

(1) Number of pages \_\_\_\_\_

(2) Date of repair \_\_\_\_\_

(3) Initials of the Referencer \_\_\_\_\_

**MADRAS RECORD OFFICE.****Government of Madras.***Public Works* **DEPARTMENT.**

G.O. No. 695

Press  
Mis.

Dated

8-2

1864.

Not to be folded or roughly handled

*Proceedings of the Madras Government, Public Works Department,  
8th March 1864.*

No. 177. Read the following Proceedings of the Board of Revenue, dated 18th February 1864, No. 1,088 :—

Read the following letter from the Collector of the Kistna District, dated Masulipatam, 4th February 1864, No. 10.

- SIR,
1. I have the honor to forward the accompanying letter and Estimates, submitted by the Superintending Engineer, 2nd Division, for the favorable consideration of the Board.
  2. The works proposed therein have been rendered necessary, by the completion of the Canal from Bezoarah to the Fort of Masulipatam.
  3. The first is essential for the landing of Government Stores, and the second and the third are absolutely necessary for the drainage of the Fort.
  4. These Projects have received the careful personal attention of Colonel J. C. Anderson, and, I believe, they will fully meet the requirements of the place. I quite agree with Colonel Anderson in thinking that it will be better to carry the drain (No. 3) round the foot of the glacis of the Fort, than to make use of the present Fort ditch for the purpose.

ENCLOSURE No. 1.

From Lieutenant-Colonel J. C. ANDERSON, R. E., Superintending Engineer, 2nd Division, to G. THORNHILL, Esq., Collector of the Kistna District, dated Masulipatam, 20th January 1864, No. 50.

SIR,

1. With reference to Government Order, No. 1,444, dated 4th August 1863, paragraph 2, R. D., stating that sanction will be made in the usual course for such expenditure on roads, &c., at the Fort of Masulipatam as may be proper, I have the honor to forward a Report from Captain Hasted, submitting Estimates for certain improvements, in connection with the introduction of the Canal into the Fort ditch, and to the demolition of the ramparts.

2. The Estimates, amounting to Rupees 4,670, provide for the following works :—

|                                                                                                                                                                                                                                                                                                                           | RS.   | A. | P. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|----|
| 1. Levelling the bastion at the S. E. angle of the Fort; as to form a capacious platform for Government Stores, on a level of about 3 feet above high water in the Canal; repairing the retaining wall (part of the old escarp); and inserting fending stones and coping to prevent it from being injured by boats ... .. | 974   | 13 | 2  |
| Removing the crane from the old pier head to the proposed wharf ... ..                                                                                                                                                                                                                                                    | 50    | 0  | 0  |
| 2. Excavating a drainage channel at the foot of the Canal embankment and constructing two culverts, one the opposite pier head, the other at the proposed wharf ... ..                                                                                                                                                    | 731   | 6  | 0  |
| 3. Excavating a drainage channel round the foot of the glacis of the Fort, and a masonry culvert (four vents each six span) where it crosses the conservancy and minor drains ... ..                                                                                                                                      | 2,691 | 3  | 2  |
| Contingencies ... ..                                                                                                                                                                                                                                                                                                      | 222   | 9  | 8  |
|                                                                                                                                                                                                                                                                                                                           | 4,670 | 0  | 0  |

3. The drainage of the Fort at present passes into the ditch; and, in the first instance, I thought that a portion of it might be advantageously retained as a drainage channel. But in consideration of the great expense which would have to be incurred to widen out the narrow platform bridges which cross the ditch, owing to the treacherous nature of the soil, I came to the conclusion that it would be preferable to excavate a new drain; clear off the ditch and glacis, and to leave the ditch to be filled up by those who wish to have the site for cultivation. It would still however be on a low level, the drainage of the Fort would pass to it, and be carried into the proposed channel by small cuts across the glacis.

4. A small sluice on the Canal will communicate with the head of the drainage channel, and will serve to keep it free of impurities.

5. I would beg to suggest that in the event of the proposed works meeting with your approval, you should forward them, with any remarks you may have to offer, to the Board of Revenue for submission to Government.

Proceedings of the Madras Government, Public Works Department,  
8th March 1864.

N. B.—Copies of the Plans have not been retained in this Office.

ENCLOSURE No. 2.

From Captain J. O. HASTED, R. E., Assistant Engineer, 1st Class, Kistna District, to Lieutenant-Colonel J. C. ANDERSON, R. E., Superintending Engineer, 2nd Division, dated Masulipatam, 26th December 1863, No. 76 of 1863-64.

Revised to Rupees 4,670, in the Superintending Engineer's Office.

Sir,

1. I have the honor to submit Plans and Estimates amounting to Rupees 4,470 of the proposed improvements to be made to the Fort at Masulipatam. The Estimate does not allow that the site of the present ramparts may be disposed of to private parties for cultivation, with the understanding that they shall level the ground.

2. The portion of the ramparts reserved for Government, will be pulled down as the materials may be required, the cost of pulling down and clearing the bricks being met from the Estimates to which the bricks may be charged. I have therefore not made any reference to this subject in the present Estimate.

3. The Master Attendant is of opinion that the crane at present at the pier head should be removed to the south-east bastion, as it will only be required at the pier head during the dry season for about two months, and if heavy stores are to be landed during that time, he could erect a temporary crane. If it appears necessary, the small crane belonging to this Department might be fixed at the pier head.

4. This Estimate only allows for improvements to the Fort; the roads in the Fort require much repair. I propose submitting an Estimate for their thorough repair, if you are of opinion that the amount may be sanctioned from the sale of the rampart walls and old buildings in the Fort, by which, I believe, a sum of upwards of 11,000 Rupees has been already realized.

ENCLOSURE No. 3.—Plans.

ENCLOSURE No. 4.—Abstract Estimate.

ENCLOSURE No. 5.—Specification report.

Ordered to be submitted to Government with the Board's recommendation that the estimated charge, amounting to Rupees 4,670, be sanctioned, and the work carried out.

(True Copies and Extract.)

(Signed) W. HUDLESTON, Secretary.

No. 178.

ORDER THEREON, 8th March 1864, No. 695.

1. The Governor in Council sanctions the Estimates amounting to Rupees 4,670, submitted with the Proceedings of the Board of Revenue recorded above.

2. An application for a special grant to admit of the execution of the works in 1864-65 should be submitted after the 1st May next.

(True Extract.)

(Signed) CHARLES A. ORR, Colonel, R. E.,  
Secretary to Government.

To the Superintending Engineer, 2nd Division.

„ Controller and Auditor of Public Works Accounts.

„ Accountant General.

„ Revenue Department.

„ Board of Revenue.

„ Military Department.

Exd. S. T. Augustin.

Abstract Estimate No 51 of 1863-64  
Work for making Certain Improvements to the  
Fort of Masulipatam.

| Quantity  | Description of works                                                | Rate  | Amount    | Total     |
|-----------|---------------------------------------------------------------------|-------|-----------|-----------|
| 3536 1/2  | Cubing of Earth work for swelling South East Bastion                | 1 1/2 | 221 1/4   |           |
| 63 1/2    | Do of Brick in Chumam                                               | 5     | 317 8     |           |
| 226 16/27 | Do for knocking down old walls                                      | 3     | 42 7/9    |           |
| 36 27/210 | Do of Limestone work for coping                                     |       |           |           |
|           | and guard stones to South East Bastion                              | 10    | 364 7/10  |           |
| 837 3/4   | Square feet of Plastering with 2 Coats of Chumam                    | 3 8   | 29 53     |           |
|           | Constructing another Acre of Drainage Channel at South East Bastion |       |           | 974 13 2  |
| 6. 67     | Cys of Concrete                                                     | 3 8   | 23 56     |           |
| 31. 5     | Do of Brick in Chumam                                               | 5     | 157 8     |           |
| 14. 44    | Do of Arch work                                                     | 6     | 86 10 3   |           |
| 2.        | Square of Plastering                                                | 3     | 7 32      |           |
|           | Digging foundations for                                             |       | 20        |           |
|           | Coch for 1 Acre                                                     |       | 294 10 11 |           |
|           | Constructing another Acre of Drainage Channel at the Pier Head      |       |           | 294 10 11 |
|           | Removing Brick piers                                                |       | 5         |           |
|           | Excavating a Drainage Channel inside the Fort                       |       |           |           |
| 525 1/2   | Cubing of Earth work                                                | 1     | 32 13 6   |           |
| 466 2/3   | Square of sloping & swelling the Bank                               | 3     | 104 2 8   | 731 6     |
|           | Carried forward                                                     |       |           | 1706 3 2  |

