

(1) Number of pages 34
(2) Date of repair 17. 7. 86
(3) Initials of the Referencer Car

TAMIL NADU ARCHIVES

GOVERNMENT OF TAMIL NADU

P. W. DEPARTMENT

G.O. No.	1840 - W	Press.
B.P. No.		Mis.
Dated	13. 4 - 1878	197.

Not to be folded or roughly handled.

V. S. M.

1840 W

GOVERNMENT OF MADRAS.
PUBLIC WORKS DEPARTMENT.

13th April 1878, No. 1,840 W.

Buildings and Roads.

Civil Works.

Read the following papers:—

No. 157. From Colonel F. J. MOBERLY, R.E., Superintending Engineer, Chingleput, to the Chief Engineer, Public Works Department, dated Trivellore, 18th October 1877, No. 2,902.

I HAVE the honor to report that I have delayed advertising for tenders for maintaining the East Coast Canal as desired in G.O. No. 39 W, of 9th May 1877, because I have had great difficulty in reconciling the level generally accepted.

2. From BM fixed by Mr. Clarke for the scheme of drainage of Madras referred to DeHaviland's mean sea level I find that Shadienkupam lock sill is 5.85 feet below M.S.L.; the foot of a gauge at the junction of the South Canal with the Adyar is 3.5 feet below the same. But during the late dry weather the North Canal, whose bed was 2.25 feet above lock or 3.6 feet below M.S.L., was quite dry, while on the South Canal gauge we had 2 feet of water, that is, that in two canals running parallel to the Coast and under (ordinarily speaking) precisely similar circumstances the water surface in one was 1.5 feet below M.S.L. while in the other there was no water 3.6 feet below M.S.L.

3. Again, from the registers of January and February 1875, when the Ennore mouth was wide open, it appears that the tide rose to 4.25 feet in the average and fell to 2.25 feet; the lock sill would therefore appear to be only 3.25 feet below M.S.L. If I take this as correct we get bed of North Canal 1 foot below M.S.L., and the cause of absence of water is explained.

4. For this reason I have changed your specification and omitted the words in "Uniform" and "one foot six inches above." margin. I beg that to save time you will forward to the presses the papers as they stand or corrected with reference to the above.

No. 157-A. From Colonel P. O'CONNELL, R.E., Superintending Engineer, Chingleput, to the Chief Engineer, Public Works Department, dated St. Thomas' Mount, 18th February 1878, No. 717.

In reference to your memorandum, No. 431, dated 23rd January 1878, I have the honor to enclose a sheet "Field Book" of Levels, taken by Supervisor Sanderson, under my orders, to ascertain the level of the Shadienkupam lock sill in reference to DeHaviland's "bench-mark." It will be observed that the sill of the lock in question, as therein shown is 6.19 below DeHaviland's bench-mark, or a trifle, viz., one-twentieth of a foot, more than the recorded level at the lock. I would suggest, in view to the correct value of DeHaviland's bench-mark being settled once for all, that the District Engineer, Presidency, be called upon to make the necessary investigations in communication with the Master Attendant, Madras, and to report the result.

PUBLIC WORKS DEPARTMENT, 13TH APRIL 1878, No. 1,810 W.

LINE of Levels taken from Major DeHavilland's Bench-mark at North Gate of Fort St. George to Shadienkupam Lock.

Station Number.	DISTANCE.			STAFF READINGS.		REDUCTIONS FROM FIRST STAFF READINGS.		REDUCTIONS FROM SECOND STAFF READINGS.		Remarks.
	Total.		Intermediate.	1st.	2nd.	Line of Collimation.	+ Datum.	Line of Collimation.	+ Datum.	
	Miles.	Feet.								
1	...	...	...	9-01	9-33	15-81	6-83	16-16	6-83	Value of bench-mark at North Gate of Fort St. George. Instrument in every instance placed midway between staves.
2	...	137	137	40	72	...	15-44	...	15-44	
3	...	737	600	8-15	8-46	23-59	18-05	23-90	18-04	
4	...	1297	660	5-54	5-86	...	...	...	...	Across glacis of Fort.
5	...	1597	200	3-74	3-22	21-79	12-09	21-26	12-07	
6	...	1737	180	9-70	9-19	...	...	...	...	
7	...	1917	320	1-29	1-55	12-88	6-27	13-63	6-35	Across Ordnance Lines Esplanade. B.M. No. 3 of Mr. Clarke's opposite Medical College.
8	...	2077	200	7-11	7-38	...	...	...	...	
9	...	2577	660	3-85	3-55	10-12	...	9-40	...	
10	...	3426	840	5-93	5-08	...	4-14	...	4-12	Near compound wall of Madras Railway Terminus.
11	...	4306	880	3-64	3-96	7-78	...	8-08	4-83	
12	...	5186	880	2-94	3-25	...	4-54	...	4-83	
13	...	5986	960	8-18	8-48	13-00	...	13-31	...	Near crossing of road to Elephant Gate Bridge.
14	1	598	660	2-84	3-16	...	10-16	...	10-15	
15	1	1226	660	2-41	2-83	12-60	7-51	12-97	7-50	
16	1	1826	660	5-09	5-47	...	...	...	...	
17	1	2516	660	3-94	4-43	11-45	7-14	11-93	7-13	
18	1	3206	660	4-31	4-80	...	...	...	...	
19	1	3866	660	4-96	4-47	12-10	7-46	11-60	7-45	
20	1	4526	660	4-04	4-15	...	...	...	...	
21	1	5186	660	4-70	4-30	12-16	6-48	11-75	6-47	
22	1	5846	660	5-68	5-28	...	...	...	...	
23	1	6506	660	4-10	3-88	10-88	5-84	10-35	5-83	
24	1	7166	660	5-04	4-52	...	...	...	...	
25	1	7826	660	3-91	3-60	9-75	...	9-43	5-40	
26	1	8486	660	4-34	4-03	...	5-41	...	5-40	
27	1	9146	660	5-22	4-02	10-73	...	10-32	6-88	
28	1	9806	660	3-84	3-44	...	6-29	...	...	
29	1	10466	660	6-15	5-66	10-44	7-00	12-54	6-99	
30	1	11126	660	6-04	5-55	...	...	...	...	
31	1	11786	660	3-91	3-31	10-91	5-32	10-30	5-30	
32	1	12446	660	5-59	5-00	...	...	...	...	
33	1	13106	660	3-87	3-49	9-19	...	8-79	...	

