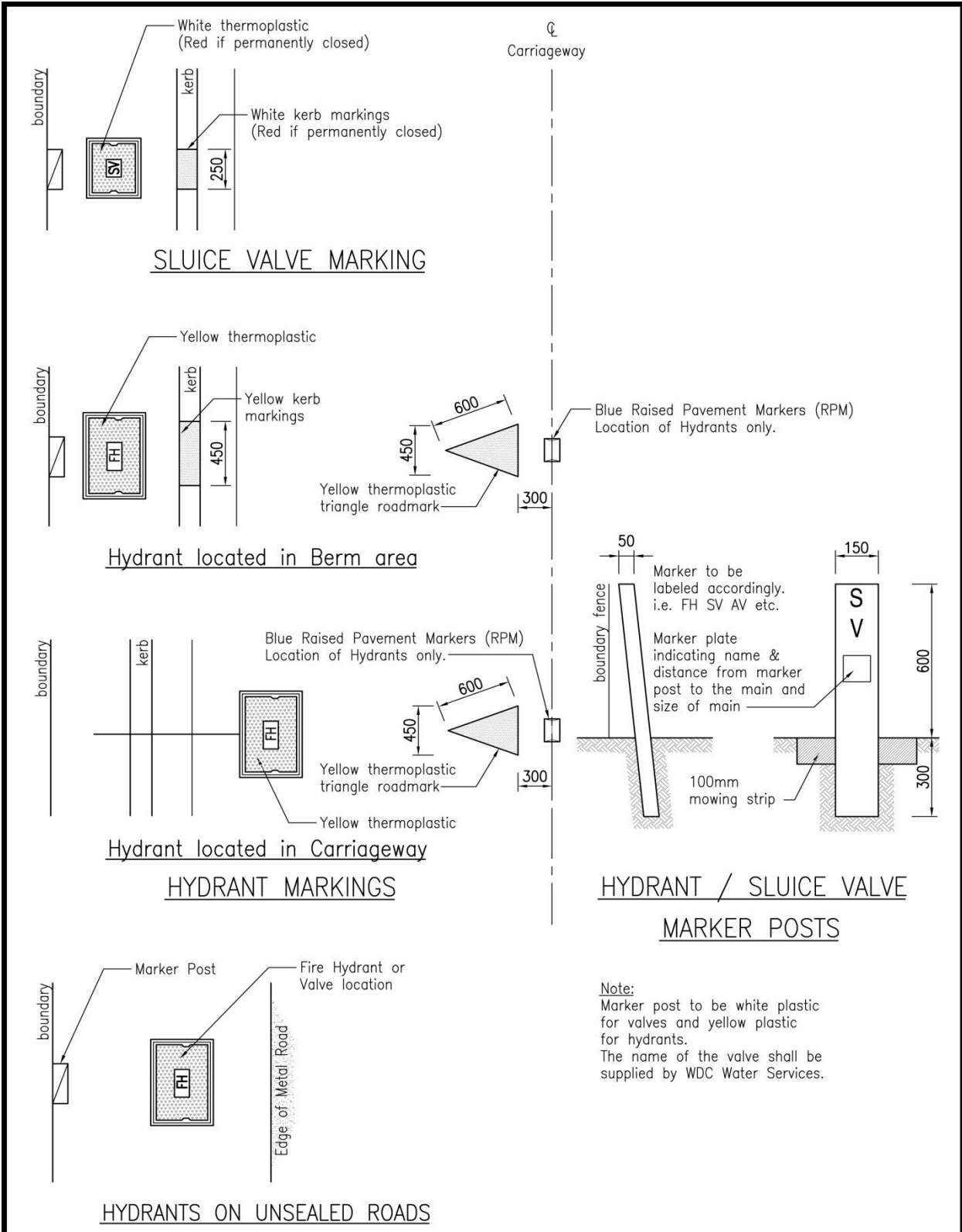


**Sheet 48 Valve and Hydrant Markers**

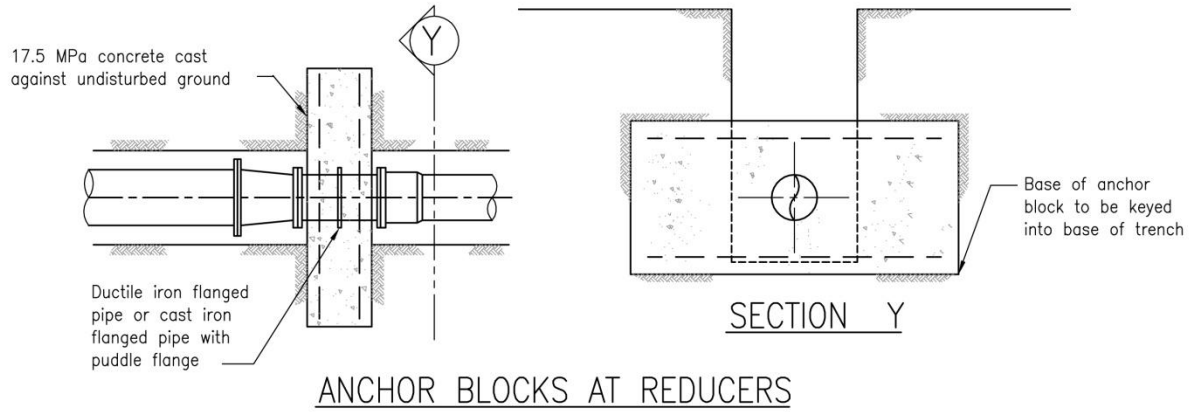


**Note:**  
Marker post to be white plastic for valves and yellow plastic for hydrants.  
The name of the valve shall be supplied by WDC Water Services.

VALVE AND HYDRANT MARKERS	Date: APRIL 2010
	Revision: R0
 <b>WHANGAREI DISTRICT COUNCIL</b> ENVIRONMENTAL ENGINEERING STANDARDS	Scale: AS SHOWN
	SHEET No. <b>48</b>

