M.R.O. 1—77,006—8-6-37.

(1) Number of pages 31

(2) Date of repair 11 7 44

(3) Initials of the Referencer

MADRAS RECORD OFFICE.

Government of Madras.

Public Works DEPARTMENT.

G.O. No. 3107 Press / Mis.

182-161

Dated 9 12 1871.

Not to be folded or roughly handled

Read the following papers:—

No. 152. From the Acting Superintending Engineer, 1st Division, to the Secretary to Government, Public Works Department, dated Dowlaishweram, 1st September 1871, No. 1,778.

In reply to G. O. of the 7th August 1871, No. 2,040, I have the honour to observe that I do not consider that in this Presidency any great changes are required to keep the Superintending Engineers well acquainted with the progress of a work. Our Progress Reports are so arranged that the authority and date of sanction of any work, the amount of expenditure, if any, in previous years, the allotment for the current year, and the month in which this was made, the outlay in any month, and the total outlay up to date of any Progress Report, can be seen at a glance almost. In preparing this form every endeavour was made to have it as simple as possible, and free from all petty details, so that the general course of the expenditure might be clearly traced as frequently as possible. It was originally intended that the column of remarks should contain, in each month, in lump sums the sub-heads of the estimate to which the outlay for that month belonged. With this information before an officer the average rate of cost of a work can be easily ascertained, this practice has discontinued of late years, I presume, because some more time is required to prepare the reports in so complete a form, but it would be well worthwhile to give another week for this work, and secure an efficient check on the expenditure as it is being incurred.

2. Our Progress Reports also show the dates of last inspection of all works entered in the Progress Report, and this enables a Superintending Engineer to observe at once if the progress of a work is being carefully watched by an Executive Engineer, and to call for any explanation he may consider necessary.

3. My own experience in the Department is that no better plan can be adopted by a Superintending Engineer, than to do as Sir A. Cotton did on these works, and that is to visit the Range Officers as often as possible, and with them go into the details of the works; this is now almost impossible from our being cumbered with such a mass of office details and correspondence; but to give the Government satisfaction, and make his subordinates take an interest in their duties, a Superintending Engineer should be on the works as much as possible, and obtain the information he requires on the spot for himself.

No. 153. From the Superintending Engineer, 2nd Division, to the Secretary to Government, Public Works Department, dated Bazorah, 21st August 1871, No. 62.

Referring to G. O., No. 2,040, 7th August, I have the honour to enclose the form of Comparative Statement ordinarily used as answering the requirements of Government.

1 Statement.

2. I am not clear that G. O., No. 2,049, dated 9th August, does not supersede the necessity for this reply, but no reference to the former is made in the latter.

*Comparative Statement of*_____

Description of Charges.	As per original Estimate sanctioned in G. O., No. , dated			Work executed up to			Work to be executed.			Total as per revised Estimate.			Increase.	Decrease.	Remarks.
	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.	Quantity.	Rate	Amount.	Quantity.	Rate.	Amount			

No. 154. From the Superintending Engineer, 3rd Division, to the Secretary to Government, Public Works Department, dated Bellary, 1st November 1871, No. 1,464.

I have the honour with reference to G. O., No. 2,040, dated 7th August last, to inform that works generally in this division are not so large as to call for the introduction of special Work Registers, and as I have every reason to believe that the system referred to in paragraph 2 of G. O. under reply is followed in all ranges, such a Register as is referred to in the Circular of the Government of India can easily be adopted on a form being decided upon.

No. 155. From the Superintending Engineer, 4th Division, to the Secretary to Government, Public Works Department, dated Madras, 7th September 1871, No. 2,413.

Agreeably to paragraph 3 of G. O., No. 2,040, dated 7th August 1871, I have the honour to enclose a form of statement which I would recommend should be submitted by each Range Officer executing large projects.

1 Form of Statement.

2. I think it will be sufficient if the statement be sent in quarterly.

Range.	Name of work.	Amount of Estimate.	When and by whom sanctioned.	Estimated cost.					Actual cost.			Difference.		Remarks showing state of progress.
				Sub-head of Estimate.	Item of work.	Quantity.	Rate.	Amount.	Quantity.	Rate.	Amount.	Increase.	Decrease.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

No. 156. From the Officiating Superintending Engineer, 5th Division, to the Secretary to Government, Public Works Department, dated Salem, 1st November 1871, No. 173.

In answer to G. O., No. 2,040, dated 7th August 1871, requesting an expression of opinion as to the best means of preserving agreement of actual with estimated cost of work, I have the honour to report that I consider nothing can be better or simpler than our present form of Comparative Statement, submitted monthly, quarterly, or half yearly, as the case may require.

2. The order of the Government of India calling for a report on this matter seems mainly to concern a case in which a work is of such magnitude as to lie in more than one executive charge or division; cases of this kind are in this Presidency likely to be very rare, and I therefore apprehend that very little further demand will, in regard of the point in question, be made on the time of Executive Officers and establishments, otherwise I would venture to suggest that the correspondence of, and number of returns furnished by, Executive Officers, has increased enormously, and year by year, since the present re-organization of the Department, and that the tendency is to further increase of the same without reference to, or consideration of, the capabilities of the several establishments; many new returns and statements are annually called for, but it is rarely or never that one is ordered to be discontinued.

No. 157. From the Superintending Engineer, 6th Division, to the Secretary to Government, Public Works Department, dated Tanjore, 14th August 1871, No. 427.