PUBLIC WORKS DEPARTMENT, 13TH APRIL 1878, No. 1,840 W.

LINE of Levels taken from Major DeHavilland's Bench-mark at North Gate of Fort St. George, to Shadienkupam Lock.—(Continued).

Station Number.	DISTANCE.		STAFF READINGS.		REDUCTIONS FROM FIRST STAFF READINGS.		REDUCTIONS FROM SECOND STAFF READINGS.		Remarks.	
	Total.		Inter- mediate.	1st.	2nd.	Line of Collima- tion.	+ Datum.	Line of Collimation.		+ Datum.
	Miles.	Feet								
18	1	5186	660	4-60	4-21	...	4-59	...	4-58	B.M. No. 13 of Mr. Clarke's near Basin Bridge.
19	2	566	660	4-97	4-36	9-56	...	8-24	4-00	
20	2	1226	660	5-51	5-14	9-52	...	9-14	5-55	
21	2	1726	500	3-94	3-59	...	5-58	...	9-59	
22	2	...	...	5-85	5-33	11-43	...	10-88	...	
21	2	1726	...	1-82	1-29	...	9-61	...	...	
23	2	1926	200	2-32	1-82	11-93	...	11-41	...	
24	2	2586	660	5-08	4-55	...	6-87	...	6-86	
25	2	3246	600	2-58	1-75	12-19	9-61	11-34	9-59	
26	2	3846	600	6-90	6-07	...	5-29	...	5-27	
27	2	4166	...	5-81	5-34	11-10	...	10-61	7-37	
28	2	4526	680	3-71	3-24	...	7-39	...	...	
29	2	5186	660	4-81	4-39	12-23	...	11-76	6-61	
30	2	5986	600	5-61	5-45	...	6-62	...	...	
31	2	6866	600	3-14	2-56	9-76	...	9-17	4-77	
32	2	7746	600	4-98	4-40	...	4-78	...	...	
33	2	8626	...	11-60	11-18	16-38	...	15-95	...	
34	2	9506	...	...	...	...	...	...	...	
35	2	10386	...	...	...	...	...	...	...	
36	2	11266	...	...	...	...	...	...	...	
37	2	12146	...	...	...	...	...	...	...	
38	2	13026	...	...	...	...	...	...	...	
39	2	13906	...	...	...	...	...	...	...	
40	2	14786	...	...	...	...	...	...	...	
41	2	15666	...	...	...	...	...	...	...	
42	2	16546	...	...	...	...	...	...	...	
43	2	17426	...	...	...	...	...	...	...	
44	2	18306	...	...	...	...	...	...	...	
45	2	19186	...	...	...	...	...	...	...	
46	2	20066	...	...	...	...	...	...	...	
47	2	20946	...	...	...	...	...	...	...	
48	2	21826	...	...	...	...	...	...	...	
49	2	22706	...	...	...	...	...	...	...	
50	2	23586	...	...	...	...	...	...	...	
51	2	24466	...	...	...	...	...	...	...	
52	2	25346	...	...	...	...	...	...	...	
53	2	26226	...	...	...	...	...	...	...	
54	2	27106	...	...	...	...	...	...	...	
55	2	27986	...	...	...	...	...	...	...	
56	2	28866	...	...	...	...	...	...	...	
57	2	29746	...	...	...	...	...	...	...	
58	2	30626	...	...	...	...	...	...	...	
59	2	31506	...	...	...	...	...	...	...	
60	2	32386	...	...	...	...	...	...	...	
61	2	33266	...	...	...	...	...	...	...	
62	2	34146	...	...	...	...	...	...	...	
63	2	35026	...	...	...	...	...	...	...	
64	2	35906	...	...	...	...	...	...	...	
65	2	36786	...	...	...	...	...	...	...	
66	2	37666	...	...	...	...	...	...	...	
67	2	38546	...	...	...	...	...	...	...	
68	2	39426	...	...	...	...	...	...	...	
69	2	40306	...	...	...	...	...	...	...	
70	2	41186	...	...	...	...	...	...	...	
71	2	42066	...	...	...	...	...	...	...	
72	2	42946	...	...	...	...	...	...	...	
73	2	43826	...	...	...	...	...	...	...	
74	2	44706	...	...	...	...	...	...	...	
75	2	45586	...	...	...	...	...	...	...	
76	2	46466	...	...	...	...	...	...	...	
77	2	47346	...	...	...	...	...	...	...	
78	2	48226	...	...	...	...	...	...	...	
79	2	49106	...	...	...	...	...	...	...	
80	2	49986	...	...	...	...	...	...	...	
81	2	50866	...	...	...	...	...	...	...	
82	2	51746	...	...	...	...	...	...	...	
83	2	52626	...	...	...	...	...	...	...	
84	2	53506	...	...	...	...	...	...	...	
85	2	54386	...	...	...	...	...	...	...	
86	2	55266	...	...	...	...	...	...	...	
87	2	56146	...	...	...	...	...	...	...	
88	2	57026	...	...	...	...	...	...	...	
89	2	57906	...	...	...	...	...	...	...	
90	2	58786	...	...	...	...	...	...	...	
91	2	59666	...	...	...	...	...	...	...	
92	2	60546	...	...	...	...	...	...	...	
93	2	61426	...	...	...	...	...	...	...	
94	2	62306	...	...	...	...	...	...	...	
95	2	63186	...	...	...	...	...	...	...	
96	2	64066	...	...	...	...	...	...	...	
97	2	64946	...	...	...	...	...	...	...	
98	2	65826	...	...	...	...	...	...	...	
99	2	66706	...	...	...	...	...	...	...	
100	2	67586	...	...	...	...	...	...	...	
101	2	68466	...	...	...	...	...	...	...	
102	2	69346	...	...	...	...	...	...	...	
103	2	70226	...	...	...	...	...	...	...	
104	2	71106	...	...	...	...	...	...	...	
105	2	71986	...	...	...	...	...	...	...	
