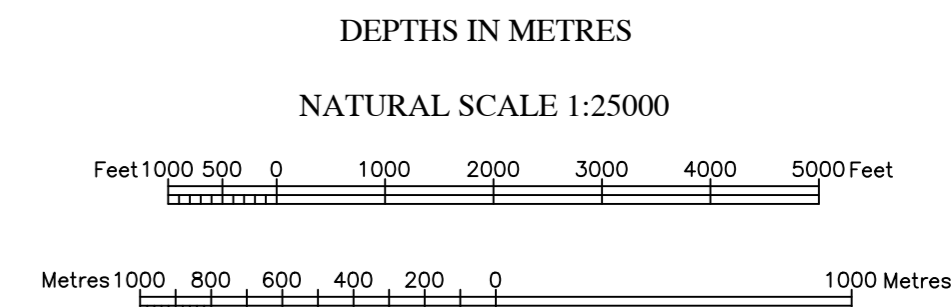


NOT SUITABLE FOR NAVIGATION  
EXCEPT WHEN USED BY PORT'S PILOTS

INDIA WEST COAST  
GULF OF KACHCHH  
DEENDAYAL PORT TRUST  
APPROACHES TO KANDLA CREEK

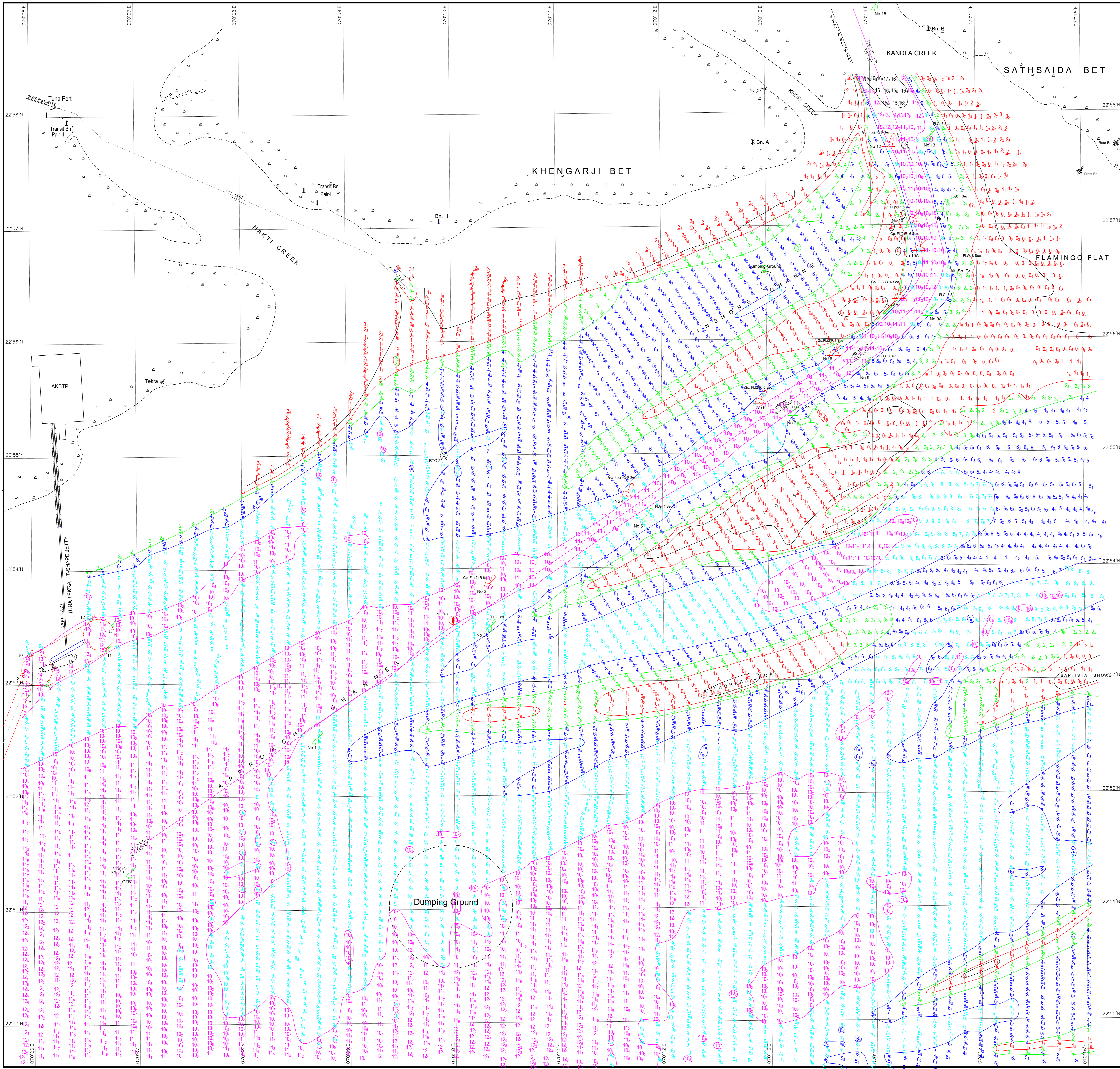
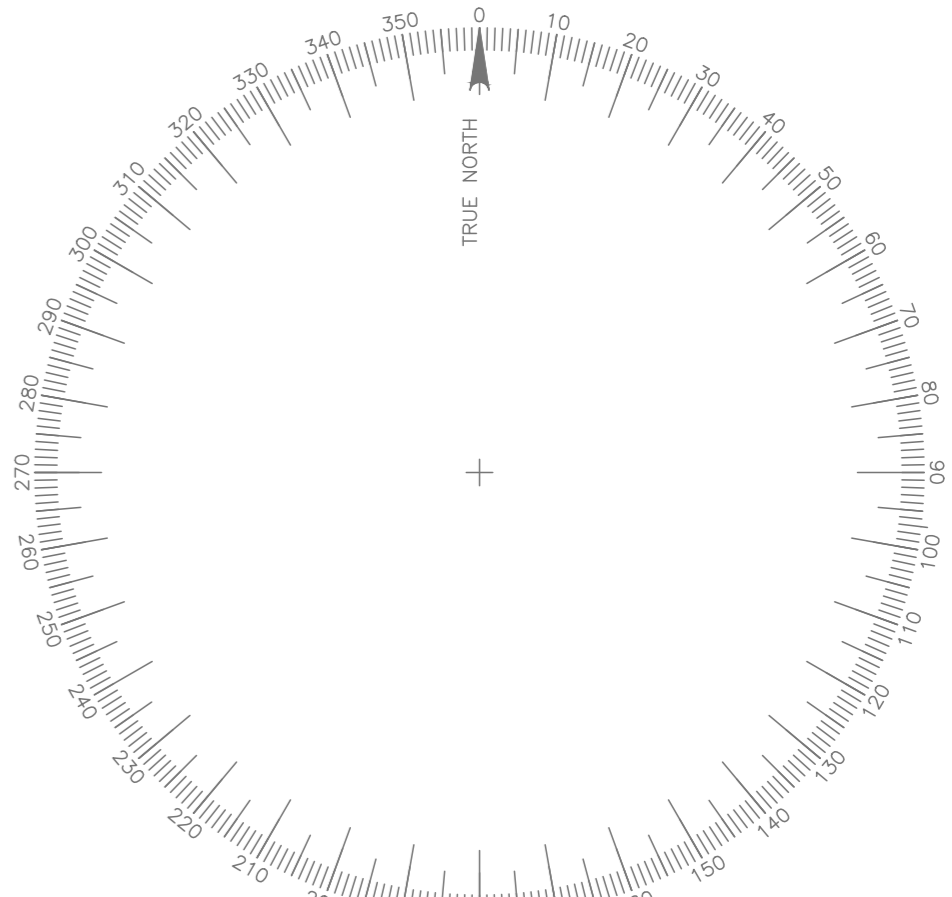
All heights are expressed in Metres above datum  
Surveyed from 18/11/2021 to 18/01/2022