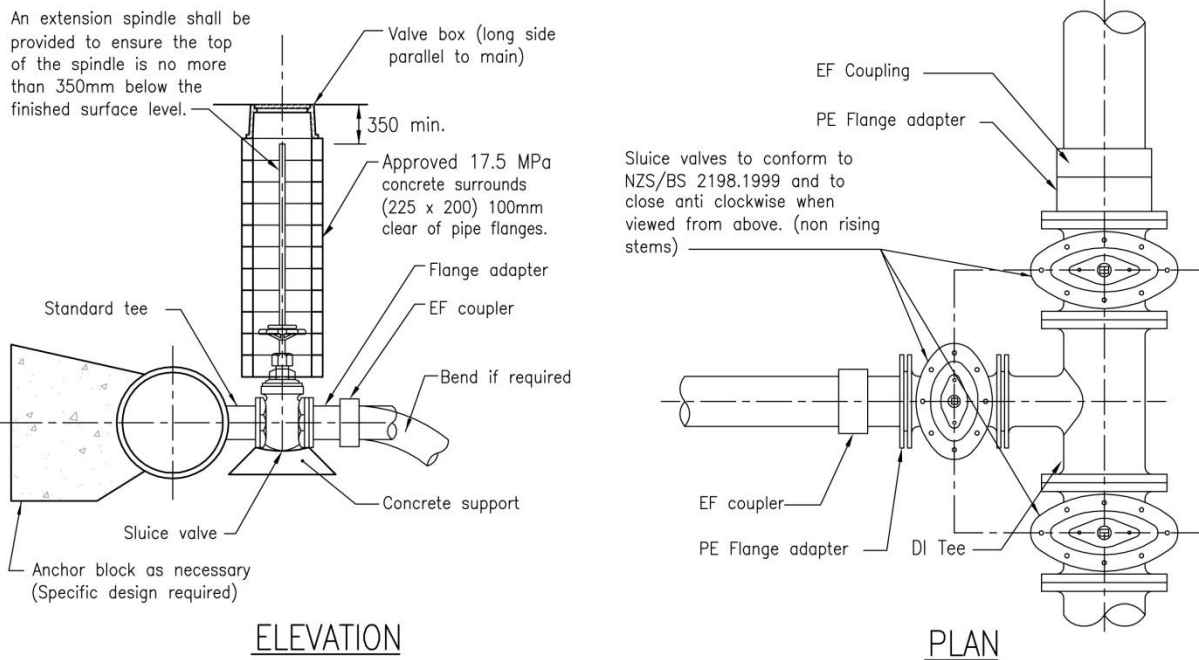
WDC: 80.36

# Sheet 49: Anchor Block and Valve Installation Details



**NOTES:**

1. Calculations for anchor blocks at reducers and vertical curves must be shown with Engineering drawings.
2. Refer to Sheet 50 for anchor block dimensions.



ANCHOR BLOCK AND VALVE INSTALLATION DETAILS  
(FOR ALL ENVIRONMENTS)



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Date: APRIL 2010

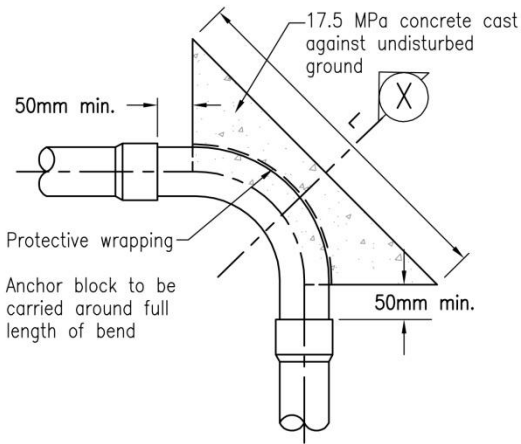
Revision: R0

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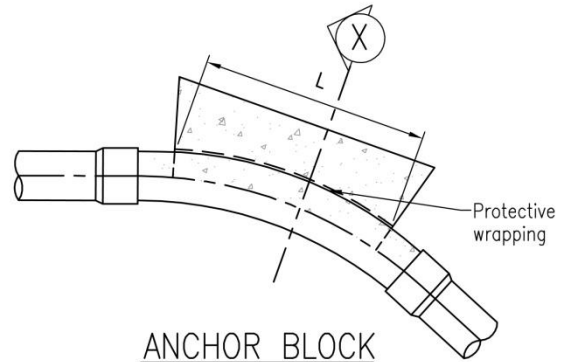
SHEET No. **49**

WDC 80.36

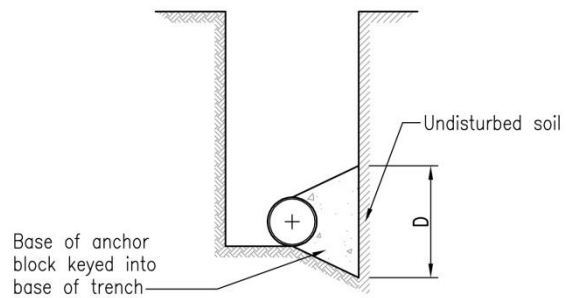
**Sheet 50 Anchor Block Details**



ANCHOR BLOCK FOR 90° BENDS



ANCHOR BLOCK FOR 45° BENDS



SECTION X

Nom Pipe Diameter	90° Bend		45° Bend		Tee or Closed End		22.5° Bend		11.25° Bend	
	L	D	L	D	L	D	L	D	L	D
100	740	400	500	320	520	400	300	300	300	300
150	1340	460	700	470	870	500	500	340	300	300
200	1610	660	960	600	1150	650	740	400	490	300
250	2000	800	1250	700	1420	800	890	500	640	350
300	2330	1000	1560	800	1650	1000	1080	600	810	400