106	2	72866	...	...	...	...	...	...	...	
107	2	73746	...	...	...	...	...	...	...	
108	2	74626	...	...	...	...	...	...	...	
109	2	75506	...	...	...	...	...	...	...	
110	2	76386	...	...	...	...	...	...	...	
111	2	77266	...	...	...	...	...	...	...	
112	2	78146	...	...	...	...	...	...	...	
113	2	79026	...	...	...	...	...	...	...	
114	2	79906	...	...	...	...	...	...	...	
115	2	80786	...	...	...	...	...	...	...	
116	2	81666	...	...	...	...	...	...	...	
117	2	82546	...	...	...	...	...	...	...	
118	2	83426	...	...	...	...	...	...	...	
119	2	84306	...	...	...	...	...	...	...	
120	2	85186	...	...	...	...	...	...	...	
121	2	86066	...	...	...	...	...	...	...	
122	2	86946	...	...	...	...	...	...	...	
123	2	87826	...	...	...	...	...	...	...	
124	2	88706	...	...	...	...	...	...	...	
125	2	89586	...	...	...	...	...	...	...	
126	2	90466	...	...	...	...	...	...	...	
127	2	91346	...	...	...	...	...	...	...	
128	2	92226	...	...	...	...	...	...	...	
129	2	93106	...	...	...	...	...	...	...	
130	2	93986	...	...	...	...	...	...	...	
131	2	94866	...	...	...	...	...	...	...	
132	2	95746	...	...	...	...	...	...	...	
133	2	96626	...	...	...	...	...	...	...	
134	2	97506	...	...	...	...	...	...	...	
135	2	98386	...	...	...	...	...	...	...	
136	2	99266	...	...	...	...	...	...	...	
137	2	100146	...	...	...	...	...	...	...	
138	2	101026	...	...	...	...	...	...	...	
139	2	101906	...	...	...	...	...	...	...	
140	2	102786	...	...	...	...	...	...	...	
141	2	103666	...	...	...	...	...	...	...	
142	2	104546	...	...	...	...	...	...	...	
143	2	105426	...	...	...	...	...	...	...	
144	2	106306	...	...	...	...	...	...	...	
145	2	107186	...	...	...	...	...	...	...	
146	2	108066	...	...	...	...	...	...	...	
147	2	108946	...	...	...	...	...	...	...	
148	2	109826	...	...	...	...	...	...	...	
149	2	110706	...	...	...	...	...	...	...	
150	2	111586	...	...	...	...	...	...	...	
151	2	112466	...	...	...	...	...	...	...	
152	2	113346	...	...	...	...	...	...	...	
153	2	114226	...	...	...	...	...	...	...	
154	2	115106	...	...	...	...	...	...	...	
155	2	115986	...	...	...	...	...	...	...	
156	2	116866	...	...	...	...	...	...	...	
157	2	117746	...	...	...	...	...	...	...	
158	2	118626	...	...	...	...	...	...	...	
159	2	119506	...	...	...	...	...	...	...	
160	2	120386	...	...	...	...	...	...	...	
161	2	121266	...	...	...	...	...	...	...	
162	2	122146	...	...	...	...	...	...	...	
163	2	123026	...	...	...	...	...	...	...	
164	2	123906	...	...	...	...	...	...	...	
165	2	124786	...	...	...	...	...	...	...	
166	2	125666	...	...	...	...	...	...	...	
167	2	126546	...	...	...	...	...	...	...	
168	2	127426	...	...	...	...	...	...	...	
169	2	128306	...	...	...	...	...	...	...	
170	2	129186	...	...	...	...	...	...	...	
171	2	130066	...	...	...	...	...	...	...	
172	2	130946	...	...	...	...	...	...	...	
173	2	131826	...	...	...	...	...	...	...	
174	2	132706	...	...	...	...	...	...	...	
175	2	133586	...	...	...	...	...	...	...	
176	2	134466	...	...	...	...	...	...	...	
177	2	135346	...	...	...	...	...	...	...	
178	2	136226	...	...	...	...	...	...	...	
179	2	137106	...	...	...	...	...	...	...	
180	2	137986	...	...	...	...	...	...	...	
181	2	138866	...	...	...	...	...	...	...	
182	2	139746	...	...	...	...	...	...	...	
183	2	140626	...	...	...	...	...	...	...	
184	2	141506	...	...	...	...	...	...	...	
185	2	142386	...	...	...	...	...	...	...	
186	2	143266	...	...	...	...	...	...	...	
187	2	144146	...	...	...	...	...	...	...	
188	2	145026	...	...	...	...	...	...	...	
189	2	145906	...	...	...	...	...	...	...	
190	2	146786	...	...	...	...	...	...	...	
191	2	147666	...	...	...	...	...	...	...	
192	2	148546	...	...	...	...	...	...	...	
193	2	149426	...	...	...	...	...	...	...	
194	2	150306	...	...	...	...	...	...	...	
195	2	151186	...	...	...	...	...	...	...	
196	2	152066	...	...	...	...	...	...	...	
197	2	152946	...	...	...	...	...	...	...	
198	2	153826	...	...	...	...	...	...	...	
199	2	154706	...	...	...	...	...	...	...	
200	2	155586	...	...	...	...	...	...	...	
201	2	156466	...	...	...	...	...	...	...	
202	2	157346	...	...	...	...	...	...	...	
203	2	158226	...	...	...	...	...	...	...	
204	2	159106	...	...	...	...	...	...	...	
20										