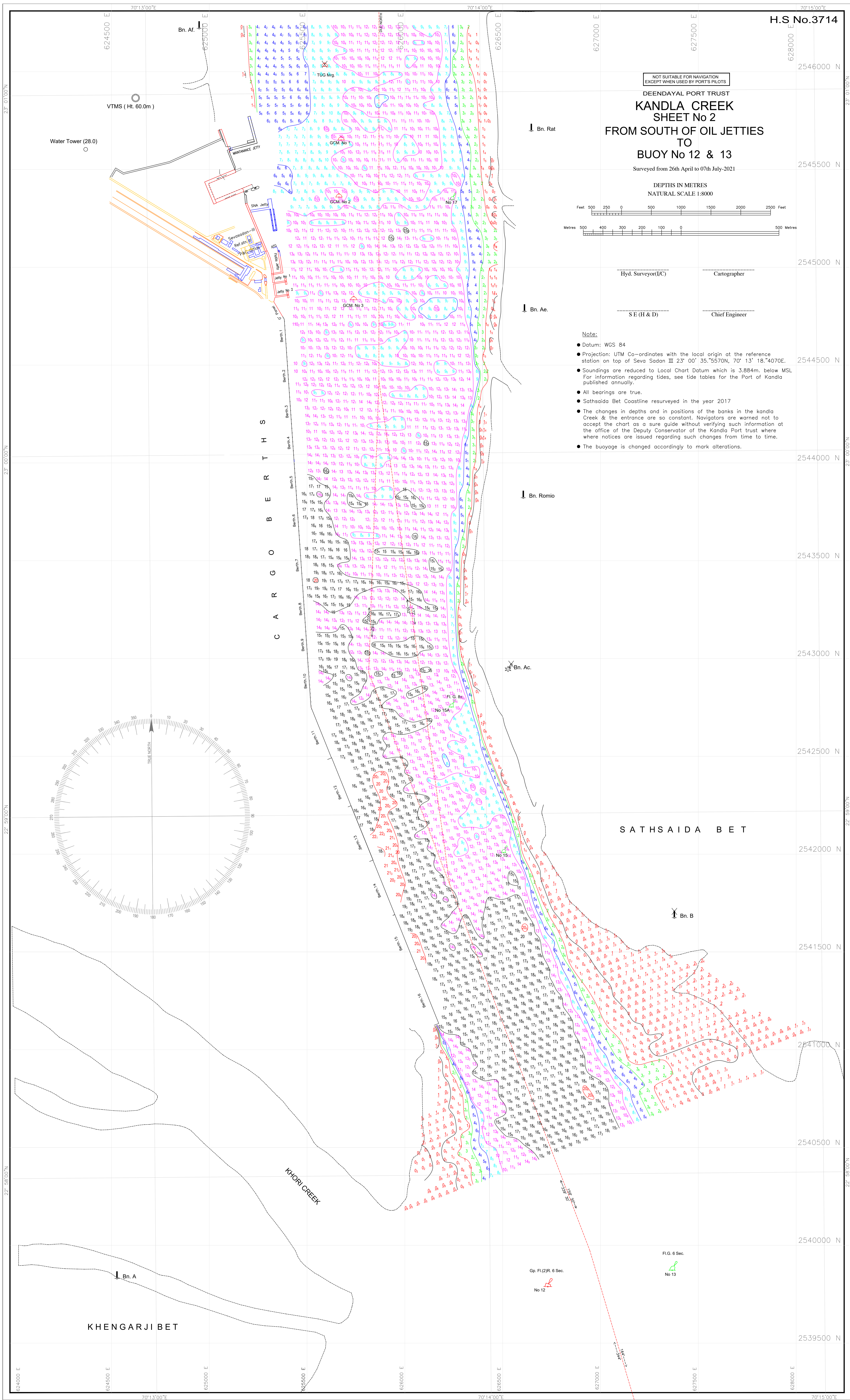


Sr. Hydrographic Survr. \_\_\_\_\_  
Cartographer \_\_\_\_\_

Harbour Master \_\_\_\_\_  
Deputy Conservator \_\_\_\_\_

- Note:**
- Horizontal Datum: WGS -84
  - Projection: UTM Co-ordinates with the local origin at the reference station on top of sevo-sadan-II, 70d13°18'40.697E; 23s00°35'55.692N.
  - Survey carried out by M.L. Nirrikhak.
  - Soundings are reduced to Local Chart Datum which is 3.884m. below MSL. For information regarding tides, see tide tables for the Port of Kandla published annually.
  - All bearings are true.
  - The changes in depths and positions of the banks in the Kandla Creek & the entrance are so constant. Navigators are warned not to accept the chart as a sure guide with out verifying such information at the office of the Deputy Conservator of Deendayal Port Trust where notices are issued regarding such changes from time to time
  - The Soundings North of Lat. 22°53'00"N and East of Long 70°11'30"E are reduced from Bar Area & Spoil Ground Chart No.H.S. 3718.
  - The buoyage is changed accordingly to mark alterations.