With reference to G. O., No. 2,040, dated the 7th instant, I have the honour to inform you that I am of opinion that the information which the Government of India consider it expedient that the Superintending and Chief Engineers should have regarding the agreement of actual with estimated cost of large works of Irrigation and Navigation, can best be obtained in the form* given for the Registers of Works in the Controller's Manual of Forms of Accounts, the headings regarding the sub-divisions of work being modified according to the nature of each work. As the working season in this division closes about the end of June, and as the Superintending Engineer has ample opportunities, during his tours of inspection, of enquiring into, and ascertaining from, the Registers of Works maintained in the Range Offices any tendency to excess on large works, I would propose that the information be supplied by Range Officers half-yearly on the 30th June and 31st December in the form above suggested for all large works exceeding Rupees 20,000 each.

* B. B. I.

No. 158. From the Acting Superintending Engineer, 7th Division, to the Secretary to Government, Public Works Department, dated Coimbatore, 27th October 1871, No. 166.

With reference to G. O., No. 140 of 19th October, I have the honour to submit a Form which, in my opinion, affords the information required, and is, I consider, a much more useful one than the B. B. I. form of Register of Works.

FORM.

Register of Works in the Coimbatore Range, Coimbatore District, Coimbatore Channel, *sanctioned in G. O., No.* *of*

Sub-heads of the Estimate.	Per.	Estimate. Quantity.	Estimate. Rate.	Estimate. Amount.	Expenditure in this Month. Quantity.	Expenditure in this Month. Rate.	Expenditure in this Month. Amount.	Expenditure up to this Month. Quantity.	Expenditure up to this Month. Rate.	Expenditure up to this Month. Amount.	Remarks.
Earthwork	Cubic yard	10,600	Rs. A. P. 0 2 0	Rs. A. P. 1,325 0 0	10,600	Rs. A. P. 0 2 6	Rs. A. P. 1,656 4 0	10,600	Rs. A. P. ...	Rs. A. P. 1,656 4 0	Completed.
Do.	do.	15,000	0 3 0	2,812 8 0	10,050	0 2 9	1,727 5 6	15,000	...	2,578 2 0	Do.
Do.	do.	20,220	0 4 0	5,055 0 0	1,000	0 4 0	400 0 0	15,000	...	3,900 0 0	In progress.
Bridge work of 1 arch of 30 feet span over the channel.											
Rough stone in mortar.	Cubic yard.	30	3 0 0	90 0 0	.....	...	.....	30	3 0 0	90 0 0	Completed.
Do. do.	do.	52	3 8 0	182 0 0	.....	...	.....	52	4 0 0	208 0 0	Do.
Arch work, brick in do.	do.	75	7 0 0	525 0 0	75	7 0 0	525 0 0	75	7 0 0	525 0 0	Do.
Plastering with chunam	Square.	28½	3 0 0	85 8 0	28½	3 0 0	85 8 0	28½	3 0 0	85 8 0	Do.
Coatings	R ft.	30	5 0 0	150 0 0	30	5 0 0	150 0 0	30	5 0 0	150 0 0	Do.
Metalling the roadway.	Cubic yard.	17	1 0 0	17 0 0	.....	...	.....	.....	...	.....	In progress
Excavating foundation.	do.	60	0 2 6	9 6 0	.....	...	.....	70	0 2 6	10 15 0	Completed.
Escape Weir, 12 feet lodge.											
Rough stone in mortar.	do.	50	3 0 0	150 0 0	.....	...	.....	.....	...	.....	
Cut stone	Cubic feet.	18	0 8 0	9 0 0	.....	...	.....	.....	...	.....	
Concrete footing to apron	Cubic yard	12	2 8 0	30 0 0	.....	...	.....	.....	...	.....	In progress.
Upright stones well (3' × 1' × 8") grooved	Pair.	4	3 0 0	12 0 0	.....	...	.....	.....	...	.....	
Wooden shutters ...	Cubic feet.	6	3 0 0	18 0 0	.....	...	.....	.....	...	.....	
Excavating foundation.	Cubic yard	28	0 2 6	4 6 0	.....	...	.....	28	0 2 6	4 6 0	Completed.
Sundries	Cent.	...	5 0 0	525 4 0	.....	...	120 4 0	.....	...	429 10 6	
	...	...		11,099 0 0	.....	...	4,731 5 6	.....	...	9,628 13 6	

COIMBATORE,
27th October 1871.

(Signed) W. FAREWELL, Lieutenant Colonel, S. C.,
Acting Superintending Engineer, 7th Division.

No. 159. From the Superintending Engineer, 8th Division, to the Secretary to Government, Public Works Department, dated Camp at Sholapoorum, 19th September 1871, No. 2,222.

In reference to G. O. of the 7th August 1871, No. 2,040, enquiring as to the manner in which the orders of the Government of India can best be carried out in this Presidency in respect to large works of Irrigation and Navigation, I have the honour to enclose a form which I consider will most readily and thoroughly afford the required information.

FORM.

Project for the diversion of the Perryaur. Amount of Estimate Rupees . Sanctioned in G. O., No. , dated

NORTHERN MAIN CHANNEL, MILES 1 TO 5 INCLUSIVE.

Abstract Statement showing the Progress made with, and the cost of, the works in the first reach up to the end of April 1870.

