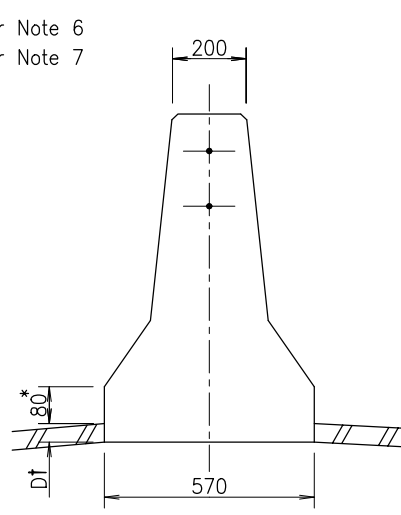
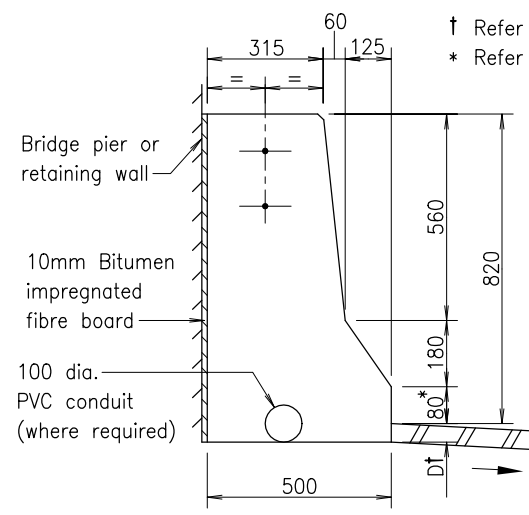


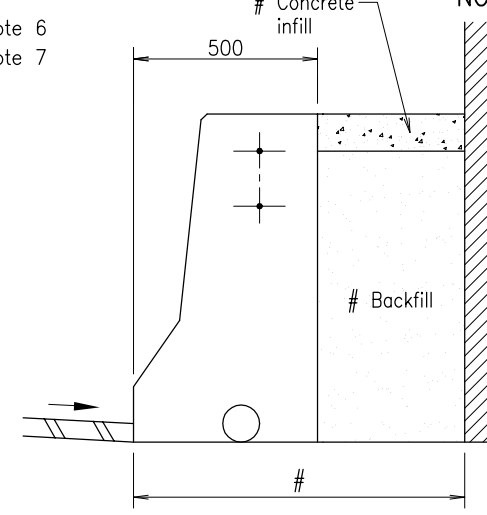
WITH LIGHTING  
CAST WITH PAVEMENT SUPPORT



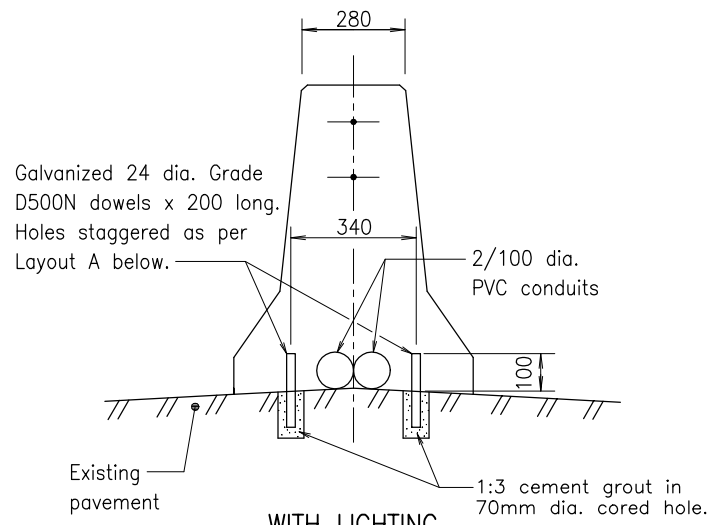
WITHOUT LIGHTING  
CAST WITH PAVEMENT SUPPORT