PUBLIC WORKS DEPARTMENT, 13TH APRIL No. 1,840 W.

LINE of Levels taken from Major DeHaviland's Bench-mark at North Gate of Fort St. George, to Shadienkupam Lock—(Continued).

Station Number.	DISTANCE.			STAFF READING.		REDUCTIONS FROM FIRST STAFF READINGS.		REDUCTIONS FROM SECOND STAFF READING.		Remarks.
	Total.		Inter-mediate.	1st.	2nd.	Line of Collimation.	+ Datum.	Line of Collimation.	+ Datum.	
	Miles.	Feet.								
35	3	4902	880	4.49	3.84	...	5.79	...	5.78	To left of Trivator road from Basin.
36	4	502	880	4.91	4.02	10.70	...	9.80	...	
37	4	1382	880	4.76	4.00	10.86	...	10.09	...	
38	4	2262	880	5.23	4.30	11.29	...	10.44	...	
39	4	3142	880	5.51	4.61	...	5.78	...	5.79	
40	4	4022	880	5.11	4.25	10.89	...	10.14	...	
41	4	4902	880	5.12	4.33	...	5.77	...	5.78	
42	5	502	880	5.19	4.56	10.96	...	10.34	...	
43	5	1382	880	4.98	4.35	...	5.68	...	5.99	
44	5	2262	880	4.15	3.57	10.13	...	9.56	...	
45	5	3142	880	3.98	3.40	...	6.15	...	6.16	
46	5	4022	880	4.00	3.11	10.15	...	9.27	...	
47	5	4902	880	4.52	3.64	...	5.63	...	5.63	
48	5	502	880	4.55	4.05	10.18	...	9.68	...	
49	5	1382	880	4.40	3.90	...	5.78	...	5.78	
50	5	2262	880	4.75	4.04	10.53	...	9.82	...	
51	5	3142	880	4.40	3.70	...	6.13	...	6.12	
52	5	4022	880	4.30	3.82	10.43	...	9.94	...	
53	5	4902	880	7.40	6.92	...	3.03	...	3.02	
54	5	502	880	4.32	3.80	7.35	...	6.82	...	
55	5	1382	880	4.91	4.40	...	2.44	...	2.42	
56	5	2262	400	3.78	2.89	6.22	...	5.31	...	
57	5	3142	400	4.60	3.71	...	1.62	...	1.60	
58	5	4022	340	9.03	8.44	10.70	...	10.04	...	
59	5	4902	340	9.08	8.44	...	1.62	...	1.60	
60	6	142	660	5.28	4.70	6.99	...	6.30	...	
61	6	1022	880	5.79	5.21	...	1.11	...	1.09	
62	6	1902	...	4.80	4.14	5.91	...	5.23	...	
63	6	2782	880	4.41	3.74	...	1.50	...	1.49	
64	6	...	...	4.76	4.94	6.26	...	6.43	...	
65	6	...	...	4.57	4.54	...	1.89	...	1.89	
66	6	...	880	8.94	3.53	5.83	...	5.42	...	
67	6	...	...	4.72	4.31	...	1.11	...	1.11	
68	6	...	...	4.84	4.34	5.95	...	5.43	...	

PUBLIC WORKS DEPARTMENT, 13TH APRIL 1878, No. 1,840 W.

LINE of Levels taken from Major DeHaviland's Bench-mark at North Gate of Fort St. George, to Shadienkupam Lock—(Continued).

