M.R.O. 1—77,000—8-6-51.

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MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 2037 Press / Mis.

57-58

Dated 7—8— 1871.

Not to be folded or roughly handled

A

No. 57. Read the following Proceedings of the Government of India in the Public Works Department, (Buildings and Roads—Military,) dated Simla, 11th July 1871, No. 826—37—B—M :—

Governments of Madras, Bombay, Bengal, the North Western Provinces, and the Punjab, in the Public Works Department; the Chief Commissioners of Oudh, the Central Provinces, and British Burmah; the Resident at Hyderabad; the Agents of the Governor-General for Central India and Rajpootana; and the Superintendent of Port Blair.

Copy of the following forwarded to the Local Governments and Administrations noted on the margin for information. Special attention is invited to paragraph 6.

(By order,)

(Signed) C. W. HUTCHINSON, Colonel, R.E.,
Offg. Deputy Secy. to the Govt. of India.

No. 826 B—M.

To the Secretary to the Government of Madras in the Public Works Department.

Extract of a Military Letter from the Right Hon'ble the Secretary of State for India, No. 132, *dated* 18*th May* 1871.

Paragraph 4.—No steps can be taken to supply the Moncrieff carriages which you have demanded for 22 nine-inch guns, as no carriage on the Moncrieff principle has yet been approved for guns of that size, and experiments are still in process in this country.

5. In considering indents for stores for heavy guns, it would be of great advantage if detailed plans and drawings of the different forts could be furnished, in order that the Indian defences might have the benefit of improvements introduced in the coast and harbour batteries of England. I am informed that a variety of mistakes leading to extensive alterations have been discovered in the course of recent inquiries in the construction of coast defences.

6. Another point to which my attention has been forcibly directed is the importance of ensuring that in the design of works of this character the views of both the scientific branches of the army should be obtained. No design should be approved which has not met with the concurrence of officers of the Artillery as well as of the Engineers.

8. I transmit herewith, for your information, 20 copies of a list of stores required for rigging and erecting sheers for embarking, disembarking, mounting, or dismounting, guns of 25 tons or 12 tons.

No. 567, dated Simla, the 23rd June 1871.

Endorsed by the Military Department.

Copy of the above, accompanied by four copies of the list referred to in paragraph 8, forwarded to the Public Works Department for information.

List of stores for rigging and erecting sheers, for embarking, disembarking, mounting, or dismounting, guns of 25 *tons or* 12 *tons.*

The figures are marked "*a*" for the latter where there is any difference.

Description of Articles.				No.	Remarks.
Axes, pick, helved				4	
Bags, canvas, sand, common				§ 50	
Blocks, wood. Bothway's. 18-inch.			double ...	2	For guys.
			single ...	4	For guys.
			treble ...	4	For main tackle. *a*, 2 only for 12-ton guns.
		12-inch.	double ...	2	Runners for guys.
			treble ...	2	
	iron bound, snatch, 18-inch ...			2	