Abstract of the Estimate. Quantities in Cubic yards.	Description of work.	Rate.	Amount.	Works executed up to date and paid for. Quantity or Number.	Expenditure.	Works executed up to date but not paid for. Quantity or Number.	Amount due to Contractors and workmen.	Total work executed up to date. Quantity.	Expenditure.	Average cost of work up to date.	
		Rs. A. P.	Rs. A. P.		Rs. A. P.		Rs. A. P.		Rs. A. P.	Rs. A. P.	
30 C. yds.	Dressed Gneiss	25 0 0	750 0 0	15 C. yds	375 0 0	10 C. yds.	250 0 0	25 C. yds.	625 0 0	24 8 0	C. yards.
300 ,,	Dressed Ashlar	15 0 0	4,500 0 0	200 ,,	3,000 0 0	50 ,,	750 0 0	250 ,,	3,750 0 0	14 12 0	Do.
1,000 ,,	Roughly dressed Ashlar ...	11 8 0	11,500 0 0	600 ,,	6,900 0 0	200 ,,	2,300 0 0	800 ,,	9,200 0 0	11 4 0	Do.
1,000 ,,	Cyclopean rubble in mortar ...	7 0 0	7,000 0 0	700 ,,	4,900 0 0	100 ,,	700 0 0	800 ,,	5,600 0 0	6 8 0	Do.
800 ,,	Brick in Mortar	6 0 0	4,800 0 0	500 ,,	3,000 0 0	100 ,,	600 0 0	600 ,,	3,600 0 0	5 12 0	Do.
5,000 ,,	Rubble in Mortar	5 8 0	27,500 0 0	3,500 ,,	19,250 0 0	1,000 ,,	5,500 0 0	4,500 ,,	24,750 0 0	5 6 0	Do.
800 Sqrs.	Pointing	1 0 0	800 0 0	200 Sqrs.	200 0 0	50 Sqrs.	50 0 0	250 Sqrs.	250 0 0	0 14 0	Sqrs.
1,500 C. yds.	Rubble apron	2 8 0	3,750 0 0	1,000 C. yds.	2,500 0 0	300 C. yds.	750 0 0	1,300 C. yds.	3,250 0 0	2 14 0	C. yards.
150 ,,	Pitching	3 0 0	450 0 0	100 ,,	300 0 0	30 ,,	90 0 0	130 ,,	390 0 0	2 12 0	Do.
800 ,,	Concrete	4 0 0	3,200 0 0	500 ,,	2,000 0 0	200 ,,	800 0 0	700 ,,	2,800 0 0	3 12 0	Do.
400 ,,	Filling in	0 4 0	100 0 0	200 ,,	50 0 0	150 ,,	37 8 0	350 ,,	87 8 0	0 3 0	Do.
500 ,,	Clay puddle	0 8 0	250 0 0	300 ,,	150 0 0	150 ,,	75 0 0	450 ,,	225 0 0	0 7 0	Do.
80,000 ,,	Gravel cutting	0 2 6	12,500 0 0	40,000 ,,	6,250 0 0	20,000 ,,	3,125 0 0	60,000 ,,	9,375 0 0	0 2 8	Do.
75,000 ,,	Cutting (hard gravel) ...	0 2 9	12,890 10 0	37,500 ,,	6,445 5 0	18,750 ,,	3,222 10 6	56,250 ,,	9,667 15 6	0 2 6	Do.
40,000 ,,	Do. gravel	0 2 3	5,625 0 0	20,000 ,,	2,832 8 0	10,000 ,,	1,416 4 0	30,000 ,,	4,248 12 0	0 2 0	Do.
10,000 ,,	Gravel cutting	0 2 0	1,250 0 0	5,000 ,,	625 0 0	2,500 ,,	312 8 0	7,500 ,,	937 8 0	0 1 9	Do.
23,000 ,,	Cutting (ordinary soil) ...	0 1 3	1,796 14 0	11,500 ,,	898 7 0	5,750 ,,	449 3 6	17,250 ,,	1,347 10 6	0 1 6	Do.
100,000 ,,	Do. (sandy)	0 1 0	6,250 0 0	50,000 ,,	3,125 0 0	25,000 ,,	1,562 8 0	75,000 ,,	4,687 8 0	0 0 9	Do.
40,000 ,,	Banking	0 2 0	5,000 0 0	20,000 ,,	2,500 0 0	10,000 ,,	1,250 0 0	30,000 ,,	3,750 0 0	0 1 9	Do.
4,000 ,,	Puddling	0 4 6	1,125 0 0	2,000 ,,	562 8 0	1,000 ,,	281 4 0	3,000 ,,	843 12 0	0 4 8	Do.
60,000 ,,	Tamping	0 0 2	625 0 0	30,000 ,,	312 8 0	15,000 ,,	156 4 0	45,000 ,,	468 12 0	0 0 1½	Do.
6,000 ,,	Rough stone pitching ...	2 0 0	12,000 0 0	3,000 ,,	6,000 0 0	1,500 ,,	3,000 0 0	4,500 ,,	9,000 0 0	1 14 0	Do.
1,500 ,,	Gravel backing	0 4 0	375 0 0	500 ,,	125 0 0	500 ,,	125 0 0	1,000 ,,	250 0 0	0 3 6	Do.
50,000 Sq. yds.	Turfing	0 0 9	2,343 12 0	25,000 ,,	1,171 14 0	12,500 ,,	585 12 0	37,500 ,,	1,757 13 0	0 0 8	Sqr. yards.

NOTE.—This Statement should be despatched to the Superintending Engineer monthly.

No. 160. From the Special Executive Engineer, Wynaad, to the Secretary to Government, Public Works Department, dated Vythery, 23rd August 1871, No. 411.

In reply to G. O., No. 2,040, dated 7th instant, I have the honour to reply that in this district there are no works of the large description contemplated in the above, but, as regards the general question, the form observed in the Work Register would, I should say, answer every purpose if a line were left for explanatory remark.

Name of work.

Sub-heads.	Foundation masonry.		Superstructure.		Centering.	
	Quantity.	Cost.	Quantity.	Cost.	Quantity.	Cost.
Estimated amount as sanctioned						
Work executed to date ...						
Remarks						

No. 161. Order thereon, 9th December 1871, No. 3,107.

ACCOUNT, No. 11.

The papers above referred to will now be forwarded to the Controller of Public Works Accounts and to the Chief Engineer for Irrigation, with a view to their selection of a form embodying the information considered necessary by the Government of India, after due consideration of the remarks and suggestions of the several Superintending Engineers.

