

**NOTES:-**

1. HEAVY DUTY COVERS TO BE USED IN DRIVES, ROADS, BERMS, AND INDUSTRIAL OR COMMERCIAL ZONED LAND.
2. LIGHT DUTY COVERS MAY BE USED OUTSIDE ROAD BOUNDARIES EXCEPT IN INDUSTRIAL AREAS.
3. 100mm THICK TOP SLAB MAY BE USED OUTSIDE ROAD BOUNDARIES EXCEPT IN INDUSTRIAL AREAS.
4. FOR MANHOLES ON PIPE LINES GREATER THAN 600mm DIA. SEE CLAUSE 401.12.5.
5. PRECAST MANHOLES LESS THAN 2.4m DEEP TO INVERT TO BE CONSTRUCTED OF ONE SECTION.
6. PRECAST MANHOLES OVER 2.4m DEEP TO INVERT MUST HAVE BOTTOM SECTION OF A MIN. LENGTH OF 1.8m.
7. INTERNAL DROPS SHOULD GENERALLY BE USED. REFER SHEET S3 FOR DETAILS.
8. ANY JOINTS IN THE WALL TO BE EPOXY MORTED.



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## STANDARD DETAIL

## MANHOLE DETAILS

DATE:

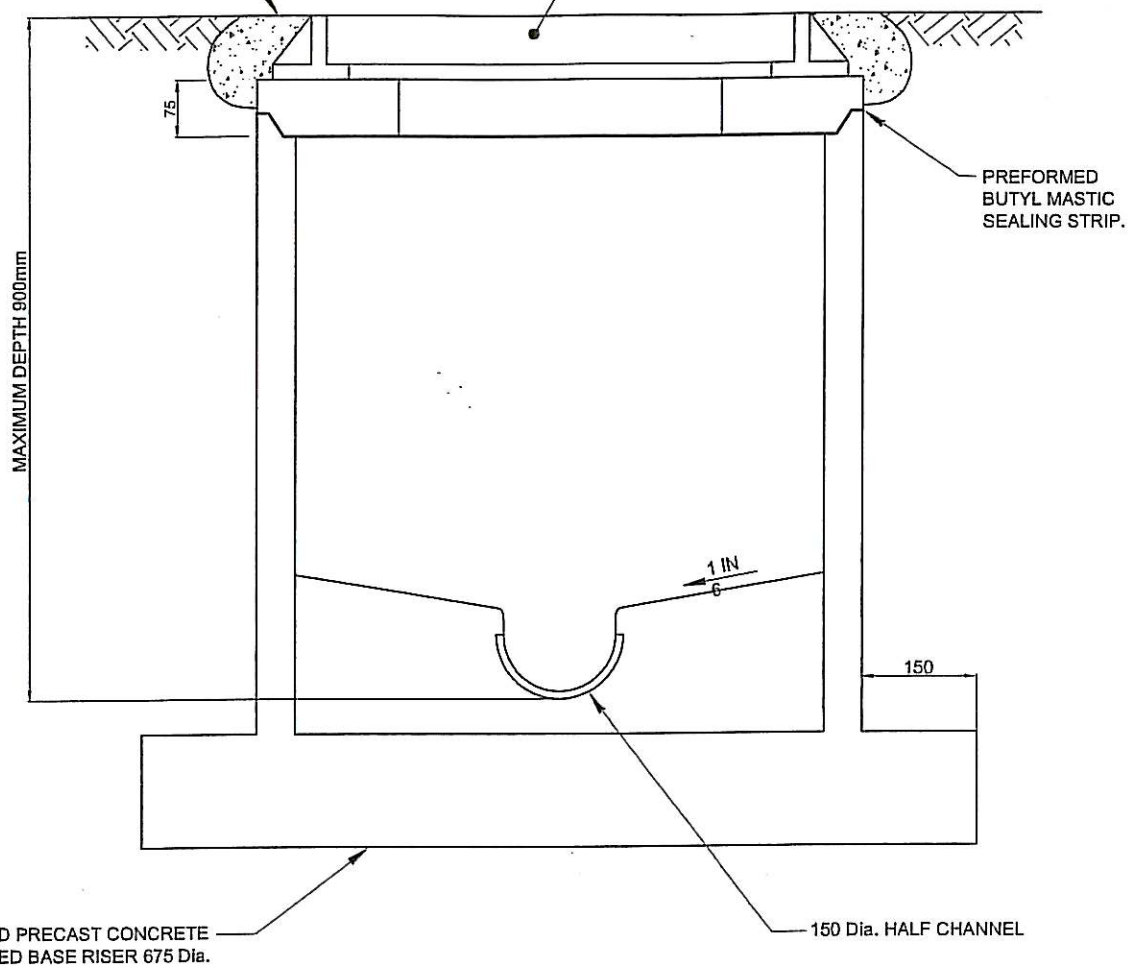
AUGUST 2010

No:

SS 1

17.5 MPa CONCRETE ORDINARY  
GRADE STEEL FLOAT FINISH

CAST IRON FRAME AND COVER TO BE PAINTED  
RED FOR SEWERS AND BLUE FOR STORMWATER.



**NOTE:**

1. ONLY TO BE USED FOR TERMINATING MANHOLES ON LEVEL RESIDENTIAL SITES WITH A MAXIMUM OF TWO 100mm DIA. HOUSE CONNECTIONS OR WHEN A FIXED SURFACE LEVEL IS ESTABLISHED.



