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Proceedings of the Madras Government, Public Works Department
17th March 1873.

Read the following letters:—

No. 403. From the Inspecting Engineer for Civil and Military Buildings, to the Secretary to Government, Public Works Department, dated Chepauk, 29th January 1873, No. 86.

I HAVE the honour to forward, for the sanction of Government, an estimate of Rupees 1,110 for providing additional tie-rods for the columns supporting the iron cisterns at the hospitals on the Race Course at Bangalore, and an estimate of Rupees 3,490 for repairing the damaged filter. These improvements and additions were suggested in the letter* from the Government of India of the 4th of April 1872, No. 469, sanctioning the estimate

Two Plans.
Three Abstract Estimates.
Three Specifications.

* Printed in G. O., No. 1,132, dated 3rd May 1872.

for the Ulsoor and Dhobies' Wells Projects. The cast-iron columns themselves are not deficient in strength, as each one is to bear not more than one-tenth of the breaking load. The estimate now submitted provides for such additional bracing as can be fixed, considering the situation of the columns. The cisterns are supported on columns placed in the hospital lavatories, and it would be most inconvenient if the rooms were blocked up by bracing extending from the floors to the ceilings.

2. The leaks in the filter at the Ulsoor Tank are proposed to be stopped by an inner concrete wall, carried down to the solid ground. With the estimate for repairs first received from the Executive Engineer there is now forwarded another of Rupees 2,261 for providing filtering materials, in which is included an item of Rupees 161 for partially renewing the material of the adjacent filter, the one now in use.

3. The plans and estimates have been approved by His Excellency the Commander-in-Chief.

No. 404. From the same Officer, dated Chepauk, 14th February 1873, No. 124.

I HAVE the honour to forward a plan of the filters and pure water basin at the Ulsoor Rock, called for in your memorandum of the — February, No. 38.

One Plan.

2. When I saw the damaged filter on the 3rd, preparation for rebuilding the concrete wall had been made. The floor had been taken up along the walls and the earth removed to various depths. On receipt of your memorandum the work was stopped. At E F in the plan the trench was 10½ feet deep, and was below the foundation of the wall. No signs of leakage could be discovered on this side, but it was found that the stones in the lower courses of the foundation were set only in earth. The upper courses are stone-in-chunam, and above the floor the wall is brick-in-chunam. The wall on this side is in good order.

3. On the side G H there are two cracks in the foundation, but the brick wall above is in good order. One of the cracks was stopped some years ago, and apparently effectually by an inner lining of concrete. So far as the excavation had been made, no signs of leakage could be discovered on this side also. The floor of the filter, where it has not been taken up, is in good order.

*Proceedings of the Madras Government, Public Works Department,
17th March 1873.*

4. I do not think the water can be intercepted in the way suggested by you, or that the filters can be rendered water-tight except by excavating a trench on the inner side of the walls down to the rock or firm ground, filling in with concrete and filling in at the same time between the stones in the lower courses, afterwards replacing the earth carefully behind the concrete, and rebuilding the floor as before.

5. It is impossible to say to what depth the concrete will have to be taken down in every part, as neither the Executive Engineer, Overseers, nor Maistries now at Bangalore were present when the excavation for the filter was made. It will not be safe to dig this trench to the full depth for the whole length, and then leave it open till an accurate estimate has been prepared and sanctioned. The work must be done in portions, and it will be seen before much progress is made whether the repairs are likely to be effectual.

No. 405. From the same Officer, dated Chepauk, 1st March 1873, No. 200.

With reference to your Memorandum, No. 70 of the 20th February 1873, I have the honour to state that I cannot obtain information regarding the original leak in the filter. As regards the second, it appears that the filter was filled one evening with water, without any filtering material having been placed on the floor, and the next morning it was empty, the water having escaped through a crack at the junction of the floor with the wall on the side nearest the road.

2. The apertures in the escape culvert are 9 inches by 7 and two feet apart.

3. The floor is 1 foot 10 inches in thickness. The two courses of brick on edge in cement were laid on the old floor. When I last examined the filter, the floor, as I have already reported, was in good order. There was no appearance of settlement or leakage, and I therefore conclude the water must have escaped through a crack near the junction of the floor with the wall.

No. 406. From the Officiating Quartermaster-General, to the Secretary to Government, Public Works Department, dated Fort St. George, 4th March 1873, No. 1,759.

I HAVE the honour, by order of the Commander-in-Chief, to forward letter No. 116, dated 28th ultimo, from the Officer Commanding Mysore Division, on the subject of the Ulsoor Water Works.

2. His Excellency trusts you will be enabled to empower the District Engineer at Bangalore to proceed, as rapidly as is consistent with sound work, with the necessary repairs to the filters; also that the works at the Dhobies' Wells may be pushed on.

3. After the large expenditure on these works, it would be unfortunate to have to apply to Government to sanction expenditure for carts for watering the horses.

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17th March 1873.*

No. 407. From the Inspecting Engineer for Civil and Military Buildings, to the Chief Engineer, Public Works Department, dated Chepauk, 7th March 1873, No. 224.

I HAVE the honour to forward a copy of a report just received from the District Engineer of Bangalore on the present state of the filter at the Ulsoor Rock.

One Report.
One Plan.

