

1. BRIDGES

S.No.	ITEM / COMPONENT	REFERENCE
I	<u>GENERAL:</u>	
1	The proposals , be scrutinised and verified by the Unit Officers before communicating to CDO for vetting.	
2	Normal Section of Canal to be maintained to the extent possible.	
II	<u>SITE SURVEY:</u>	
1	Site survey should be furnished as per check slip for Bridges enclosed with the following details.	Check Slip enclosed.
a	Report accompanying the Site survey along with HPs of canal with road details.	As per approved HPs.
b	Site plan along with flow direction of canal, road way angle and direction of skew if any, net levels @ 10 M intervals and also covering the approaches to a sufficient distance not less than 1/4 km on either side.	IS : 7784 (Part I) : 1993
c	i) LS of canal as per approved HPs ii) L.S of Road Covering 500 metres on U/S & D/S with levels @ 10m intervals.	
d	Important details of road bridge and type of road bridge with carriage way width	
e	Bore hole data / TPs upto Hard strata or for min. depth of 2m for shallow foundations & upto 1/3rd embedment depth below maximum scour depth along the Centre Line @ suitable intervals depending upon the importance of the structure with minimum 3 Nos covering Canal @ centre, right and left sides. Also the safe bearing capacity of foundation strata be furnished.	Table I & II of APERL for test results of foundation soils enclosed. IRC78:2000.
III	<u>DESIGN :</u>	
a	Note on Principles of Design, the assumptions made & the general features of the structure.	
b	<u>HYDRAULIC DESIGN :</u>	
1)	Design of ventway	IRC: 5 -1998
2)	The bridge crust level shall be either natural GL or existing road crust level which ever is higher	
3)	Afflux calculations by Molesworth's formula (Max-50mm)	IRC: 5 -1998
	$h = \left[\frac{v^2}{17.85} + 0.0152 \right] \left[\frac{A^2}{a^2} - 1 \right]$	

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4)	Scour depth calculations $R = 1.34 \left[\frac{q^2}{f} \right]^{1/3}$ using relevant factor of safety	IRC: 5 -1998
5)	Proposal Sketch.	
c	<u>STRUCTURAL DESIGN :</u>	
i)	<u>SUPER STRUCTURE</u>	
a)	Design of Deck slab / Girder	IRC: 6-2000 IRC: 21-2000 For DLRB and Girder bridges adopt MOST drgs / plates
ii)	<u>SUB STRUCTURE</u>	
1	Piers: Minimum Thickness of Pier shall be 1m.	IRC: 6 - 2000
2	Abutments,Wings / Returns be designed adopting TVA procedure/Coulomb's theory/Rankine's theory adopting top width of 500 mm.	IRC: 78-2000,TVA Hand book, IRC:40-1995
3	Bed blocks in RCC M20 grade (minimum)	IRC :21-2000
4	Type of foundation based on foundation strata available -open/ Raft / Piles	IRC: 78-2000
5	Unless otherwise metioned, the following minimum grades of Concrete are recommended i) RCC - M 20 Grade ii) For DLRB RCC Deck / Girder - M25 Grade iii) CC - M 15 Grade iv) Levelling course - CC M 10 Grade	IRC: 21-2000
5	Protection works on either side of Bridge 100 mm thick CC lining in M10 grade for bed & sides shall be proposed & for a minimum length of 10m on either side of the structure.	
d	<u>MISCELLANEOUS ITEMS :-</u>	
a)	Approach slab & approaches	IRC: 5-1998 and MOST Drgs.
b)	RCC Kerbs	MOST Drgs
c)	Railling	MOST Drgs
d)	Expansion joints, Constructon & Contraction Joints	MOST Drgs
e)	Drainage spouts	MOST Drgs
f)	Wearing coat (Next higher grade than Deck slab)	MOST Drgs
g)	Ornamental pillaster	
h)	Guide posts or parapets	
i)	Design of Bearings	IRC: 5-1998,IRC:83 Part-I & II
j)	Weep holes	IRC: 78-2000.

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IV	<u>DRAWINGS</u>	
1	General Layout on net level plan duly showing contours. General Plan, Sectional Elevation & End View - Plan indicating Half plan @Top & Half plan @ bottom & Sectional elevation along the LS & End view along the cross section.	Scale : 1:50, 1:100, (or) 1:200
2	Sections of Piers, Abutments, Wings & Returns	Scale 1:50
3	RCC Slab,Girder details	Scale 1:50 (or) 1: 25 (or) 1: 10
4	Miscellaneous details viz duct wall, railings, drainage spouts,bed blocks,bearings etc.,	Scale 1: 20 (or) 1: 10
5	The Drawings shall contain assumptions made,TPs, specifications HPs of Canal, Bar bending schedule, stress table etc.	