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## STANDARD DETAIL

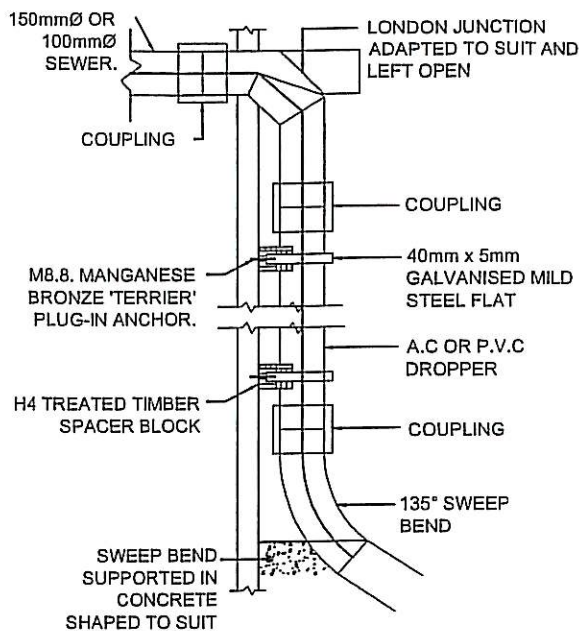
## SHALLOW MANHOLE DETAILS

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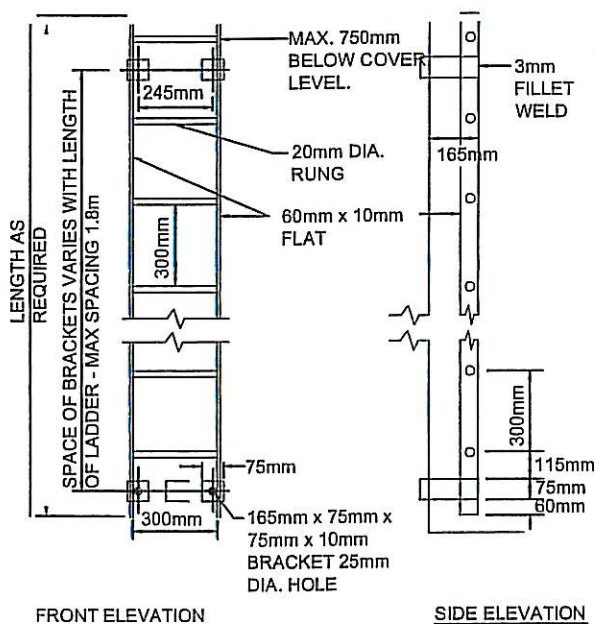
APRIL 2009

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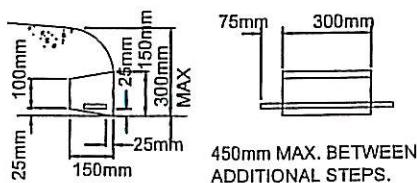
SS 2



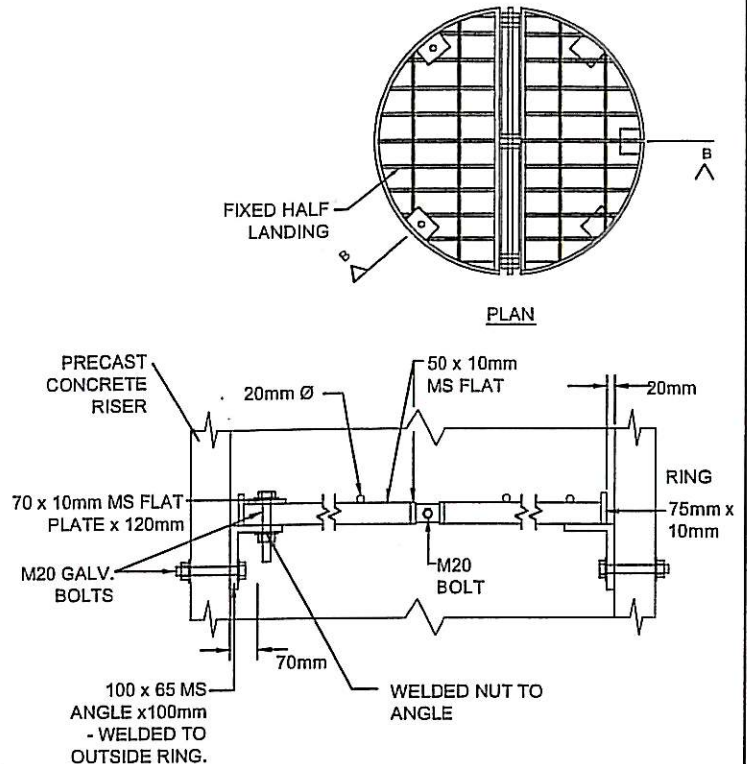
INTERNAL MANHOLE DROP INLET



MANHOLE LADDER

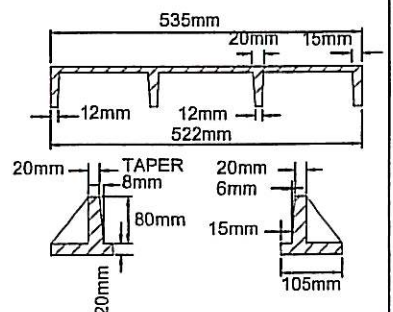
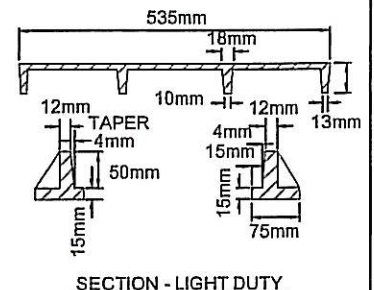
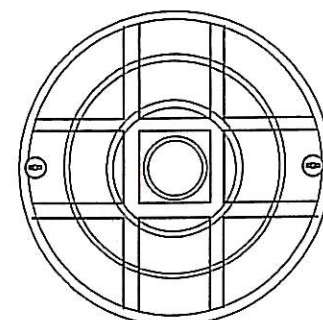


RECESSED STEP DETAILS  
(ONLY BELOW PIPE BENCHING LEVEL)



NOTE:  
IF MORE THAN ONE INLET GRILL IS NEEDED WITHIN A MANHOLE RISER OPENING SIDE OF GRILLS SHOULD ALTERNATE.

SAFETY PLATFORM- (MANHOLES GREATER THAN 5.0m DEEP)



MANHOLE COVER AND FRAME

NOTES :

1. ALL STEEL INCLUDING BOLTS TO BE HOT DIPPED GALVANISED.
2. THE INTERNAL DIAMETER OF NEW MANHOLES SHALL BE INCREASED BY 150mm FOR EACH INTERNAL DROP INSTALLED
3. MANHOLE COVERS AND FRAMES WITH DIMENSIONS FROM THE ABOVE MUST BE APPROVED BY THE ENGINEER BEFORE USE.