Brought over

1706 32

Excavating a Drainage  
Channel outside the  
Fork

8230 1/2 Cys for Earth works  
Constructing a Bridge  
under Cause way

14 units to feet span each

34.074 Cubic yds of Concrete

235 Do for Brick in Channel

80 Do for Arch works

24.3 Square of Plastering

29.63 Cys for Metalling

Digging foundations

Removing Chans and  
repairing it at South  
East Bastion in good order

Union Chops Drains from  
Ditch

Sum of Contingencies

Total Estimate Rupees

|      |      |
|------|------|
| 1    | 514  |
| 3 8  | 119  |
| 5    | 1175 |
| 6    | 280  |
| 3    | 72   |
| 1    | 29   |
|      | 100  |
|      | 1976 |
|      | 50   |
| 200  |      |
| 2741 | 32   |
| 4447 | 64   |
| 222  | 98   |
| 4670 | 00   |

Superintending Engineer  
2<sup>nd</sup> Div. Manipal  
19 January 1864

J. W. ...  
Superintending Engineer  
2<sup>nd</sup> Div.

44/508 Webb

Seller and  
Estimate

Received from  
the ...  
Engineer ...  
a ...  
work of the ...  
lost of a ...  
apart ...  
In No 809/64

*[Faint, illegible handwritten text in a large rectangular box]*

Brought over  
Excavating & Drainage  
Channels outside the  
Fork

8230 1/2 Cords of Earth works  
Constructing a Bridge  
under Cause way -  
4 units to feet span each

1" 514

Michael Thomas  
No 51 of 1963 - 1-14  
Work for Road Bridge  
Contract Engineer  
to the Dept of Works  
Hobart  
Monday 10th 1864

Superintending Engineer  
2nd Div. Manipal  
19 January 1864

J. W. Anderson  
Superintending Eng

at all

44/508 Webb

Seller and  
Refinancer  
Received from  
the Government  
Engineer & Co  
a bond drainage  
work of the  
Dept of C. R. M.  
L. J. J. J. J.  
In No 809/64

No. 1,088.

PROCEEDINGS OF THE BOARD OF REVENUE, dated 18th February 1864.  
Read the following letter from the Collector of the Kistna District, dated Masulipatam, 4th February 1864, No. 10 :—

1. I have the honor to forward the accompanying letter and Estimates, submitted by the Superintending Engineer, 2nd Division, for the favorable consideration of the Board.
2. The works proposed therein have been rendered necessary, by the completion of the Canal from Bezoarah to the Fort of Masulipatam.
3. The first is essential for the landing of Government Stores, and the second and the third are absolutely necessary for the drainage of the Fort.
4. These projects have received the careful personal attention of Colonel J. C. Anderson, and, I believe, they will fully meet the requirements of the place. I quite agree with Colonel Anderson in thinking that it will be better to carry the drain (No. 3) round the foot of the glacis of the Fort, than to make use of the present Fort ditch for the purpose.

ENCLOSURE No. 1.

From Lieutenant-Colonel J. C. ANDERSON, R. E., Superintending Engineer, 2nd Division, to G. THORNHILL, Esq., Collector of the Kistna District, dated Masulipatam, 20th January 1864, No. 50.

1 Report from Captain Hasted.

And Government Order, No. 2,255, dated 10th August 1863, P. W. D.

1. With reference to Government Order, No. 1,414, dated 4th August 1863, paragraph 2, R. D., stating that sanction will be made in the usual course for such expenditure on roads, &c.,

at the Fort of Masulipatam as may be proper, I have the honor to forward a report from Captain Hasted, submitting Estimates for certain improvements, in connection with the introduction of the Canal into the Fort ditch, and to the demolition of the ramparts.

2. The Estimates, amounting to Rupees 4,670, provide for the following works :—

|                                                                                                                                                                                                                                                                                                                        |       |    |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----|---|
| 1. Levelling the bastion at the S. E. angle of the Fort, as to form a capacious platform for Government Stores, on a level of about 3 feet above high water in the canal; repairing the retaining wall (part of the old escarp); and inserting fending stones and coping to prevent it from being injured by boats ... | 974   | 13 | 2 |
| 2. Removing the crane from the old pier head to the proposed wharf ...                                                                                                                                                                                                                                                 | 50    | 0  | 0 |
| 3. Excavating a drainage channel at foot of the canal embankment and constructing two culverts, one the opposite pier head, the other at the proposed wharf ...                                                                                                                                                        | 731   | 6  | 0 |
| 4. Excavating a drainage channel round the foot of the glacis of the Fort, and a masonry culvert (four vents each six span) where it crosses the conservancy and minor drains ...                                                                                                                                      | 2,691 | 3  | 2 |
| Contingencies ...                                                                                                                                                                                                                                                                                                      | 222   | 9  | 8 |
|                                                                                                                                                                                                                                                                                                                        | 4,670 | 0  | 0 |

3. The drainage of the Fort at present passes into the ditch; and, in the first instance, I thought that a portion of it might be advantageously retained as a drainage channel. But in consideration of the great expense which would have to be incurred to widen out the narrow platform bridges which cross the ditch, owing to the treacherous nature of the soil, I came to the conclusion that it would be preferable to excavate a new drain, clear off the ditch and glacis, and to leave the ditch to be filled up by those who wish to have the site for cultivation. It would still however be on a low level, the drainage of the Fort would pass to it, and be carried into the proposed channel by small cuts across the glacis.

4. A small sluice on the Canal will communicate with the head of the drainage Channel, and will serve to keep it free of impurities.

5. I would beg to suggest that in the event of the proposed works meeting with your approval, you should forward them, with any remarks you may have to offer, to the Board of Revenue for submission to Government.

N. B. Copies of the Plans have not been retained in this Office.

ENCLOSURE No. 2.

From Captain J. O. HASTED, R. E., Assistant Engineer, 1st Class, Kistna District, to Lieutenant Colonel J. C. ANDERSON, R. E., Superintending Engineer, 2nd Division, dated Masulipatam, 26th December 1863, No. 76 of 1863-64.

Revised to Rupees 4,670, in the Superintending Engineer's Office.

1. I have the honor to submit Plans and Estimates amounting to Rupees 4,470 of the proposed improvements to be made to the Fort at Masulipatam. The Estimate does not allow for filling in the ditch of the Fort, as to accomplish this would cost a great deal, and I believe, that the site of the present ramparts may be disposed of to private parties for cultivation, with the understanding that they shall level the ground.

2. The portion of the ramparts reserved for Government, will be pulled down as the materials may be required, the cost of pulling down and clearing the bricks being met from the Estimates to which the bricks may be charged. I have therefore not made any reference to this subject in the present Estimate.

3. The Master Attendant is of opinion that the crane at present at the Pier head should be removed to the south-east bastion, as it will only be required at the Pier head during the dry season for about two months, and if heavy stores are to be landed during that time, he could erect a temporary crane. If it appears necessary, the small crane belonging to this Department might be fixed at the Pier head.

4. This Estimate only allows for improvements to the Fort; the roads in the Fort require much repair. I propose submitting an Estimate for their thorough repair, if you are of opinion that the amount may be sanctioned from the sale of the rampart walls and old buildings in the Fort, by which, I believe, a sum of upwards of 11,000 Rupees has been already realized.

ENCLOSURE No. 3.—Plans.

ENCLOSURE No. 4.—Abstract Estimate.

ENCLOSURE No. 5.—Specification report.