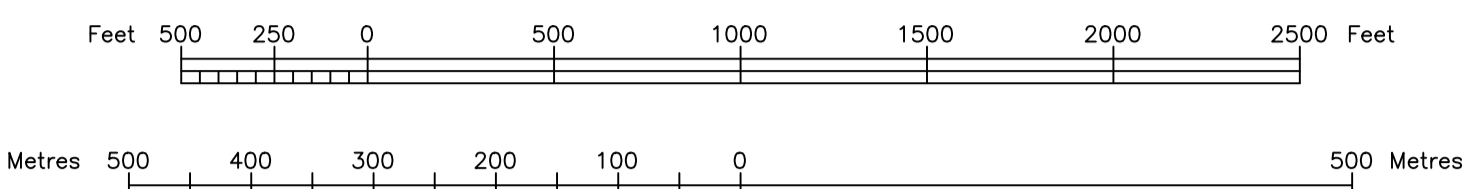




DEENDAYAL PORT TRUST

Surveyed from 3rd July -2021 to 5th October -2021

DEPTHS IN METRES  
NATURAL SCALE 1:8000



Sr. Hydrographic Surveyor

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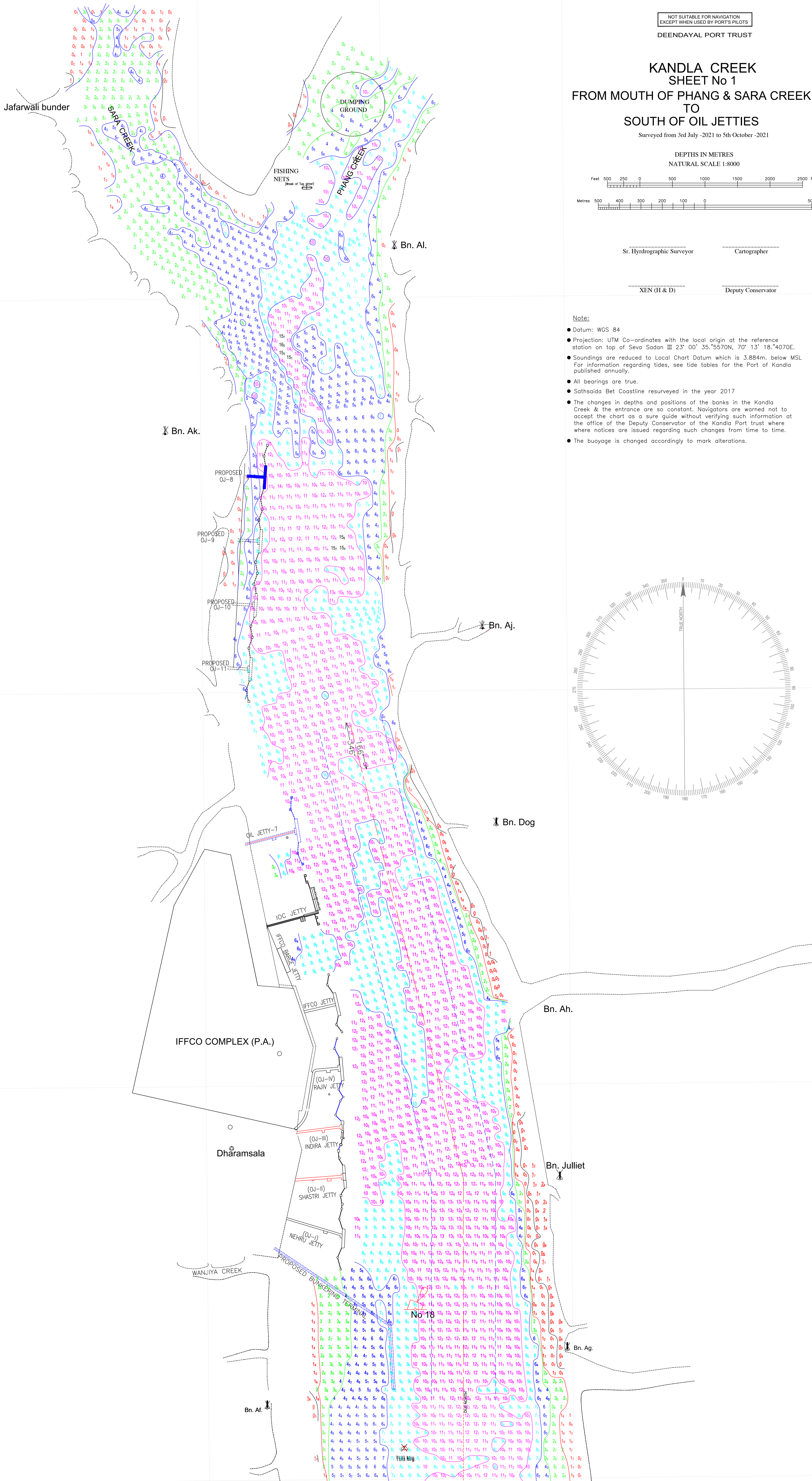
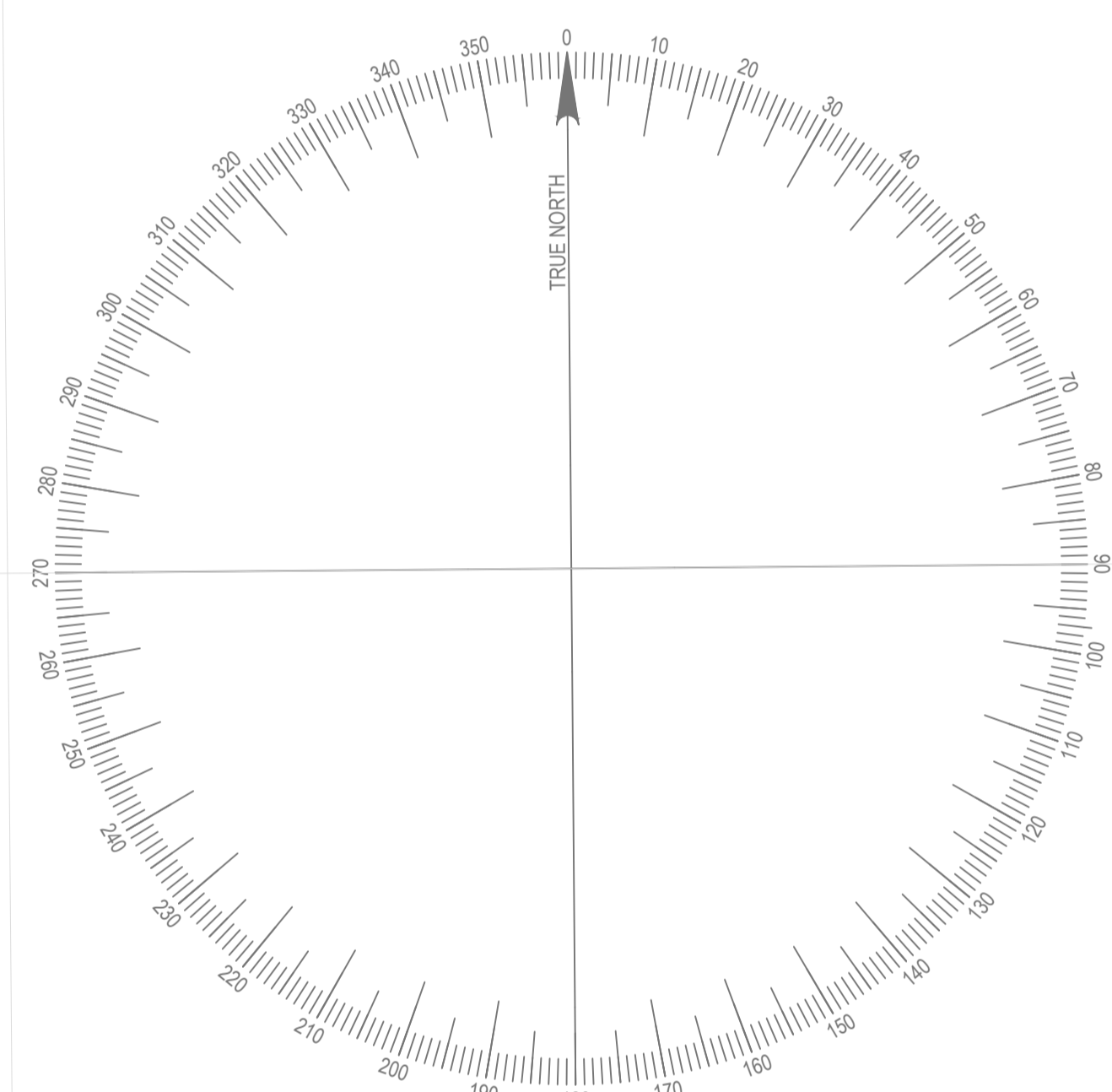
Cartographer

XEN (H &amp; D)

Deputy Conservator

Note:

- Datum: UTM 84
- Projection: WGS Co-ordinates with the local origin at the reference station on top of Seva Sandan III 23° 00' 35,5570N, 70° 13' 18,4070E.
- Soundings are reduced to Local Chart datum which is 3,884m above MSL. For information regarding tides, see tide tables for the Port of Kandla published annually.
- All bearings are true.
- Sathasida Bet Coastline resurveyed in the year 2017
- The changes in depths and positions of the banks in the Kandla Port entrance are so constant. Navigators are warned not to accept the chart as a sure guide without verifying such information at the office of the Deputy Conservator of the Kandla Port trust where where notices are issued regarding such changes from time to time.
- The buoyage is changed accordingly to mark alterations.