From the District Engineer, Bangalore, to the Inspecting Engineer for Civil and Military Buildings, dated Bangalore, 5th March 1873, No. 987.

I regret to have to inform you that a crack has appeared in the floor of the filter at Ulsoor Rock. I enclose a sketch showing its position.

One Sketch.

2. You are aware that a month ago, after the excavation for the repair of the filter had been taken down some six or more feet, the work was stopped by order of the Chief Engineer, since then nothing has been done.

3. The soil under the floor has been exposed since then to considerable heat, and it appears to me that it must have contracted when so exposed and thus caused the crack which will, I think, render necessary a new floor.

4. I have, as you know, held the opinion that as the walls and floor are built on made earth or disintegrated gneiss, it would be better to rebuild the filter, and that otherwise the work will never be a satisfactory one.

5. The fact is the site is unsuitable for a filter. The natural ground underneath consisted of boulders of rock, and this was brought up to a level by filling in between these masses of rock with earth. The wall also (the lower part of which is as you are aware built of stone-in-mud) is not founded on hard rock but on disintegrated gneiss.

6. The crack in the floor, which I now report, only appeared a few days ago. Had the repairs been carried out at once, it is possible that this crack would not have occurred, as by this time the concrete work would have been nearly complete. The estimate submitted by me will now, I think, be insufficient to repair the filter.

No. 408. ORDER THEREON, 17th March 1873, No. 832.

MILITARY WORKS, No. 11.

THE Government regret to learn that the dilatory manner in which the subject of repairing the damaged filter

at Bangalore has been dealt with by the Executive and supervising officers has resulted in the entire destruction of its floor, which but a short time previously was declared by the Inspecting Engineer to be in good order, without appearance of settlement or leakage. So that, in his opinion, the water must have escaped through a crack near the junction of the floor with the wall, a defect capable of remedy by such an expedient as that sanctioned for repair of the cistern in G. O., No. 620 of 25th February; whereas now the entire floor must be taken up and relaid.

2. In paragraph 8 of G. O., No. 528 of 26th February 1872, it was directed that the ruptured filter at the Ulsoor Works should be put into thorough repair. The estimate for carrying out such repair, submitted by the District Engineer, bears date the 14th September 1872; but it was not forwarded by the Inspecting Engineer for sanction of Government till the 29th January 1873, within two or

three days of which date the Chief Engineer objected to the work proposed, as inconsistent with the nature of the defect which was to be remedied. Meanwhile, *i. e.*, by the 22nd January, the Inspecting Engineer, acting on G. O., No. 93 of 11th January, paragraph 2, had authorized action on the estimate so long in his possession, but of the existence of which the Government were ignorant. And between that date and the 3rd February, when the work was stopped in consequence of the Chief Engineer's disapproval, an amount of excavation was carried out the extent of which is now for the first time reported, together with the effects produced by its continuing open, while further information regarding the actual state of the work was being supplied by the Inspecting Engineer.

3. There cannot now be any doubt as to the course to be pursued, although no proposition has been submitted by either the District or Inspecting Engineer.

* 9 inches.
† 9 "

‡ 18 inches..

The entire floor must be relaid of the original thickness,* on a concrete bed of the same thickness,† resting on a well-beaten and levelled bed of laterite jelly of double that thickness,‡ the

whole of the earth below that level having been well tamped and levelled. This will have to be done throughout the area which has been excavated and disturbed, leaving the unbroken strip along the wall of the upper filter to be carefully taken up and repaired in small portions separately, so as not to endanger the foundations of that wall, or lead to leakage through or under them. The work will be undertaken emergently, an estimate of its cost being submitted at an early date.

4. The sum of Rupees 2,100 for filtering materials is sanctioned, subject to further inquiry as to the best materials and arrangement of them for filtering purposes. Provision of sand to the extent asked for on account of the upper filter may be made, but previous to its being applied the whole of the materials will be taken out and an examination made of its floor.

5. The estimate of Rupees 1,100 for providing tie-rods to the hospital cisterns is sanctioned.

6. More direct and independent communication between the lower filter and the pure water basin being desirable, it will be afforded by pipes laid direct from the tunnel inside the filter into the basin.

(True Extract.)

(Signed) G. W. WALKER, Colonel, R.E.,

Secretary to Government.

To the District Engineer, Bangalore.

„ Inspecting Engineer for Civil and Military Buildings.

Exd. W. H. French.

Specification to accompany Estimate for providing filtering materials to the Ruptured Filter at the Uloor Rock. Bangalore.

Amount of Estimate Rupees 2261.

The filtering bed to be composed of the materials, and laid in the order, as specified below.

1^{3/4}, 1 foot of flagstones. (frame stock in hand.)

2^{3/4}, 1 foot of Road Metal.

3^{3/4}, 6" of Laterite Gravel.

4^{3/4}, 1 foot of Charcoal.

5^{3/4}, 2 feet of Clean Sharp Sand.

All materials used and work done to be of the best description and subject to the approval of the Executive Engineer of Bangalore, who shall have the entire power of ordering the removal of any work with which he is dissatisfied.

*Edwd Colouel. R.E.
Insp. Engineer. Civil and
Military Buildings.*

Specification to accompany
Plan and Estimate for repairing the
ruptured filter at Ulson Rock.