2. It is necessary that the particular circumstances under which it is proposed to demand this information should be kept fully in view. It is required in order to enable Chief or Superintending Engineers in charge of large projects to detect not alone actual, but also impending excesses on the original estimates, whether owing to enhancement of the rates, to under-estimation of the quantities of work required, or to any other of the ordinary causes, and it is further thought desirable to ensure more fully than before that deviations from the estimate in the distribution of the proposed outlay over the several items or sub-divisions of a project should not pass unquestioned.

3. One of the officers who have recently been consulted on the subject suggests that the present form of Monthly Progress Report, with the addition in lump sums of the sub-heads of the estimate to which the outlay for the month belonged, would suffice for the purpose in view, but as neither the quantity nor rate in the estimate, nor the quantity, rate, and outlay of the month on the several sub-heads is proposed to be inserted, and as consequently excess in the expenditure on a sub-head, or in the rates paid would not necessarily be detected by an inspection of such a document, the arrangement is not sufficiently complete.

The Superintending Engineer of the 2nd Division forwards a form of Comparative Statement, ordinarily used, as answering the requirements of the Supreme Government, and the Officer in charge of the 5th Division makes a similar sugges-

tion. The information given in this document, which is supposed invariably to accompany revised estimates of works of any importance, is very complete. It exhibits the quantity, rate, and cost of each description of work as originally estimated, of that actually constructed; the quantity, rate, and cost under each sub-head required to complete the structures (again estimated from actual measurement), and the total estimated cost also in detail as revised. The preparation of such an abstract is however a laborious process, and is in reality only necessary when it becomes expedient to submit revised estimates. The form is therefore ill-calculated for use as a periodical return.

Two Officers express an opinion that the 'Register of Works' kept in all ranges gives the necessary information, and one of them proposes that it should be furnished half-yearly to the Superintending Engineer. The form referred to shows the expenditure on a work during each month or other period, under each sub-head of the estimate, and compares the total expenditure to date with the estimate. All this should be known and constitutes most of the information necessary, but something more could be inserted with advantage, and moreover the form itself would require re-arrangement to adapt it for use on any work of magnitude, such as is contemplated in the Circular of the Government of India.

The other Officers, to whom reference has been made, severally forward forms of statement which they propose for adoption; but though all of them would answer the purpose in view to a greater or less extent, none would do so as fully as is desirable.

4. The three forms now in use in this department and to which allusion has been made by the Superintending Engineers, namely, 'the Comparative Statement,' the 'Register of Works,' and the 'Progress Report,' though they are intended to subserve different purposes, have much in common in respect of the information which they severally contain, and it is considered that a statement or form of Progress Report, which should be to some extent a combination of the three, would not necessarily be voluminous, and would probably best answer the purpose in view.

The Progress Report which has during past years and up till now been required by Government from the Madras Irrigation and Canal Company is the result of practical experience as to the necessities in the case of the construction of large works, and though that Return might probably be modified with advantage a reference to it would supply useful information as to what details are really required and can readily be supplied.

(True Extract.)

Colonel, R.E.,
Secretary to Government.

To the Acting Chief Engineer for Irrigation.
To Superintending Engineers.
To the Controller of Public Works Accounts.
Exd. S. T. Augustin.

SUPERINTENDING ENGINEER'S OFFICE, 1ST DIVISION.

DOWLAISHWARUM, 1st September 1871

No. 1778

From

Major J. Fischer R.E.

Acting Superintending Engineer

1st Division

To

Colonel J. Carpendale R.E.

Secretary to Government D. P. W.

MADRAS

SIR,

In reply to G.O. of the 7th August 1871 No. 2040, I have the honor to observe that I do not consider that in this Presidency any great changes are required to keep the Superintending Engineers well acquainted with the progress of a work. Our Progress Reports are so arranged that, the authority and date of sanction of any work, the amount of expenditure, if any, in previous years, the allotment for the Current Year, and the month in which this was made, the outlay in any month, and the total outlay upto date of any Progress Report, can be seen at a glance almost. In preparing this form, every endeavour was made to have it as simple as possible, and free from all petty details, so that, the general course of the expenditure might be clearly traced as frequently as possible

possible; It was originally intended that the Column of Remarks should contain in each month in lump sums, the sub-heads of the Estimate to which the outlay for that month belonged. With this information before an Officer, the average rate of Cost of a work can be easily ascertained, this practice has ~~——~~ discontinued of late years I presume, because some more time is required to prepare the Reports in so complete a form. but it would be well worth while to give another week for this work, and secure an efficient check on the expenditure as it is being incurred.

4th. The Progress Reports also show the dates of last inspection of all works entered in the Progress Report, and this enables a Superintending Engineer to observe at once, if the progress of a work is being carefully watched by an Executive Engineer, and to call for any explanation he may consider necessary.

3/. My own experience in the Department is that, no better plan can be adopted by a Superintending Engineer, than to do as Sir A. Cotton did on these works, and that is, to visit the Range Officers as often as possible, and with them go into the details of the works - this is now almost impossible from our being cumbered with such a mass of Office details and correspondence, but to give the Government satisfaction and make his subordinates take an interest in their duties, a Superintending Engineer should be on the works as much as possible, and obtain the information he requires on the spot for himself.

I have the honor to be
Sir.
Your most Obt. Servant
Wm. T. Trichinx Major R.E.
Acting Supt. Engineer 1st Div.

No 62

Superintending Engr Office
2nd Div Bellary
21st August 1871

From Colonel F. J. Moberly R.E.
Superintending Engineer 2nd Div.

To. Colonel J. Carpendale R.E
Secretary to Government
P.W.D. Public Works.
Madras.

Sir

Referring to G.O. No 2040 7th Augt
I have the honor to enclose the form of
Comparative statement ordinarily used
as an answer the requirements of Govern-
ment.