**Figure 19 Drifters track during ebb tides on 21<sup>st</sup> and 23<sup>rd</sup> Feb 2018**



**Figure 20 Drifters track during flood tides on 21<sup>st</sup> and 23<sup>rd</sup> Feb 2018**

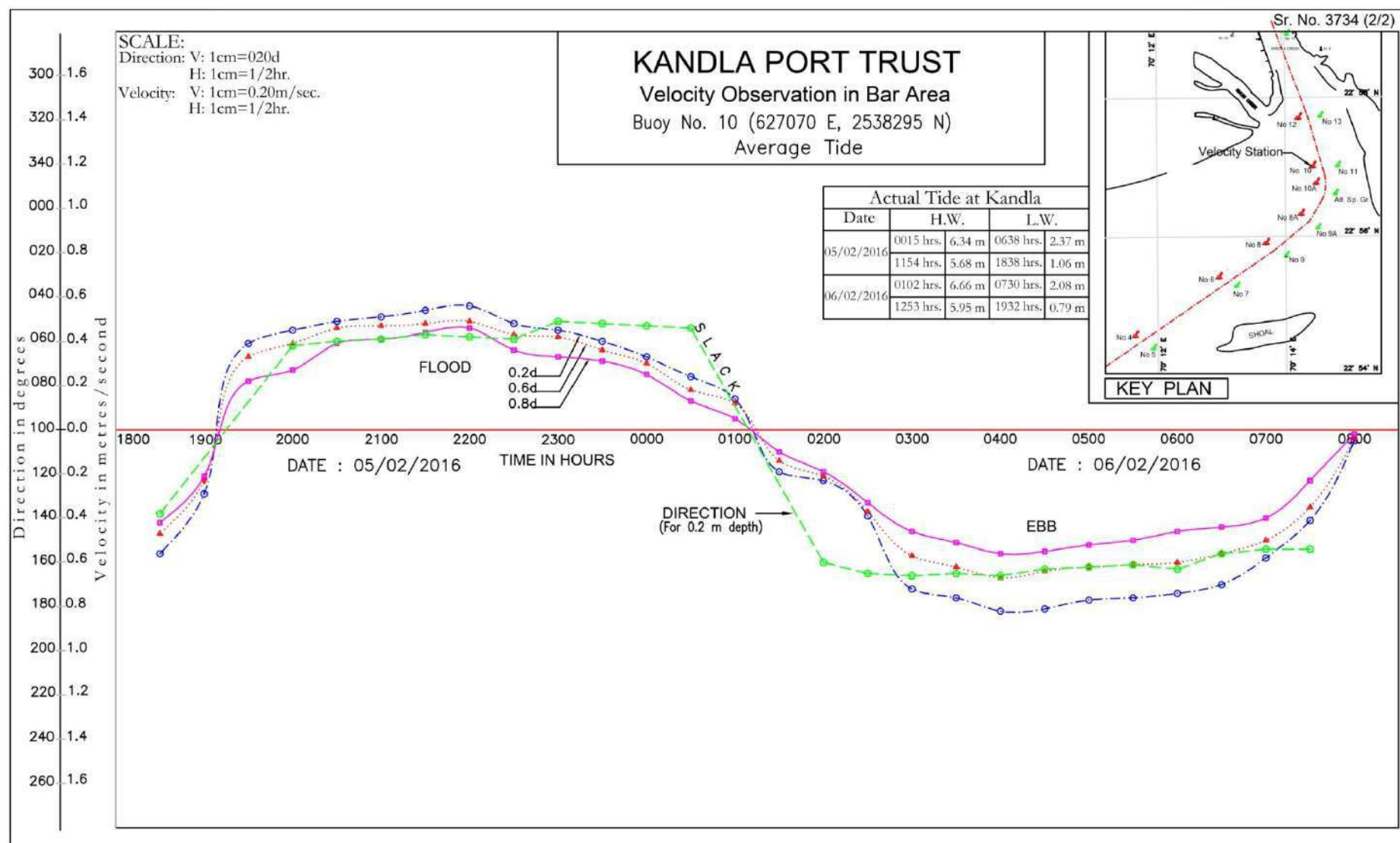


Fig. 11 Typical variations of current speed and direction during average tide

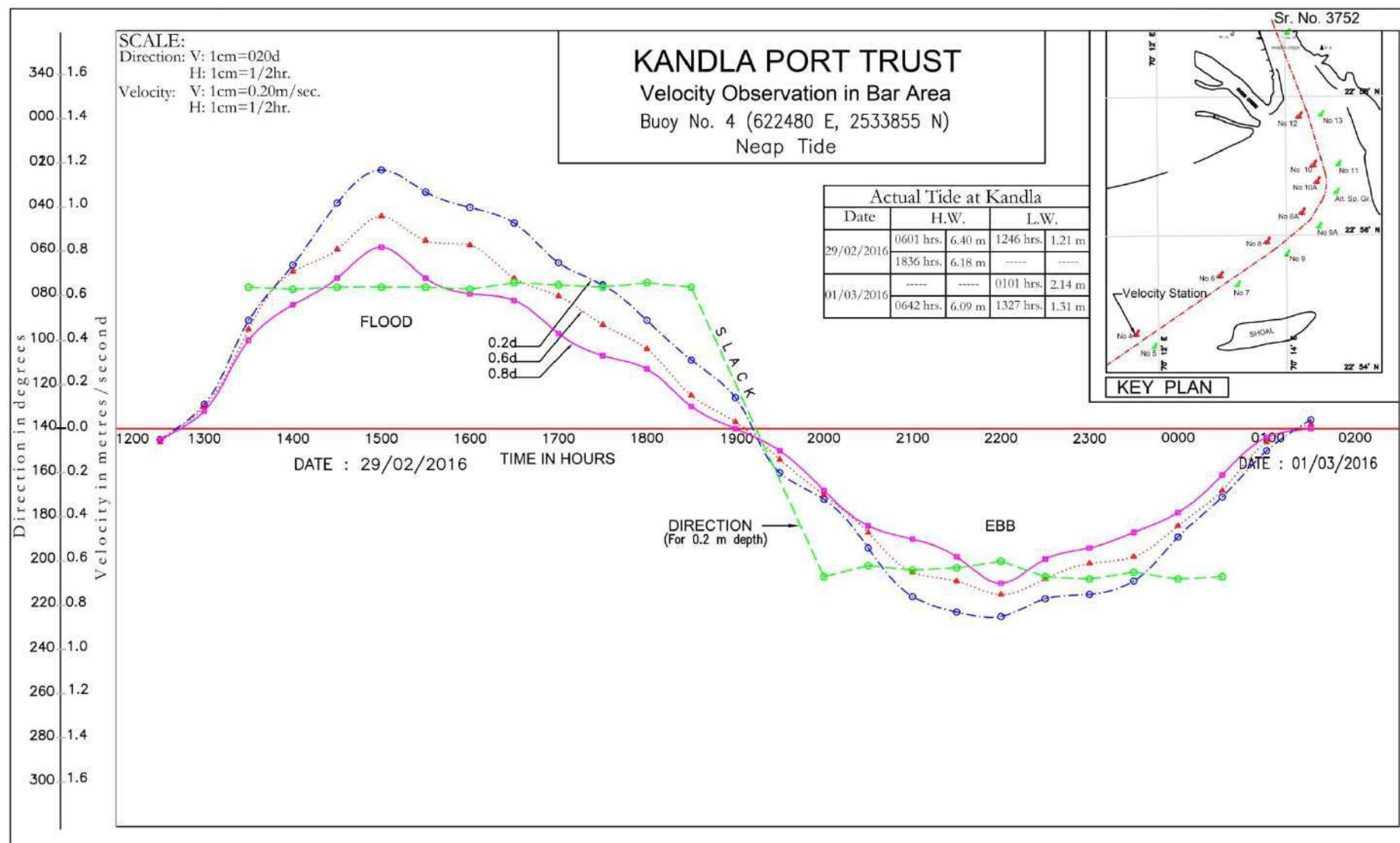
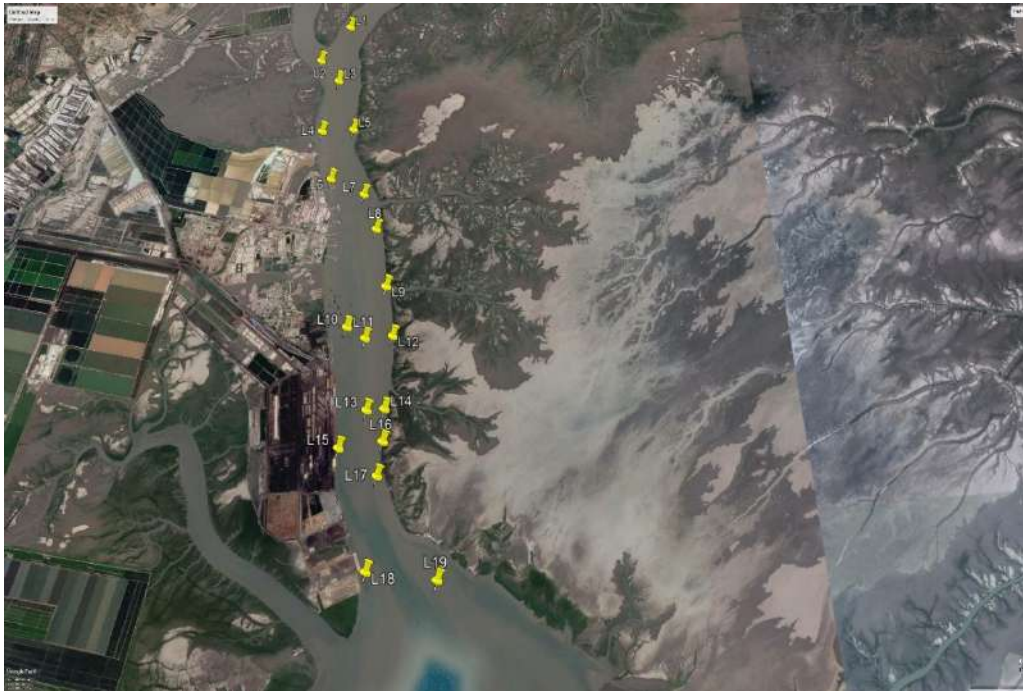


Fig. 12 Typical variations of current speed and direction during neap tide

### ***Suspended Sediment Collection***

Initially, the sample collection points from the creek to end of the navigation channel were marked on the GPS (till Buoy no.3). On 20/02/2018, water samples were collected from the creek side (Fig. 4.18) and on 22/02/2018, from along the navigation channel (Fig. 4.19) using the Niskin samplers. Nearly four samples were collected from different depths over the same proposed location, that are water sample from the surface and at depths  $0.2*D$ ,  $0.6*D$  and  $0.8*D$ , where  $D$  is total water depth from the surface.

The Niskin sampler (Fig. 4.20) or bottle is a tube, usually made of plastic, opened to the water at both ends. A bronze solid weight known as messenger is used to keep both end caps shut and to seal the tube with the water at the required depth. All the samples were transferred into one-liter water sampler (Fig. 4.21) collection bottles with proper labeling for further analysis in laboratory. The collected samples were transferred to laboratory located in the Seva Sadhan-3 building for the analysis.



