

(1) Number of pages 10

(2) Date of repair _____

(3) Initials of the Referencer _____

MADRAS RECORD OFFICE.

Government of Madras.

Public Works **DEPARTMENT.**

G.O. No.	516	Press
		~~Misc.~~
405-06		
Dated	26. 2	1872.

Not to be folded or roughly handled

16
*Proceedings of the Madras Government, Public Works Department,
26th February 1872.*

No. 405. Read the following Circular from the Government of India, Public Works Department, (State Railways):—

On the adoption of the metre as the gauge, the
introduction of the decimal system of weights } (Here enter No. 15, dated 28th Sept. 1871.)
and measures, and subsidiary matters.

No. 406. ORDER THEREON, 26th February 1872, No. 516.

RAILWAY, No. 54.

COMMUNICATED to the Consulting
Engineer for Railways.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

(PROVISIONAL.)

Dimensions to be followed in the construction of Indian narrow-gauge Railways.

Gauge 1 metre.

Single line.

		Formation.	Metres.	Ft.	In.		
(a) Side slopes according to soil and climate.	1	Minimum width of formation in bank (a) ...	3.60	11	9.7		
	2	" " " " in cutting (b) ...	4.30	14	1.3		
(b) Side slopes and width of side drains to vary with circumstances.	3	Standard widths of " " (b) }	4.30	14	1.3		
			4.50	14	9.2		
			5.00	16	4.9		
			5.50	18	0.5		
	4	Minimum radius of curves ...	100.00	328	1.0		
	5	Maximum exterior width of masonry under bridges from face to face ...	3.60	11	9.7		
		Girder bridges.					
	6	Rolling load per metre of track to be assumed in calculations for strength of girders—	Kilos.	Tons per foot.			
		Openings 2 metres to 4 metres in the clear	6,600	1,971			
		" 4 " to 6 " " " "	5,000	1,493			
		" 6 " to 15 " " " "	3,300	0.985			
		Additional load per metre of track for each metre of clear opening above 15 metres (c)	2,000	0.597			
(c) Thus 20 metre girders for a single track should be calculated for a rolling load of 15 × 3,300 + 5 × 2,000 = 59,500 kilos.							
(d) Type girders for these dimensions will be kept in stock. All bridges with spans greater than 40 metres will be of special design.	7	Openings spanned by girders are to be of one of the following dimensions of clear span only (d)—	Metres.	Ft.	In.		
		(Rolled beams) ...	2.00	6	6.7	13,200	12.94
		" " " " " " " "	3.00	9	10.1	19,800	19.40
		" " " " " " " "	4.00	13	1.5	26,400	25.87
		" " " " " " " "	6.00	19	8.2	30,000	29.40
		(Plate girders) ...	12.00	39	4.4	39,600	38.81
		" " " " " " " "	18.00	59	0.7	55,500	54.39
		(Lattice or Warren girders) ...	25.00	82	0.3	69,500	68.11
		" " " " " " " "	30.00	98	5.1	79,500	77.91
		" " " " " " " "	40.00	131	2.8	99,500	97.51
			Ballast.				
	8	Minimum depth of ballast below sleeper	0.15	0	5.9		
	9	Maximum width of " at top	2.15	7	0.6		
	10	" " of " at bottom	3.00	9	10.1		
		Transverse wooden sleepers.					
	11	Standard length of transverse wooden sleepers	1.85	6	0.8		
	12	" width of base of " " " "	.20	0	7.9		
	13	Minimum width of " " " "	.18	0	7.1		
	14	" depth of " " " "	.10	0	3.9		
	15	" width of heart-wood at rail seat	.10	0	3.9		
	16	" area of " in cross section	Sq. centimetres.	Sq. in.			
			170	26	35		
	17	Ordinary number of standard sleepers to kilometre of track (e)	No.	No. per mile.			
			1,250	2012			
(e) Number to increase proportionately to diminution of width of base of sleepers used.		Rails.					
	18	Flat-footed rail without chairs, but with shoes to give the cant joints fished, fastenings, bolts or spikes, ordinary weight per lineal metre	Kilos.	lbs. per yard.			
			18 or 20	36.3 or 40.3			
		Level-crossings, stations, and fixed structures over line.					
			Metres.	Ft.	In.		
	19	Minimum distance from centre to centre of tracks in stations or sheds	3.60	11	9.7		
	20	Minimum distance from centre to centre of tracks in open line	3.00	9	10.1		
	21	Minimum horizontal distance from centre of track to edge of platform	1.40	4	7.1		
	22	Minimum horizontal distance from centre of track to any structure other than platform (f)	2.00	6	6.7		
(f) No switches, signal-wires, or structure of any kind to be erected within this minimum distance.	23	Maximum height above rail-level of passenger platform	.08	0	3.1		
	24	Maximum height above rail-level of goods platform	.25	0	9.8		
	25	Minimum height above rail-level of over-bridges and similar structures at centre of track	3.60	11	9.7		
	26	Minimum height above rail level of ditto at a horizontal distance of 2.00 metres from centre of track	2.50	8	2.4		
	27	Minimum width of door-ways of engine-sheds, carriage-sheds, or goods-sheds	3.00	9	10.1		