Station Number.	DISTANCE.			STAFF READINGS.		REDUCTIONS FROM FIRST STAFF READINGS.		REDUCTIONS FROM SECOND STAFF READING.		Remarks.
	Total.		Inter-mediate.	1st.	2nd.	Line of Collimation.	+ Datum.	Line of Collimation.	+ Datum.	
	Miles.	Feet.								
53	6	3442	660	4.41	3.91	...	1.54	...	1.54	
54	6	4102	...	4.00	3.17	5.54	...	4.71	...	1.39
			660	4.15	3.32	...	...	...	...	
55	6	4762	...	3.92	3.36	5.31	...	4.75	...	1.29
			660	4.02	3.46	...	...	...	...	
56	7	142	...	4.44	3.92	5.73	...	5.21	...	.97
			660	4.75	4.24	...	...	...	...	
57	7	802	...	4.70	4.25	5.68	...	5.22	...	3.03
			660	2.64	2.19	...	3.04	...	...	
58	7	1462	...	3.82	3.28	6.86	...	6.31	...	2.23
			660	4.61	4.08	...	2.25	...	...	
59	7	2192	...	4.29	3.70	6.54	...	5.93	...	1.53
			660	5.00	4.40	...	1.54	...	...	
60	7	2782	...	4.14	3.60	5.68	...	5.13	...	2.07
			660	3.61	3.06	...	2.07	...	...	
61	7	3442	...	3.15	2.47	5.22	...	4.54	...	2.05
			660	3.17	2.49	...	2.05	...	...	
62	7	4102	...	5.00	4.40	7.05	...	6.45	...	2.88
			660	4.17	3.57	...	2.88	...	...	
63	7	4762	...	6.13	5.50	9.01	...	8.38	...	4.37
			660	4.64	4.01	...	4.37	...	...	
64	7	5252	...	3.61	2.43	7.98	...	6.80	...	4.81
			490	3.18	1.99	...	4.80	...	...	
										B. M. at S. E. gate of Shadienkupam lock on granite stone registered as 4.86 above M.S.L. = Depth of lock chamber.
										11.00'
										6.19'
										Flooring of lock chamber below M.S.L. or by register = 6.14' below M.S.L.

MADRAS,
26th November 1877.

(Signed) J. B. SANDERSON, Supervisor,
No. 1 or Sercoloor Division.

MEMORANDUM.

No. 927.

RETURNED to the Superintending Engineer, Chingleput, who will report if it is meant that the sill of the lock is 6.19 below mean sea level as shown by DeHaviland's bench-mark, or 12.29 below the bench-mark in question.

21st February 1878.

(Signed) W. FAREWELL, Colonel,
Deputy Chief Engineer.

No. 157-B. From Colonel P. O'CONNELL, R.E., Superintending Engineer, Chingleput, to the Chief Engineer, Public Works Department, dated St. Thomas Mount, 27th February 1878, No. 860.

In reforwarding my letter No. 717, 18th instant, and its enclosure, returned with your memorandum, No. 927, dated 21st idem, I have the honor to inform you that it is meant that the lock sill is 13.02 feet below DeHaviland's bench-mark, the height of which Supervisor Sanderson took to be 6.83 above mean sea level.

1 Letter from the Superintending Engineer, Chingleput District, No. 717, dated 18th February 1878.
1 Sheet "Field Book" of Levels.

No. 158.

ORDER THEREON, 13th April 1878, No. 1,840 W.

ORDERED to be recorded.

(True Extract.)

(Signed) E. A. FOORD, Colonel, R.E.,
Secretary to Government, P.W.D.

(True Extract.)

Colonel,
Under Secy. to Govt., P.W.D.

To the Superintending Engineer, Chingleput.
District Engineer, Presidency.

Exd. E. C. Shunker.

Spare Copies

1840W
4

BUILDINGS AND ROADS.
CIVIL WORKS.

Gobt. of (1878) Madras.
PUBLIC WORKS.

To
THE SUPERINTENDING ENGINEER,
CHINGLEPUT,
&c., &c., &c.

Dated April 12th.

Issued

Recd.

Encl.

G. O., Dtd April 1878, No. 1810 W.

APRIL

Nos. 157-158.

Level of the Shadokuram Lock SW. —
District Engineer's (Chingleput) explanation
of the difference between D. Haviland's
bench-mark and the — is relation to the
mean sea level.

Notice

The Superintending Engineer will
receive tenders up to noon of the
31st instant for maintaining the
East Coast Canal in the undiminished
length agreeably to following specifications.

North Branch

No.	Description	Miles
1	Hospital budge to Basin	2
2	Basin to Shadokuram Lock	6
3	Lock to 13 th stone	5
4	13 th stone to 18 th	5
5	18 th stone to 22 nd	4
6	22 nd stone to 26 th	4

South Branch

No.	Description	Miles
1	Adygors to 28 th furlong stone	3 1/2
2	28 th stone to 70 th	5 1/4
3	70 th stone 145 including benches backwater	9 7/8
4	145 th stone 181 th	4 7/8
5	181 th stone 224 th 28 th mile	5
6	224 th 261 th 33 rd	5
7	261 th 305 th	5 1/8
	Total	38 1/2

Specifications

That the Contractor shall from the 1st March 1878 maintain the bed of the canal in section A, at a level of ^{the sill of} the Shadiukpam lock in case of South canal and 1 ft. below zero of Akyar gauge in South canal the depth representing such level at each furlong stone along the canal being supplied by the Superintending Engineer.

That the bed of the canal at the depths specified be maintained with a minimum bottom width of 30 feet, with side slopes of two to one. That the spoil removed from the canal be placed in such convenient localities as may be determined upon by the Superintending Engineer, either for improving the towing-paths or strengthening the embankment, or where it cannot again be used back into the canal.

That the Contractor shall maintain all towing-paths now existing in the section which he contracts to

to work. That, as security for the fulfilment of the work specified, the payment of monthly maintenance allowance (Rupees) shall be made one month in arrears, that is, provided the Contractor shall have fulfilled the terms of the specification, he shall on the first day of each month, commencing from the 1st of May receive the sum of Rupees ^{mile} per for the number of miles in his section.

That the Superintending Engineer shall deal with the contractor or his representatives, and in case of failure on the contractor's part to carry out the full terms of his contract, it shall rest with the Superintending Engineer to cancel the contract, and declare the arrears due to the contractor, or any portion of them, forfeited.