**Fig. 4.18 Locations of water sample collection on 20/02/2018**



**Fig. 4.19 Locations of water sample collection on 22/02/2018**



**Fig. 4.20 Typical view of a Niskin sampler**

**Table 4.2 Data of samples collected on 19/02/2018**

Location	Longitude (X)	Latitude (Y)	Time	Depth(m)	F.P wt (g)	(F.p + S)wt (g)	SSC (mg/l)
L1	6252287.93	2552209.08	5.16pm	surface	0.08126	0.11345	321.9
				2.1	0.08125	0.11454	332.9
				6.3	0.08156	0.1166	350.4
10.5m							
L2	624678.71	2511368.04	10.23am	surface	0.07955	0.1078	282.5
				3	0.0819	0.1118	299
				4.5	0.07945	0.11248	330.3
5.7m							
L3	625100.63	2550852.35	10.00am	surface	0.07945	0.10741	279.6
				2.2	0.08165	0.11023	285.8
				8	0.08129	0.10784	265.5
11m							
L4	624806.95	2549642.91	10.57am	surface	0.0818	0.10505	232.5
				2	0.08182	0.1056	237.8
				8	0.08153	0.11121	296.8
9m							
L5	625473.92	2549666.93	5.00pm	surface	0.0868	0.11843	316.3
				7.9	0.08544	0.1178	323.6
13.3m							

L6	625065.14	2548546.42	11.17am	surface	0.08071	0.10502	243.1
				2.4	0.08066	0.10841	277.5
12m				7.4	0.08061	0.114	333.9
10				0.08111	0.1095	283.9	
L7	625768.61	25486.5	4.50pm	surface	0.08459	0.11764	330.5
				3.56	0.08549	0.12098	354.9
17.8m				10.68	0.086	0.1219	359
L8	626051.47	2547427.42	4.30pm	surface	0.08305	0.106	229.5
				3.2	0.08438	0.1176	332.2
16m				9.6	0.08481	0.1187	338.9
L9	626284.06	2546241.23	4.20pm	surface	0.08304	0.1182	351.6
				2.2	0.08316	0.1192	360.4
11m				6.6	0.08262	0.118	353.8
8.8				0.08015	0.115	348.5	
L10	625552.03	2545460.78	11.45am	surface	0.08237	0.1014	190.3
				1.6	0.0795	0.0992	197
9.7m				5.8	0.08139	0.0994	180.1
7.7				0.08207	0.10731	252.4	
L11	625913	2545234.82	11.59am	surface	0.08206	0.1049	228.4
				2.1	0.0804	0.105	246