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DATE:

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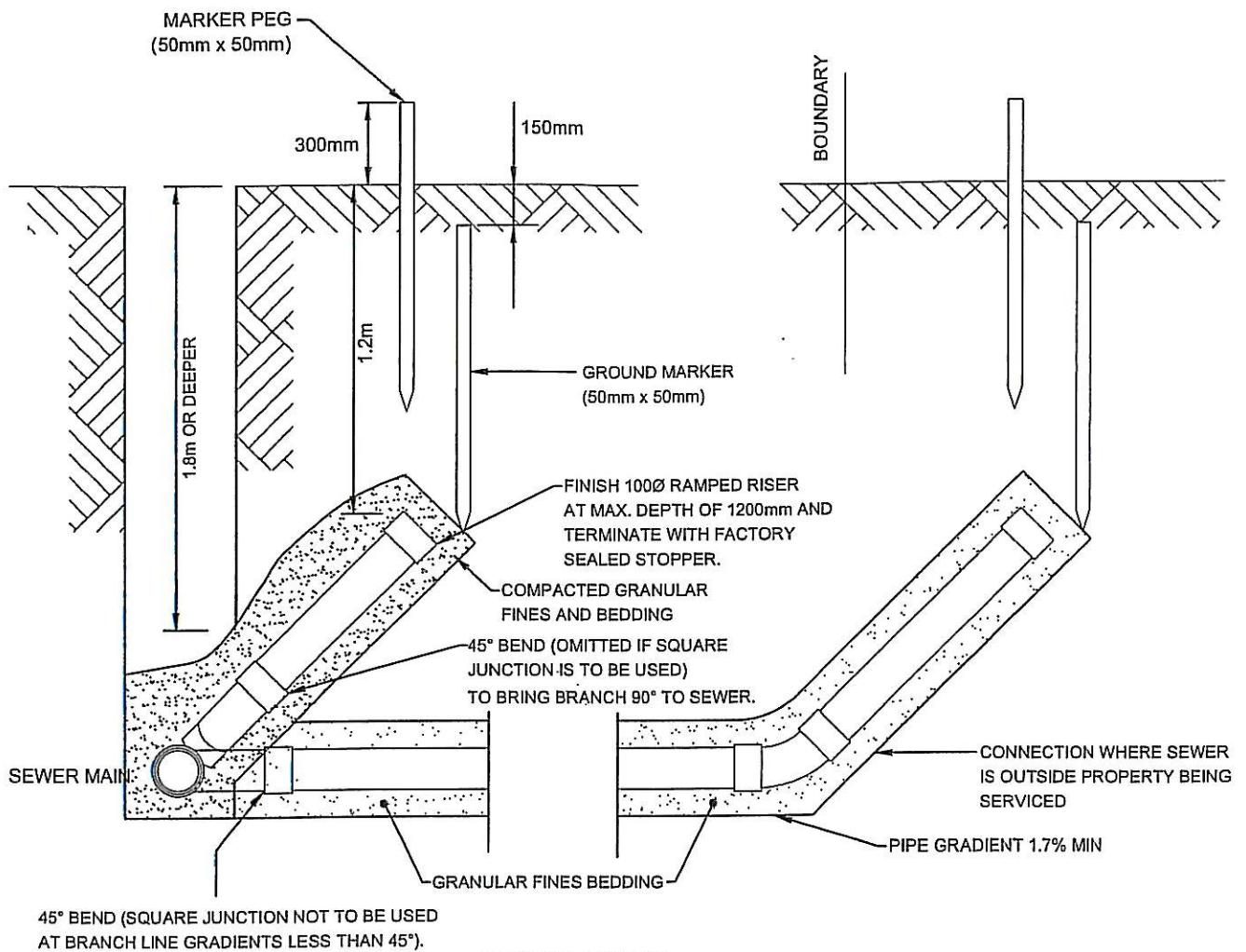
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SS 3

## STANDARD DETAIL

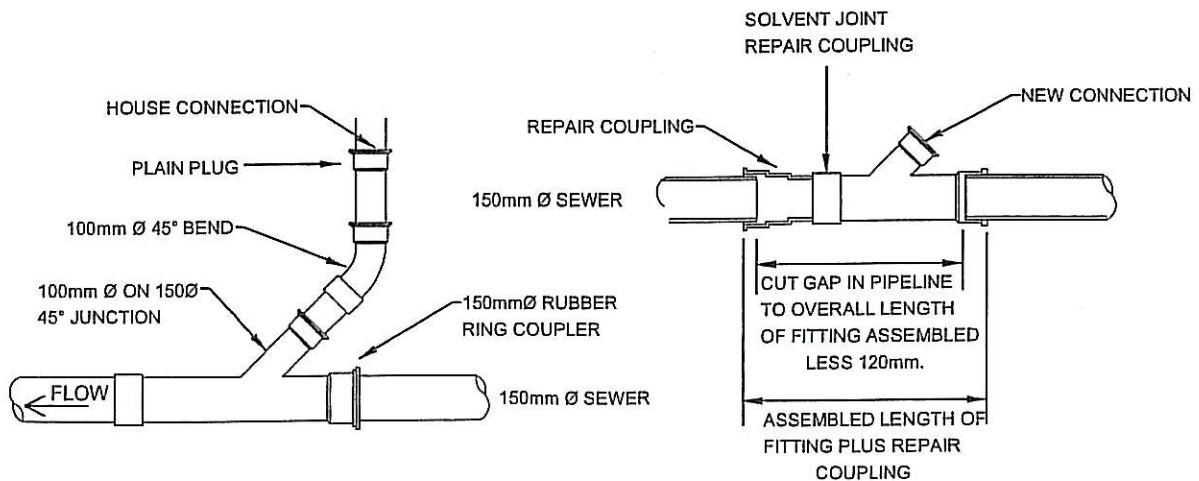
## MANHOLE FITTINGS DETAILS





### RAMPED RISERS

UPVC PIPES



### BRANCH CONNECTION

### REPAIR COUPLING



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DATE:

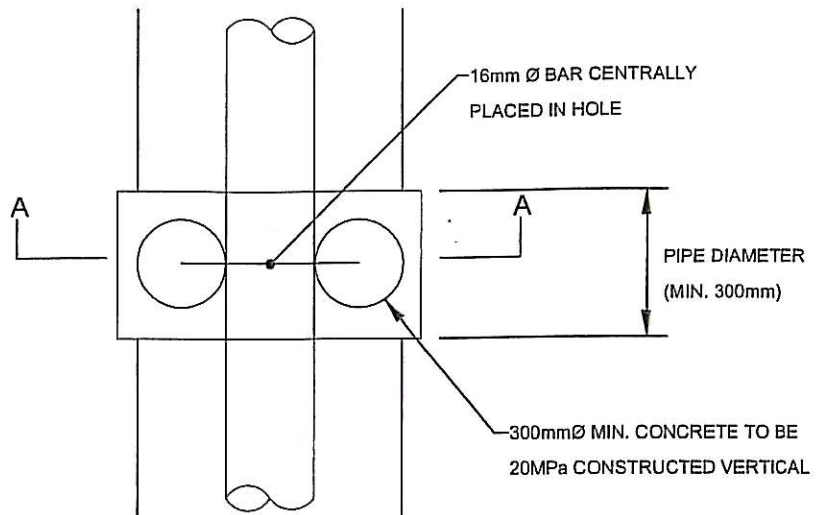
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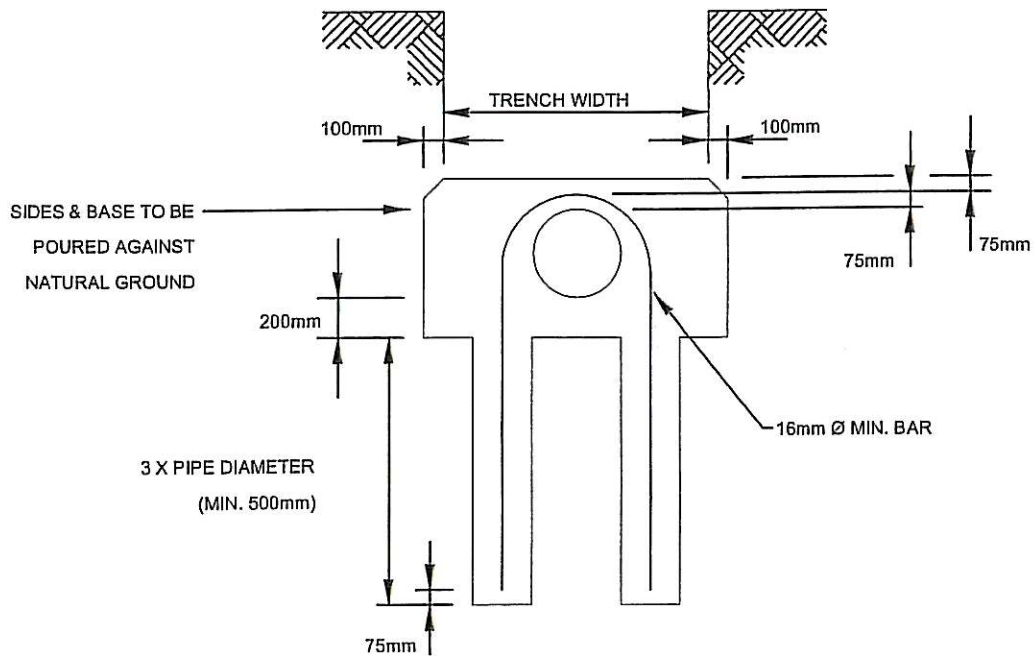
SS 4

## STANDARD DETAIL

## HOUSE CONNECTIONS AND RAMPED RISERS



PLAN



SECTION A-A



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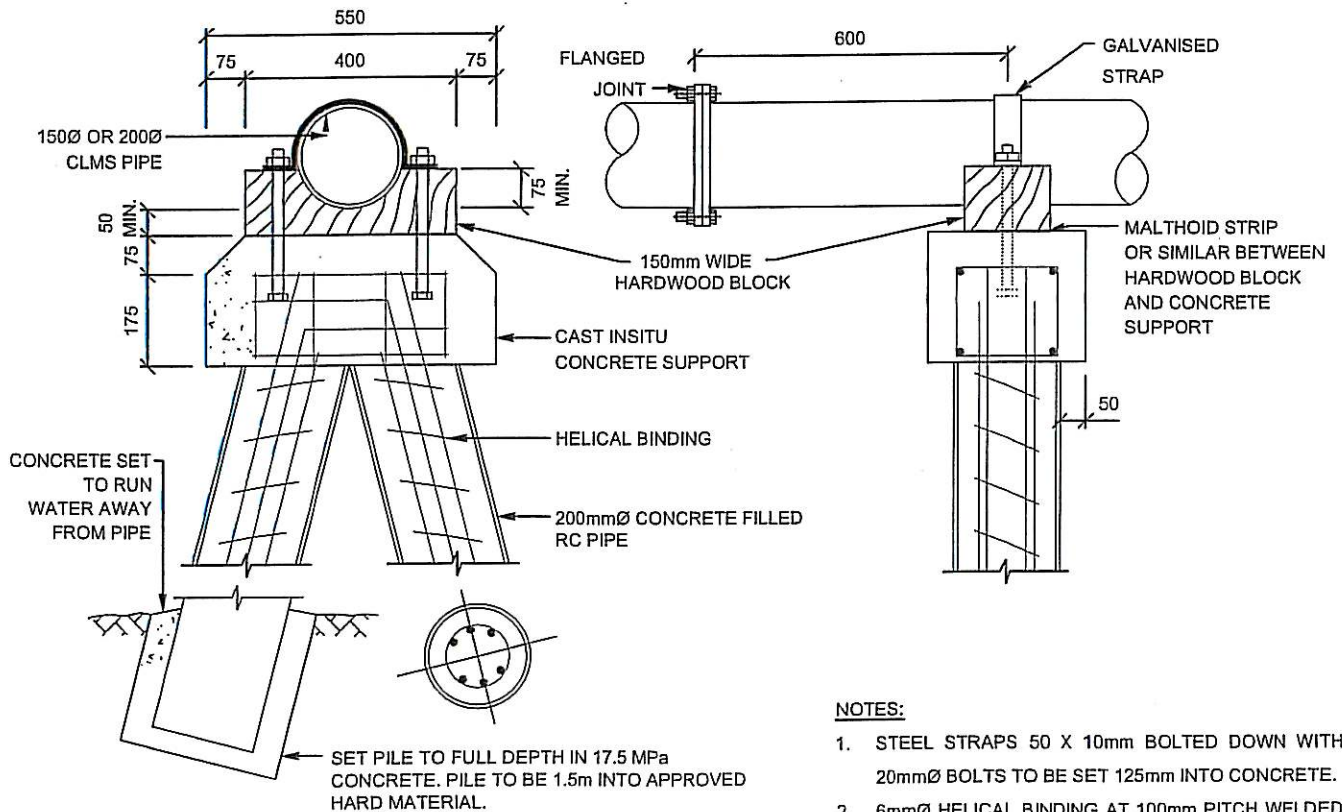
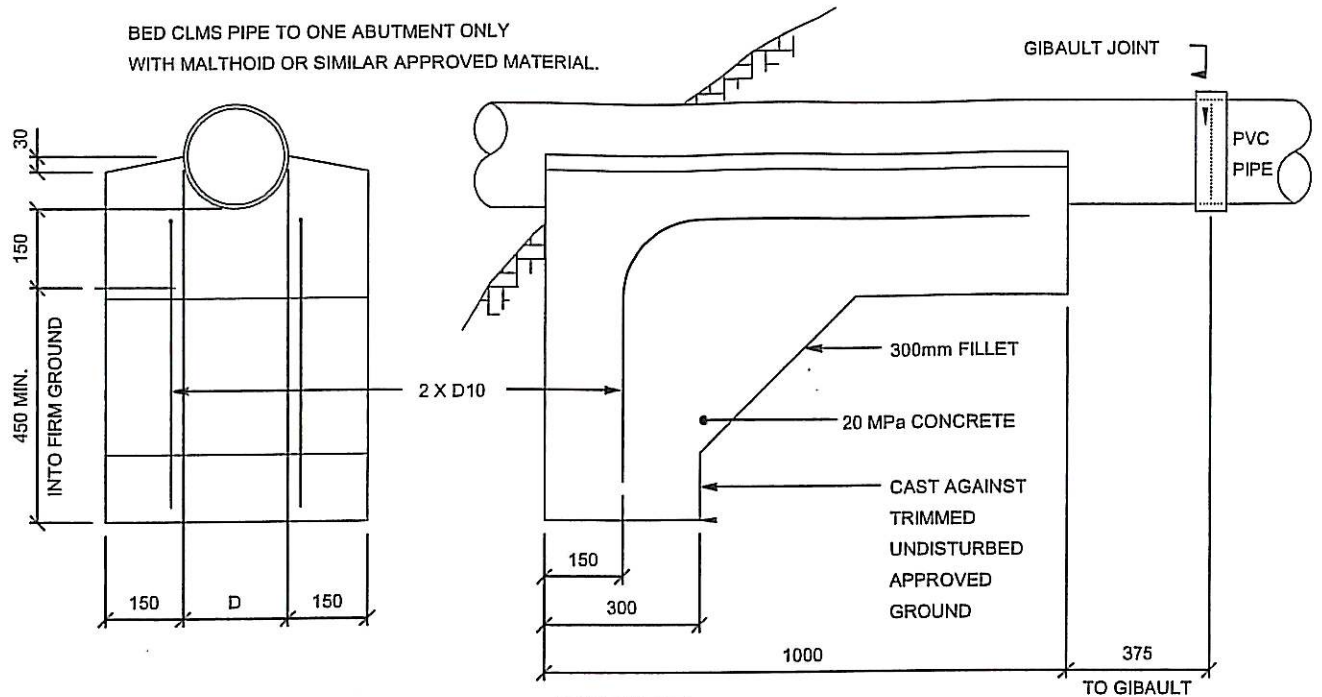
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SS 5