Description of Articles.	No.	Remarks.
Buckets, wood, water	1	
Capstans, crap, complete	2	For the guys.
Chains ... 1-inch short link, 12 fathoms ...	2	With hook and eye, or shackle and bolts for slings. *a*, 1 only required for 12-ton guns, 8 fathoms long.
Chains ... 1½-inch short link, 10 fathoms ...	2	For holdfasts.—*Vide* Plate. The ends of the chains to be fitted with rings of 5 inches interior diameter.
Cleats, wood, strong	20	
Cordage, tarred spun yarn ... ... lbs.	5	
Cordage, white hawser, 3 strand 6-inch fathoms falls rope	226 113*a*	For 2 main tackles. *a*, 1 only for 12-ton guns.
Cordage, tarred 4-inch 10 fathoms each.	16	For lashings.
Cordage, tarred 2½ ,, 5 ,,	10	
Cordage, white, 4-inch 35 fathoms long.	1	For lashing head of sheers.
Cordage, 4-inch white rope, 113 fathoms each	2	For guys.
Crabs, iron, double, purchase (winches, iron)...	2	Equal to a strain of three tons. Might be hired from Contractor.
Driver, pile, Swiss and rod	1	*Vide* 476 paragraph in Instructions in Military Engineering, and accompanying Plate.
Guys, rope, white, 6-inch 113 fathoms ...	2	
Hammers, sledge, smith's handled, 10 lbs. ...	1	
Handspikes, common, 7 feet	8	
Jacks, lifting, hydraulic, Tangye's to lift 10 tons	1	
Levers, wood, 12 feet	2	
Nails, iron spike, No. 2 ... ... lbs.	4	
Planks, wood	8	3 inch × 12 inch × 15 feet may be rough deal for holdfasts.—*Vide* Plate.
Post, picket, ash, garrison, 8 feet 6-inch diameter	32	A hole 2½ inches diameter, and from 9 to 12 inches deep, bored in the top for guide rod.—*See* Plate.
Rammers, earth	4	
Rollers, wood, elm, 6 inches × 3 feet	§ 3	
Ropes, foot, 6-inch, white 25 fathoms each ...	4	
Ropes, gasket, 9-inch, white 3 fathoms ...	4	
Ropes, parbuckling, 4½-inch, tarred (18, 15 or 12 fathoms.)	§ 2	
Saw, hand, 26-inch	1	
Scotches, wood, large	12	
Selvagees	8	
Shovels, helved universal	6	
Skids, wood, fir, square. 20 feet × 15 inches	§§ 4	
Skids, wood, fir, square. 4 ,, × 12 ,,	§§ 4	
Skids, ,, oak, 15 inches square (beams) ...	2	15 inches square and about 14 feet long, for holdfasts.—*Vide* Plate.
Slings, *12-inch white rope, fitted with 2 thimbles, one at each bight.	‡ 1	19 feet long when spliced. For head of sheers.
Slings, 6-inch white, 12 feet long	2	For fixing capstans for guy tackles.
Slings, 4 ,, ,, 4 ,, ...	2	
Spades, helved, common	6	
Spars, wood, complete, 45 feet...	2	Of at least † 20 inches diameter in the centre.
Straps, rope guy, 9-inch white, 15 feet, fitted with thimbles.	‡ 2	
Steps, or shoes, wood, for spars	2	
Tackles gyn, 3½-inch rope; or steadying ...	2	For steadying breach and muzzle.
Tackles luff, tarred, 2½-inch; 10 fathoms ...	2	

N. B.—12-inch slings to be fitted with 2 single thimbles one at each bight. *All* the thimbles to be of sufficient size to admit the hook of 18-inch block.

If the Sheers are to be erected on high parapets, the necessary calculations must be made to ascertain the length of the falls of the guys, main tackle, etc

† For 12-ton guns, with spars of { 45 feet, 17 inches / 40 feet, 16 inches } at the centre.

EXPLANATORY NOTES.

(1.) Stores marked thus ‡ will not be required with sheers fitted with head gear and wire guys.

(2.) Old guns can be used for fore and back gay-holdfasts, if sunk horizontally and secured; this will do away with the planks, 14 oak skids, and 8 posts, pickets, ash, garrison, 8 feet.—*Vide* Plate.

(3.) Planks, brushwood, or old timber must be placed under the shoes if in soft ground.

(4.) Extreme length is given to the foot-ropes, so that they may be used with sheers erected on masonry.

(5.) Stores marked thus § required for transporting the gun only.

(6.) If it is necessary to transport the gun on a temporary sledge, add to the above stores:—

Oak Skids ... { 2, 5′ × 5″ × 4″ / 2, 3′ × 9″ × 6″ / 2, 3′ × 4″ × 4″ }

Lashings (tarred) 4, 3½″ or 4″, 5 fathoms long.

Planks 8, hard wood 12″ × 3″ × 12′, for rollers to move on.

Rollers 4, 12″ × 8′, ends hooped with iron, hard wood.

The following additional stores will be required for dismounting or mounting with jacks, namely:—

Jacks, 3, each capable of lifting 10 tons.

For 25-ton Gun { Beam, breach 1, 10′ × 20″ × 9″ / Do., muzzle 1, 10′ × 10″ × 9″ } Oak.

For 12-ton Gun Do., breach 10′ × 15″ × 9″ } Oak.

Skids, fir ... 4, 6′ × 12″ × 12″

Do. ... 6, 4′ × 12″ × 12″

Planks, Oak ... 4, 6′ × 12″ × 3″

Do. ... 6, 4′ × 12″ × 3″

Oil Can ... 1,

Skids, fir, 20′ by 9″ square, for removing slide on rollers; or, transporting axle and limber, for removing slide and carriage.

List of stores for rigging and erecting a derrick for raising sheers, for embarking, disembarking, mounting, or dismounting, guns of 25 tons.