Amount of Estimate Rupees 3490

Picking up
flooring.

The present flooring of the filter
on the South east and west sides (as
shewn on plan) will be picked up
to a breadth of 10 feet from the side
walls.

The earth below the present
flooring to be excavated to a depth
of $7\frac{1}{2}$ feet, or down to the solid
ground.

Foundation The foundation will be made
with concrete; the proportion of the
concrete will be as follows, 4 parts
of good gneiss broken into cubes of
one to 2" free from quarry sweeping
1 part of good unslacked lime,
two parts of ground bricks; the
lime to be slacked while mixing
the concrete. After the concrete is
properly mixed, it is to be built in
layers not exceeding 12" in thickness
at a time, for details see plan &
cross section.

Filling

The space between the concrete
foundation

Bongalore

PN. 620/73

Specification to
accompany Estimate
for providing filter
materials to the
ruptured filter at
the Ulson Rock.

Bongalore

Amount Rs 3490

12.8.1906

12 Aug 1873
Foundation and the ground is to be
filled in with good stiff clay
with layers not exceeding 12" in
thickness well watered and rammed.

12 Aug 1873
Flooring. When the concrete
foundation and the new made up
earth is properly set and dried, the
whole is to be covered over with
a flooring consisting of two courses
of brick an edge set in with
Portland Cement properly bonded
into both the side walls and the
present flooring.

Wherever that portion of the
work which is to be left is out of
order it is to be repaired, the flooring
to be 2 Courses of brick an edge
set in Portland Cement, and such
portions of the side walls as require
repair, will be plastered with
two coats of Portland Cement.

All Materials and workman-
ship employed to be of the best
description and subject to the approval
of the Executive Engineer of Bangalore
who

who shall have the entire power
of ordering the removal of any
work with which he is dissatisfied.

12 Aug 1873
Executive Eng^r's Office
Bangalore
14 September 1873
Capt. H. M. Tibb
Executive Engineer Bangalore

Edw. Col. M.
Inspecting Engineer for Civil
and Mil. Buildings

Specification to accompany
Plan and Estimate for providing the rods
for Iron Cisterns for Hospitals on the
Race Course.

Amount of estimate Rupees 1116

The columns to be thick and connected
with wrought iron tie rods bolted to
the flanges and to bridges round the
columns in position, Shewn on the Plan.
these tie rods will form braces both
vertically and diagonally in the
direction of the length and breadth
of the Cistern and also in the direction
of the diagonals of the squares formed
by 4 cast iron pillars.

The tie rods will be of the following dimensions
All Horizontal tie rods to be $\frac{1}{2}$ " diameter
Bolts to ———— Do. $\frac{1}{2}$ " ————
Diagonal ———— Do. $\frac{3}{4}$ " ————
Bolts to ———— Do. $\frac{5}{8}$ " ————
Bridges to fit columns 2" broad and $\frac{3}{4}$ " thick

Painting

The whole of the iron works to
be painted with two coats of Carson's
anti Corrosive paint. Slate color.

By Order of the Officer
Bangalore
30 September 1872

Sd/- Henry M. Thwaites Capt.
Executive Engineer Bangalore

Edwrd Lloyd Esq.
Superintendent

Bangalore

P.N. 620/73

Specification & estimate
for heavy Plan & the for
repairing the surface
pavement at Mysore
Rock.

Amount to be paid
Rs 3490

Military. - Bangalore. - New work.
- Abstract Estimate of 1872-73. -

Work. - Providing tie rods to iron Cisterns for Male and Female Hospitals on the Race Course, Bangalore.

Description of work Made For Amount Total.

Cistern for Male Hospital.

231.39 lbs of Wrought iron — 350. — Ton 349 ..
232 Nos of Boring holes in the bridges — 4. Each 58 ..
Painting — — — — 6 ..

Sundries — — — — 413 ..
22 ..

Total Rupees for One. - 435 ..

— ditto — for Two — 870 ..

Cistern for Female Hosp.

149.12 lbs of Wrought iron — 350. — Ton 101 ..
48 Nos of Boring holes in the bridges — 4. Each 12 ..
Painting — — — — 2 ..

Sundries — — — — 5 ..
115 ..

Total Rupees for One 120 ..

— ditto — for Two — 240 ..

Grand Total of Estimate Rupees. - 1110 ..

Wdgt. Henry M. Tibart Capt. R.E.
Executive Engr. Bangalore

EA and Coll. M.E.
Suez Suez Canal and
Mills. Builders.

Brown
Wm. Law
at

Ex. Engr's Office
Bangalore
30 September 1872

B. M. S. S. S.

PA 620/73

Memorandum to
accompany Estimate
and Estimate for
providing tie rods
to iron cisterns for
Male & Female
Hospitals on the
Race Course.

Military.

Bangalore.

Repair

Abstract Estimate of 1872-73.

Work. Providing filtering materials to the Rupture
Filter at the Ulsoor Rock, Bangalore.

Quantity	Description of work	Rate.	Per.	Amount.	Total
410	Cyds of Sand	" 8	" Cyd	205	
188½	D ^o Charcoal	8	" " D ^o	1508	
94¾	D ^o Laterite Gravel	" 7	" D ^o	41	
188½	D ^o Road metal	1 4	" D ^o	236	

1990

Sundries

110

Total Rupees

2100

Add for removing one foot
of old sand from the ad-
jacent Filter, & refilling the
same with Clean sand.