Ordered to be submitted to Government with the Board's recommendation that the estimated charge, amounting to Rupees 4,670, be sanctioned, and the work carried out.

(True Copies and Extract.)

*Anderson*

Secretary.

To Colonel C. A. Orr, R. E., Secretary to Government, P. W. D., with enclosures.  
Copy to G. Thornhill, Esq., Collector of the Kistna District.

Exd. J. Wright.

Submitting with the Board's recommendation letter from the Collector of the Kistna District forwarding letter and estimate from the Superintending Engineer 2nd Division for certain works for the Fort of Masulipatam.

No. 1,088.

Dated 18th February 1864.

28 Feb 24-64

28 Feb 25

PROCEEDINGS OF THE BOARD OF REVENUE.

No.

6332

Pro. of Govt. for Masulipatam

1864. Department

Pullio Works Dept.

No 695.

Proceedings of the Madras Government

March

Number date 1st February 1864

Read the following

Proceedings of the Board of Revenue.

Submitting with the Board's recommendation letter from the Collector of the Kistna District forwarding letter and estimate from the Superintending Engineer 2nd Division for certain works for the Fort of Masulipatam.

The Governor in Council sanctions the Estimates amounting to Rupees 4,670 submitted with the Proceedings of the Board of Revenue recorded above.

An application for

for a special grant to  
admit of the execution  
of the works in 1864/65  
should be submitted  
after the 1st inst.

W.B.  
in

To The Supy Engineer 2<sup>nd</sup> Div. & specifications  
" Controller & Audr. P.W. Accounts  
" Accountant General  
Revenue Dept  
Board of Revenue  
Military Dept

Recd. 9<sup>th</sup> March

1864  
of your friend

1865  
of the City  
of 1865

Estimate of 1865  
contains information to the  
at Washington, District of

1865

*Proceedings of the Madras Government, Public Works Department,  
8th March 1864.*

No. 181. Read the following letter from Lieutenant-Colonel J. C. ANDERSON, R. E.,  
Superintending Engineer, 2nd Division, to Colonel C. A. ORR, R. E., Secretary to  
Government, Department Public Works, dated Masulipatam, 9th February 1864,  
No. 61:—

SIR,

- 1 Abstract Estimate.
- 1 Specification Report.
- 1 Survey Plan.
- 1 Plan of bridge of 9 arches.
- 1 Specification Report of do.
- 6 Plans of road Dams.
- 6 Reports for do.
- 6 Plans for masonry Tunnels and Drains.
- 6 Reports of do. do.

1. With reference to G. O. No. 99, dated 31st January 1862, I have the honor to submit an Estimate amounting to Rupees 50,200 of the probable cost of constructing a road from Ongole to Kotapatnam, in continuation of the road from Cumbum to Ongole together with the Plans as per margin.

2. The necessity of this road was fully explained by the Collector in his letter to the Board of Revenue, No. 57, dated 10th April 1861, and the Government in G. O. No. 99,

dated 31st January 1862, allotted the sum of 14,000 Rupees (from the 1½ Lac Fund) for its prosecution. Of this amount Rupees 7,149-13-10 were expended; and the work done is allowed for in the Estimate now submitted, which is to cover the whole expenditure from the commencement.

3. The Estimate was drawn up by Captain Mullins after a careful inspection of the locality in June 1862. Captain Greenaway, who succeeded him, proposed to substitute a bridge for the road dam allowed in the Kotapatnam swamp, as explained in my letter to Government No. 46, dated 18th instant. With this exception the Estimate is substantially the same as it was left by Captain Mullins.

4. The work was recommended on the authority conveyed in G. O. No. 333, dated 10th February 1863, and continued during the current year from the allotment from the Reserve Fund\* granted in G. O. No. 1,292, dated 21st May 1863, and from a further allotment from Ferry Funds† sanctioned in G. O. No. 2,654, dated 15th September 1863.

\* Rupees 10,000.  
† Rupees 10,000.

5. The expenditure up to the end of December 1863 amounts to Rupees 25,994, so that of the estimated outlay required for the construction of the road 24,206 Rupees that remain to be worked out.

6. The cause of the delay in the submission of the Estimate was explained in paragraph 3 of my letter to Government No. 46, dated 18th instant.

7. The length of the road from Ongole to Kotapatnam is nearly 11 miles. The cost of earthwork and metalling will amount to Rupees 29,240 or 2,653 Rupees per mile, and that of masonry works Rupees 20,960 or 1,905 Rupees per mile.

8. This rate may appear high, but the soil for about 8 miles is not only extremely unfavorable, but all the material has to be carted from a considerable distance. Captain Mullins has been rigidly economical in his allowance for metal; and on the completion of the road, a liberal maintenance grant will be indispensable to prevent it from deteriorating. The masonry works are also necessarily expensive, in consequence of the number and extent of the drainages that are intersected.

9. The Estimate has been examined in this Office and the rates are as low as are admissible.

No. 182.

ORDER THEREON, 8th March 1864, No. 697.

1. The Estimate of Rupees 50,200, submitted with this letter, provides for the continuation of the Cumbum road to the port and Salt Depôts of Kotapatnam in the District of Nellore. The importance of this link of communication was strongly advocated by the Collector on the ground that the conveyance of Cotton and other produce of the northern parts of Kurnool and Nellore to a port of shipment would thereby be facilitated, and return loads of Salt be there obtained. According to the Collector's report to the Board, dated 29th September, No. 214, the export of Cotton from Kotapatnam has of late years considerably increased, and the chief obstruction on the line is the coast swamp, which it is proposed to cross by a bridge of 9 bays of 20 feet span.

Proceedings of the Madras Government, Public Works Department,  
18th March 1861.

2. The Government regarding the importance of the work, made special grants for it at 1/2 cent a mile, and in Proceedings dated 31st January 1861, No. 92, report of the submission of a new estimate with a plan and a new estimate. The total expenditure up to the end of 1860 is Rs. 21,204, leaving Rs. 21,205 of the estimate owing to be worked out.

3. The Government in Council have been the Estimate submitted, amounting to Rs. 50,200. Had it been for the Superintendent Engineer's letter, dated 18th January 1861, No. 43, that the cost of the bridge over the swamp was originally estimated at Rs. 4,105. In the Estimate submitted in the estimate entered at Rs. 6,570, and he presumes that the excess is owing to a further having been added in pursuance of the Collector's suggestion. This additional work was approved by Government on the 12th February 1861, No. 412.

4. The rates allowed in the Estimate seem high, but this is accounted for by the fact that the cost of the greater portion of the line is very unfavorable, and material has to be carted from a considerable distance.

5. It is observed that the allotment for the Ongole and Kotapattanam road in the current official year is Rs. 20,000.

(True Extract.)

(Signed) CHARLES, A. ORR Colonel, R. E.,  
Secretary to Government.

To the Superintending Engineer, 2nd Division.  
" Controller and Auditor of Public Works Accounts.  
" Accountant General.

Ed. S. T. Augustin.

Abstract Estimate No. 35 of 1862-63.