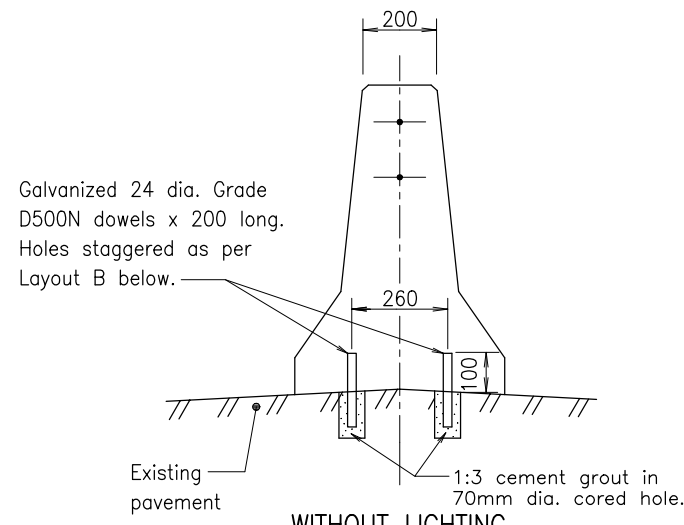
CAST AGAINST WALLS/PIERS  
or cast monolithically with the wall



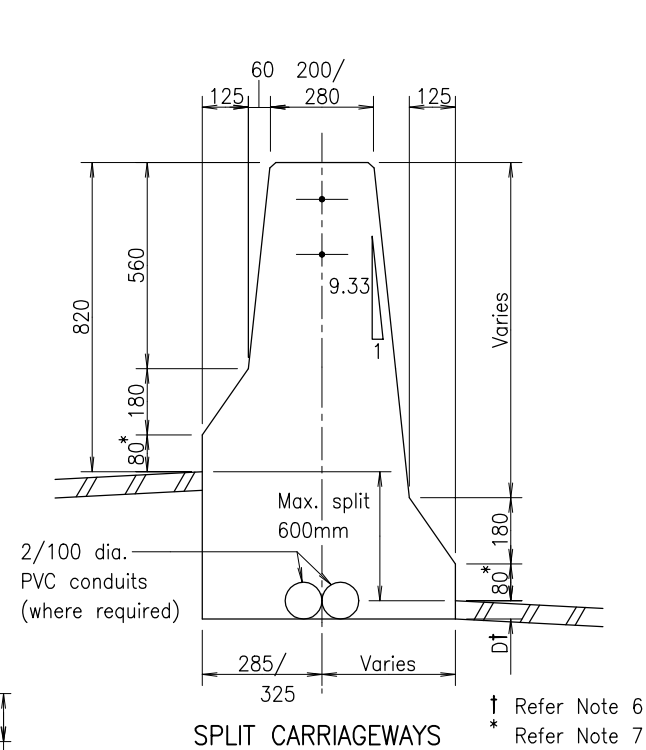
OFFSET FROM WALLS/PIERS  
# Refer Note 16



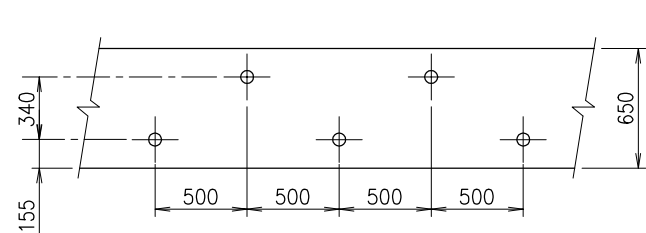
WITH LIGHTING  
CAST ON TOP OF EXISTING PAVEMENT



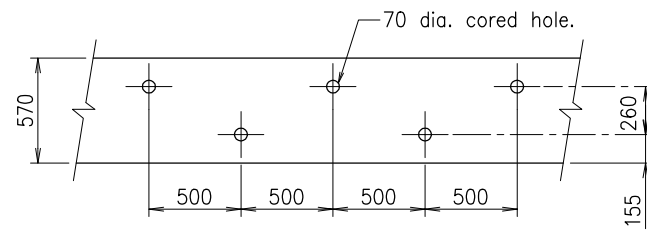
WITHOUT LIGHTING  
CAST ON TOP OF EXISTING PAVEMENT