160

Grand Total of Estimate Rupees 2260

Approved
Major General
W. V.

Edw. David Colonel R.E.
Insp.^r Engineer Civil and
Military Buildings

Bangalore

Rs. 600/73

Abstract Estimate
for providing the road
to from Cisterns for
Gravel and Stone
Hospital in the
Rice Course at
Bangalore.

Amount of Rs. 600/73

By 1887

28/9/1873

Account of Estimate
No 2261
28/9/1873

Abstract Estimate
for providing filling
materials to the
ruptured filter at
the Ulsoor Rock
Bangalore.

PN 620/73

Bangalore

Military

Bangalore.

17

Repairs.

Abstract Estimate of 1872-73.

Work.—Repairing the Ruptured Filter at the Ulsoor Rock
Bangalore, vide G.O. No. 528 dated 26th February 1872.

Quantities	Description of work.	Rate	Per	Amount	Total
18.83	Sqrs of Picking up masonry floor—	1 12	" Sqrs	33	
134 1/3	Cft of Excavation—	" 1 1/2	Cft	105	
2070	D ^o of Filling in Superfluous Exc.	" "	1/2	5	
	Cavation.—	" "	1/2	5	
109 6/4	D ^o of Concrete with Stone jelly and Chunam—	" 3 3	"	2227	
14 1/2	D ^o of Flooring with Brick on edge in Cement—	" 6	"	530	
22.59	Sqrs of Plastering with cement—	12	"	271	
				3171	
	Sundries at 10 per cent—			319	
	<u>Total Estimate Rupees</u>				3490

(Signed) Henry M. Vibart Captain R.E.
Executive Engineers Office } Executive Engineer, Bangalore.
Bangalore 14th September 1872.
Henry M. Vibart
Edward Colonel R.E.
Insp^r Eng^r Civil & Mil^y Buildings.

Office of the Inspecting Engineer
for Civil & Military Buildings
Cherpoor 29th January 1872

N^o 86

From

Colonel C.A. Ford R.E.
Inspecting Engineer for Civil
and Military Buildings

To
Colonel C.W. Walker R.E.
Secretary to Government
Public Works Department

Sir,

I have the honor to forward, for the
sanction of Government, an estimate of
Rupees 1110, for providing additional tie
rods for the columns supporting the iron
cisterns at the Hospitals on the Race
course at Bangalore, and an estimate
of Rupees 3490, for repairing the damaged
filters. These improvements and additions
were suggested in the letter from the
Government of India of the 4th of April
1872, N^o 469, sanctioning the estimate for
the Alison and Pholies wells projects.

Printed in
G.O. N^o 1132,
dated 3rd May
1872

- Enclosures 8
2 Plans
3 Abstract esti-
mates
3 Specifications

W. M. M. M.

PN 620/73
M. 17 from 123/128/103
17 March 1872

Abstract estimates
for repairing the
filters at the
Hospitals on the
Race course at
Bangalore, and
for the Alison and
Pholies wells projects.
29th January 1872.
Colonel C.A. Ford R.E.
Inspecting Engineer
for Civil & Military
Buildings

The cast iron columns themselves are not deficient in strength, as each one is to bear not more than one tenth of the breaking load. The estimate now submitted provides for such additional bracing as can be fixed, considering the situation of the columns. The cisterns are supported on columns placed in the hospital lavatories and it would be most inconvenient if the rooms were blocked up by bracing extending from the floors to the ceilings.

2. The leaks in the filter at the Wilson tank are proposed to be stopped by an inner concrete wall, carried down to the solid ground. With the estimate for repairs first received from the Executive Engineer there is now forwarded another of Rspees 2261, for providing filtering materials, in which is included an item of Rspees 161 for partially renewing the

the material of the adjacent filter, the one now in use.

3. The plans and estimates have been approved by His Excellency the Commander-in-Chief.

I have the honor to be
Sir,

Your most Obedient Servant
E A Ford Colonel R.E.
Inspecting Engineer Jn. Civil
and Military Buildings

N^o 124

From

Y

Sw

Inclosure
: Plan. 60

2.

2050 Hwy 172 Bobs-46.

Oct. 1873. State
Tenn. No. of 400000 620

At the Academy of Fine Arts
for Civil Architecture.
Rome.