District Mellore 3

Work. Constructing a Road from Ongole to Collapattanam  
Miles 10 Furlongs 5 Yards 132

| Quantity | Description of work     | Number of mile | Rate | Amount | Total      |
|----------|-------------------------|----------------|------|--------|------------|
| 464      | Cy of gravel            | 1              | 6    | 174    |            |
| 329      | o of Jelly              | 1              | 103  | 210    | 123        |
| 54       | o of Rubble stone       | 1              | 7    | 23     | 10         |
| 674      | o of Earth work         | 1              | 10   | 35     | 18         |
| 1486     | o of Sectioning         | 1              | 1    | 92     | 14         |
|          |                         |                |      |        | 536 5 11   |
| 733      | Cy of gravel            | 1              | 99   | 446    | 109        |
| 733      | o of Stone Jelly        | 2              | 149  | 675    | 119        |
| 14080    | Square yards of Turfing |                | 6    | 440    |            |
|          |                         |                |      |        | 1562 6 6   |
| 582      | Cy of gravel            | 1              | 136  | 491    | 1          |
| 582      | o of Jelly              | 1              | 33   | 700    | 3 00       |
| 1923     | o of Earth work         | 3              | 10   | 100    | 2 00       |
| 574      | o of Sectioning         | 1              | 1    | 35     | 14         |
| 15000    | Sqre yards of Turfing   |                | 6    | 468    | 12         |
|          |                         |                |      |        | 1796 1     |
| 733      | Cy of gravel            | 1              | 13   | 790    | 43         |
| 1315     | o of Jelly              | 1              | 79   | 1951   | 153        |
| 349      | o of Rubble Stone       | 1              | 3    | 414    | 7          |
| 6786     | o of Earth work         | 1              | 10   | 353    | 7          |
| 1056     | o of Sectioning         | 1              | 1    | 66     |            |
| 9720     | Square yards of turfing |                | 6    | 303    | 12         |
|          |                         |                |      |        | 3879 13 00 |
|          | Carried forward         |                |      |        | 7774 10 11 |

Brought forward

|      |                       |    |     |      |            |
|------|-----------------------|----|-----|------|------------|
| 2405 | Cy of Earth work      | 10 | 125 | 42   | 7774 10 11 |
| 6086 | Sq yards of turfing   | 6  | 190 | 3    |            |
| 671  | Cubic yards of gravel | 1  | 5   | 880  | 11         |
| 1079 | o of Jelly            | 1  | 123 | 1905 | 19         |
| 245  | o of Rubble Stone     | 1  | 7   | 352  | 3          |
| 1522 | o of Sectioning       | 1  | 95  | 2    |            |
|      |                       |    |     |      | 3548 8 11  |

|      |                       |   |     |      |          |
|------|-----------------------|---|-----|------|----------|
| 733  | Cubic yards of gravel | 1 | 89  | 1133 | 139      |
| 733  | o of Jelly            | 2 | 9   | 1500 | 59       |
| 1760 | o of Sectioning       | 1 | 110 |      |          |
| 3520 | Sq yards of turfing   | 6 | 110 |      |          |
|      |                       |   |     |      | 2854 3 6 |

|       |                       |    |     |      |        |
|-------|-----------------------|----|-----|------|--------|
| 1158  | Cubic yards of gravel | 1  | 89  | 1791 | 40     |
| 642   | o of Sectioning       | 1  | 40  | 2    |        |
| 8265  | o of Earth work       | 10 | 466 | 14   | 10     |
| 14080 | Sq yards of Turfing   | 6  | 410 |      |        |
|       |                       |    |     |      | 2738 5 |

|       |                       |    |      |     |          |
|-------|-----------------------|----|------|-----|----------|
| 384   | Cubic yards of gravel | 1  | 89   | 594 |          |
| 255   | o of Jelly            | 2  | 99   | 665 | 63       |
| 230   | o of Rubble Stone     | 2  | 50   | 539 | 1        |
| 364   | o of Sectioning       | 1  | 22   | 12  |          |
| 27847 | o of Earth work       | 10 | 1554 | 80  |          |
| 1000  | Sq yards of Turfing   | 4  | 83   | 54  |          |
|       |                       |    |      |     | 3459 1 1 |

|      |                       |    |     |      |           |
|------|-----------------------|----|-----|------|-----------|
| 1092 | Cubic yards of gravel | 1  | 120 | 1945 | 2         |
| 12   | o of Jelly            | 2  | 143 | 63   | 90        |
| 20   | o of Rubble Stone     | 2  | 90  | 51   | 14        |
| 669  | o of Sectioning       | 1  | 41  | 13   |           |
| 7700 | o of Earth work       | 10 | 515 | 10   |           |
| 7150 | Sq yards of Turfing   | 4  | 194 | 128  |           |
|      |                       |    |     |      | 2812 13 2 |

Carried forward

23187 10 11

Brought forward

23187 10 11

|      |                           |    |     |      |            |
|------|---------------------------|----|-----|------|------------|
| 1100 | Cubic yards of gravel     | 2  | 3   | 2217 | 3          |
| 363  | o of Claying              | 5  | 113 | 7    |            |
| 171  | o of Sectioning           | 10 | 1   | 10   | 11         |
| 6253 | o of Earth work           | 10 | 325 | 10   | 10         |
| 3840 | Sq yards of Turfing       | 4  | 80  |      |            |
|      |                           |    |     |      | 2746 15 10 |
| 761  | Cubic yards of Earth work | 10 | 39  | 10   | 2          |
| 769  | o of gravel               | 2  | 4   | 1730 | 4          |
| 366  | o of Claying              | 6  | 137 | 4    |            |
|      |                           |    |     |      | 1907 2 25  |

|                              |       |             |
|------------------------------|-------|-------------|
|                              | Total | 27841 12 11 |
| Sundries and Superintendence |       | 13983 1     |
| Total Refused for Road       |       | 29240       |

Flat stone drain 2 feet Sqre

|       |                                      |   |   |    |    |
|-------|--------------------------------------|---|---|----|----|
| 6 1/2 | Cubic yards of Rough Stone           | 2 | 8 | 16 | 4  |
|       | Chunam                               |   |   |    |    |
| 15    | Covering Stones                      | 1 | 8 | 22 | 8  |
| 7 1/8 | Sqrs of Pointing                     | 2 |   | 1  | 12 |
| 5     | Cubic yards of Excavating foundation | 1 |   | 5  |    |
|       | Sundries                             |   | 2 | 3  |    |
|       |                                      |   |   |    | 43 |

Road dam of 20 yards

In Sq

|        |                              |    |    |    |    |
|--------|------------------------------|----|----|----|----|
| 33 3/4 | Cy of rubble stone in chunam | 3  | 10 | 88 | 90 |
| 59     | o of Rough Stone             | 11 | 40 | 9  |    |
| 12 1/2 | o of Stone Jelly             | 10 | 7  | 13 |    |
| 90     | o of Excavating foundation   | 1  | 6  |    |    |
| 12 1/2 | Cubic yards of Travelling    | 6  | 4  | 11 |    |

Carried forward

147 10 6 29283

|                        |               |
|------------------------|---------------|
| Brought forward        | 147 106 29283 |
| Sundries               | 7 56          |
| Total                  | 155 ..        |
| Of for 2 <sup>nd</sup> | 155 ..        |
|                        | 310           |

Road dam 45 years 1.7.60

|     |                             |     |          |
|-----|-----------------------------|-----|----------|
| 234 | Cubical of Rough Stone      |     |          |
|     | inchman                     | 3   | 672 ..   |
| 120 | of Rough Stone              | 1 2 | 135 ..   |
| 46  | of Stone Jelly              | 1 1 | 48 14 .. |
| 28  | of Gravel                   | 9 9 | 17 1 ..  |
| 369 | of Earth work of Excavation | 1   | 23 1 ..  |
|     | Sundries                    |     | 22 ..    |
|     |                             |     | 918      |

Road dam of bays of  
2. 4. 110

|     |                             |      |          |
|-----|-----------------------------|------|----------|
| 278 | Cubical of rough stone in   | 3 4  | 903 8 .. |
|     | Chunam                      |      |          |
| 160 | of rough stone              | 1 6  | 220 ..   |
| 62  | of Stone Jelly              | 1 5  | 81 6 ..  |
| 25  | of Gravel                   | 13 0 | 21 10 .. |
| 469 | of Earth work of Excavation | 1    | 29 5 ..  |
|     | Sundries                    | 34   | 11 0 ..  |
|     |                             |      | 1290 ..  |

Road Dam of 150 years 1.7.60

|         |                        |      |             |
|---------|------------------------|------|-------------|
| 761     | Cubical of Rough Stone | 3 10 | 2758 10 ..  |
|         | inchman                | 1 14 | 890 10 ..   |
| 175     | of Rough Stone         | 1 14 | 390 10 ..   |
| 208 1/3 | of Stone Jelly         |      | 14039 14 .. |
|         | Carried forward        |      | 31801       |

|      |                             |     |           |
|------|-----------------------------|-----|-----------|
| 125  | Cubical of Gravel           | 1 5 | 164 1 ..  |
| 1397 | of Earth work of Excavation | 1   | 87 5 ..   |
|      | Sundries                    |     | 118 12 .. |
|      |                             |     | 4410 ..   |