That the Supg. Eng's decision on the subject shall be final. The specification for the South Canal is to be exactly

exactly the same as that for the North Canal; except that the minimum bottom width is to be 20 feet only.

Notice

1840
1

The Superintending Engineer will receive tenders up to noon of the 31st instant for maintaining the East Coast Canal in the undermentioned lengths agreeably to following specification.

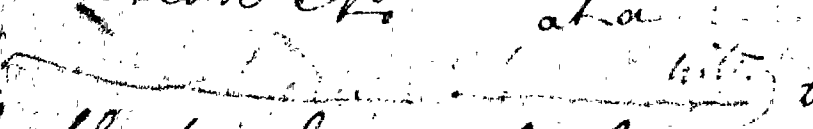
North Branch

No 1	Hospital bridge to Basin	Miles	2
2	Basin to Gladwin's lock		6
3	13 th stone		5
4	18 th		5
5	22 nd		4
6	26 th		4

South Branch

No 1	Adyar to 28 th turning stone		3 1/2
2	70 "		5 1/4
3	145 including 4 inches backwater		9 3/8
4	184		27/8
5	224 28 th mile		5
6	264 33 rd		5
7	305		5 1/2
			38 7/8

Specification.

That the Contractor shall from the 1st of March 1878 maintain the bed of the canal in section R at a level of  the sill of the Shadienkupam lock in case of high water below zero of Sadgar gauge in South Canal the depth representing such level at each furlong stone along the canal being supplied by the Superintending Engineer. That the bed of the canal at the depths specified be maintained with a minimum bottom width of 30 feet, with side slopes of two to one. That the spoil removed from the canal be placed in such convenient localities as may be determined upon by the Superintending Engineer, either for improving the towing-paths or strengthening the embankment or where it cannot again be washed back into the canal.

That the Contractor shall maintain all towing-paths now existing in the section which he contracts to work. That, as security for the fulfilment of

the work specified, the payment of the monthly maintenance allowance (Rupees) shall be made on month in arrears that is provided the contractor shall have fulfilled the terms of the specification, he shall on the first day of each month, commencing from the 1st of May, receive the sum of

Rupees per mile for the number of miles in his section. That the Supt. Engineer shall deal with the contractor or his representatives and in case of failure on the contractor's part to carry out the full terms of his contract, it shall rest with the Supt. Engr. to cancel the contract & declare the arrears due to the contractor, or any portion of them, forfeited.

That the Superintending Engineer's decision on the subject shall be final. The specification for the South Canal is to be exactly the same as that for the North Canal, except that the minimum bottom width is to be 20 feet only.

No. 2902

Chingleput Superintending Engineer's Office,
Camp, Madras
Saint Thomas Mount, 19th Oct. 1877

From

THE SUPERINTENDING ENGINEER.

Chingleput.

To

The Chief Engineer
Public Works Department

Sir,

I have the honor to report that I have delayed advertising for tenders for maintaining the East Coast Canal as desired in G.O. No. 394 of 28th May 1877 because I have had great difficulty in reconciling the level generally accepted.

2. From B.M. fixed by Mr. Clarke for the scheme of drainage of Madras referred to Dr. Hailland's mean sea level, I find that Shadienkupam lock sill is 5.85' below M.S.L. the foot of a gauge at the junction of the South Canal with the Adyar is 3.5' below the same. But during the late dry weather the North Canal whose bed was 2.25' above lock or 3.6' below M.S.L. was quite dry, while on the South Canal

gauge we had 2 feet of water. that is
that in 2 canals running parallel to the
coast and under (ordinarily speaking)
precisely similar circumstances the water
surface ^{in one} was 1.5 ft below M. S. C. while in
the other there was no water 3.5 ft below M. S. C.

3. Again from the registers of January
and February, 1875 when the Lemore mouth
was wide open it appears that the
tide rose to 4.25' in the average and
fell to 2.25' the lock sill would there-
fore appear to be only 3.25' below M. S. C.
If I take this as correct we get rid
of North canal below M. S. C. and
the cause of absence of water is ex-
plained.

4. For this reason I have changed
your specification and omitted the "uniform"
words. ^{in margin} I beg that to save time you <sup>"one foot in mile
above"</sup>
will forward to the presses the papers
as they stand or corrected with
reference to the above.

I have the honor to be
Sir
Your most obedient servant

J. H. Crosby. Colonel R. B.
Superintendent Ching Lequab

Public Works Department

From

The Super Engineer
Chingleput

No. 2902.

Dated 18th October 1877

No of Enclosures 2.

Coast Coast Canal -

Reports that he has
delayed advertising
for tenders for maintaining
the — for reasons
stated in.

Respectfully,
Yours truly,
The Super Engineer

18/10/77

18/10/77

18/10/77

18/10/77

No. 717

Chingleput Superintending Engineer's Office,
Saint Thomas Mount, 18th Feb 1878.

From

THE SUPERINTENDING ENGINEER.

Chingleput.

To

The Chief Engineer
Public Works Department.

Sir,

Enc:
Sheet "Field Book"
of Levels.

In reference to your Memorandum
No. 431, dated 23rd January, 1878, I have
the honor to enclose a sheet "Field Book
of Levels, taken by Supervisor Sanderson,
under my orders, to ascertain the level
of the Shadienkupam Lock sill in
reference to D. Hamilton's "Bench
Mark". It will be observed that
the sill of the Lock in question as
therein shown is 6.19 below D. Ham-
-ilton's Bench Mark, or a triple
viz 20 of a foot, more than the recorded
level at the Lock. I would suggest
in view of the correct value of D.
Hamilton's Bench Mark being
settled once for all, that the Dist.
Engineer, Presidency, be called
upon to make the necessary investi-
gations.