NOTE.—When the precise dimensions of the rolling-stock are decided, such alterations in this table that may be called for will be notified, and it will be supplemented with the dimensions of the stock adopted. It is not, however, expected that any considerable variation from the dimensions of this table will be necessary.

P. W. 4959/71

Enclosure to P. W. Dept. Circular No. 15 R of 1871.

STATE RAILWAYS.

SCALES.

The following scales are to be adopted in the preparation of plans and drawings connected with State Railway Projects.

- For Index plans or sections (horizontal scale), 1 kilometre = 1 centimetre = $\frac{1}{100,000}$
- „ Index sections (vertical scale), 10 metres = 1 centimetre = $\frac{1}{1,000}$
- „ preliminary plans and sections (horizontal scale), 100 metres = 1 centimetre = $\frac{1}{10,000}$
- „ preliminary sections (vertical scale) and cross sections, 1 metre = $\frac{1}{2}$ centimetre = $\frac{1}{200}$
- „ permanent plans and sections in flat Districts (horizontal scale), 100 metres = 1 centimetre = $\frac{1}{10,000}$

In broken ground (horizontal scale), 100 metres = 2 centimetres = $\frac{1}{5,000}$

„ Ghât Districts (horizontal scale), 10 metres = $\frac{1}{2}$ centimetre = $\frac{1}{2,000}$

Cross sections (horizontal and vertical scales), 1 metre = $\frac{1}{2}$ centimetre = $\frac{1}{200}$

For station plans and enlargements. $\left\{ \begin{array}{l} 10 \text{ metres} = 1 \text{ centimetre} = \frac{1}{1,000} \\ 10 \text{ „} = 2 \text{ centimetres} = \frac{1}{500} \\ 10 \text{ „} = 4 \text{ „} = \frac{1}{250} \\ 10 \text{ „} = 1 \text{ „} = \frac{1}{200} \end{array} \right.$

For small details ... $\left\{ \begin{array}{l} 1 \text{ metre} = 1 \text{ centimetre} = \frac{1}{100} \\ 1 \text{ „} = 2 \text{ centimetres} = \frac{1}{50} \\ 1 \text{ „} = 4 \text{ „} = \frac{1}{25} \end{array} \right.$

For large details ... $\left\{ \begin{array}{l} 1 \text{ metre} = 5 \text{ centimetres} = \frac{1}{20} \\ 1 \text{ „} = 8 \text{ „} = \frac{1}{12.5} \\ 1 \text{ „} = 10 \text{ „} = \frac{1}{10} \\ 1 \text{ „} = 50 \text{ „} = \frac{1}{2} \\ 1 \text{ „} = 100 \text{ „} = \text{full size.} \end{array} \right.$

When topographical maps or other maps of an accurate character can be obtained, they should be adopted in preference to the construction of a new Index map of the scale prescribed above.

All communications
should be addressed
to the Secretary.