## STANDARD DETAIL

### ANTI - SCOUR BLOCKS FOR STEEP SEWER LINES

BED CLMS PIPE TO ONE ABUTMENT ONLY  
WITH MALTHOID OR SIMILAR APPROVED MATERIAL.



#### NOTES:

1. STEEL STRAPS 50 X 10mm BOLTED DOWN WITH 20mmØ BOLTS TO BE SET 125mm INTO CONCRETE.
2. 6mmØ HELICAL BINDING AT 100mm PITCH WELDED TO ALTERNATE LONGITUDINAL BARS - 6 IN EACH PIPE 16mmØ.
3. FOR PIPE SIZES GREATER THAN 200mmØ SPECIFIC DESIGN IS REQUIRED.



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DATE: APRIL 2009

No: SS 6

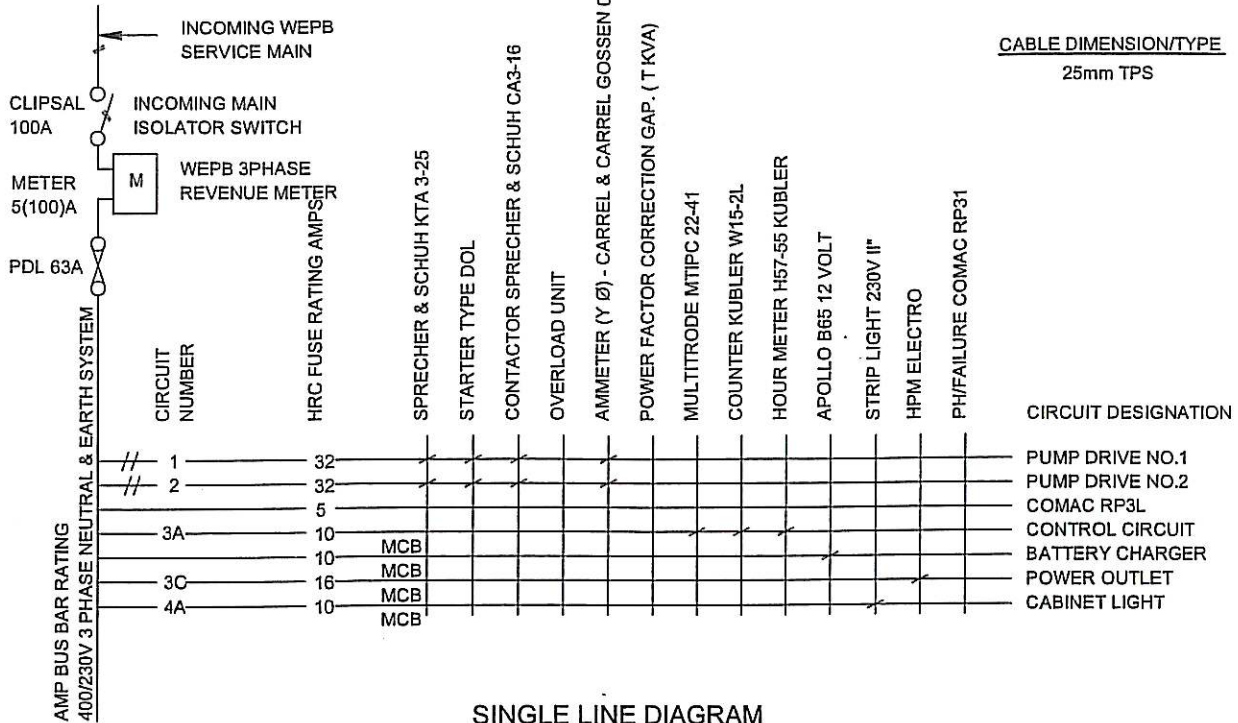
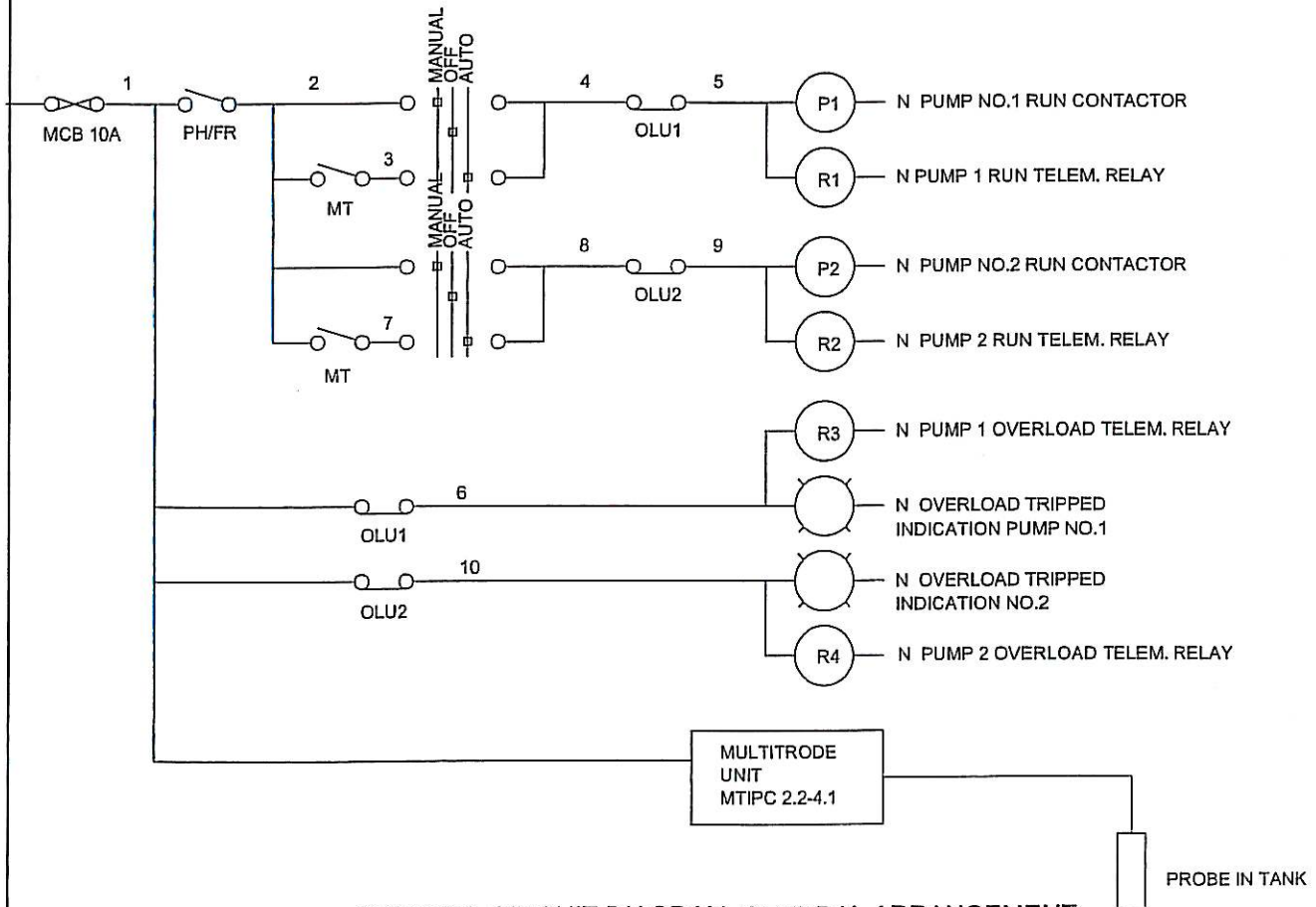
## STANDARD DETAIL