1840W
12

Pennell Colonel R.E.
 Supr Engineer, Chicago & N.W. Ry.

12-2-77 474
 24-4-77 1613
 7-5-77 3744
 23-1-78 431 hours

From the Sup. of Engineer
 Changlepat D.

No. 717

Dated 18th February 1878
 Recd.

of Enc: 1

Level of the Sheddien Kufan
 Lock, with reference to
 D. H. Islands Bench Mark
 - Encloses a sheet titled
 "Book" of Levels taken by
 Supervisor Sanderson
 to ascertain the.

Line of Levels taken from Major D. Harland's Bench Mark at North gate of
 Fort St. George. to Sheddien Kufan Lock.

Station	Distance		Staff		Reductions from 1 st Staff readings		Reductions from 2 nd Staff readings		Remarks		
	Total	Feet	1 st	2 nd	1 st	2 nd	1 st	2 nd			
1			9.01	9.33	15.34	6.33	16.16	6.83	Value of Bench Mark at North gate of Fort St. George		
2	137	137	4.0	7.2	8.15	8.46	23.59	15.44	23.90	15.44	Substation on every instance placed midway between flows.
3	737	600	5.54	5.86	3.74	3.22	21.79	19.05	21.26	18.04	
4	1377	660	2.70	2.19	1.29	1.66	13.38	12.09	13.63	12.47	
5	1597	200	7.11	7.38	3.85	3.55	10.12	6.27	9.80	6.25	
6	1757	160	5.78	5.68	3.64	3.96	7.78	4.14	8.08	4.12	Scarp Distance Lines Eplanade.
7	2577	660	2.94	3.25	8.16	8.48	13.00	4.84	13.3	4.83	
8	3426	849	2.84	3.16	2.44	2.82	12.60	10.16	10.75	12.97	B.M. 13 of M. Clarke's opposite Madras College
9	4306	880	5.09	5.47	3.94	4.43	11.45	7.57	11.93	7.50	near compound wall of Madras Railway Terminus
10	5186	890	4.31	4.80	4.96	4.47	12.10	7.14	11.60	7.13	
11	566	660	4.64	4.15	4.70	4.30	12.16	7.46	11.75	7.45	
12	1226	660	5.68	5.23	4.40	3.88	10.88	6.48	10.35	6.47	
13	1886	660	5.04	4.52	3.91	3.60	9.75	6.84	9.43	5.83	
14	2546	660	4.32	4.03	5.32	4.92	10.73	5.41	10.32	5.40	near opening of road to Elephant gate bridge
15	3206	660	3.84	3.44	6.15	5.66	13.04	6.89	12.54	6.88	
16	3866	660	6.04	5.55	3.91	3.31	10.91	7.00	10.30	6.99	
17	4526	660	5.59	5.06	3.97	3.49	9.19	5.32	8.79	5.30	
18	5186	660	4.60	4.21	4.97	4.36	9.50	4.59	8.94	4.58	
19	566	660	5.55	4.94	5.51	5.14	9.52	4.01	9.14	4.00	
20	1226	660	3.94	3.57	5.85	5.33	11.43	5.58	10.85	5.55	
21	1726	600	1.82	1.52	2.32	1.82	11.93	4.0	11.41	4.59	
22	1886	102	5.06	4.55	2.59	1.75	12.19	6.87	6.86	6.86	B.M. 13 of M. Clarke's near Prison
23	1726	200	6.90	6.42	3.71	3.24	11.10	5.29	10.61	5.27	
24	2586	660	3.71	3.24	4.84	4.37	12.23	7.29	11.75	7.37	
25	3246	660	5.61	5.15				6.62		6.61	Carried over

Station	Total	Staff readings				Remarks
		1st	2nd	3rd	4th	
25	2 3246	3.14	2.56	9.76	6.62	Brought forward
26	2 3846	6.00	4.98	4.40	4.78	on guard stone of road forward - east pier of
		11.60	11.18	16.38	15.95	
27	2 4166	9.30	8.20	7.08	8.15	on guard stone of road forward - east pier of
		1.73	1.07	8.81	8.15	
28	2 5186	6.60	4.84	4.13	3.97	on guard stone of road forward - east pier of
		4.74	3.88	8.71	7.82	
29	3 502	5.76	2.00	1.14	6.71	on guard stone of road forward - east pier of
		2.61	2.03	9.32	8.71	
30	3 1162	6.60	7.49	6.58	2.13	
		6.79	5.49	8.92	8.12	
31	3 1822	6.60	4.84	4.44	4.08	
		4.62	3.77	8.60	7.85	
32	3 2482	6.60	5.16	4.41	3.44	
		5.72	6.08	9.16	8.52	
33	3 3142	6.60	4.33	3.69	4.83	
		4.73	3.85	9.56	8.68	
34	3 1022	8.80	4.43	3.56	5.13	at junction of road passing over Huron Bridge
		5.15	4.50	10.28	9.62	
35	3 4902	8.80	4.49	3.84	5.77	
		4.71	4.02	10.70	9.80	
36	4 502	8.80	4.60	3.71	6.10	
		4.76	4.00	10.86	10.09	
37	4 1382	8.80	4.80	4.04	6.06	
		5.23	4.39	11.29	10.44	
38	4 2262	8.80	5.51	4.55	6.78	
		5.11	4.35	10.89	10.14	
39	4 3142	8.80	5.12	4.36	6.77	
		5.19	4.56	10.96	10.34	
40	4 4022	8.80	4.98	4.35	5.98	
		4.15	3.57	10.13	9.56	
41	4 4902	8.80	3.98	3.40	6.45	
		4.00	3.11	10.15	9.27	
42	5 502	8.80	4.52	3.64	6.63	
		4.55	4.05	10.18	9.68	
43	5 1382	8.80	4.40	3.90	5.78	
		4.75	4.04	10.53	9.82	
44	5 2262	8.80	4.40	3.70	6.13	
		4.30	3.82	10.48	9.44	
45	5 3142	8.80	7.40	6.92	3.03	to left of location road from Basin
		4.32	3.80	7.35	6.32	
46	5 4022	8.80	4.21	4.40	2.44	
		3.78	2.89	6.22	5.37	
47	5 4422	4.00	4.60	3.71	1.62	
		9.08	8.44	10.70	10.04	
48	5 4762	3.40	2.08	8.44	1.62	
		5.28	4.70	6.90	6.30	
49	6 142	6.60	5.77	5.21	1.11	
		4.80	4.14	5.91	5.23	
50	6 1022	8.80	4.41	3.74	1.50	
		4.76	4.94	6.26	6.43	
51	6 1902	8.80	4.37	4.54	1.87	Brought forward