Road dam of 30 years 1.7.60

|        |                             |       |           |
|--------|-----------------------------|-------|-----------|
| 95     | Cubical of Brick in Chunam  | 3 8   | 332 8 ..  |
| 30 1/2 | of Stone Jelly              | 2 7   | 74 50 ..  |
| 13     | of Gravel                   | 1 8 9 | 20 19 ..  |
| 140    | of Earth work of Excavation | 1     | 8 12 ..   |
| 11 1/2 | Sqrs of Plastering          | 2 4   | 25 14 ..  |
|        | Sundries                    |       | 11 6 9 .. |
|        |                             |       | 473 ..    |

Tunnel of 5 vents of 6 feet  
Span

|         |                                     |      |           |
|---------|-------------------------------------|------|-----------|
| 143     | Cubical of Brick in Chunam          | 3 8  | 500 8 ..  |
| 363 1/4 | of arch brick                       | 3 12 | 137 13 .. |
| 12      | of Brick Jelly                      | 2 8  | 30 ..     |
| 28 1/3  | Sqrs of Plastering                  | 2 4  | 63 12 ..  |
| 232     | Cubical of Earth work of Excavation | 1    | 14 8 ..   |
|         | Sundries                            |      | 18 7 ..   |
|         |                                     |      | 765 ..    |

Barrel Drain

|       |                                  |     |            |
|-------|----------------------------------|-----|------------|
| 9 1/3 | Cubical of Brick in Chunam       | 3 8 | 32 10 8 .. |
| 1/2   | Squares of Plastering            | 2 4 | 1 2 ..     |
| 6     | Cubical of Excavation foundation | 1   | 6 ..       |
|       | Sundries                         |     | 13 4 ..    |

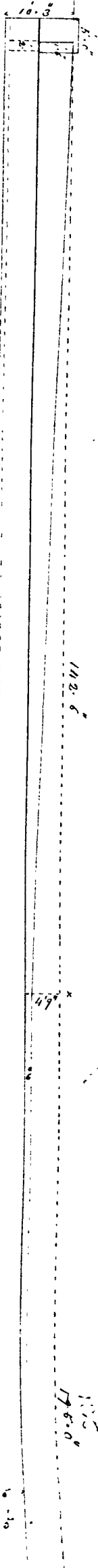
|                 |             |
|-----------------|-------------|
| Total           | 35 ..       |
| Of for 5        | 175 ..      |
| Carried forward | 3762 1/2 .. |

26 accompanying & approved by the 12th of Dec. 1861. to the  
District, Haverhill, Mass. of the 27th of May 1861.

N<sup>o</sup> 12.

7. 6. 760.

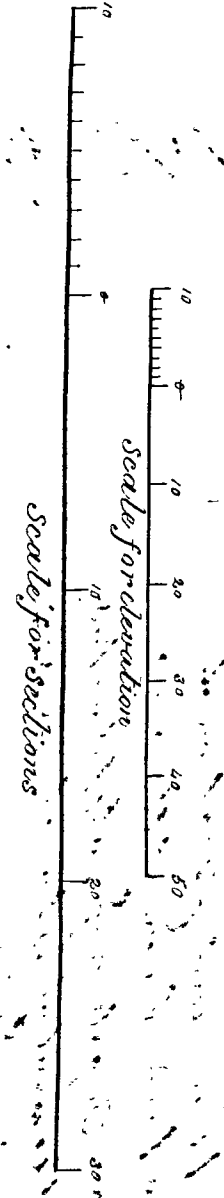
Origole & Hottapalana Road  
Road dam of 160 yards.



Section thro Centre

Section thro wing with cross wall  
in elevation.

Soil Sandy clay  
Material Bricks & Churnam  
with outer rubble, Stone Sparrow  
Estimate R's 42' 10" - 11"  
Road way of Dam to be formed  
of 6 inches of gravel laid on  
6 inches of rubble. masonry  
apart to be laid on 3 of concrete



Return  
30 June 1862

W. H. M. O. N. H. A. R. H.  
Superintendent of the Division.

W. H. M. O. N. H. A. R. H.  
District Engineer, No. 12.

I enclose  
in a letter from the

Superintendent of the Division  
to the District Engineer, No. 12.

To the District Engineer, No. 12.

8 P. M.  
In answer.

Dated 31 January 1862

W. H. M. O. N. H. A. R. H.

W. H. M. O. N. H. A. R. H.

Abstract of the  
Construction of  
Road from Anga to  
Hottapalana  
Gravel 10 feet long 3  
yards 132. masonry  
to estimate No. 50,200

827677/102

Place and location of a Post  
 some of 150 yards or  
 Bugle with Katafalon Post  
 Quiver of Schmatz <sup>11/20</sup> 1856

Sale White Cotton.  
Materials Brick  
and Charcoal  
Estimate No 218-n.

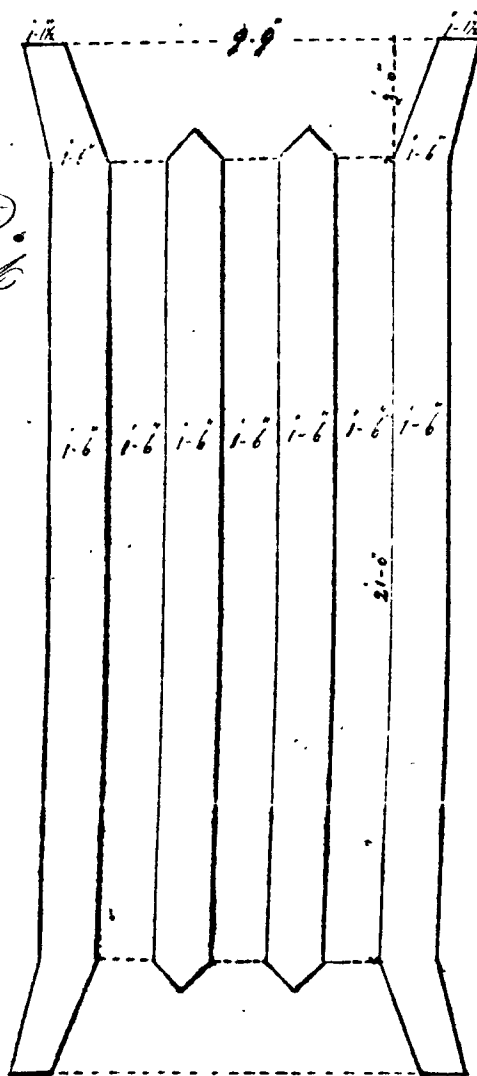
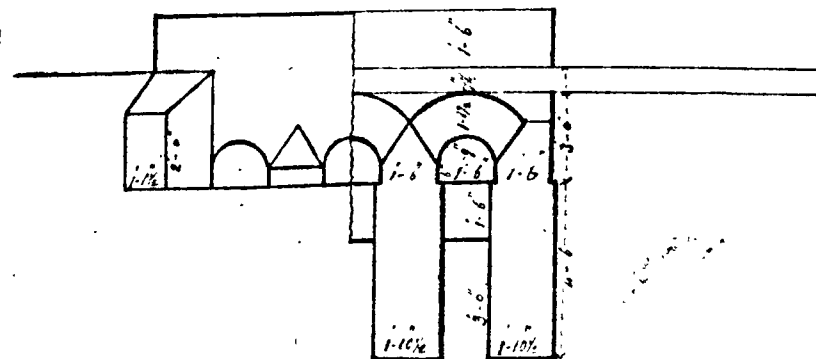
Suppl<sup>y</sup> Eng<sup>r</sup> and Dr<sup>y</sup>

Richard B. E.  
A. J. De

Appendix No 19. 15.  
Plan and Section of a Tunnel  
of 3 vaults of  $\frac{1}{2}$  yard span at <sup>No. 2-9</sup> 9-11-185  
on Orizaba and Notapalau. Prob.