2 I am not clear that G.O. No 2049
dated 9th August does not supersede
the necessity for this reply but no reference
to the former is made in the latter.

I have the honor to be
Sir
Your most Obt Servant

F. J. Moberly
Col R.E
Superintending Engineer 2nd Div

Enclosure
1 Statement

Rec'd Aug 25th 1871

P.W. No 1871 Received
From Superintending Engr
No 4242
Bellary Aug 23
The Secretary to Govt
1st Division
To The Secretary to Govt
P.W. Dept
Madras

Dated Bellary 23rd August 1871.
Rec'd 25th Augt 1871
No 1790

Expressing opinion that
no other than the system
by which Accounts is
kept necessary to afford the
means of ensuring
adherence of Subdl
Officers with the Estimates
of Work.

No 3107-9 "Recd"

C/o 152

No 153

No 9 Aug 71 1863-64
9 ——— 66-80

P.W. 1871 Dept
Offg or Wor Offs No 401
Exd Com
The Supdg Engineer
2nd Division
To
The Secretary to Govt
P.W.D. Madras

Dated at Bangalore 21st August 1871
Recd 28th Augt 71.

Encls 7 Sl

Enclosed a form of Comparative Statement ordinarily used to answer any the requirements of G.O. No 2040

No 3107-9 Dated 21st Augt 71

Comparative Statement of . . .

Description of Charges	Work as originally proposed & estimated to be executed up to . . .				Work to be executed			Total as per Revised Estimate			Increase	Decrease	Remarks
	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount	Quantity	Rate	Amount			

No. 1164 Superintending Engineer's Office.
3rd Division.
Bellary 1st November 1871.

From,

The Superintending Engineer
3rd Division.

To,

The Secretary to Government
Public Works Depte
Madras.

Sir,

I have the honor with reference to G.O. No 2040 dated 7th August last, to inform that works generally in this Division are not so large as to call for the introduction of Special work Registers - and, as I have every reason to believe that the system referred to in para 2 of G.O. under reply is followed in all Ranges, such a Register as is referred to in the Circular of the Government of India can easily be adopted on a form being decided upon.—

I have the honor to be
Sir
Your most obedient Servant

L. Alston Lieut Colonel R.E.
Superintending Engineer 3rd Div.

Enclosures.

P.W. 4012/71

Form of
Register alluded
to in letter
dated 1st November

Supt. Engr. Office 4th Divn
Madras 7th September 1871

No. 2413.

From,

Colonel C. V. Walkiecson R.E.
Superintending Engineer 4th Divn

To,

Colonel J. Carpendale R.E.
Secretary to Government P.W.D.

Sir,

Agreeably to para 3 of G.O. No. 2040 dated 7th August 1871, I have the honor to enclose a form of Statement which I would recommend should be submitted by each Range Officer executing large projects.

2 I think it will be sufficient if the Statement be sent in quarterly.

I have the honor to be
Sir
Your most obedient Servt.

C. V. Walkiecson Col R.E.
Supt Engr 4th Divn

Enclosure
& Form of Statement

P

Rec'd Aug 1st 63

P.W. 1871 Received
From, Supt Engr 4th Circle
No. 5274
The Superintending Engineer
3rd Division
To,
The Secretary to Government
Public Works Dept
Madras
No. 4665
Dated 7-9-71
Received 8-9-71
ENCLOSURES:

Explaining with reference to G.O. No 2040 of 7th August 1871, that the accompanying Division are not to be supposed to necessarily to undergo inspection by Executive Engineers of Circles

No 5107-9 dtd 7-9-71

Ack'd

Rec'd Aug/71 No 63-64

Dr. 1871 Dept Letters

From, No: 4246.

The Superintending Engineer
4th Division

To,

The Secretary to Government
Public Works Deptt

Dated 7/8 Septr 1871

Rec'd 8/8 Septr 1871

Encl: ans. No. 2413

Enclosing a form of Statement & circd recommending that the same should be submitted by each Range Officer executing large projects

No: 3107. 9th Dec/71

No 154

12

Name	1	Name of work	2	Amount of Estimate	3	Allow'd by Auditors	4	Estimated Cost	Actual Cost			Differences		Remarks
										12		Increase	13.	Decrease 14.	Admitted to Settlement 15
Sale Head of Estimate	5	Name of work	6	Amount of Estimate	7	Allow'd by Auditors	8	Estimated Cost	Actual Cost	9	10	Increase	11	Decrease	Remarks

Estimated Cost

D.O. No. 4249/71

No. 173.

Supg. Engrs Office 5th Dn
Salem 1st November 1871.

14

From

The Offg. Superintg. Engineer
5th Division,

To

The Secretary to Government
P.W.D.

Sir,

In answer to G.O. No. 2040 dated 7th August 1871 requesting an expression of opinion as to the best means of preserving agreement of actual with estimated cost of work, I have the honor to report that I consider nothing can be better or simpler than our present form of Comparative Statement, submitted monthly, Quarterly or half Yearly, as the case may require.

2. The order of the Government of India calling for a report on this matter seems mainly to concern a case in which a work is of such magnitude as to lie in more than one Executive charge or

division; Cases of this kind are in this Presidency likely to be very rare and I therefore apprehend that very little further demand will in regard of the point in question be made on the time of Executive Officers and Establishments, otherwise I would venture to suggest that the correspondence of, and number of returns furnished by, Executive Officers has increased enormously and year by year, since the present Re-organization of the Department, and that the tendency is to further increase of the same without reference to, or consideration of, the capabilities of the several Establishments; many new Returns and Statements are annually called for, but it is rarely, or never that one is ordered to be discontinued.

I have the honor to be
Sir,
Your most Obt. Servt.
Edward Bertie Capt. R.E.
Offg. Supg. Engineer
5th Div.

