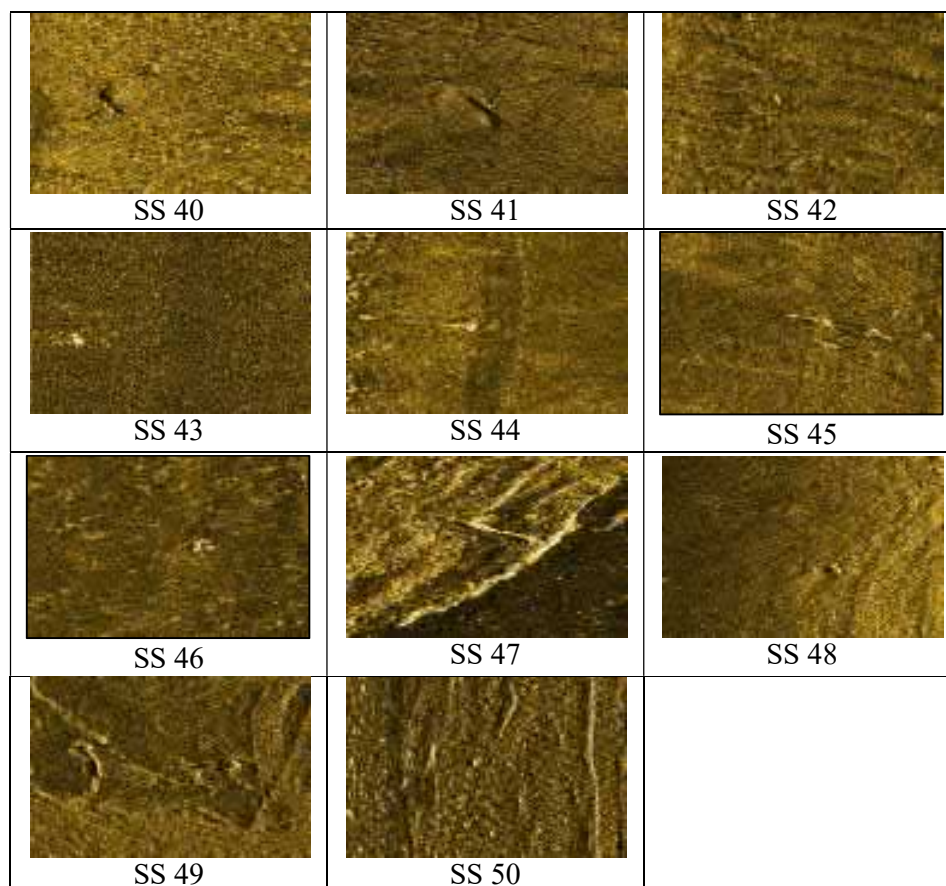


**Comprehensive study for the Maintenance Dredging requirements of  
Deendayal Port and to suggest measures to reduce dredging cost**



**Tiles 1: SSS Object/target image from SS 01 to SS 50**

**Table AII.2** Details of the SSS targets/object locations and its remarks

S.No	Target ID SSS	Location	UTM (Zone 42)		Geographic Location		Remark
			X (m)	Y (m)	Latitude	Longitude	
1	SS 1	Location 2	625199.30	2550705.40	23°03'36.6681"N	70°13'19.7566"E	Unknown target; small in size
2	SS 2	Location 4	625012.30	2549963.00	23°03' 12.5814"N	70°13'12.9686"E	Linear feature; Could be chain
3	SS 3	Location 13	625140.30	2549037.00	23°02'42.4398"N	70°13'17.1942"E	Unknown target; partially buried and scattered
4	SS 4		625147.90	2549025.10	23°02'42.0509"N	70°13'17.4577"E	Unknown target; partially buried and scattered
5	SS 5	Location 15	625597.20	2548737.80	23°02'32.5878"N	70°13'33.1579"E	Unknown target; small in size
6	SS 6	Location 16	625388.70	2548574.30	23°02'27.3287"N	70°13'25.785"E	Unknown target; small in size
7	SS 7	Location 18	625360.40	2548152.20	23°02'13.6127"N	70°13'24.6669"E	Small linear target
8	SS 8	Location 19	625652.80	2547914.90	23°02'5.8179"N	70°13'34.869"E	Unknown target; small in size
9	SS 9	Location 20	625366.00	2547871.00	23°02'4.4686"N	70°13'24.781"E	Anchor with rope/chain