The Secretary to
Govt. of India

1186

Paid 29. Jan^y 1873
 to Ck 69^x
 Recd 30 — do —
 29-14-81-1871-1872-1873-1874-1875-1876-1877-1878-1879-1880-1881-1882-1883-1884-1885-1886-1887-1888-1889-1890-1891-1892-1893-1894-1895-1896-1897-1898-1899-1900-1901-1902-1903-1904-1905-1906-1907-1908-1909-1910-1911-1912-1913-1914-1915-1916-1917-1918-1919-1920-1921-1922-1923-1924-1925-1926-1927-1928-1929-1930-1931-1932-1933-1934-1935-1936-1937-1938-1939-1940-1941-1942-1943-1944-1945-1946-1947-1948-1949-1950-1951-1952-1953-1954-1955-1956-1957-1958-1959-1960-1961-1962-1963-1964-1965-1966-1967-1968-1969-1970-1971-1972-1973-1974-1975-1976-1977-1978-1979-1980-1981-1982-1983-1984-1985-1986-1987-1988-1989-1990-1991-1992-1993-1994-1995-1996-1997-1998-1999-2000-2001-2002-2003-2004-2005-2006-2007-2008-2009-2010-2011-2012-2013-2014-2015-2016-2017-2018-2019-2020-2021-2022-2023-2024-2025-2026-2027-2028-2029-2030-2031-2032-2033-2034-2035-2036-2037-2038-2039-2040-2041-2042-2043-2044-2045-2046-2047-2048-2049-2050-2051-2052-2053-2054-2055-2056-2057-2058-2059-2060-2061-2062-2063-2064-2065-2066-2067-2068-2069-2070-2071-2072-2073-2074-2075-2076-2077-2078-2079-2080-2081-2082-2083-2084-2085-2086-2087-2088-2089-2090-2091-2092-2093-2094-2095-2096-2097-2098-2099-2100-2101-2102-2103-2104-2105-2106-2107-2108-2109-2110-2111-2112-2113-2114-2115-2116-2117-2118-2119-2120-2121-2122-2123-2124-2125-2126-2127-2128-2129-2130-2131-2132-2133-2134-2135-2136-2137-2138-2139-2140-2141-2142-2143-2144-2145-2146-2147-2148-2149-2150-2151-2152-2153-2154-2155-2156-2157-2158-2159-2160-2161-2162-2163-2164-2165-2166-2167-2168-2169-2170-2171-2172-2173-2174-2175-2176-2177-2178-2179-2180-2181-2182-2183-2184-2185-2186-2187-2188-2189-2190-2191-2192-2193-2194-2195-2196-2197-2198-2199-2200-2201-2202-2203-2204-2205-2206-2207-2208-2209-2210-2211-2212-2213-2214-2215-2216-2217-2218-2219-2220-2221-2222-2223-2224-2225-2226-2227-2228-2229-2230-2231-2232-2233-2234-2235-2236-2237-2238-2239-2240-2241-2242-2243-2244-2245-2246-2247-2248-2249-2250-2251-2252-2253-2254-2255-2256-2257-2258-2259-2260-2261-2262-2263-2264-2265-2266-2267-2268-2269-2270-2271-2272-2273-2274-2275-2276-2277-2278-2279-2280-2281-2282-2283-2284-2285-2286-2287-2288-2289-2290-2291-2292-2293-2294-2295-2296-2297-2298-2299-2300-2301-2302-2303-2304-2305-2306-2307-2308-2309-2310-2311-2312-2313-2314-2315-2316-2317-2318-2319-2320-2321-2322-2323-2324-2325-2326-2327-2328-2329-2330-2331-2332-2333-2334-2335-2336-2337-2338-2339-2340-2341-2342-2343-2344-2345-2346-2347-2348-2349-2350-2351-2352-2353-2354-2355-2356-2357-2358-2359-2360-2361-2362-2363-2364-2365-2366-2367-2368-2369-2370-2371-2372-2373-2374-2375-2376-2377-2378-2379-2380-2381-2382-2383-2384-2385-2386-2387-2388-2389-2390-2391-2392-2393-2394-2395-2396-2397-2398-2399-2400-2401-2402-2403-2404-2405-2406-2407-2408-2409-2410-2411-2412-2413-2414-2415-2416-2417-2418-2419-2420-2421-2422-2423-2424-2425-2426-2427-2428-2429-2430-2431-2432-2433-2434-2435-2436-2437-2438-2439-2440-2441-2442-2443-2444-2445-2446-2447-2448-2449-2450-2451-2452-2453-2454-2455-2456-2457-2458-2459-2460-2461-2462-2463-2464-2465-2466-2467-2468-2469-2470-2471-2472-2473-2474-2475-2476-2477-2478-2479-2480-2481-2482-2483-2484-2485-2486-2487-2488-2489-2490-2491-2492-2493-2494-2495-2496-2497-2498-2499-2500-2501-2502-2503-2504-2505-2506-2507-2508-2509-2510-2511-2512-2513-2514-2515-2516-2517-2518-2519-2520-2521-2522-2523-2524-2525-2526-2527-2528-2529-2530-2531-2532-2533-2534-2535-2536-2537-2538-2539-2540-2541-2542-2543-2544-2545-2546-2547-2548-2549-2550-2551-2552-2553-2554-2555-2556-2557-2558-2559-2560-2561-2562-2563-2564-2565-2566-2567-2568-2569-2570-2571-2572-2573-2574-2575-2576-2577-2578-2579-2580-2581-2582-2583-2584-2585-2586-2587-2588-2589-2590-2591-2592-2593-2594-2595-2596-2597-2598-2599-2600-2601-2602-2603-2604-2605-2606-2607-2608-2609-2610-2611-2612-2613-2614-2615-2616-2617-2618-2619-2620-2621-2622-2623-2624-2625-2626-2627-2628-2629-2630-2631-2632-2633-2634-2635-2636-2637-2638-2639-2640-2641-2642-2643-2644-2645-2646-2647-2648-2649-2650-2651-2652-2653-2654-2655-2656-2657-2658-2659-2660-2661-2662-2663-2664-2665-2666-2667-2668-2669-2670-2671-2672-2673-2674-2675-2676-26

Forward for the purchase of
Government Estimates of 1861 for
Me, No 3490 & No. 2261 for

providing additional resources for the continued supporting of the project in the past.