NOTES:

- 1) Anchor block dimensions for firm soil conditions. ( $\geq$  CBR of 5)
- 2) The dimensions to be increased or decreased for variation in soil conditions.
- 3) Allowable bearing stress used – 100 KPa.
- 4) Internal pipe test pressure up to 1800 KPa (18Bar).
- 5) All underground bolts to be wrapped with denso tape.
- 6) Protective membrane to be bitumised paper, thin roofing felt or polythene film applied to a thickness of 2.5mm.
- 7) If an anchor block is to be supported by engineered fill material, it shall be specifically designed, taking into account all design actions, including the weight of the concrete, with allowance for safety factors.

ANCHOR BLOCK DETAILS  
(FOR ALL ENVIRONMENTS)

Date: APRIL 2010

Revision: R0

Scale: AS SHOWN

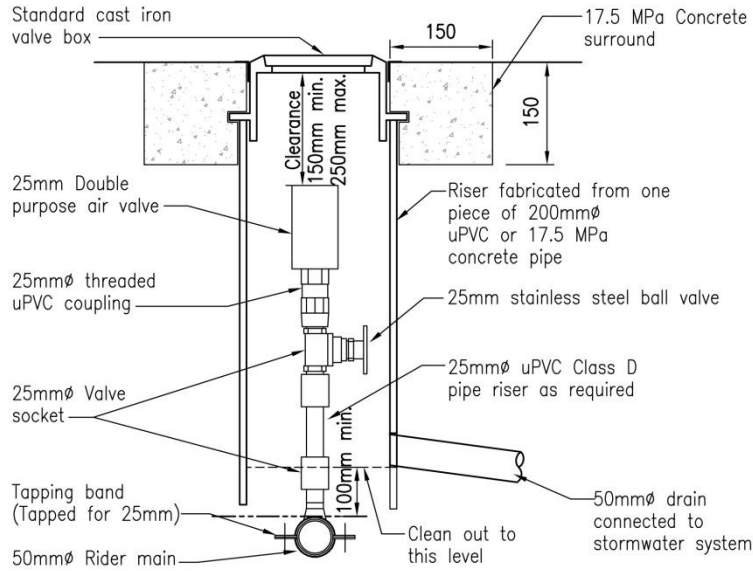
SHEET No. **50**



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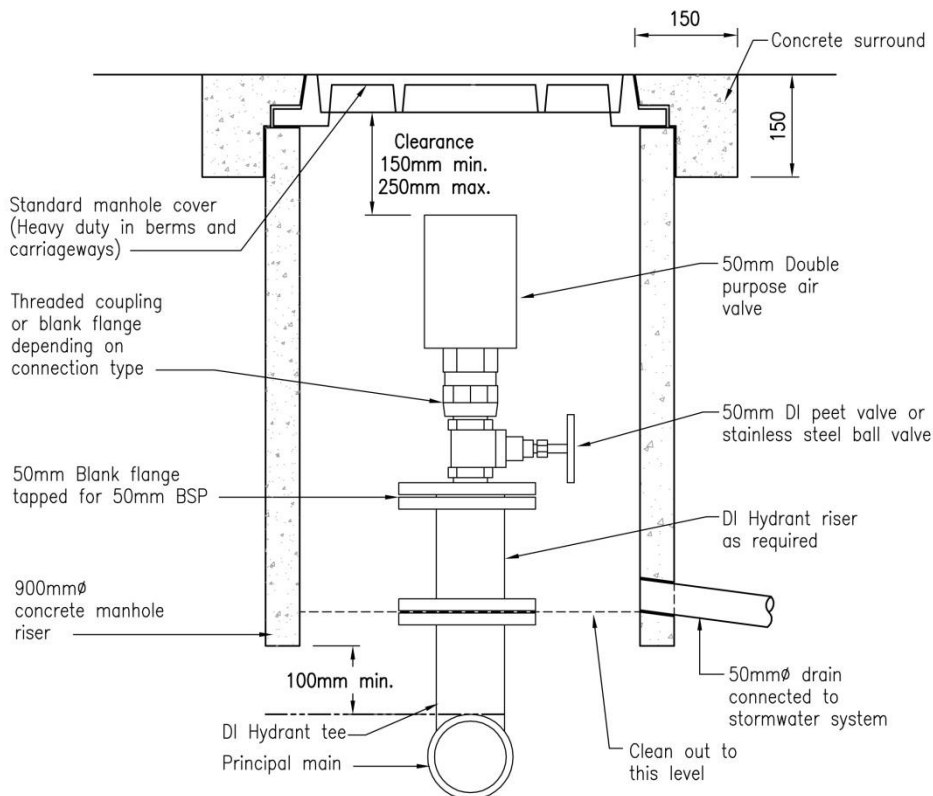
WDC 80.36