10	SS 10	Location 22	625510.80	2547516.10	23°01'52.8904"N	70°13'29.7635"E	Unknown target; small in size
11	SS 11	Location 23	625451.30	2547501.30	23°01'52.4254"N	70°13'27.669"E	Anchor with rope/chain
12	SS 12	Location 25	625724.90	2546602.50	23°01'23.1285"N	70°13'37.0156"E	Unknown target; small in size
13	SS 13	Location 27	626098.40	2545755.90	23°00' 55.5013"N	70°13'49.8854"E	Unknown target
14	SS 14	Location 29	625691.50	2545303.30	23°00' 40.8969"N	70°13'35.4603"E	Unknown target; small in size
15	SS 15	Location 30	625648.60	2544948.10	23°00' 29.36"N	70°13'33.8491"E	Unknown target; partially exposed
16	SS 16	Location 31	625722.7977	2544891.70	23°00' 27.506"N	70°13'36.4386"E	Anchor with rope/chain
17	SS 17	Location 32	625682.80	2544699.80	23°00' 21.2777"N	70°13'34.9774"E	Unknown target; small in size
18	SS 18		625690.40	2544671.20	23°00' 20.3458"N	70°13'35.2359"E	Unknown target; small in size
19	SS 19	Location 34	625807.30	2543847.90	22°59' 53.5461"N	70°13'39.0995"E	Unknown target
20	SS 20	Location 35	625616.80	2543754.00	22°59' 50.5449"N	70°13'32.3816"E	Unknown target; small in size
21	SS 21	Location 37	625605.20	2543574.80	22°59' 44.7218"N	70°13'31.9216"E	Unknown target; partially buried and scattered
22	SS 22	Location 38	625596.80	2543511.40	22°59' 42.6627"N	70°13'31.608"E	Unknown target; partially buried and scattered
23	SS 23		625602.50	2543501.70	22°59' 42.3458"N	70°13'31.8053"E	Unknown target; partially buried and scattered
24	SS 24	Location 39	625700.60	2543433.70	22°59' 40.1083"N	70°13'35.2305"E	Unknown target; small in size
25	SS 25	Location 40	626090.54	2543431.15	22°59'39.9191"N	70°13'48.924"E	Unknown target
26	SS 26	Location 41	625948.20	2543257.00	22°59' 34.2958"N	70°13'43.8739"E	Unknown target; small in size
27	SS 27	Location 42	625663.50	2543288.40	22°59' 35.3942"N	70°13'33.885"E	Unknown; small linear target
28	SS 28	Location 43	625804.40	2543092.40	22°59' 28.9833"N	70°13'38.7756"E	Unknown target; small in size
29	SS 29	Location 44	625681.80	2543020.10	22°59' 26.666"N	70°13'34.4489"E	Unknown target; small in size
30	SS 30		625721.30	2542994.80	22°59' 25.8327"N	70°13'35.8286"E	Unknown target; small in size
31	SS 31	Location 46	625752.30	2542709.60	22°59' 16.5516"N	70°13'36.8335"E	Unknown linear target
32	SS 32	Location 47	625797.20	2542695.30	22°59' 16.0744"N	70°13'38.406"E	Unknown target
33	SS 33		625812.30	2542683.60	22°59' 15.6899"N	70°13'38.9328"E	Unknown target
34	SS 34	Location 48	625955.28	2542722.82	22°59'16.9261"N	70°13'43.9654"E	Unknown target
35	SS 35	Location 49	626112.50	2542799.80	22°59' 19.3861"N	70°13'49.5092"E	Unknown; very small target
36	SS 36	Location 50	626278.10	2542700.00	22°59' 16.0962"N	70°13'55.2952"E	Anchor with rope/chain
37	SS 37	Location 51	626002.60	2542272.90	22°59' 2.285"N	70°13'45.4947"E	Unknown; very small target