"division". Cases of this kind are in this

Pay & Accts / 31 March 63-64

Public Works 1st Department
Proceedings for Dec.
No. 5368.

From
The Offg. Supdg. Engr.
5th Division
To
The Secty. to Government
Pubc Department

Dated 12th November 1863.
Rec'd 14th

No. 173.

Agreement of actual with estimated cost of work

Expressing opinions as to the best mode of preserving agreement of actual with estimated cost of such work

No. 3107-9 Dec 63.

No 156

No. 427.

Supdg. Engr's office 6th Dec 63
Tanjore — 14th August 63

From,

Captain R. F. Fowke R.E.
Supdg. Engineer 5th Div.

To,

Colonel C. J. Carmichael R.E.
Secretary to Govt. P.W.D.
Madras.

Sir,

With reference to G.O. No. 2040 dated the 7th instant, I have the honor to inform you that I am of opinion that the information which the Government of India consider it expedient that the Superintending and Chief Engineers should have regarding the Agreement of actual with Estimated cost of large works of Irrigation & Navigation can best be obtained in the Forms given for the Registers of Works in the Controller's Manual of Forms & among the headings regarding the Subdivision

13 13

Received 18th Feb.

of work being modified according to the nature of each work. As the working season in this Division closes about the end of June & as the Supg Engineer has ample opportunities during his tours of inspection & enquiring into & ascertaining from the Registers of works maintained in the Range Offices any trudging to Execs on large works, I would propose that the information be supplied by Range Officers half yearly on the 30th June & 31st December in the form above suggested for all large works &c. exceeding Rs. 20,000 each.—

I have the honor to be
Sir,
Your most obdt Servt
[illegible] Capt R.E.
Supg Engineer 6th Dn

Proj Cauvery/71 & 63-64

No 157

Supdt Engineers Office &c
Coimbatore 24th October 1871.

From Colonel H. Farewell S.C.
Offg Supdt Engineer &c

To Colonel J. Carpendale R.E.
Secretary to Govt P.W.D

Sir,

With reference to G.O No 140 of 19th October, I have the honor to submit a form, which in my opinion, affords the information required, and is considered a much more useful one than the BB I form now in Report at present.

I have the honor to be,
Sir,
Your most obedt Servant
H. Farewell
Offg Supdt Engr 4th Circle

Rec'd 18th Oct 71 Dept
Regd No 3867.

The Supdt Engr 2nd
Circle

For
The Secretary to
Govt No D. P. Wks

Dated 14
Rec'd 16 Aug 72

No 3107 - 9 Dec 71

Reports, with reference to G.O.No 2040 dated the 7th Aug 71, as to the manner in which information regarding the Agreement of actual with Estimated cost of large works of Irrigation and Navigation, can best be obtained -

Rec'd 19 Oct 71 No 140 Rec'd

P.W. 1871 Despatch
Rec'd from Govt Gen Secy
No 5169.

From
The Supdg Engineer
7th Division

To The Secretary to Govt
P.W.D. Madras

No 166
Dated 27
No 313 October 1871
Encl.

Forwards Abstr
of Register of works
with reference to Govt
No 140 of 19th October 71

No 188

No 3107 - 9th Dec 71.

Form 29

Register of Works in the Coimbatore Range. Coimbatore District.

Coimbatore Channel Sanctioned in G.O. 810 of

Sub Heads of the Estimate.	Per	Estimate Quantity	Rate	Amount	Expenditure in this month Quantity	Rate	Amount	Expenditure up to this month Quantity	Rate	Amount	Remarks
Arch Work	Cyd	10600	" 2 "	1325 "	10600	2 6	1656 4	10600	" " "	1656 4	Completed
Do	Do	15000	" 3 "	2812 8	10050	2 9	1727 5 6	15000	" " "	2578 2	Do
Do	Do	20220	" 4 "	5055 "	1600	1 "	400 "	15600	" " "	3900 "	In progress
Rubble Work of 1 Arch of 30 ft Span over the Channel											
Rough Stone in Mortar	Cyd	30	3 "	90 "	"	"	"	30	3 "	90 "	Completed
Do Do	Do	52	3 8	182 "	"	"	"	52	4 "	208 "	Do
Arch work Bricks in	Do	75	7 "	525 "	75	7 "	525 "	75	7 "	525 "	Do
Plastering with Chunam	Syds	28½	3 "	85 8	28½	3 "	85 8	28½	3 "	85 8	Do
Centrings	Rft	30	5 "	150 "	30	5 "	150 "	30	5 "	150 "	Do
Metalling the Roadway	Cyd	17	1 "	17 "	"	"	"	"	"	"	In progress
Excavating foundations	Do	60	2 6	9 6	"	"	"	70	2 6	10 15	Completed
Escape Weir 12 ft Body.											
Rough Stone in Mortar	Cyd	50	3 "	150 "	"	"	"	"	"	"	In progress
Cut Stone	Cft	18	" 8	9 "	"	"	"	"	"	"	
Concrete flooring to Apron	Cyd	12	2 8	30 "	"	"	"	"	"	"	
Upright Stones well (3'x1'x8") grooved	Each	4	3 "	12 "	"	"	"	"	"	"	
Wooden Shutters	Cft	6	3 "	18 "	"	"	"	"	"	"	
Excavating foundation	Cyd	28	" 2 6	4 6	"	"	"	28	" 2 6	4 6	Completed
Sundries	Cent		5 "	525 4	"	"	190 4	"	"	420 10 6	
		11,000	" "		"	"	4734 5 6	"	"	9628 13 6	

Supt Engr Office 7th Div
Coimbatore
27th October 1871

Lt Colonel R.C.
Supt Engineer 7th Divn

No 2222 Superintg Engineer's Office 8th Dn
Camp Sholapoorum 19th Sept. 1871

21

From
Lieut: Colonel R A Roberts RE
Superintg. Engineer 8th Division

To
Colonel J Carpendale RE
Secretary to Government Dpt

Sir,

In reference to G O of the 7th August 1871 No 2040 enquiring as to the manner in which the orders of the Government of India can best be carried out in this Presidency in respect to large works of Irrigation and Navigation, I have the honor to enclose a form which I consider will most readily and thoroughly afford the required information.