PIPE BRIDGE FOR  
150Ø - 200Ø PIPE



( MISC. STARTER EQUIP. )

( CONTROL STARTER EQUIP. )

**SINGLE LINE DIAGRAM****CONTROL CIRCUIT DIAGRAM, GENERAL ARRANGEMENT**

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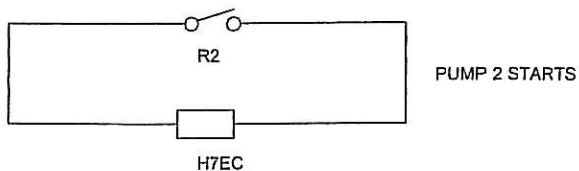
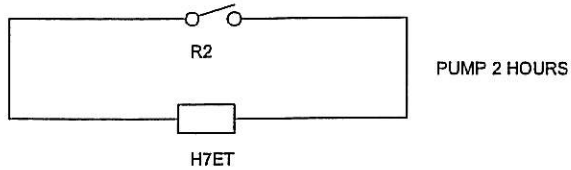
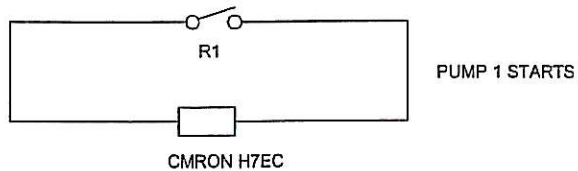
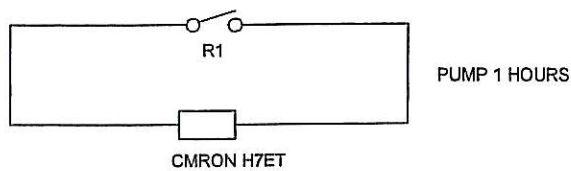
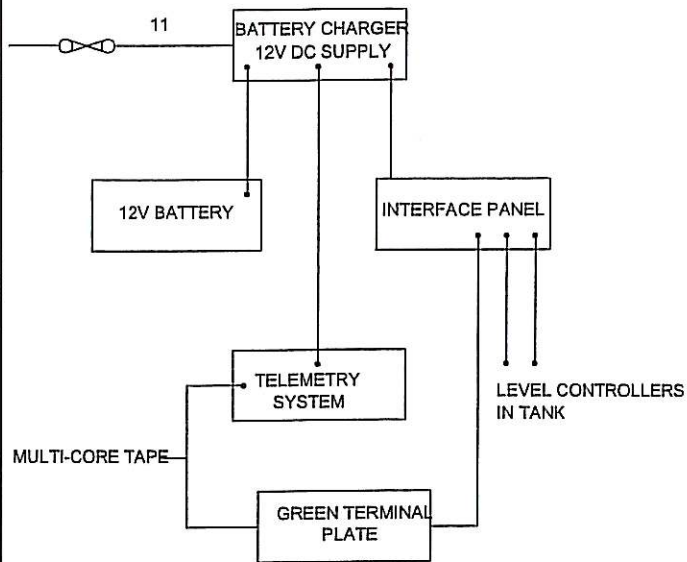
DATE: APRIL 2009