38	SS 38	Location 52	626116.76	2541926.81	22°58'51"N	70°13'49.4017" E	Unknown; very small target
39	SS 39	Location 53	626266.90	2541292.50	22°58' 30.3373"N	70°13'54.4869" E	Suspected target
40	SS 40	Location 54	626248.30	2541177.50	22°58' 26.6033"N	70°13'53.7999" E	Unknown target
41	SS 41		626259.80	2541162.40	22°58' 26.1093"N	70°13'54.1993" E	Unknown target
42	SS 42	Location 59	626863.60	2539788.80	22°57' 41.2844"N	70°14'15"E	Unknown; very small target
43	SS 43	Location 60	627092.40	2539296.30	22°57' 25.209"N	70°14'22.8814" E	Unknown target; small in size
44	SS 44	Location 62	627159.30	2538813.20	22°57' 9.4836"N	70°14'25.0869" E	Unknown linear target
45	SS 45	Location 63	627208.80	2538658.90	22°57' 4.4533"N	70°14'26.779"E	Unknown target
46	SS 46	Location 64	627623.10	2538257.70	22°56' 51.2952"N	70°14'41.2047" E	Unknown target
47	SS 47	Location 66	626691.70	2536900.40	22°56' 7.4208"N	70°14'8.1059"E	Unknown target
48	SS 48	Location 67	625299.8	2535968	22°55'37.4837"N	70°13'18.9733" E	Unknown; very small target
49	SS 49	Location 68	625368.60	2535601.70	22°55'25.5555"N	70°13'21.2814" E	Unknown target
51	SS 50	Location 72	627264.00	2539928.40	22° 57' 45.7133" N	70° 14' 29.0936" E	Unknown target
52	SS 51	Location 75	627400.10	2539045.10	22° 57' 16.9572" N	70° 14' 33.6097" E	Unknown target; small in size
53	SS 52	Location 76	627440.60	2538919.80	22° 57' 12.8722" N	70° 14' 34.9944" E	Unknown; very small target
54	SS 53	Location 79	627621.50	2538265.00	22° 56' 51.5330" N	70° 14' 41.1507" E	Unknown; very small target
55	SS 54	Location 80	627223.10	2538094.00	22° 56' 46.0828" N	70° 14' 27.1135" E	Unknown target
56	SS 55	Location 81	627676.60	2537514.00	22° 56' 27.1006" N	70° 14' 42.8616" E	Small target; could be Tyre
57	SS 56	Location 82	627474.70	2537132.40	22° 56' 14.7492" N	70° 14' 35.6607" E	
58	SS 57	Location 83	627388.60	2537007.50	22° 56' 10.7120" N	70° 14' 32.6012" E	Small target; could be Tyre
59	SS 58	Location 85	626352.20	2536152.50	22° 55' 43.1969" N	70° 13' 55.9682" E	Small target; could be Tyre
60	SS 59	Location 87	625217.60	2535403.60	22° 55' 19.1554" N	70° 13' 15.9235" E	Unknown; very small target
61	SS 60	Location 87	625150.30	2535371.90	22° 55' 18.1429" N	70° 13' 13.5520" E	Unknown target; small in size
62	SS 61	Location 88	622899.80	2533834.80	22° 54' 28.7679" N	70° 11' 54.1195" E	Unknown target; small in size
63	SS 62	Location 91	622242.90	2533860.30	22° 54' 29.7705" N	70° 11' 31.0716" E	Unknown target; partially buried and scattered
64	SS 63	Location 90	622824.10	2533703.50	22° 54' 24.5189" N	70° 11' 51.4252" E	Unknown target; partially exposed
65	SS 64	Location 94	621748.50	2533073.20	22° 54' 4.3088" N	70° 11' 13.4969" E	Unknown; very small target
66	SS 65	Location 95	621677.70	2532934.50	22° 53' 59.8177" N	70° 11' 10.9729" E	Small target; could be Tyre