12m				6.5	0.07938	0.1088	294.2
				9.6	0.07936	0.10726	279
L12	626440.345	2545262.93	12.10pm	surface	0.07901	0.10167	226.6
				2	0.08167	0.1079	262.3
12m				7	0.07947	0.11546	359.9
				8	0.07955	0.11603	364.8
L13	625995.62	2543904.35	12.10pm	surface	0.07965	0.10817	285.2
				2.3	0.08146	0.11666	352
11.5m				6.9	0.08128	0.11326	319.8
				9.2	0.08111	0.11632	352.1
L14	626330.20	2543917.37	3.47pm	surface	0.08275	0.11314	303.9
				2	0.0828	0.11815	353.5
7.5m				4.5	0.08185	0.11793	360.8
				6	0.08181	0.11727	354.6
L15	625513.03	2543256.08	12.55pm	surface	0.08031	0.09792	176.1
				3	0.08026	0.11535	350.9
15m				9	0.08117	0.11458	334.1
				12	0.08063	0.11687	362.4
L16	626315.24	2543346.02	3.31pm	surface	0.08132	0.11495	336.3
				3.74	0.08112	0.11731	361.9
18.7m				11.2	0.08107	0.11641	353.4
				15	0.08193	0.11912	371.9

L17	626234.78	2542760.77	2.06pm	surface	0.0815	0.11275	312.5	
				3	0.081	0.10854	275.4	
				14.5				
				5.8	0.0805	0.10651	260.1	
				8.7	0.0805	0.1124	319	
L18	626091.94	2541219.29	2.29pm	surface	0.08115	0.118	368.5	
				1.8	0.08171	0.11727	355.6	
				9m	5.4	0.08148	0.12052	390.4
L19	627336.2	2541054.29	3.10pm	surface	0.08204	0.11402	319.8	
				1	0.08187	0.10854	266.7	
				5m	3	0.08207	0.12528	432.1
				4	0.0816	0.12222	406.2	

**Table 4.3 Data of samples collected on 21/02/2018**

Location	Longitude (X)	Latitude (Y)	Time	Depths(m)	F.P wt (g)	(F.p + S)wt (g)	SSC (mg/l)
L20	62615.24	2539659.91	9.50am	surface	0.08614	0.1219	357.6
				1.1	0.08555	0.12027	347.2
				3.3	0.08783	0.1249	370.7
				4.4	0.08766	0.12313	354.7
L21	2539625	627064	9.30am	surface	0.08298	0.11041	274.3
				2.5	0.0824	0.11274	303.4

12.5m				7.5	0.08298	0.11997	369.9
				10	0.08581	0.1278	419.9
L22	2538822.70	626955.29	10.01a m	surface	0.08772	0.11252	248
				7	0.08138	0.12622	448.4
8.5m							
L23	2538947	628713	5.46p m	surface	0.07992	0.1058	258.8
				4	0.07986	0.1062	263.4
5m							
L24	2537256.17	627268.25	10.20a m	surface	0.08307	0.1104	273.3
				2.5	0.08309	0.11967	365.8
12.7m				7.6	0.08342	0.12252	391
				10.1	0.08165	0.1148	331.5
L25	2537380.65	626870.39	10.11a m	surface	0.08257	0.11715	345.8
				1.3	0.08233	0.12083	385
6.5m				3.9	0.08039	0.11875	383.6
L26	2535207.07	627588.6	5.21p m	surface	0.08033	0.10997	296.4
				1.5	0.08021	0.1106	303.9
8m				4.8	0.08244	0.11268	302.4
				6.4	0.08053	0.1085	279.7

L27	2535934.16	625885.25	10.39a m	surface	0.08211	0.1128	306.9
				1.5	0.08475	0.1165	317.5
5.3m				4.6	0.08337	0.1177	343.3
				6.2	0.08505	0.1205	354.5
L28	2536170.07	625038.59	10.54a m	surface	0.08529	0.11293	276.4
				1	0.08588	0.11583	299.5
5.3m				3	0.08395	0.1269	429.5
				4	0.08234	0.12758	452.4
L29	2534238.1	625355.48	5.08p m	surface	0.08138	0.116	346.2
				4	0.08164	0.1166	349.6
5m							
L30	2534332.42	624348.81	11.41a m	surface	0.08583	0.11815	323.2
				1.3	0.08589	0.11442	285.3
6.5m				3.9	0.08602	0.12165	356.3
				5.2	0.08729	0.12366	363.7
L31	2535315.9	623584.89	11.11a m	surface	0.08227	0.11994	376.7
				1.6	0.08186	0.11775	358.9
8.3m				4.9	0.08706	0.12918	421.2
				6.6	0.08717	0.1316	444.3
L32	253376.46	622828.86	12.00p m	surface	0.0811	0.10237	212.7
				0.94	0.08135	0.10315	218

4.7m				2.8	0.08161	0.10495	233.4
				3.7	0.08243	0.11305	306.2
L33	2533212.64	621399.56	4.43p m	surface	0.08748	0.11547	279.9
				3	0.08099	0.10962	286.3
15m				9	0.08714	0.1188	316.6
				12	0.08246	0.11596	335
L34	2531643.58	622154.88	4.24p m	surface	0.08566	0.1185	328.4
				2.7	0.08503	0.11731	322.8
13.4m				8	0.08549	0.12201	365.2
				11	0.085	0.12001	350.1
L35	2531779.17	623683.22	4.01p m	surface	0.08711	0.13211	450
				2.5	0.08577	0.1315	457.3
10.8m				6.5	0.08209	0.12782	457.3
				8.5	0.08458	0.12962	450.4
L36	2531712.08	621011.8	12.35p m	surface	0.0851	0.12576	406.6
				1.96	0.08238	0.13012	477.4
9.5m				5.7	0.08388	0.13195	480.7
				7.6	0.08215	0.13305	509
L37	2530485.24	621960.98	3.48p m	surface	0.084	0.11157	275.7
				1.8	0.084	0.11591	319.1
9.4m				5.6	0.08433	0.1319	475.7
				7.5	0.08515	0.13784	526.9


L38	2530330.05	620559.07	3.23p m	surface	0.08225	0.1138	315.5
				2	0.0834	0.116	326
10m				6	0.08386	0.1346	507.4
8				0.08366	0.13601	523.5	
L39	2529013.17	621039.73	3.08p m	surface	0.08206	0.0957	136.4
				3	0.08471	0.1029	181.9
11.2m				7	0.0825	0.12103	385.3
9				0.08246	0.13728	548.2	
L40	2527995.51	619926.23	2.41p m	surface	0.08379	0.09863	148.4
				2.4	0.08516	0.10035	151.9
11.7m				7.2	0.08515	0.1327	475.5
9.6				0.0849	0.13161	467.1	
L41	2528001.98	621068.1	2.54p m	surface	0.08335	0.0973	139.5
				2.74	0.08373	0.10145	177.2
13.7m				8.2	0.08411	0.12809	439.8
11				0.08421	0.139	547.9	