No accompanying charges will be made for the use of the water, illumination, or of the life saving boat.

Elevation - Section



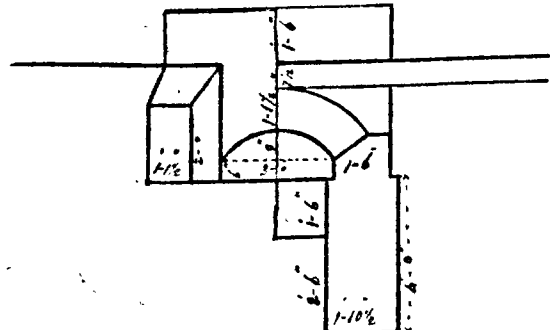


SP 4

Plan and Section of of Tunnel of  
one Vent of 3 feet. Span at F. F. 95.  
on Onyok and Rotapataw.  
Road 19

Appendix N-13 & 14.

Section thro A. B.

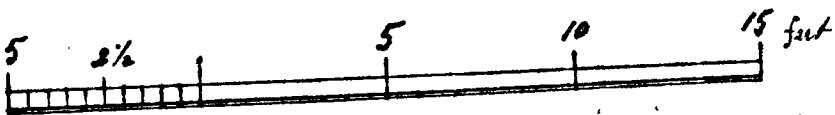
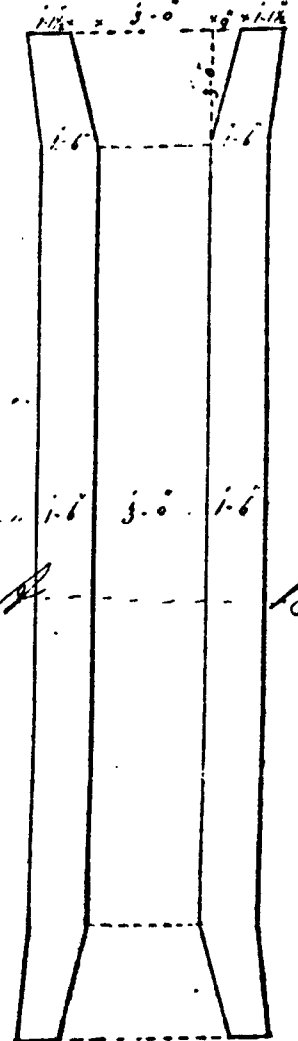


9/17/14

Shurmon  
Engineering and Surveying

Estimate for one  
Mural } 116-  
of front of the 223-  
A. B.

Materials Brick  
and Churnam.

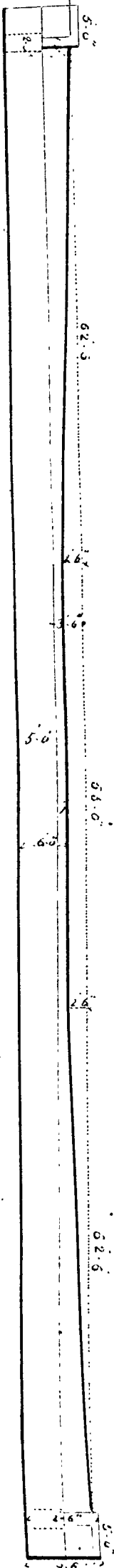




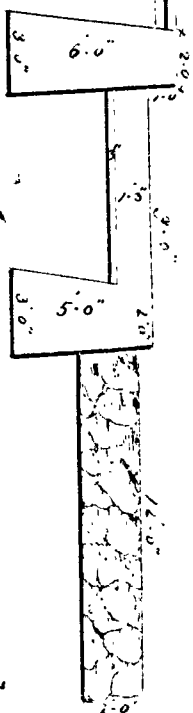
Alfred die 25<sup>e</sup>  
de fin d'at

And out of the said sum of 60  
pounds on my wife and child's part and the said

23  
See. 1470 3 See the Division



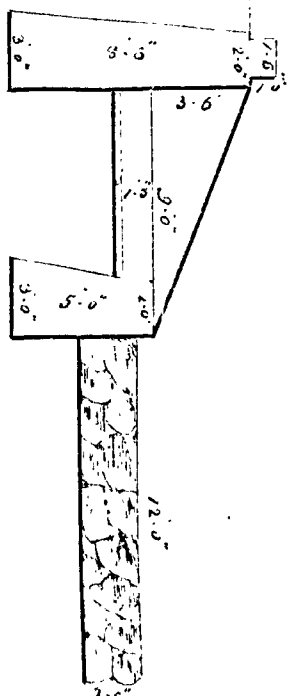
Section Through center.



Sozialwissenschaft

Muhammad Roudla Sion erckinnann

Estimated Purchase 290 — " —

Scale 6  $\frac{2}{3}$  feet below surface

To accompany Superintending Engr's letter 1876-1-1 to Govt.  
Dated Masulipatam 9<sup>th</sup> February 1876---

Dated Masulipatam 4<sup>th</sup> February 1824

Chairman

Superior Engineering and Dr.

11

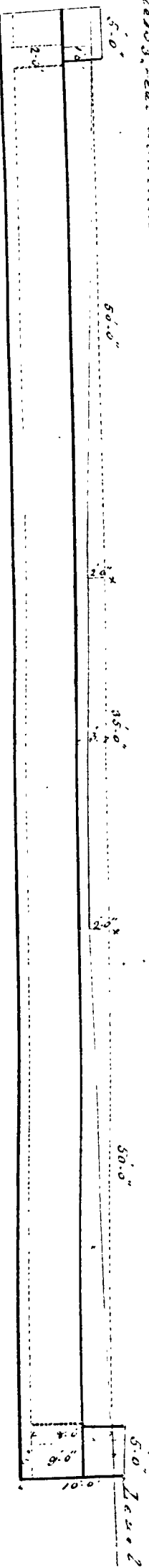
18/4

g2W 677/62

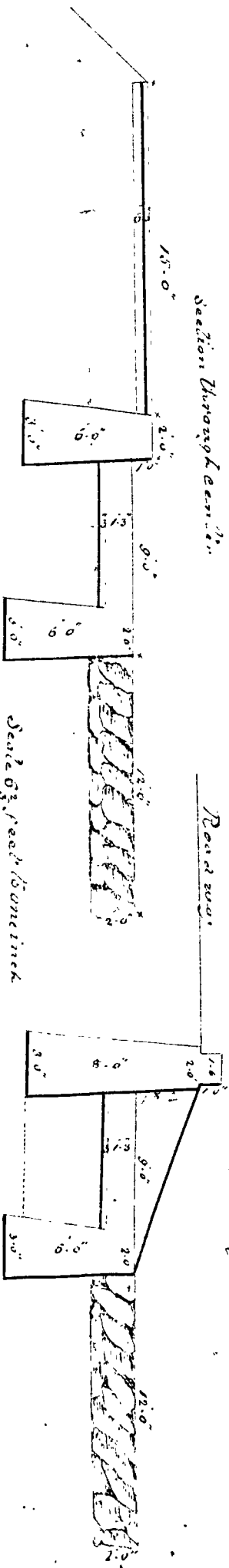
7-19-55

Monday Feb.  
 1861, and a train of a Wood Stand of  
 40 yards on Cayote and 40 ft. a train 100 yds.