CIRCULAR No. 15 RAILWAY.
GOVERNMENT OF INDIA.
PUBLIC WORKS DEPARTMENT.
STATE RAILWAYS.

To

THE GOVERNMENTS OF MADRAS, BOMBAY, BENGAL, THE NORTH WESTERN PROVINCES,
AND THE PUNJAB; THE CHIEF COMMISSIONERS OF OUDH, THE CENTRAL PRO-
VINCES, BRITISH BURMAH, AND MYSORE AND COORG; THE RESIDENT AT HYDERABAD;
AND THE AGENTS TO THE GOVERNOR GENERAL FOR CENTRAL INDIA AND RAJ-
POOTANA.

SIMLA, SEPTEMBER 28, 1871.

It has been decided, with the concurrence of the Secretary of State, that
the gauge of the State Railways now in course of construction shall be defi-
nitely fixed at 1 metre = 3.28 feet (or very accurately 3.2808992).

2. The accompanying Table shows the dimensions which have been pro-
visionally fixed for the construction of the works of railways on this gauge.
These dimensions are to be followed by all Engineers entrusted with the
designing of State Railway Projects, and no deviation from them should be made
without previous reference to the Government of India.

3. The decimal division of all measures (based on the metre as the unit
of length) and of weights (based on the kilogramme) in matters connected
with State Railways, will be adopted in its entirety as soon as arrangements
have been made for the supply of properly divided scales, chains, rules, level-
ling staves, tapes, &c., and weighing machines.

4. In quoting metrical dimensions it will be convenient, for the present,
that parallel dimensions according to the English standard should be given, and
this course should be followed.

5. For convenience of reference, tables to facilitate the conversion of
measures of length on the British standard to the metrical standard have been
prepared for office and pocket use, and are forwarded herewith. Bridgnell's
"Indian Imperial tables of weights, measures, &c." (recently published by
Wyman & Co., Calcutta) will also be found useful.

6. The scales shown in the annexed Memorandum are prescribed for
general adoption in the preparation of State Railway Projects.

7. All levels are to be referred to the datum used by the Great Trigono-
metrical Survey, viz., "Kurrachee mean sea-level".

(By order)

(Signed) E. C. S. WILLIAMS, Major, R. E.,
Deputy Secretary.

A. G. Hume Colonel,
In charge of the P. W. Dept. at the Presidency.

To the Secretary to Govt of India
P. W. Dept. (Railway)

P. W. 4959/71

iv. 1871 Report
No 4959.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

STATE RAILWAYS.

To

THE GOVERNMENTS OF MADRAS, BOMBAY,
BENGAL, THE NORTH WESTERN PROVINCES,
AND THE PUNJAB; THE CHIEF COMMIS-
SIONERS OF OUDH, THE CENTRAL PROVINCES,
BRITISH BURMAH, AND MYSORE AND
COORG; THE RESIDENT AT HYDERABAD;
AND THE AGENTS TO THE GOVERNOR
GENERAL FOR CENTRAL INDIA AND RAJ-
POOTANA.

CIRCULAR No. 15 RAILWAY.

Dated SIMLA, September 28, 1871.

Received 19 October 71

En: 2.

STATE RAILWAYS.

On the adoption of the metre as the gauge,
the introduction of the decimal system of
weights and measures, and subsidiary
matters.

P. W. D. Press—11-10-71—650.

No 516. 26th Feb 72
With order.

C.E. for R. P. 1871 Report
iv. 1871 Report
No 4959.

Communicated to the Consulting
Engineer for Railways.

No 516.

11/10/71

11/10/71

B. Colquhoun

Oct 4 1859
Govt. of 1871 Wading.

PUBLIC WORKS.

To the Hon. Committee on
for Railways

Date

Recd.

Encl. 2

G. O. 26th Feb. No. 516.

Nos. 405 & 406

Photo Rep. on Circulation
of the 1871 Census
the 1871 Census on the
Railways, of the 1871 Census
the 1871 Census of the introduction
of the decimal system of
weights & measures, Com.
of the 1871 Census for 1871.