The aim was to
convince of Bonaparte's

Retaining the Damages File

card for providing pleasure

internato 11.08.39-14.08.39

11/11/11

set only in earth. The upper courses are stone in Chumam, and above the floor the wall is brick in Chumam. The wall on this side is in good order.

3. On the side G H, there are two cracks in the foundation, but the brick wall above is in good order. One of the cracks was stopped some years ago, and apparently effectually by an inner lining of concrete. So far as the excavation has been made, no signs of leakage could be discovered on this side also. The floor of the filter where it has not been taken up is in good order.

4. I do not think the water can be intercepted in the way suggested by you, or that the filters can be rendered water tight except by excavating a trench on the inner side of the walls down to the rock or firm ground, filling in with concrete and filling in at the same time between the stones in the lower courses, afterwards replacing the earth carefully behind the concrete, and rebuilding the floor as before.

5. It is impossible to say to what depth the concrete will have to be taken

25
down in every part as neither the Executive Engineer, Cessers, nor Mr. Thos. run out of Bangalore were present when the excavation for the filter was made. It will not be safe to dig this trench to the full depth for the whole length and then leave it open till an accurate estimate has been prepared and sanctioned. The work must be done in portions, and it will be seen before much progress is made whether the repairs are likely to be effectual.

I have the honor to be

Sir

Your Most Obedient Servant

E A Ford Colonel R.E.

Inspecting Engineer for Civil
& Military Buildings

Office of the Inspecting Engineer
for Civil and Military
Buildings (Chepach)
1 March 1873.

No. 202

From

Colonel C. A. Ford R. E.

Inspecting Engineer for Civil
and Military Buildings

To

Colonel G. W. Walker R. E.

Chief Engineer D. P. M.

Sir,

With reference to your memo.
No. 70, of the 20th February 1873, I have
the honor to state that I cannot
obtain information regarding the
original leak in the filter. As
regards the second, it appears that
the filter was filled one evening
with water, without any filtering
material having been placed on
the floor, and the next morning
it was empty, the water having
escaped through a crack at the
junction

West Bug 29 June 1888
1894
1895

W. H. 1873 R. E.
Inspector for Buildings
No. 1018

From

W. H. 1873 R. E.
Inspector for Buildings
No. 1018

To: W. H. 1873 R. E.
Inspector for Buildings
No. 1018

Dated 14th July 1873.
Recd. 15th July 1873.

No. 124
Encl. 1

It was with pleasure
that I received and
have been reading of
the Mason Report in
regards to the great
loss there in the clouds
the improvement.

No. 832-17 Albany 1873

Chas. H. 1873

Chas. H. 1873

junction of the floor with the wall
on the side nearest the road.

2 The apertures in the escape culvert are 9 inches by 7 and two feet apart.

3 The floor is one foot ten inches in thickness. The two courses of brick on edge in cement were laid on the old floor. When I last examined the filter, the floor, as I have already reported, was in good order. There was no appearance of settlement or leakage and I therefore conclude the water must have escaped through a crack near the junction of the floor with the wall.

I have the honor to be

Sir
Your most obedient servant,

Edw. Col. R.E.

Inspecting Engr. for Civil
& Military Buildings

District Engineer Bangalore

Chief Eng^r Bengal No 108
20 Feb 1873

14/1873 Dept
Pr. of Govt for March
No 1367

From
The Inspecting Engineer
for Civil & Building
Buildings
To the Chief Engineer
D. O. R.

Dated 1
Received 1 } March
1873.
No 207

Reporting on the
subject of the leakage
in the Filters at
Bangalore.

No 105
18 March 1873.

No 832-17 dated 1/3.

District Engineer's Office
Bangalore

From
The District Engineer
Bangalore

To
The Mr. Mr. General
Engine Division
No 990
Dated 22 Feb 1873

The District Engineer has the honor
to inform that the repair of the filter
at the Veloor Rock was commenced
on 22nd January an estimate having
been sent in some time previously.

In the first week of February the
work was stopped by the order of the Chief
Engineer as he was not completely satis-
fied with the plan proposed. Since that
time no further orders have been received.

The Inspecting Engineer has been ad-
dressed on the subject. The upper
filter is now in use, but the water
does not pass through so rapidly as
formerly. It will require to have
new filtering material, but as the
filter is required for use now, the al-
teration cannot be made at present.

The District Engineer thinks that
after recommencing work at the lower
filter, it will take fully 3 months to
put it into working order.

/Signed by Mr. M. Debut Capt. R.
District Engineer Bangalore

True copy

W. M. ————

Asst. Dir. in General

Head Quarters Mysore Division
Bangalore 27 Feb 1873
No. 16

From

The Off. Commanding
Mysore Division

To

The Dir. Master General
Head Quarters
Fort Saint George

Re

I have the honor to request that you will be so good as to inform His Excellency the Commander in Chief that I consider the state in which the Ulsoor water works now are most unsatisfactory and that I have the gravest apprehensions for the coming hot weather.