Seeley's, Real-Compreh



25



Soil-Arrest Co. 2000  
1227 Taylor St. S. West Chicago  
Ill. 60606 918-n-1111

To accompany Supt. & Coy. letters: 61 to Govt.  
Dad Masulipatam 9<sup>th</sup> February 1864--

  
 J. Mendenhall  
 14 Oct. 1961  
 Dept. of Engineering and Applied Science

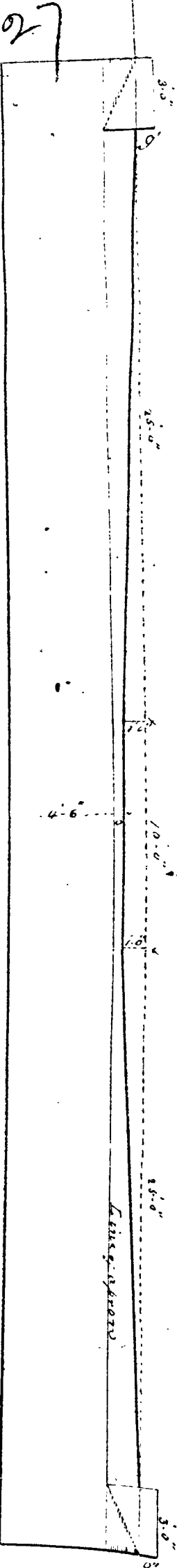
174

928677/64

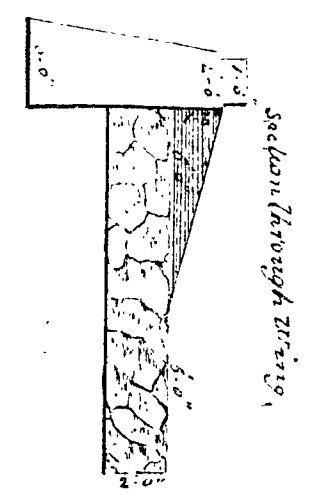
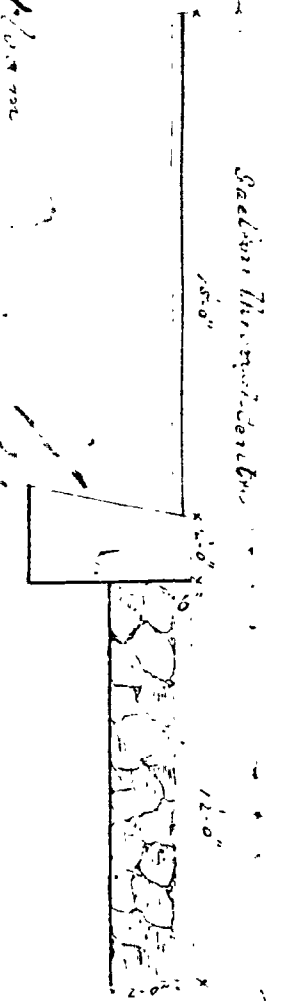
Unaccompanied by the right of the field to the  
 Detail of the Division of the Survey 1864

M. E. 7  
 0 - 4 - 150  
 0 - 7 - 110

Scale 5 feet to 1 inch



Approximate No 23.  
 Plan and Section of a Dam of 23 ft  
 on Capital and Stationary 1860.



Soil and Stone  
 Materials 300 and 1000 lb per cubic foot  
 Estimated for one 1815 ft. for 1815 ft. 310 ft.  
 The construction of the dam is shown in the  
 with stone to the right of the dam. The  
 in the stone and masonry section.

H. M. M. M.  
 Single King 3rd Division  
 A. D.

11

11/11/11

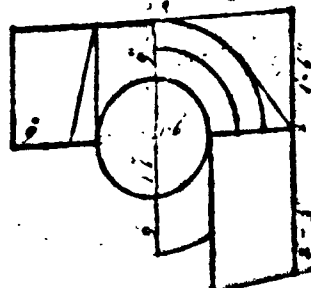
11/11/11

No accompanying sheet to map of 1861 to go with  
 dated 1861 and 1862.

By accompanying sheet to map of 1861 to go with  
 dated 1861 and 1862.

31 Appendix No. 1  
 9, 10, 15, 16, 17

Plan and Section of a Barrel drain of  $\frac{1}{2}$  yard  
 on Orkole and Kottapattam Road



Appendix No. 1  
 Plan and Section of a 'Shal' drain at  
 Ch. 5. The on Orkole & Kottapattam Road.

29



Highland Road  
 Kottapattam  
 Kottapattam Road

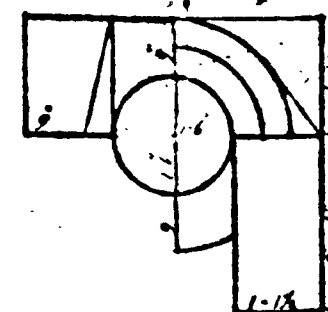


Shal drain  
 Kottapattam Road

No. 12

1861

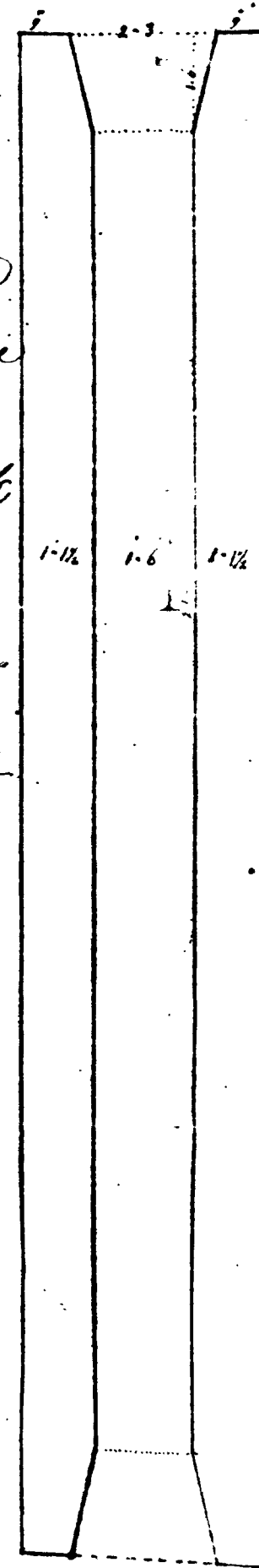
Plan and Section of a Barrel drain of  $\frac{1}{2}$  yard -  
on Chylo and Kottapattam Roads



31 Appendix No. 1  
9. 10. 15. 16. 17

The accompanying drawings are to be used for the purpose of estimating the cost of the work.

Plan



Soil - Sandy loam  
Foundation and Superstructure  
Brick in Chumam  
Arch 2 rings with brick  
on edge  
Estimate Rs  
for one drain } 35/-  
For 5 drains 175/-