**Sheet 51 Air Valve Details**



**STANDARD AIR VALVE DETAIL FOR 50mmØ RIDER MAINS**

NB: Underground bolts to be wrapped with DENSO tape



**STANDARD AIR VALVE DETAIL FOR PRINCIPAL MAINS**

NB: Underground bolts to be wrapped with DENSO tape

AIR VALVE DETAILS  
FOR ALL ENVIRONMENTS



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Date: APRIL 2010

Revision: R0

Scale: AS SHOWN

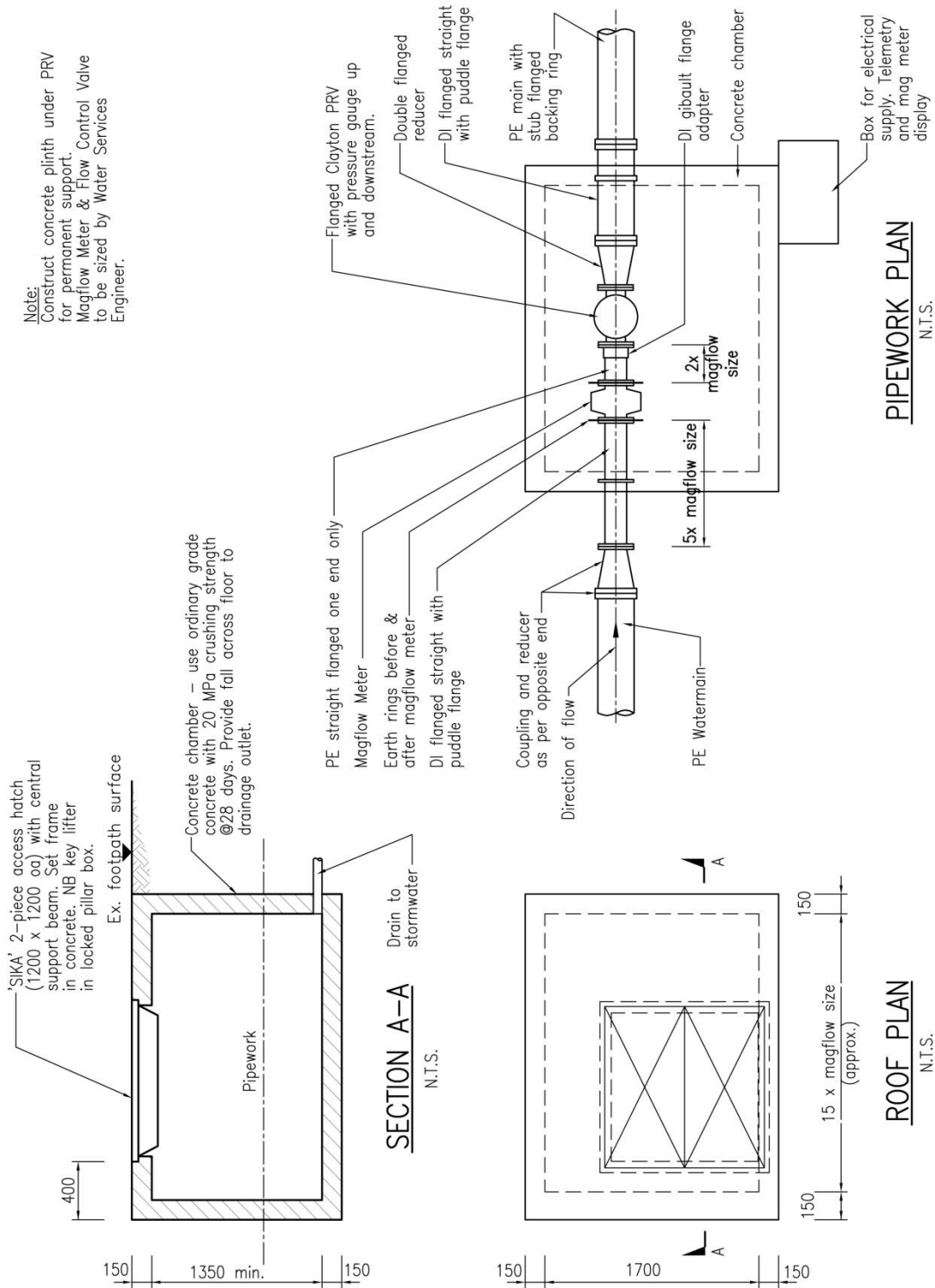
SHEET No.