Encls 1

I have the honor to be
Sir
Your Most Obt Servant
Rich. A. Roberts Lieut. Col: RE
Superintg. Engineer 8th Dn

Enclosure letter from
the Superintending Engineer
7th Division to the Secretary to Government Public Works Department dated 19th September 1871. No 118

P. W. 118/71

Superintending Engineers
Forms &c.

51

Prov Cust/Fr 9163.64

Public Works 1871 Department
Pro of Govt I No 2292

From No 1026

The Supt Engr
Ft Garry

To The Secy to Govt
Dlvd

Dated 19 Sept 71
Read 25 Sept 71
Encls 1

Submits in form of
statement in regard
to large works of
Irrigation & Drainage
&c.

No 3107-9 Dec Sy.

Ans 159

Project for the diversion of the Periyaur. Amount of Estimate Rs. Sanctioned in G.O. No. dated

Northern Main Channel

Miles 1 to 5 inclusive

Abstract Statement showing the progress made with, and the cost of, the works, in the first Reach, up to the End of April 1870

Abstract of the Estimate

Quantities in Cubic yards	Description of work	Rate Rs	A	P	Amount Rs	A	P
30	Droved Gneiss	25	0	0	750	0	0
300	Dressed Ashlar	15	0	0	4500	0	0
1000	Roughly Dressed Ashlar	11	8	0	11500	0	0
1000	Cyclopean Rubble in Mortar	7	0	0	7000	0	0
800	Brick in Mortar	6	0	0	4800	0	0
5000	Rubble in Mortar	5	8	0	27500	0	0
300 Sqrs	Pointing	1	0	0	300	0	0
1500 Cyds	Rubble apron	2	8	0	3750	0	0
150	Pitching	3	0	0	450	0	0
800	Concrete	4	0	0	3200	0	0
400	Filling in	0	4	0	100	0	0
500	Clay Puddle	0	8	0	250	0	0
80000	Gravel cutting	0	2	6	12500	0	0
75000	Cutting (hard Gravel	0	2	9	12890	10	0
40000	Do. Gravel	0	2	3	5625	4	0
10000	Gravel cutting	0	2		1250	0	0
23000	Cutting (ordinary Soil)	0	1	3	1796	14	0
100000	Do. (Sandy)	0	1	4	6250	0	0
40000	Banking	0	2	0	5000	0	0
4000	Puddling	0	4	6	1125	0	0
60000	Tamping	0	0	2	625	0	0
6000	Rough stone Pitching	2	0	0	12000	0	0
1500	Gravel Backing	0	4	0	375	0	0
50000 Sqrs	Turfing	0	0	9	2343	12	0

Works executed up to date and paid for: Quantity or Number	Expenditure Rs. A. P.
Cyds 15	375 - -
200	3000 - -
600	6900 - -
700	4900 - -
500	3000 - -
3500	19250 - -
200 Sqrs	200 - -
1050 Cyds	2500 - -
100	300 - -
500	2000 - -
200	50 - -
300	150 - -
40000	6250 - -
37500	6445 - 5 - 0
20000	2832 - 8 - 0
5000	625 - 0 - 0
11500	898 - 7 - 0
50000	3125 - - -
20000	2500 - - -
2000	562 - 8 - 0
30000	312 - 8 - 0
3000	6000 - 0 - 0
500	125 - 0 - 0
25000	1171 - 14 - 0

Works executed up to date but not paid for: Quantity or Number	Amount due to Contractors & workmen Rs. A. P.
Cyds 10	250 - -
30	750 - - -
200	2300 - 0 - 0
100	700 - 0 - 0
100	600 - 0 - 0
1000	5500 - 0 - 0
50 Sqrs	50 - 0 - 0
300 Cyds	750 - 0 - 0
30	90 - 0 - 0
200	800 - 0 - 0
150	37 - 8 - 0
150	75 - 0 - 0
20000	3125 - 0 - 0
18750	3222 - 10 - 6
10000	1416 - 4 - 0
2500	312 - 8 - 0
5750	449 - 3 - 6
25000	1562 - 8 - 0
10000	1250 - 0 - 0
1000	281 - 4 - 0
15000	156 - 4 - 0
1500	3000 - 0 - 0
500	125 - 0 - 0
12500	585 - 12 - 0

Total work executed up to date: Quantity	Expenditure Rs. A. P.
25 Cyds	625 - - -
250	3750 - 0 - 0
800	9200 - 0 - 0
800	4800 - 0 - 0
600	3600 - 0 - 0
4500	24750 - 0 - 0
250 Sqrs	250 - 0 - 0
1300 Cyds	3250 - 0 - 0
130	390 - 0 - 0
700	2800 - 0 - 0
350	87 - 8 - 0
450	225 - 0 - 0
60000	9375 - 0 - 0
56250	9667 - 15 - 6
30000	4248 - 12 - 0
7500	937 - 8 - 0
17250	1347 - 10 - 6
75000	4687 - 8 - 0
30000	3750 - 0 - 0
3000	843 - 12 - 0
45000	468 - 12 - 0
4500	900 - 0 - 0
1000	250 - 0 - 0
37500	1757 - 13 - 0

Average cost of work up to date: Rs	A	P	Per.
24	8	0	Cyd
14	12	0	Do
11	4	0	Do
6	8	0	Do
5	12	0	Do
5	6	0	Do
0	14	0	Sqrs
2	4	0	Cyd
2	12	0	Do
3	12	0	Do
0	3	4	Do
0	7	4	Do
0	2	3	Do
0	2	6	Do
0	2	4	Do
0	1	9	Do
0	1	4	Do
0	0	9	Do
0	1	9	Do
0	4	3	Do
0	0	1/2	Do
1	14	0	Do
0	3	6	Do
0	0	8	Sqr yard

Remarks.