67	SS 66	Location 99	620948.90	2532786.00	22° 53' 55.1798" N	70° 10' 45.3539" E	Unknown linear target
68	SS 67	Location 100	621111.30	2532644.60	22° 53' 50.5400" N	70° 10' 51.0135" E	Unknown target; small in size
69	SS 68	Location 102	620296.50	2532322.70	22° 53' 40.2855" N	70° 10' 22.3286" E	Unknown; very small target
70	SS 69	Location 103	619917.00	2532343.90	22° 53' 41.0729" N	70° 10' 9.0165" E	Unknown target
71	SS 70	Location 105	619997.50	2532018.20	22° 53' 30.4623" N	70° 10' 11.7507" E	Unknown target; small in size
73	SS 71	Location 106	619543.30	2531810.40	22° 53' 23.8229" N	70° 9' 55.7538" E	Unknown target; small in size
74	SS 72	Location 107	619458.80	2531654.40	22° 53' 18.7725" N	70° 9' 52.7452" E	Small target; could be Tyre
76	SS 73	Location 108	619236.60	2531602.20	22° 53' 17.1323" N	70° 9' 44.9332" E	Unknown target; small in size
77	SS 74	Location 110	618618.50	2531205.60	22° 53' 4.3954" N	70° 9' 23.1334" E	Unknown target
78	SS 75	Location 111	618627.50	2531021.90	22° 52' 58.4202" N	70° 9' 23.3987" E	Linear feature; Could be chain
79	SS 76	Location 113	618337.20	2530724.10	22° 52' 48.8115" N	70° 9' 13.1299" E	Unknown target; partially buried and scattered
80	SS 77	Location 115	617279.60	2530077.60	22° 52' 28.0589" N	70° 8' 35.8424" E	Anchor with rope/chain
81	SS 78	Location 116	617160.80	2529984.90	22° 52' 25.0748" N	70° 8' 31.6487" E	Unknown target; partially buried and scattered
82	SS 79	Location 117	617002.80	2529979.80	22° 52' 24.9488" N	70° 8' 26.1033" E	Linear feature; Could be chain
83	SS 80	Location 119	616807.00	2529898.80	22° 52' 22.3643" N	70° 8' 19.2109" E	
84	SS 81	Location 120	616626.90	2529556.20	22° 52' 11.2701" N	70° 8' 12.7988" E	Linear feature; Could be chain
85	SS 82	Location 121	616503.30	2529559.40	22° 52' 11.4051" N	70° 8' 8.4628" E	Linear feature; Could be chain
86	SS 83	Location 121	616458.40	2529539.90	22° 52' 10.7823" N	70° 8' 6.8821" E	Unknown target
87	SS 84	Location 122	616198.40	2529520.80	22° 52' 10.2263" N	70° 7' 57.7541" E	Unknown target; small in size
88	SS 85	Location 123	615775.60	2529304.80	22° 52' 3.3086" N	70° 7' 42.8610" E	Unknown target; partially exposed
89	SS 86	Location 125	615805.50	2528990.30	22° 51' 53.0753" N	70° 7' 43.8256" E	Unknown target; small in size
90	SS 87	Location 124	615580.70	2529084.30	22° 51' 56.1876" N	70° 7' 35.9633" E	Anchor with rope/chain
91	SS 88	Location 126	615553.30	2528863.50	22° 51' 49.0151" N	70° 7' 34.9427" E	Linear feature; Could be chain
92	SS 89	Location 127	615667.70	2528775.90	22° 51' 46.1384" N	70° 7' 38.9331" E	Unknown linear target
93	SS 90	Location 128	615341.90	2528892.40	22° 51' 50.0073" N	70° 7' 27.5332" E	Unknown target; partially exposed
94	SS 91	Location 129	615248.10	2528774.20	22° 51' 46.1873" N	70° 7' 24.2105" E	Linear feature; Could be chain
96	SS 92	Location 130	614060.60	2528161.10	22° 51' 26.5451" N	70° 6' 42.3835" E	Unknown target; small in size



There are four anchors/mooring systems with chains/ropes, one linear chain like feature, two unknown linear objects, six unknown objects partially buried and scattered, sixteen small unknown objects, five very small unknown objects, two unknown small linear object, thirteen unknown objects and one suspected object traced within surveyed limit.

In general, the SSS mosaic shows that the seabed/riverbed is carpeted by sedimentary particles composed by clay, silt, silty clay, stiff-clay and silty sand. The records do not show the presence of any exposed hard rock. The SSS mosaic map is presented in Fig. 11 to 16.