### ***Drifter Experiment***

Drifter is small spherical buoy with an inbuilt GPS system that can be used to calculate the surface velocity of the flow as well as trajectory, based on its own position. The whole system consists of 3 sub-systems, i.e. (i) The drifter, (ii) The coastal relay station sub-system for data transmitting, (iii) Real-time data display and management sub-system that support the in-situ operation. The drifters (Fig. 4.24) with the diameter of 12cm, were found to exhibit good surface flow following capacity. The drifters were capable enough to transmit

Appendix A(2) : Extract from Geotechnical Report of 2017- Borelog Data for 21 boreholes for Oil Jetty No. 7, Kandla Creek and Navigational Channel

Sr.No	B.H. No	R.L.,m	Co-ordinates		Depth m Below G.L	Over Burden Thickness ss., m	Rock Thickness., m	UDS S1	S.P.T S2(DS)	S3 DS	Water Sample	Remarks
			E	N								
1	1(OJ7-2)	-12.19	625061	2549082	10.45	5.69	4.76	1	5	7	1	OJ-7
2	2(OJ7-1)	-10.31	625043	2549028	10.45	5.54	4.91	-	6	7	1	
3	3(OJ7-3)	-11.97	625099	2548993	10.45	10.45	-	-	6	15	1	
4	4(OJ7-4)	-12.37	625063	2548939	10.45	3.95	6.5	-	6	6	1	
5	5(OJ7-5)	-12.19	625125	2548887	10.45	10.45	-	-	6	15	1	
6	6(OJ7-6)	-12.06	625109	2548806	10.45	10.45	-	-	7	12	1	
7	7(OJ7-7)	-12.05	625153	2548782	10.45	10.45	-	-	5	14	1	
8	8(OJ7-9)	-12.76	625021	2549095	10.45	10.45	-	-	5	15	1	
9	9(OJ7-8)	-10.55	625053	2548854	31.26	31.26	-	-	16	46	1	
10	10(OPP OJ7-10)	-8.06	625443	2549207	10.45	10.45	-	-	5	15	1	Kandla Creek
11	11(OPP OJ4-11)	-8.99	625963	2547756	10.45	10.45	-	-	5	15	1	
12	123(SC-9)	-11.29	625948	2547850	10.45	10.45	-	3	2	15	1	
13	124(SC-10)	-9.35	626256	2543981	10.45	10.45	-	-	5	15	1	
14	115(SC-1)	-9.94	622459	2534170	10.45	10.45	-	3	2	15	1	Zone - I
15	116(SC-2)	-8.17	624627	2535656	10.45	10.45	-	3	2	15	1	
16	117(SC-3)	-7.1	625920	2536436	10.45	10.45	-	3	2	15	1	
17	118(SC-4)	-3.62	626859	2537324	10.45	10.45	-	3	2	15	1	Zone - II
18	119(SC-5)	-5.02	627774	2538185	10.45	10.45	-	3	2	15	1	
19	120(SC-6)	-8.64	627046	2539892	10.45	10.45	-	3	2	15	1	
20	121(SC-7)	-9.86	626795	2539751	10.45	10.45	-	4	2	15	1	
21	122(SC-8)	-5.15	627592	2539142	10.45	10.45	-	3	2	15	1	

 <b>RENUKA CONSULTANTS,</b> SHOP NO. 1, MEERA MOHAN, OPP. KRANTI TOWER, SECTOR NO. 3, SHREE NAGAR, THANE - 400 604.		Borelog As per IS 1892 : 2002		Job No : 16-145 Page No : 1 of 1									
<b>Project :-</b> Marine Geo Investigations at Proposed Container Terminal Barge Jetty near Tuna Tekra, Navigational Channel and Creek areas of Kandla Port. <b>Client :-</b> Kandla Port Trust, Gandhidham - Kutch, Pin - 370201. <b>Co - ordinates :-</b> E - 0625061 m, N - 2549082 m <b>Bore Hole No. 1 (OJ7-2)</b> <b>Depth of Bore Hole : 10.45 m</b> <b>Depth of Casing : 5.69 m</b> <b>Location :-</b> As per Location Sketch <b>Date of Commencement &amp; completion : 28/12/2016 to 29/12/2016</b>													
Depth/ Scale (m)	Thk. (m)	R.L. (m)	Log	Material Description	Group Symbol	Sample No.	Type	Depth (m)	SPT N° Value	TCR (%)	SCR (%)	RQD (%)	Rock ratings
								From To	15 30 45 60 N				
0.00		-12.190		Brownish inorganic clays, gravelly clays, sandy clays, silty clays, lean clays of medium plasticity.	CI	1	DS	0.00 1.40					
1.00	1.85					1	UDS	1.40 1.85					
		-14.040		Light brownish inorganic silts, silty or clayey fine sands or clayey silts of medium plasticity.	MI	2	DS	1.85 2.14					
2.00						3	DS	2.14 2.64					
	1.29					4	DS	2.64 3.14					
3.00		-15.330		Light brownish silty sands, poorly graded sand-silt mixtures.	SM	1	SPT	3.14 3.59	6 10 16 - 26				
4.00						5	DS	3.59 4.14					
	2.55					6	DS	4.14 6.64					
						7	DS	6.64 5.24					
5.00		-17.880		Dark brownish silty sands, poorly graded sand-silt mixtures.		2	SPT	5.24 5.69	15 36 50 - 86				
6.00				Dark brownish highly weathered fine to medium grained hard alternative banding layer of gravels and pebbles, SANDSTONE TO SILTSTONE.			CORE	5.69 7.24		37.00	0.00	0.00	IV
7.00				Brownish non plastic hard clayey Silts.		3	SPT	7.24 7.69	12 16 19 - 35	21.00	0.00	0.00	V
				Brownish completely weathered hard low plasticity clay.			CORE	7.69 8.74					
8.00	4.76			Light brownish hard silty clay.		4	SPT	8.74 9.19	14 19 25 - 44	61.00	55.00	31.00	IV
9.00				Brownish moderately weathered hard coarse to fine grained alternative banding layer SANDSTONE TO SILTSTONE.			CORE	9.19 10.00					
10.00				Light brownish and dull white medium grained medium dense SAND.		5	SPT	10.00 10.45	9 14 14 - 28				
		-22.640											
DS : Disturbed Sample UDS : Undisturbed Sample SPT : Standard Penetration Test WS : Wash Sample CR : Core Recovery RQD : Rock Quality Designation PR : Rate of Penetration VST : Vane Shear Test K : Permeability Test PT : Packer Permeability Test													
Site Engg. Mahesh Mandape		Drawn By Reema		Checked By Sandip S. Deshpande		Client Rept.		Bore Termination Depth: 10.45 m					