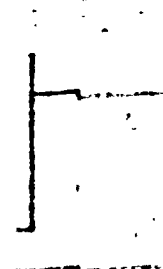
Almudor

Supd Engd & Archt

M. J. C.

Secd

20/8/17/18

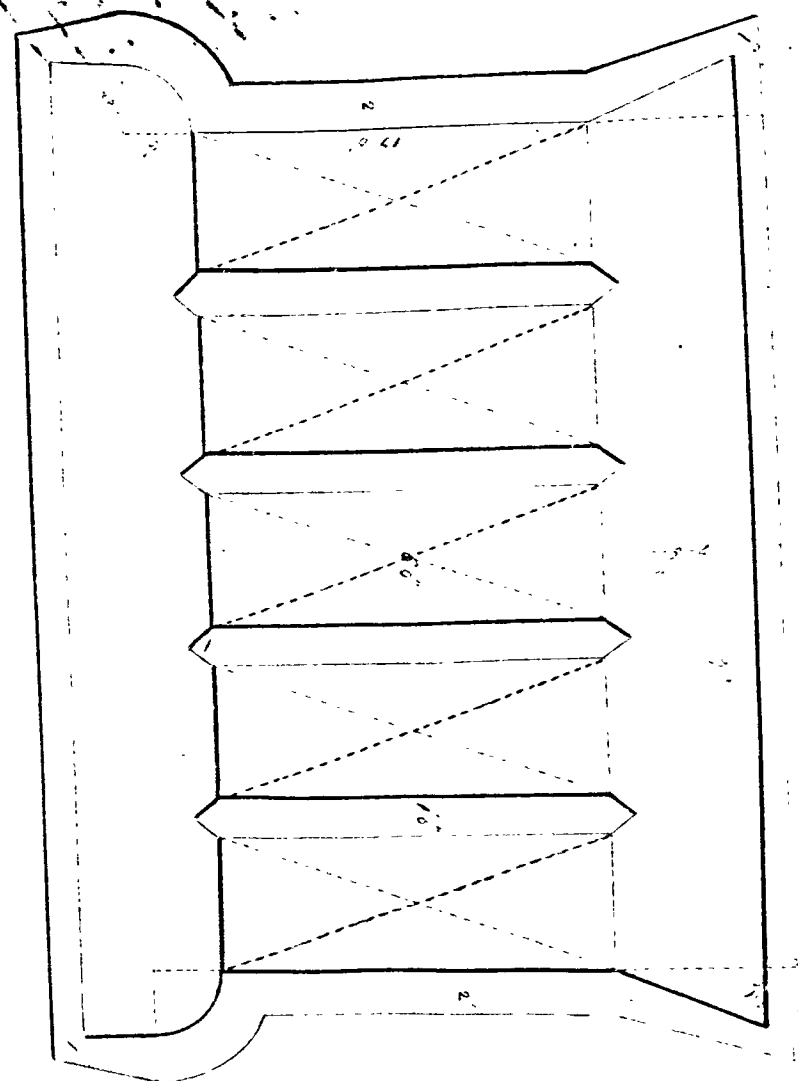
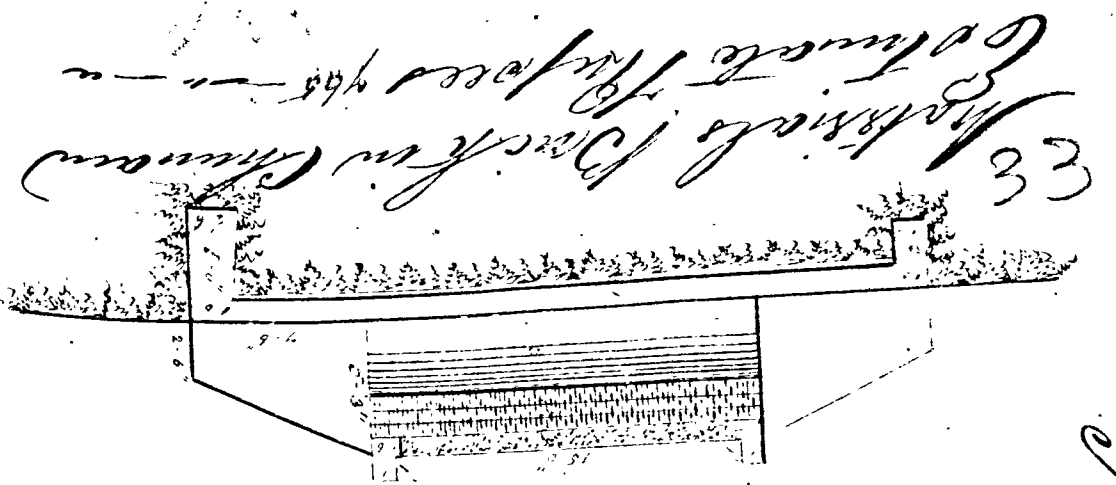


To accompany plans of the Hotel at West  
 Point, New York, Jan. 1864.

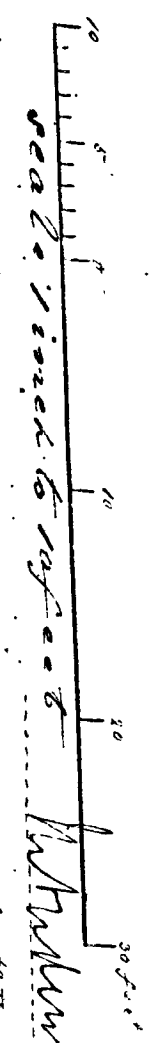
6-3-1870  
 6-3-1870

Architect No. 8  
 Plan and Section of a Steamboat  
 of 200 tons and 100 ft. long.

Plan



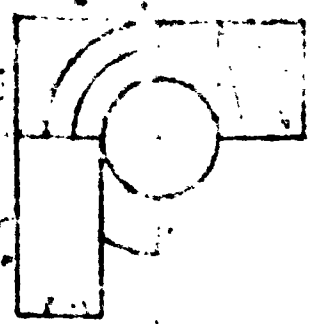
Elevation Section



Single Engine and Propeller

A. J. C.

49/6/70



1210

As

978677/6

No 697

37

ings of the Madras Government  
Under date the 8<sup>th</sup> March 1864

Read the following  
letter from the Sup<sup>r</sup> Engineer

Rs 31 January 1864 - 195  
" 15 Sept<sup>r</sup> /63 - 289 290  
" 21<sup>st</sup> May - 373 374  
" 10 Feb<sup>r</sup> - 139 140  
" 12 - /64 - 272 273

W 1864 Dept  
Pro. of Govt. for March  
From 9-677  
The Sup<sup>r</sup> Engineer,  
2<sup>nd</sup> Division

To the Secy to Govt.  
D. P. W.

Dated 9 February 1864  
Recd 170

Subject 8. 29

Forwarding Plans  
and Estimates v. for the  
Construction of Angole  
and Kottapattin  
Road for Sanction  
amounting to Rs 50,200

No 187

c 24 Feb 1864 R. 2<sup>nd</sup> March

etc. 697 - 8<sup>th</sup> March 1864

P. H. D.

No 697

37

Proceedings of the Madras Government  
Under date the 8<sup>th</sup> March 1861

Read the following  
letter from the Supt. Engineer  
2<sup>nd</sup> Division.

Forwarding Plans and  
Estimates for the Construc-  
tion of Angole and Kottapattam Road for Sanction amounting  
to Rupees 50,200.-

The Estimate of Rs. 50,200  
submitted with this letter provides  
for the continuation of the  
Cumbum Road to the Port &  
Salt Deposits of Kottapattam in  
the District of Nellore.  
The importance of this link  
of communication was strongly  
advocated by the Collector  
on the ground that the Convey-  
ance of Cotton & other produce  
of the northern parts of Kurnool  
& Nellore to the Port of ships  
which would thereby be  
facilitated, & return loads  
of Salt be there obtained.

W

W

W

According to the Collector's report  
to the Board of 29 Sept. No  
244, the export of Cotton from  
Kotapatnam has of late years  
considerably increased, & the  
chief obstruction on the line  
is the Coast swamps, which  
it is proposed to cross by a  
Bridge of 9 bays of 20 feet  
span.

The Government,  
recognizing the importance  
of the work, made special grants  
for it at different times, & in  
No. 244 of 31<sup>st</sup> January 1862  
No. 99, requested the submission  
of a proper Estimate, which  
Col. Anderson now forwards.  
The total expenditure up to  
the end of December last is  
given at Rs 25,996, leaving  
Rs 21,206 of the estimated  
outlay to be worked out.

The Governor and  
Council sanction the Estimate  
submitted amounting to Rs 50,200.  
He refers from the Supy Ings  
letter of 18 January 64, No 46.

39

that the cost of the Bridge over  
the swamps was originally es-  
timated at Rs 4195. In the  
Estimate now before him the  
cost is entered at Rs 6570, &  
he presumes that the excess  
is owing to a flooring having  
been added in pursuance of  
the Collector's suggestion. The  
additional work was approved  
by Government on the 12<sup>th</sup>  
Feb. 1864, at Rs 442.

The rates allowed  
in the Estimate seem high,  
but this is accounted for by  
the fact that the soil for  
the greater portion of the line  
is very unfavorable, & much  
has to be carted from a  
considerable distance.

It is observed that  
the allotment for the Angol  
& Kotapatnam road in the  
- next official year is Rs 200.

G.O. 21 May 63-1292. Rs 10,000  
G.O. 15 Sept " 2654- 10,000

To the Supy Ings 2<sup>nd</sup> du 11<sup>th</sup> specification & sketch  
" Cont: & aut of Mr act.  
" Act Ings J  
Recd 9<sup>th</sup> March

181. 182

1864 Deft  
of Gustafsson  
Copy  
of the Affidavit  
of 18 March 1864

1936/14

Estimate of 1864  
of the Construction  
of the Combustion  
the part and also  
Deposit of 1864  
the 18 March 1864  
mentioned.

1864 - 1864 - 1864 - 1864