No: SS 7

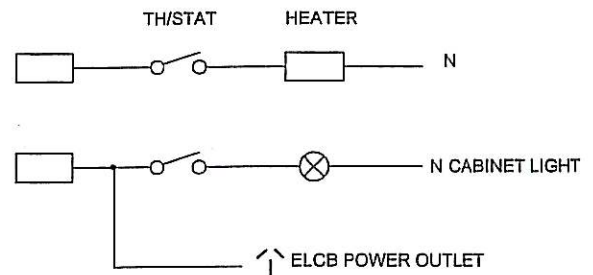
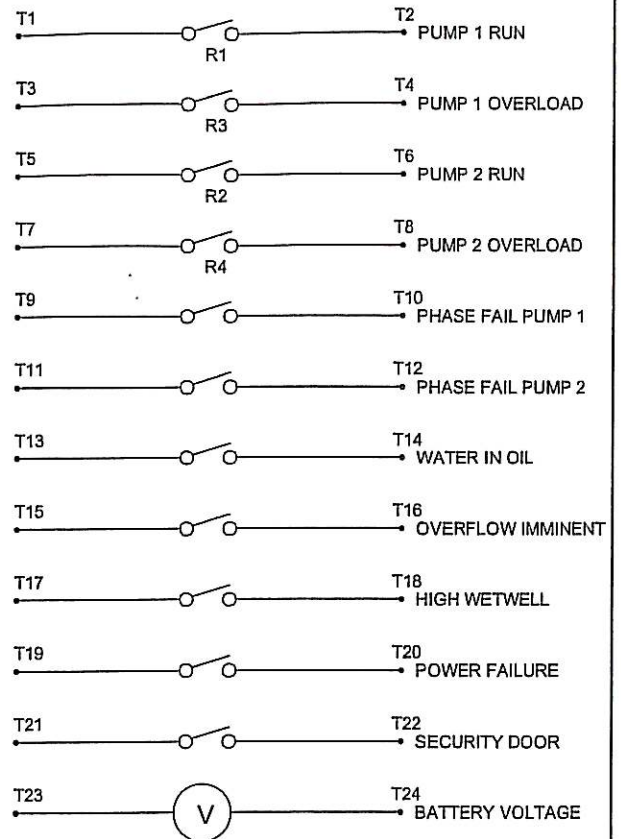
**STANDARD DETAIL**

**SEWAGE PUMP STATION  
SWITCHBOARD  
TWO - PUMP LAYOUT**

## TELEMETRY CONTROL BLOCK DIAGRAM



## TELEMETRY OUTPUTS



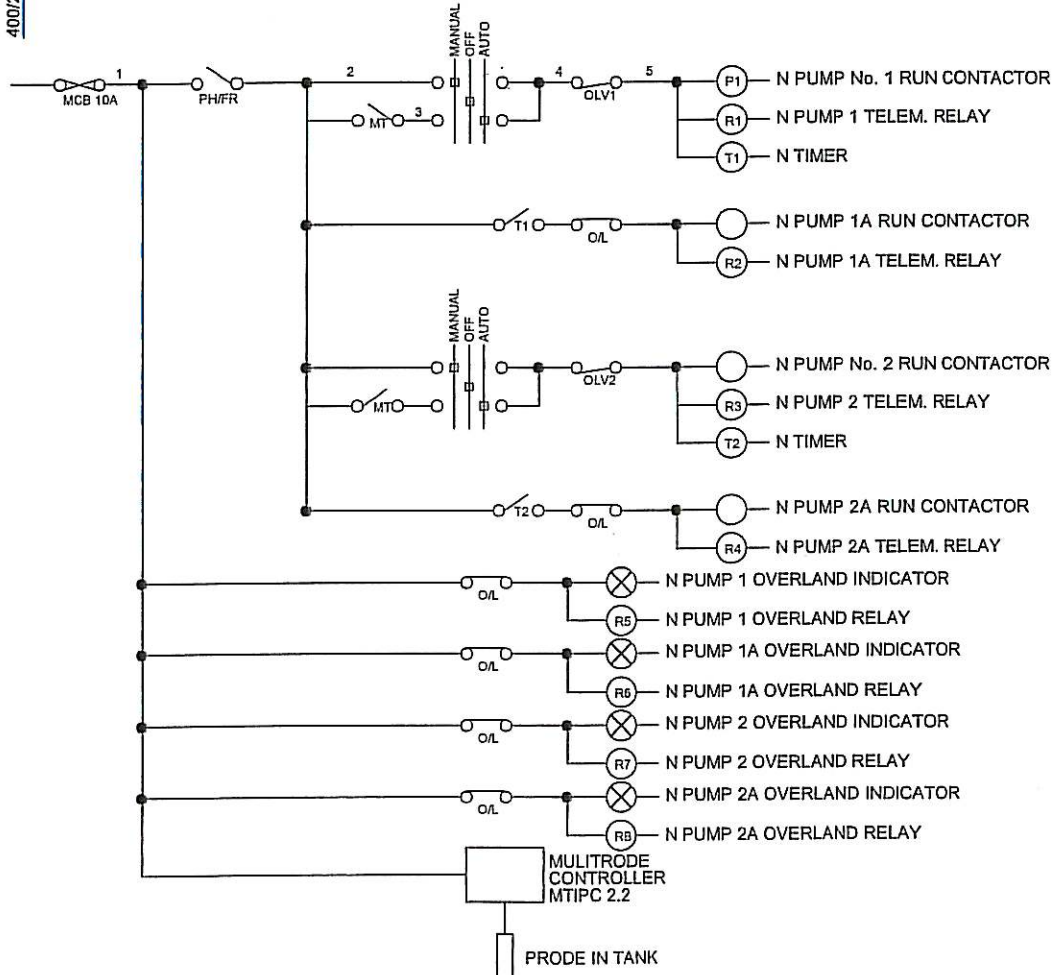
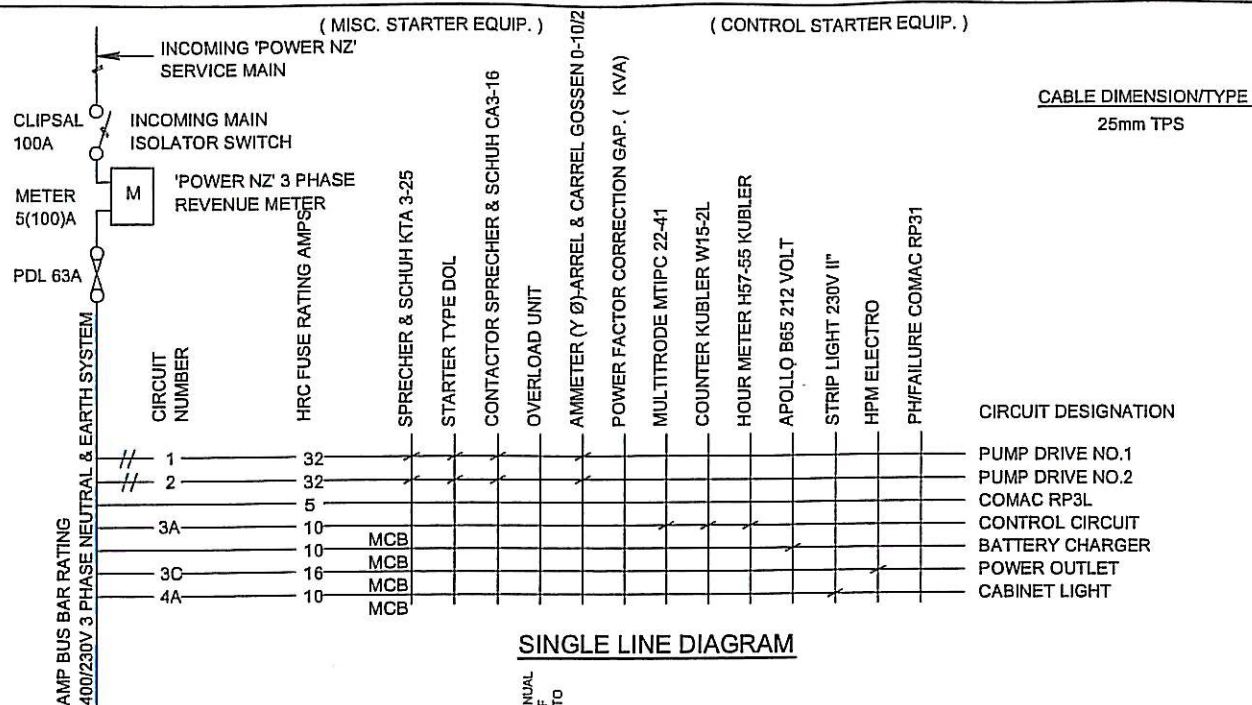
DATE: APRIL 2009