2. I beg to enclose copy of a report regarding the filters which I have received from the District Engineer in reply to a request that he would inform me how the matter of their repair stood.

3. I am given to understand that the filter now in use is becoming clogged from want of fresh filtering material having now been in constant use for several years.

4. This filter which if in proper working order should pass through from 25,000 to 30,000 gallons daily now only works to the extent of 10,000 or 12,000 gallons and the filter water is not so clear as it used to be.

5

The Shobies wells which 2

in the ago supplied with ease 35,000 gallons
daily now yields but 25,000 and the supply
may be expected to decrease as the hot season
advances.

In the event of receiving a
report that the Ulsoor water works are not
equal to the task required of them (which
I expect to do) I propose in the first
instance to water the horses by carts and
thereby materially to lessen the drain on
the Ulsoor works—

I have the honor to be,

Sir,

Your most Obedt servant

W. Norton

Major General

Commanding Mysore Division

1873 MW/1437/73
 From The Commr
 & The Insp
 H. L. S.
 F. L. S.
 Dated 28 Feb 1873
 No 116

Reports that the Ulsoor
 water works now are in
 a most unsatisfactory
 state and quite apprehen-
 sive of the coming hot
 weather and forward
 copy of a report from the
 District Engineer regarding
 the filters.

No 2385
 (23/1/1873)

Quarter Master General's Office
 Fort Saint George 4th March 1873.

No 1759

From
 Colonel H. H. O'Connell.
 Offg Quarter Master General.

To
 Colonel G. W. Walker. R.E.
 Secretary to Government.
 Department Public Works.

Sir,
 I have the honor, by order of the
 Commander in Chief, to forward letter No 116 dated
 28th Ultimo, from the Officer Commanding Mysore
 Division on the subject of the Ulsoor Water Works.
 His Excellency trusts you will be
 enabled to empower the District Engineer at Bangalore
 to proceed as rapidly as is consistent with sound work,
 with the necessary repairs to the filters. Also that the
 works at the Phobies Wells may be pushed on.
 After the large expenditure on these
 works it would be unfortunate to have to apply to
 Government to sanction expenditure for carts for
 watering the horses.

I have the honor to be,
 Sir,
 Your Obedient Servant,
 H. O'Connell Colonel.
 Offg Q.M. General.

Handwritten text at the top left, possibly a title or header.

29
Handwritten text at the top right, possibly a date or page number.

Main body of handwritten text on the left side, consisting of several paragraphs.

Handwritten text on the right side, appearing as a list or series of notes.

12 March 1873

Chas H P

832-13 March 73

Comprising a notice
the satisfactory state of
the water works at Bangalore,
and request that measures
be adopted for the speedy im-
-provement of the same.

No. 21

Chief Engineer
Bangalore

For 1873 / Rev
Chief Engineer
Bangalore
1437
The District Engineer
Bangalore

District Engineer's Office
Bangalore 5 March 1873

N^o 987

From The District Engineer
Bangalore

To The Inspecting Engineer
for civil & mil. Buildings
Madras

Enclosure
sketch

Sir,
I regret to have to inform you
that a crack has appeared in the floor
of the filter at Belom Rock enclosure
a sketch showing its position.

You are aware that a month
ago after the excavation for the repair of
the filter had been taken down some 6
or more feet, the work was stopped by
order of the Chief Engineer, since then
nothing has been done.

The soil under the floor has been
exposed since then to considerable heat
and it appears to me that it must have
contracted when so exposed and thus caused
the crack which will I think render
necessary a new floor.

S

18 March 1879

I have as you know held the opinion that as the walls and floor are built on made earth or disintegrated gneiss it would be better to rebuild the filter, and that otherwise the work will never be a satisfactory one.

The fact is the site is unsuitable for a filter. The natural ground underneath consisted of boulders of rock, and this was brought up to a level by filling in between these masses of rock with earth. The wall also (the lower part of which is as you are aware built of stone m. mud) is not founded on hard rock but on disintegrated gneiss.

The crack in the floor which I now report only appeared a few days ago. Had the repairs been carried out at once, it is possible that this crack would not have occurred, as by this time the concrete work would have been nearly completed. The estimate submitted

by me will now I think be insufficient to repair the filter.

I have the honor to be
Sir

Your Most Obedient Servant

(Signed) H. M. Vibart Capt R.E.

District Engineer Bangalore

(True Copy)

Edmond Colwell R.E.

Inspecting Engineer for Civil
Bul. Bangalore

Estimate submitted 29th July
received 30th -
The Supr. Messrs. objections to the
proposal - Written 31st -
Accepted 1st 20th 79

Colonel Davidson
filter on 31st 79, when proposed
for rebuilding the filter wall
had been made - The filter
had been broken up along the
wall and the concrete removed
to the level of the filter - The
work was stopped at the
present stage - The filter
was not completed -

1st 18 March 1873

Enclosure in a letter
of 22nd March 1873
17th March 1873
P. M. 1505/73.
Engineer R. P. W.

Office of the Inspecting Engineer
for Civil & Military Buildings
Chopank 7 March 1873

No 224
From

Colonel O. A. Ford RE
Inspecting Engineer for
Civil & Military Buildings

To

Colonel R. M. Walker RE
Chief Engineer D. S. H.