**51**

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# Sheet 52 Magflow and Flow Control Valve Installation

Note:  
Construct concrete plinth under PRV for permanent support. Magflow Meter & Flow Control Valve to be sized by Water Services Engineer.



MAGFLOW & FLOW CONTROL VALVE INSTALLATION  
FOR ALL ENVIRONMENTS

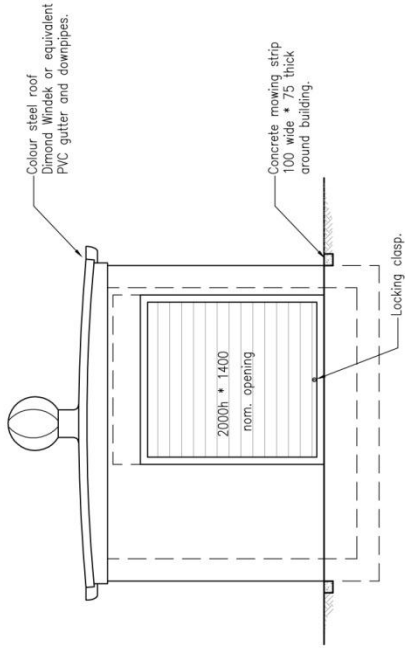


**WHANGAREI DISTRICT COUNCIL**  
ENVIRONMENTAL ENGINEERING STANDARDS

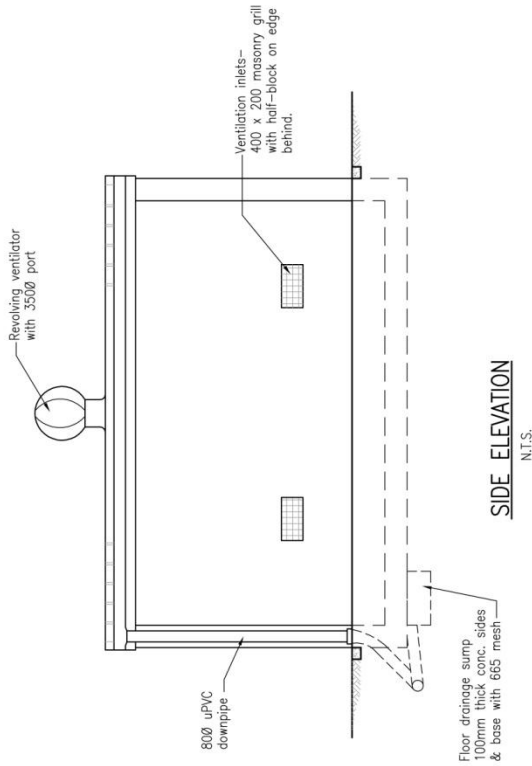
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Revision:	RO
Scale:	NTS
SHEET No.	<b>52</b>