SPLIT CARRIAGEWAYS  
Refer Note 6  
Refer Note 7

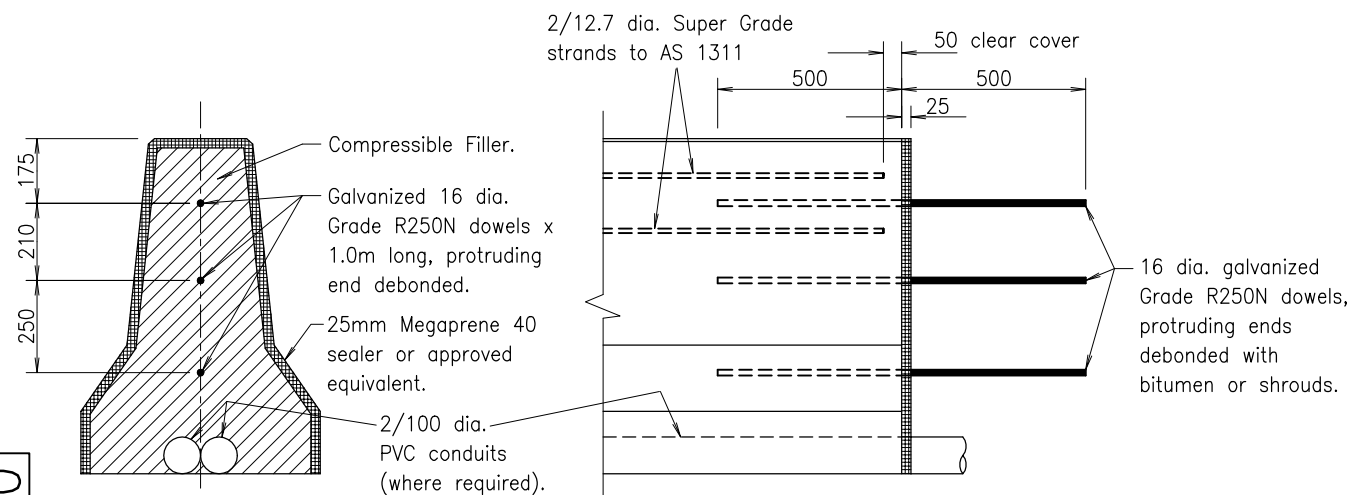


LAYOUT A

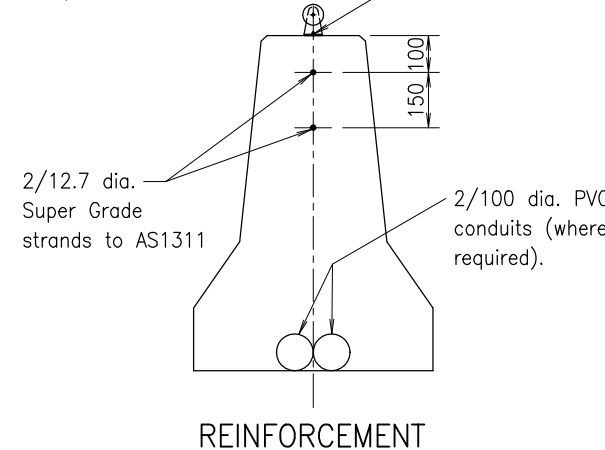


LAYOUT B

Where required, delineator bracket to be fixed to the barrier with an approved 10mm dia. masonry anchor (30mm min. into concrete)