Dear Sir, I have the honor to forward
Enclosure, a copy of a report just received from
a report of the District Engineer of Bangalore
on the present state of the filter
in the Alcon pool.

I have the honor to be
Yours most obedient servant
Edw. Ford RE
Inspecting Engineer for Civil
Buildings

18 March 1873

Public Works Department
No 832

Proceedings of the Madras Government
Read the following

From The Inspecting Engineer for
Cust & Buld Buildings — J. E. No 861 of 29th Janry 1873
Do ————— do ————— (H.E. No 124 ✓ 14th Feb 73)
Do ————— do ————— (H.E. No 200 ✓ 1st Mar)
Do ————— do ————— (H.E. No 1759 ✓ 4th do)
Dr Mr Carb. ————— (H.E. No 224 ✓ 7th do)
Inspe Eng for Civil Buld Buidg

The Government re-
-gret to learn that the
dilatory manner in
which the subject of
repairing the damaged
Filter at Bangalore has
been dealt with by the
Executive and Superi-
-sing officers has resulted
in the entire destruction
of its floor; which but a
short time previously
was declared by the
Inspecting Engineer

M.C.
A.S.

1873 Department
No 1505.
The Inspecting Engineer
to Civil Buld Buidg.
The Chief Engineer
M. W.

No 224
dated 7th March 1873
Recd. 7th March 1873
Encls. 2
Forwarded copy of
a report from the District
Eng Bangalore on the
present state of the
filter at the Moom
Rock.

No 832-17th March 73.

No 107
12 March 1873

to be in good order, with-
out appearance of set-
tlement or leakages.
So that, in his opinion
the water must have
escaped through a crack
near the junction of the
floor with the wall.
A defect capable of re-
-medy by such an ex-
-pedient as that sanc-
-tioned for repair of the
Cistern in G. O. No. 620
of 25th February; whereas
now the entire floor must
be taken up and relaid.

In para 8 of G. O.
No. 528 of 26th February 1872,
it was directed that the
ruptured filter at the
Hloror works should be

49
put into thorough repair.
The estimate for carrying
such repair submitted
by the District Engineer
bears date the 14th Sep-
-tember 1872; but it was
not forwarded by the
Inspecting Engineer for
sanction of Government
till the 29th January/73,
within 2 or 3 days of
which date the Chief
Engineer objected to the
work proposed as in-
-consistent with the
nature of the defect
which was to be remedied.
Meanwhile i.e. by the
22nd January the In-
-specting Engineer acting
on G. O. No. 93 of 11th
January para 2 had

18 March 1873

authorized action on the estimate so long in his possession, but of the existence of which the Govt. were ignorant.

And between that date and the 3^d February when the work was stopped in consequence of the Chief Engineer's disap-

proval, an amount of excavation was carried out the extent of which is now for the first time reported, together with the effects produced by its continuing open while further information re-

-garding the actual state of the work was being supplied by the Inspecting Engineer.

+ 9 inches

.8.9 inches

: 18 inches.

57

There cannot now be any doubt as to the course to be pursued, although no proposition has been submitted by either the District or Inspecting Engineer. The entire floor must be relaid of the original thickness, on a concrete bed of the same thickness, resting on a well beaten and levelled bed of laterite jelly of double that thickness, the whole of the earth below that level having been well tamped and levelled. This will have to be done throughout the area which has been

excavated and disturbed, leaving the unbroken strip along the wall of the Upper Filter to be carefully taken up and repaired in small portions separately, so as not to endanger the foundations of that wall, or lead to leakage through or under them. The work will be undertaken emergently, an estimate of its cost being submitted at an early date.

The sum of Rs 2,100 for Filtering materials is sanctioned subject to further enquiry as to the best materials and arrangement of them

for filtering purposes. Provision of sand to the extent asked for on account of the Hopper Filter may be made; but previous to its being applied the whole of the materials will be taken out and an examination made of its floor.

The estimate of Rs 1,100 for providing the Rods to the Hospital Cisterns is sanctioned.

More direct and independent communication between the Lower Filter and the Pure Water Basin being desirable, it will be afforded by pipes

Enu.

1 To the District Engineer Bangalore ✓
3- Engineer in Charge Buildings ✓
" Controller of Area ✓

+ Def 28/4/73

Ke-5-dept to Kanyalam Shy. & Kanyam
P-C dept to Kanyam Shy. & Kanyam
17/3/79-

Ordered to be com-
municated to the In-
specting Engineer for
Civil and Military
+ District Eng. Bangalore
Buildings, who will
arrange for at once
carrying out the latter
part of the Chief En-
gineer's recommenda-
tions ^{by} remedying the
floor in the pavement
along the Southern and
Eastern walls, filling in
the requisite filtering

I have heard of Mr. Smith
 the Mechanical Engineer
 & complain sadly of the
 detriment caused to his
 work by leakage therefore
 he brought specially to my
 notice the copolustained
 and the Extrath work known
 as his Engine by the
 existence of such a leak
 in the Upper Filter now,



1505, 1367, 1018
6.20.18/1863/1018

PUBLIC WORKS.

The District Engr
Bangalore

Date

Recd.

Encl 7

G. O. 17th March 1882

No. 403@408

Filter at Bangalore. Paper
orders on correspondence
relating to the subject of
the repair of the damaged
filter.

N-403-408.