST 50mm WIDE. WHERE A RETAINING WALL IS USED TO RETAIN NATURAL GROUND THERE SHOULD BE A DRAINED CAVITY AT LEAST 50mm WIDE BETWEEN THE RETAINING WALL AND THE EXTERNAL FACE OF THE SUBSTATION CHAMBER WALL. RELIANCE ON THE EFFECTIVENESS OF A WATERPROOF MEMBRANE ONLY IN THESE SITUATIONS IS NOT ACCEPTABLE.

THE WALLS OF THE SUBSTATION CHAMBER SHALL BE OF MINIMUM 200mm SUITABLY REINFORCED CONCRETE FILLED CEMENT BLOCKS OR EQUIVALENT, TO ACHIEVE A FRL OF 240/240/240.

ALTERNATIVE WALL CONSTRUCTION WILL BE CONSIDERED, PROVIDING AN EQUIVALENT FRL IS ACHIEVED.

ALL CONCRETE WALLS AND MORTAR JOINTS OF WALL SURFACES SHALL BE CLASS 3 FINISH AS PER AS3610.

## 4. FLOORS

THE LANDING AREA IN WHICH THE TRANSFORMERS WILL BE PLACED BEFORE BEING INSTALLED IN THE SUBSTATION MUST BE CAPABLE OF SUPPORTING THE MASS OF THE TRANSFORMERS AS GIVEN ON THE CONSTRUCTION DETAIL DRAWINGS. THE POSSIBILITY MUST BE ALLOWED FOR THE TOTAL NUMBER OF TRANSFORMERS WHICH ARE TO BE INSTALLED IN THE SUBSTATION, BEING POSITIONED ON THE LANDING AREA AT ANY ONE TIME. THIS CONDITION WILL APPLY TO ANY OTHER AREA ON THE CUSTOMERS PREMISES WHERE TRANSFORMERS ARE LIKELY TO BE TRANSPORTED AND HELD PRIOR TO INSTALLATION IN THE SUBSTATION.

THE SLAB ON GROUND SHALL BE A MINIMUM THICKNESS OF 170mm CONSTRUCTED WITH 32MPa CONCRETE. THE SLAB IS TO BE REINFORCED WITH AT LEAST ONE LAYER OF F92 FABRIC HAVING A COVER OF 55mm FROM THE TOP SURFACE. THE FLOORS OF THE SUBSTATION CHAMBER SHALL BE EVEN, LEVEL AND FINISHED TO A FINE SURFACE FINISH, PREFERABLY IN ONE OPERATION.

IF THE SUBSTATION FLOOR SLAB IS SUSPENDED THEN THE SUSPENDED STRUCTURAL FLOOR AND THE TOPPING SLAB SHALL BE DESIGNED BY A PROFESSIONALLY QUALIFIED STRUCTURAL ENGINEER. THE SLAB SHALL BE CAPABLE OF CARRYING ALL OF THE SUPERIMPOSED LOADS OF PWC EQUIPMENT TOGETHER WITH ANY OTHER LIKELY LOADS ASSOCIATED WITH THE BUILDING, AND DESIGNED FOR FIRE RESISTANCE TO ALL RELEVANT AUSTRALIAN STANDARDS.

THRESHOLDS OF ALL DOORS AND EXTERNAL STEPS MUST BE FINISHED WITH A 40 X 6mm GALV EQUAL ANGLE WITH 100 X 25 X 3mm FISH TAIL LUG WELDED AT 300mm SPACING AND SET IN THE CONCRETE FOR ITS FULL LENGTH.

ANY PENETRATIONS IN THE FLOOR MUST BE MADE WATERTIGHT.

A MINIMUM OF 150mm EQUIPMENT TO FLOOR CLEARANCE SHALL BE MAINTAINED WHEN LIFTING EQUIPMENT WITHIN THE SUBSTATION CHAMBER USING LIFTING EQUIPMENT.

ALL FLOOR SURFACES SHALL BE A CLASS 3 FINISH AS PER AS3610.

## 5. ROOF

IF THE SUBSTATION IS FREE STANDING AND EXISTS AS A STRUCTURE ON ITS OWN, THE ROOF MAY BE OF AN INHERENT FRL 60/60/60 CONSTRUCTION. HOWEVER, IF THE SUBSTATION IS INCORPORATED IN AND FORMS A PORTION OF A LARGER STRUCTURE, THEN THE SUBSTATION ROOF MUST BE OF AN INHERENT FRL 240/240/240 CONSTRUCTION.

THE SUBSTATION ROOF MUST BE ADEQUATELY DESIGNED TO WITHSTAND ANY LOADS WHICH MAY BE APPLIED EXTERNALLY.

THE CONSTRUCTION OF THE ROOF SLAB TO THE SUBSTATION MUST BE SUCH THAT THE INGRESS OF MOISTURE IS PREVENTED.

NO	DESCRIPTION	DRN	DATE	CKD	APPD	POWER STANDARD DRAWING					
2	SUPERSEDED TO S02-02-07-00	I.B.	JUL '17	B.C.	B.C.	DES	I.PURVES	INDOOR SUBSTATION SURFACE CHAMBER CONSTRUCTION NOTES SHEET 1 OF 2			
1	NOTES AMENDED	A.T.	NOV '13	B.C.	B.C.	DRN	G.R./A.D.				
						CKD	S.LEACH				
						APPD	F.ROBSON				
						SCALE	N.T.S.				
AMENDMENTS						ISSUED	MARCH '98	A3	DRAWING NUMBER	S02-02-07-22	2 AMD T
						ALL DIM. IN mm					
						DRAFTING STANDARD TO A.S.1100		CAD PRODUCT - DO NOT AMEND MANUALLY			

**PowerWater**  
NORTHERN TERRITORY