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# Sheet 53 Water Supply Pump Station Details

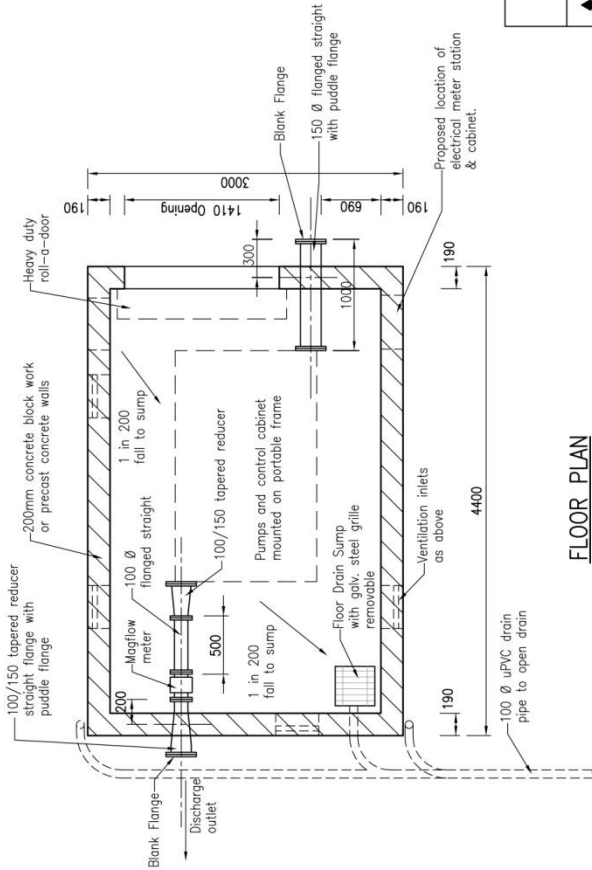


**FRONT ELEVATION**  
N.T.S.



**SIDE ELEVATION**  
N.T.S.

- NOTES:**
- 1) The details & dimensions shown are for guidance only and may need to be changed for particular situations.
  - 2) All fabricated pipework to be "Class K9 cement mortar lined ductile iron pipe in accordance with AS2280: 1988".
  - 3) Joining to be with "Tyton" rubber rings.
  - 4) Pump set to be type Grundfos Hydro 2000 Booster System or similar.
  - 5) The details shown are based on 150mm dia pipework and should be used for guidance only.
  - 6) All details including structure, access etc. shall comply with the New Zealand Building Code and related documents.
  - 7) Steps shall be provided as required between the doorway and floor level.
  - 8) A minimum space of 800mm should be provided around pumps and electrical/ control cabinets for maintenance access.
  - 9) The building shall be provided with internal lighting and power points.
  - 10) The pump house shall be located on a separate lot, or within the road reserve where approved by the water manager.
  - 11) Provision shall be made for parking and access to the doorway by maintenance vehicles.
  - 12) Details of power & telemetry required to be obtained from Water Services Manager.
  - 13) Refer to briefing document - EES 2, water pumping stations, electrical engineering systems, pumpsets rated above 5kW.