END ELEVATION  
ELEVATION  
END TREATMENT FOR EXPANSION JOINTS



REINFORCEMENT

- NOTES:
1. CONCRETE GRADE FOR EXTRUDED BARRIERS shall be S32 fibre concrete impregnated with 51mm virgin polypropylene fibrillated fibres at the rate of 0.9 kg/m<sup>3</sup>. Steel fibres shall not be permitted as an alternative.
  2. LONGITUDINAL REINFORCEMENT, comprising 2/12.7 dia. Super Grade strands to AS 1311, shall extend for the entire length of the barrier, with 50mm cover at openings, expansion joints and at ends.
  3. CRACK CONTROL JOINTS IN EXTRUDED BARRIERS are to be formed by neatly saw cutting 50mm deep into the face of the barrier. Time of saw cutting to be determined to avoid shrinkage cracking occurring but must be within 12 hours of extrusion. Joints are to be at a maximum of 4.0m centres.
  4. EXPANSION JOINTS ON EXTRUDED BARRIERS shall be provided at the end of each days work. Barriers without lighting poles shall have expansion joints at 100m maximum intervals. Expansion joints shall also be provided between the extruded concrete barrier and the barrier terminal.
  5. CHAMFERS for extruded barriers shall be 15mm x 15mm.
  6. MINIMUM LENGTH OF CONCRETE BARRIER :

BARRIER ANCHORAGE METHOD	MINIMUM BARRIER LENGTH
Asphalt : D = 50mm	25m
Pavement : D = 100mm	
Compacted fill : D = 100mm	
Dowels (on top of pavement)	
Compacted fill/pavement : D = 200mm	20m

7. STANDARD UPSTAND HEIGHT may be varied to provide for future overlays. The overall barrier height is to be adjusted accordingly. Upstand height shall be within the following range:  
120mm maximum  
40mm minimum (after overlays).
8. DOWELS shall comply with AS/NZS 4671 and hot-dipped galvanized to AS/NZS 4680.
9. BRIDGES – extruded barriers shall not be used on bridges. Individual assessment by a qualified structural engineer is required for expansion joints where ends of extruded concrete barriers abut bridges.
10. CONCRETE BARRIER SHAPE conforms with AS/NZS 3845.
11. SPECIAL BARRIER DESIGN is required:  
(a) on curves that have a design speed lower than the design speed on the previous geometric element by 20km/h or more.  
(b) when designing specifically for commercial vehicles.
12. PVC CONDUITS are to comply with Department of Main Roads specification "Ducts and Pits".
13. DELINEATOR BRACKET – for details refer to Standard Drawing No.1466.
14. BARRIER CENTRELINE to be vertical regardless of crossfall or super-elevation.
15. TYPE F CONCRETE BARRIER meets the requirements for test level 3 (Refer AS/NZS 3845) and is acceptable for use in low speed environments e.g. below 80 km/h. Single Slope Concrete Barrier to be used elsewhere.
16. DETAIL TO BE SHOWN ON THE DRAWINGS:  
Offset from walls/piers; concrete infill; backfill.
17. DIMENSIONS are in millimetres unless shown otherwise.

ASSOCIATED DOCUMENTS :

- Department of Main Roads Manual of Standard Drawings Roads
- Department of Main Roads Manual of Standard Specifications Roads

REFERENCED DOCUMENTS

- Standard Drawings:  
1466 Concrete Barriers – Delineator Bracket Details
- Standard Specifications:  
Ducts and Pits
- Australian Standards:  
AS 1311 Steel Tendons for Prestressed Concrete – 7-wire  
Stress-relieved Steel Strand for Tendons in Prestressed Concrete  
AS/NZS 3845 Road Safety Barrier Systems  
AS/NZS 4671 Steel Reinforcing Materials  
AS/NZS 4680 Hot-Dip Galvanized (Zinc) Coatings on Fabricated Ferrous Articles.

TYPE F CONCRETE BARRIER -EXTRUDED MEDIAN BARRIER- BARRIER, REINFORCING AND EXPANSION JOINT DETAILS	Queensland Government Department of Main Roads	
	Size A3	Drawing No <b>1460</b>
	Scales as shown	Date 6/02