Description of Articles.	No.	Remarks.
Axes, pick, helved	2	
Blocks, wood, Admiralty, iron bound, 18-inch snatch.	2	Those supplied for the sheers can be used.
Cordage, tarred, spun yarn .. ... lb	1	
Cordage, tarred 4½-inch, 25 fathoms each ...	1*	For guys.
Cordage, white 4 inch, 5 fathoms each ...	4	For lashings.
Cordage, white 2½ ,, 5 ,, ,, ...	6*	For lashings.
Cordage, white 2 ,, 10 ,, ,, ...	1	For lashings.
Mauls, wood, common, helved	5	
Posts, picket, ash, garrison, 5 feet, 3½ inches diameter.	18*	
Ropes, foot, 3½ inch, white, 15 fathoms each	2*	
Ropes, gasket, 6-inch, white, 3	1*	That used with the sheers will answer.
Selvagees...	4	
Shovels, helved, universal	2	
Spades, helved, common	2	
Spars, wood, derrick, 35 feet	1*	35 feet long, 12″ diameter at foot.
Steps, or shoes, wood, for spars	1*	
Tackles, luff, tarred, 2½-inch rope, 10 fathoms...	4	

N. B.—Where the sheers have to be erected on the top of towers, a double supply of store marked, * for two derricks, would be required; the guys would require to be longer, and two gyn tackles, 3½-inch falls, supplied for lifting the sheers; the length of the guys and of the falls of the gyn tackles would depend on the height of the work above the surrounding country, each fall being about eight times, and each guy about six times, the sum of the heights of the tower and derrick.

The ordinary holdfasts, made with pickets driven and supported by other pickets in rear, are not sufficiently strong to resist the strains put upon them in lifting heavy guns, and it is necessary to adopt other methods.

In any stratum, excepting rock, a hole (*b b f g*) can be dug 15′ × 4′ × 4′ and 4 planks, *b b b b*, placed on edge against the side nearest the points from which the strain is to come.

Four pickets 8′ × 6″ diameter, *a a a a*, are driven behind the planks at intervals 3′ 6″ apart, to a depth of 3′ below the bottom of the trench.

One-third of the trench is now filled in, and a beam about 15′ × 12″ × 12″ *(c)* is placed horizontally against the four pickets, so that it will press against their centres.

The centre of chain, 1″ or more in diameter, is fastened round the centre of the beam, and the two ends are brought between the second and third planks, through a narrow trench cut at right angles to the original one, to the surface, the trenches are then filled in and the strain taken in the two ends of the chain.

If pickets of the size named are not at hand, pieces of fir scaffold poles (uphirs) can be used; both these and the pickets can be driven by a Swiss pile-driving machine, described in Instructions in Military Engineering, paragraph 476, and below.

The pickets or pile to be driven requires to have a hole bored in the centre of the head to a depth of 9″ and of 2½″ diameter; into this a guiding rod *(d)* of 2″ iron 6′ long is temporarily placed, and a monkey (e), of the form shown in the figure, works up and down on it; the monkey weighs about 133 lbs., and is worked quickly by four men.

A hole (d) of 2½″ diameter, is bored down the centre of the monkey, and burnt smooth.

This monkey can be supplied or made on the spot, to be used instead of a "pile-driving machine."

No. 58. ORDER THEREON 7th August 1871, No. 2,037.

MILITARY WORKS, No. 1.

COMMUNICATED to the Superintending Engineers.

(True Extract.)

(Signed) A. deC. SCOTT, Captain, R.E.,
Under Secretary to Government.

To all Superintending Engineers.
To Major R. B. Kennedy.
To the Military Department.

Exd. S. T. Augustin.

GOVERNMENT OF INDIA.

PUBLIC WORKS DEPARTMENT.

BUILDINGS & ROADS.
Military.

To

THE GOVERNMENTS OF MADRAS, BOMBAY, BENGAL, THE NORTH-WESTERN PROVINCES, AND THE PUNJAB, IN THE PUBLIC WORKS DEPARTMENT; THE CHIEF COMMISSIONERS OF OUDH, THE CENTRAL PROVINCES, AND BRITISH BURMAH; THE RESIDENT AT HYDERABAD; THE AGENTS OF THE GOVERNOR GENERAL FOR CENTRAL INDIA AND RAJPOOTANA; AND THE SUPERINTENDENT OF PORT BLAIR.

Nos. 826—37 B—M.

Dated Simla, 11*th July* 1871.

Received 27th July 1871

Encl. 1.

Designs of Forts to be scrutinized and approved by Artillery as well as Royal Engineer Officers.

C. No. 3587.

Govt of India Madras.

PUBLIC WORKS.

To All Superintending Engineers

Dated

Read. Pd.

G. O. 7th Augt. No. 2037.

Nos. 57458

Designs of Forts.

Circular from the Govt of India that designs of Forts should be scrutinized and approved by Artillery as well as Royal Engineer Officers. Communicated to the Supg Engineers &c