 <b>RENUKA CONSULTANTS,</b> SHOP NO. 1, MEERA MOHAN, OPP. KRANTI TOWER, SECTOR NO. 3, SHREE NAGAR, THANE - 400 604.		Borelog As per IS 1892 : 2002		Job No : 16-145 Page No : 1 of 1									
Project :- Marine Geo Investigations at Proposed Container Terminal Barge Jetty near Tuna Tokra, Navigational Channel and Creek areas of Kandla Port. Client :- Kandla Port Trust, Gandhidham - Kutch, Pin - 370201.													
Co-ordinates :- E - 0625043 m, N - 2549028 m R. L. :- -10.310 m Location :- As per Location Sketch			Bore Hole No. 2 (OF7-1) Depth of Bore Hole : 10.45 m Depth of Casing : 5.54 m Date of Commencement & completion : 26/12/016 to 28/12/016										
Depth/ Scale (m)	Thk. (m)	R.L. (m)	Log	Material Description	Group Symbol	Sample No	Type	Depth (m)	SPT 'N' Value	TCR (%)	SCR (%)	RQD (%)	Rock ratings
	0.00	-10.310						From To	15 30 45 60 N				
0.00				Brownish inorganic clays of high plasticity, fat clays.		1	DS	0.00 1.00					
1.00						2	DS	1.00 1.50					
				Light brownish inorganic clays of high plasticity, fat clays.		1	SPT	1.50 1.85	19 26 30 - R				
2.00						3	DS	1.85 2.50					
						4	DS	2.50 3.00					
	5.54				CH	5	DS	3.00 4.00					
3.00													
4.00				Light brownish and dull white inorganic clays of high plasticity, fat clays.		2	SPT	4.00 4.34	12 29 30 - R				
						6	DS	4.34 5.00					
5.00						7	DS	5.00 5.50					
		-15.850				3	SPT	5.50 5.54	30 - - - R				
				Dark brownish completely weathered fine to medium grained hard slightly cavity structure SILTSTONE.			CORE	5.54 7.00		15.00	3.00	0.00	V
6.00													
				Dark brownish fine to medium grained highly dense silty sand.		4	SPT	7.00 7.19	18 30 - - R				
7.00				Dark brownish completely weathered fine grained slightly cavity structure SILTSTONE.			CORE	7.19 8.50		17.00	8.00	0.00	V
8.00	4.91			Dark brownish fine grained silt with gravels and pebbels.		5	SPT	8.50 8.70	13 30 - - R				
				Dark brownish highly weathered fine grained slightly cavity structure cobbels and pebbels present SILTSTONE.			CORE	8.70 10.00		48.00	21.00	21.00	IV
9.00													
				Brownish medium plasticity hard clay with sand.		6	SPT	10.00 10.45	10 14 18 - 32				
10.00													
		-20.760											
DS : Disturbed Sample UDS : Undisturbed Sample SPT : Standard Penetration Test WS : Wash Sample						CR : Core Recovery RQD : Rock Quality Designation PR : Rate of Penetration VST : Vane Shear Test						K : Permeability Test PT : Packer Permeability Test	
Site Engg. Mahesh Mandape		Drawn By Reena		Checked By Sundip S. Deshpande		Client Rept.		Bore Termination Depth: 10.45 m					

Project :- Marine Geo Investigations at Proposed Container Terminal Barge Jetty near Tuna Tekra, Navigational Channel and Creek areas of Kandla Port.  
Client :- Kandla Port Trust, Gandhidham - Kutch, Pin - 370001.

Co - ordinates : - E - 0625099 m, N - 2548993 m

Bore Hole No. 3 (OJ7-3)

R. L.: -11.970 m

Depth of Bore Hole : 10.45 m

Location : As per Location Sketch

Depth of Casing : 10.45 m

Date of Commencement & completion : 30/12/016 to 31/12/016

[illegible]

DS : Disturbed Sample  
 UDS : Undisturbed Sample  
 SPT : Standard Penetration Test  
 WS : Wash Sample

CR : Core Recovery  
RQD: Rock Quality Designation  
PR : Rate of Penetration  
VST : Vane Shear Test

K : Permeability Test  
PT : Packer Permeability Test

Site Engg.  
Mahesh  
Mandane

Drawn By  
Recna

Checked By  
Sandeep S. Deshpande

Client Rep.

Bore Termination Depth: 10.45 m



**RENUKA CONSULTANTS,**  
SHOP NO. 1, MEERA MOHAN,  
OPP. KRANTI TOWER, SECTOR NO. 3,  
SHREE NAGAR, THANE - 400 604.

Borelog

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Project :- Marine Geo Investigations at Proposed Container Terminal Barge Jetty near Tuna Tekra, Navigational Channel and Creek areas of Kandla Port.

Client :- Kandla Port Trust, Gandhidham - Kutch, Pin - 370201.

Co-ordinates :- E - 0625063 m, N - 2548939 m

R. L. :- -12.370 m

Location :- As per Location Sketch

Bore Hole No. 4 (OJ7-4)

Depth of Bore Hole : 10.45 m

Depth of Casing : 3.95 m

Date of Commencement & completion : 01/01/017 to 02/01/017

Depth/ Scale (m)	Thk. (m)	R.L. (m)	Log	Material Description	Group Symbol	Sample No.	Type	Depth (m)	SPT 'N' Value	TCR (%)	SCR (%)	RQD (%)	Rock ratings
	0.00	-12.370						From To	15 30 45 60 N				
0.00				Light brownish inorganic clays of high plasticity, fat clays.		1	DS	0.00 0.50					
						2	DS	0.50 1.00					
1.00	1.95				CH	3	DS	1.00 1.50					
		-14.320				1	SPT	1.50 1.95	10 19 30 - 49				
2.00				Light brownish silty sands, poorly graded sand-silt mixtures.		4	DS	1.95 2.50					
	2.00				SM	5	DS	2.50 3.00					
3.00				Dark brownish silty sands, poorly graded sand-silt mixtures.		2	SPT	3.00 3.45	10 21 42 - 63				
		-16.320				6	DS	3.45 3.95					
4.00				Yellowish brown and dull white fresh medium to fine grained slightly cavity structure alternative banded layer SILTSTONE.			CORE	3.95 4.50		100.0	58.00	0.00	I
						3	SPT	4.50 4.59	30 - - - R				
5.00				Light brownish yellow very fine grained SILTSTONE.			CORE	4.59 6.00		28.00	11.00	0.00	IV
				Light yellowish brown highly weathered fine to very fine grained slightly cavity structure alternative banded layer SILTSTONE.		4	SPT	6.00 6.45	9 21 37 - 58				
6.00				Dark brownish fine grained very dense silty sand.			CORE	6.45 7.50		46.00	22.00	0.00	IV
				Light brownish yellow highly weathered very fine to fine grained slightly cavity structure alternative banded layer of clayey silt to SILTSTONE.		5	SPT	7.50 7.75	19 40 - - R				
7.00	6.50			Light brownish yellow fine grained silt.			CORE	7.75 9.00		45.00	22.00	0.00	IV
				Light brownish yellow highly weathered hard fine grained banded layer of sand and silty clay.									
8.00													
9.00				Light brownish yellow hard very fine grained silty clay.			CORE	9.00 10.00		80.00	80.00	73.00	II
10.00				Light brownish yellow hard very fine grained silty clay.		6	SPT	10.00 10.45	18 25 32 - 57				
		-22.820											

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UDS : Undisturbed Sample

SPT : Standard Penetration Test

WS : Wash Sample

CR : Core Recovery

RQD : Rock Quality Designation

PR : Rate of Penetration

VST : Vane Shear Test

K : Permeability Test

PT : Packer Permeability Test

Site Engg.  
Mahesh  
Mandape

Drawn By  
Reena

Checked By  
Santip S. Deshpande

Client Rept.

Bore Termination Depth: 10.45 m