Note. This Statement should be despatched to the Superintending Engineer monthly.

No 411.

Special Executive Engineer's
Office, Wynaad, Vythery
23rd August 1871.

From, The Special Executive Engineer
Wynaad

To, The Secretary to Government
Department of Public Works
Madras

Sir,

In reply to G.O. No 2040 dated 7th Instant I have the honor to reply that in this District there are no works of the large description contemplated in the above, but as regards the general question the form observed in the work Register would I should say answer every purpose if a line were left for explanatory remarks.

Name of work.	Foundation & Masonry	Superstructure	Centering
	Quantity Cost	Quantity Cost	Quantity Cost
Subheads			
Estimated amount as sanctioned			
Work executed to date			
Remarks			

I have the honor to be
Sir
Your most Obedient Servant

Wm Neilson Major
Special Executive Engineer
Wayland

Proceedings of the Madras Government
No 3107 Dated 7th
Read the following

From the Superintendent Engineer
Public Works Department
Dated 23rd August 1871
Rec'd 25th

To
The Special Executive
Engineer Wynaad

To
The Secretary to
Government
P. W. D.
Madras

Dated 23rd August 1871
Rec'd 25th

Reference that there are no works of the large description contemplated in G. O. No 2040 dated 7th August 1871 but subsidiary works which if adopted will answer every purpose

No 3107-9 Dated 7th

Ans/Rec

desirable to ensure
more fully than before,
that deviations from
the Estimate in the
distribution of the
proposed outlay over
the several items or
Subdivisions of a Project
should not pass unquestioned.

One of the Officers who
have recently been consulted
on the subject suggests
that the present form
of Progress Report, with
the addition, in lieu
some of the sub heads
of the Estimate to which
the outlay for the month
belonged would suffice
for the purpose in view.

the particular Estimate
Items under which it
is proposed to debit
this information, should
be kept fully in view.
This would, in order
to enable Chief or Super-
intending Engineers, in
charge of large projects
to detect not alone actual
but also impending Depar-
tures from the original Estimates
whether owing to Enhancement
of the rates, to under-estimation
of the quantities of work
required, or to augmentation
of the ordinary Causes
And it is further suggested

Sub as neither the Quantity
or Rate in the Estimate,
nor the Quantity, Rate &
Outlay of the Quantities in
the several Sub heads
is proposed to be varied
had as consequently Excess
in the Expenditure on a
Sub head, or the Rates
paid would not be paid
for deducted by the Inspection
of such a Statement: the
Arrangements is hardly
Sufficiently Complete.

The Superintending Engineer
of the 2d Division forwards
a form of Comparative
Statement, ordinarily
used, as answering

the requirements of the
Supreme Govt. and the
Officer in charge of the
5th Division thinks
further Explanation
the Statement should
be supplemented with
Explanatory Remarks
Schedules of Works of any
importance in hand
Explaining the Quantity
Rate and Cost, of Each
description of Work
as originally Estimated,
of that actually Executed,
the Quantity Rate & Cost
under Each Sub head
required to complete the
Structures (Again Estimated

half yearly to the
Superintending Engineer.
The form referred to
Shows the Expenditure
on a work during each
month in the period,
under each sub-head
of the Estimate And
Compares the total Ex-
penditure to date with the
Estimate. All this
should be known and
constitutes most of
the information necessary
but something more could
be inserted with advantage
and however the form
itself would require
rearrangement to adapt
it for use on any work
of magnitude, Such

from actual measurement
And the total Estimated
cost also in detail
In preparation of such
An Abstract is however
also necessary but
when it becomes expedient
to submit revised Estimates.
The form is better all
Calculated for use as a
periodical return.
The Officers Engaged on
Operations the Register
of Works Shewing all
Charges Stores the necessary
information And also
of them principles that
it should be furnished

as is contemplated in the Circular of the Lord of Trade.

The Other Officers to whom reference has been made severally forward forms of statement which they propose for adoption; but though all of them would answer the purpose in view to a greater or less extent, none would do so as fully as is desirable.

The three forms now in use in this Department to which allusion has been made by the Superintending Engineers, viz: "The Comparative Statement

The 'Register of Works' & the 'Progress Report' though they are intended to subserve different purposes, have much in common in the information which they severally contain & it is considered that a Statement in form of Progress report which should be to some extent a Combination of the three would perhaps be more economical & would probably best answer the purpose in view.

The Progress report which has during past year & up till now been submitted by the Superintending Engineers for the Madras Irrigation Canal Circle is the result of practical experience as to the requisites in the case of the construction of Large Works & though that return might probably be handled with advantage a reference to it would supply useful information as to the details which are really required & can readily be supplied.

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11

To Ch Engr for Irrigation
Superintending Engineers
Controller

Accepted 4/12/71.

Asst Secy
4/12

Nos. 4242, 4012, 5274, 4246, 5368, 5887, 5769, 4536, 4020

Govt. of {1871} Madras.

PUBLIC WORKS.

To Executive Chief Engineer for Irrigation

Date

Read. Fwd. 4

G. O. 9 Dec. 1871. No. 3107.

Nos. 152 (a) (b) (c)

Statement of actual outturn and estimated cost of works

Remarks orders in connexion Regarding the method of preserving statement of actual outturn and estimated cost of works &c.