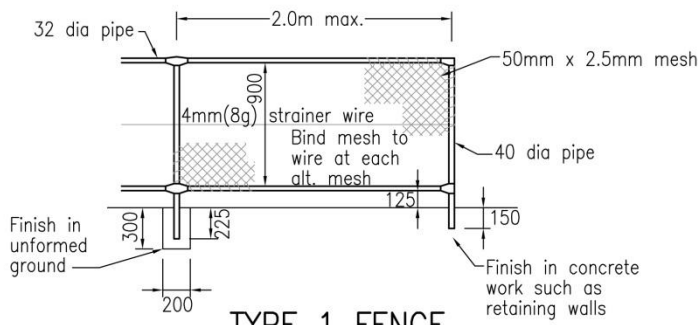


**FLOOR PLAN**  
N.T.S.

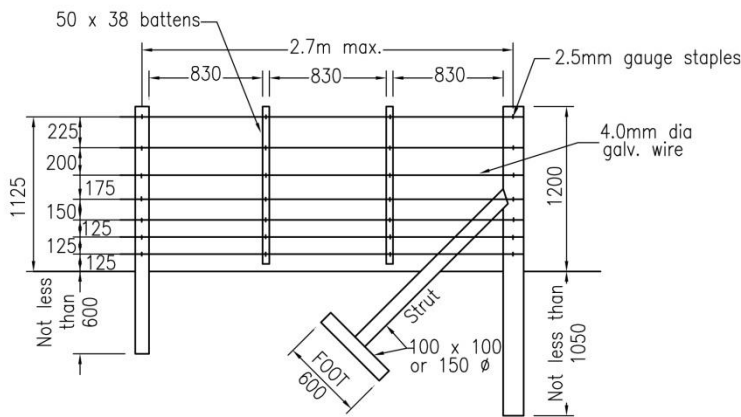
WATER SUPPLY PUMP STATION DETAILS  
FOR ALL ENVIRONMENTS



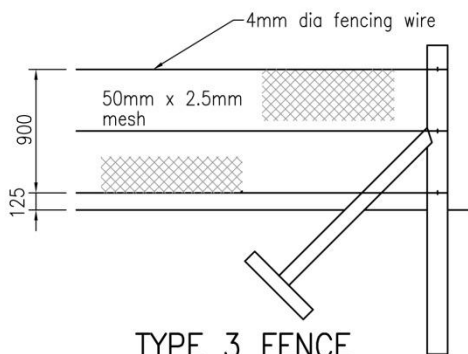
Date: APRIL 2010  
Revision: R0  
SHEET No. **53**



**TYPE 1 FENCE**  
**WALKWAYS AND SIMILAR**



**TYPE 2 FENCE**  
**WALKWAYS AND SIMILAR**



**TYPE 3 FENCE**  
**WALKWAYS AND SIMILAR**

(Posts, struts, and footings as per Type 2 fence.)

**TYPE 4 FENCE**

1. To be used for fencing bush covenants and areas where stock proofing is essential.
2. Details are to conform with a Type 2 fence with the exception that:
  - a) Posts shall not be more than 5.0m apart.
  - b) Battens shall be approx. 800mm apart (i.e. 5 battens between posts)
3. Posts and hollow areas subject to lifting from wire strain are to be securely footed and/or stayed.
4. Bush covenant fencing shall only have one access gate which is to be securely wired closed in two positions each end.

**NOTES:**

1. TYPE 2, 3 and 4 FENCES to have concrete or wooden posts and struts, securely rammed.
2. Timber posts shall be treated to H4 specification.
3. Timber posts and struts to be 100 x 100 or 150 DIA MIN.
4. Timber strainer posts to be 150 x 150 or 250 DIA MIN.
5. Mesh to be tied to railings and standards with galvanised binder wire as shown (Not bag ties)
6. Fittings to be "Kee Klamp" or similar pattern.
7. All pipes, wire, mesh and staples to be galvanised.
8. GENERAL:  
Safety fencing, safety railing, alternative fencing, cycle barriers, and walkway surfacing shall be subject to specific design and approval otherwise specified.

FENCE TYPES  
FOR ALL ENVIRONMENTS



**WHANGAREI DISTRICT COUNCIL**  
ENVIRONMENTAL ENGINEERING STANDARDS

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