Station	Total	Staff readings				Remarks
		1st	2nd	3rd	4th	
51	6 1902	3.94	3.53	5.83	1.89	Brought forward
52	6 2782	8.80	4.72	4.31	1.1	
		4.84	4.34	5.95	5.45	
53	6 3442	6.60	4.41	3.91	1.54	
		4.00	3.17	5.54	4.71	
54	6 4102	6.60	4.15	3.32	1.39	
		3.92	3.36	5.31	4.75	
55	6 4762	6.60	4.02	3.46	1.29	
		4.44	3.92	5.73	5.21	
56	7 142	6.60	4.75	4.24	.98	
		4.70	4.25	5.68	5.22	
57	7 202	6.60	2.64	2.19	3.04	
		3.82	3.28	6.86	6.31	
58	7 1462	6.60	4.61	4.08	2.25	
		4.29	3.70	6.54	5.93	
59	7 2122	6.60	5.00	4.40	1.54	
		4.14	3.60	5.68	5.13	
60	7 2782	6.60	3.61	3.16	2.07	
		3.15	2.47	5.22	4.54	
61	7 3442	6.60	3.17	2.49	2.05	
		5.00	4.40	7.05	6.46	
62	7 4102	6.60	4.17	3.57	2.08	
		6.13	5.50	9.01	8.38	
63	7 4762	6.60	4.64	4.01	4.77	
		3.61	2.43	7.99	6.80	
64	7 5422	4.90	3.18	1.97	4.81	at gate of Sheddinecunum Lock

at gate of Sheddinecunum Lock
on ground stone registered as 4.86 above M.S.L.
11.00 = Depth of Lock chamber
6.15 = Floor of Lock chamber below M.S.L. or by
register = 6.14 below M.S.L.

Padras
26 November 1877

J. B. Sanderson, Supervisor
St. Lawrence Division

4
1840
111

11.00
6.03
5.73
6.19

Sum of elevations from
 of Hackney from Hackney from
 of Hackney from Hackney from
 of Hackney from Hackney from
 of Hackney from Hackney from

13.00
 16

Chief Engineer's Memoir No 927
 dated 21st February 1878.

Returned to the Supg Eng^r
 Chingleput who will report if
 it is meant that the sill of the
 of the lock is 6.19 below mean sea
 level as shown by D. Haviland's Bench
 mark, or 12.29 below the Bench mark in
 question.

No. 860

CHINGLEPUT SUPERINTENDING ENGINEER'S OFFICE,
SAINT THOMAS' MOUNT 27th February 1878

1840W
15

From

THE SUPERINTENDING ENGINEER,
CHINGLEPUT.

To

The Chief Engineer
Public Works Department

Enc. 2

1 Letter from the
Supy. Eng. Chingput
No. 717 of 18th Feb
1878
1 Sheet "Field
Book" of Levels

In forwarding my letter No. 717
of 18th instant and its enclosure re-
turned with your Memorandum
No. 927 dated 21st Idem, I have the
honor to inform you that it is noted
that the Rock sill is 13.02 feet below
D. Howland's Bench mark the
height of which Supervisor Landerson
took to be 6.83 above Mean Sea Level.

I have the honor to be
Sir

Your most obedient servant

W. H. Arnold Colonel R.E.
Super Engineer, Chingleput

Copy to be sent
to the Chief Engineer
Public Works Department
for his consideration
and to be placed in the
file of the Public Works
Department.

10475-78
25-7-78
etc 1840. 11. of 13 April 1878

Recorded. 11th 11th

S. E. Chingleput
M. Presidency 29

17

1840. 11. of 13 April 1878
10475-78
25-7-78
etc 1840. 11. of 13 April 1878

2537

Comm. of 1878, 1879

PUBLIC WORKS.

To

The Yacht Club, Long Island

Dated

Issued

Recd.

Encl.

C. O., 13 apt 1878. No. 10214

Recd.

Level of the Station in front
Lock Hill, Long Island Sound
Explanation of the difference
between Dr. Haviland's Bench
mark and the —, in relation
to the mean sea level.

includes the Regs
1-5-8