No: SS 8

## STANDARD DETAIL

## SEWAGE PUMP STATION SWITCHBOARD TWO - PUMP LAYOUT





**CONTROL CIRCUIT DIAGRAM GENERAL ARRANGEMENT**



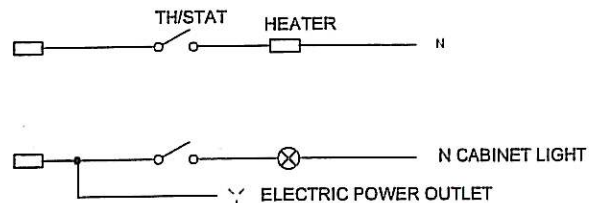
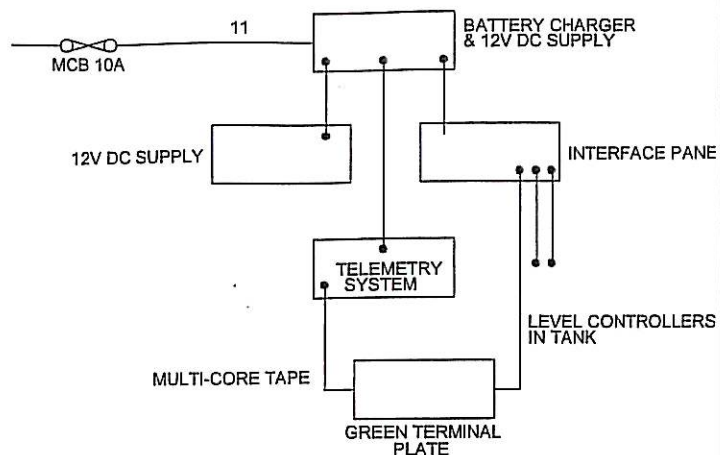
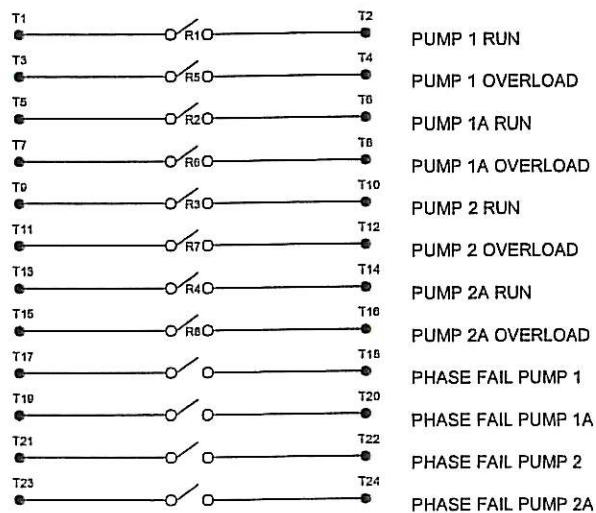
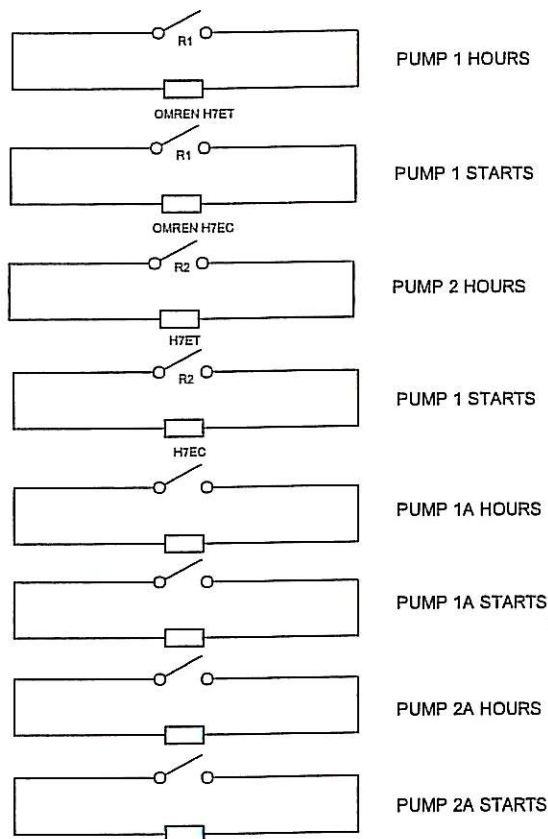
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DATE: APRIL 2009

No: SS 9

**STANDARD DETAIL**

**SEWAGE PUMP STATION  
SWITCHBOARD  
FOUR - PUMP LAYOUT**



DATE: APRIL 2009

No: SS 10

STANDARD DETAIL

SEWAGE PUMP STATION  
SWITCHBOARD

FOUR - PUMP LAYOUT