### AII.5.2. Sub-Bottom Profile (SBP) Survey Results

The sub-bottom records acquired in the field were processed using several geophysical signal processing techniques such as zap filter, low pass filter, high pass filter, TVG and DBG. The filtered data were taken to interpretation window for target identification.

The targets namely SB1 to SB25, identified through sub-bottom profiling survey are presented in Figs. 11 to 16. The details of the targets/objects geographical locations and remarks are given in table AII.3.

**Table AII.3** Details of geographical locations of each targets/objects identified by SBP

S.No	Target ID	Location	UTM (Zone 42)		Geographic Location	
	SBP		X (m)	Y (m)	Latitude	Longitude
1	SB 1	Location 2	625261.2318	2550629.502	23°03'34.1836"N	70°13'21.9104"E
2	SB 2	Location 10	625270.35	2549189.06	23°02'47.3484"N	70°13'21.8077"E
3	SB 3	Location 12	625099.5956	2549020.14	23°02'41.9027"N	70°13'15.7592"E
4	SB 4	Location 14	625302.7588	2549039.299	23°02'42.4705"N	70°13'22.9024"E
5	SB 5		625323.8218	2548960.152	23°02'39.8915"N	70°13'23.6191"E
6	SB 6	Location 15	625598.8718	2548780.292	23°02'33.9689"N	70°13'33.2292"E
7	SB 7		625571.1454	2548759.296	23°02'33.2938"N	70°13'32.2489"E
8	SB 8	Location 17	625500.1977	2548450.271	23°02'23.2658"N	70°13'29.6656"E
9	SB 9	Location 21	625930.3111	2547689.741	23°01'58.4217"N	70°13'44.5514"E
10	SB 10		625952.0664	2547657.557	23°01'57.3694"N	70°13'45.3061"E
11	SB 11	Location 38	625642.57	2543502.18	22°59'42.3505"N	70°13'33.2127"E
12	SB 12	Location 40	626083.69	2543411.09	22°59'39.2688"N	70°13'48.6775"E
13	SB 13	Location 44	625701.43	2543049.81	22°59'27.6266"N	70°13'35.1469"E
14	SB 14	Location 49	626181.68	2542783.2	22°59'18.8275"N	70°13'51.9337"E
15	SB 15	Location 52	626090.3508	2541920.148	22°58'50.7921"N	70°13'48.4724"E
16	SB 16	Location 63	627200.72	2538660.95	22°57'4.5222"N	70°14'26.4959"E
17	SB 17	Location 66	626750.7463	2536859.478	22°56'6.0742"N	70°14'10.1665"E
18	SB 18	Location 68	625387.9944	2535634.59	22°55'26.6197"N	70°13'21.9717"E

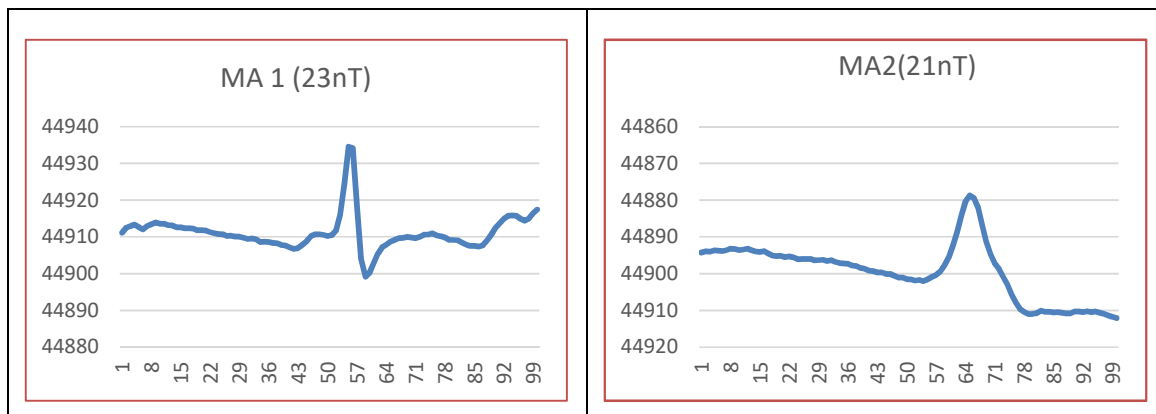


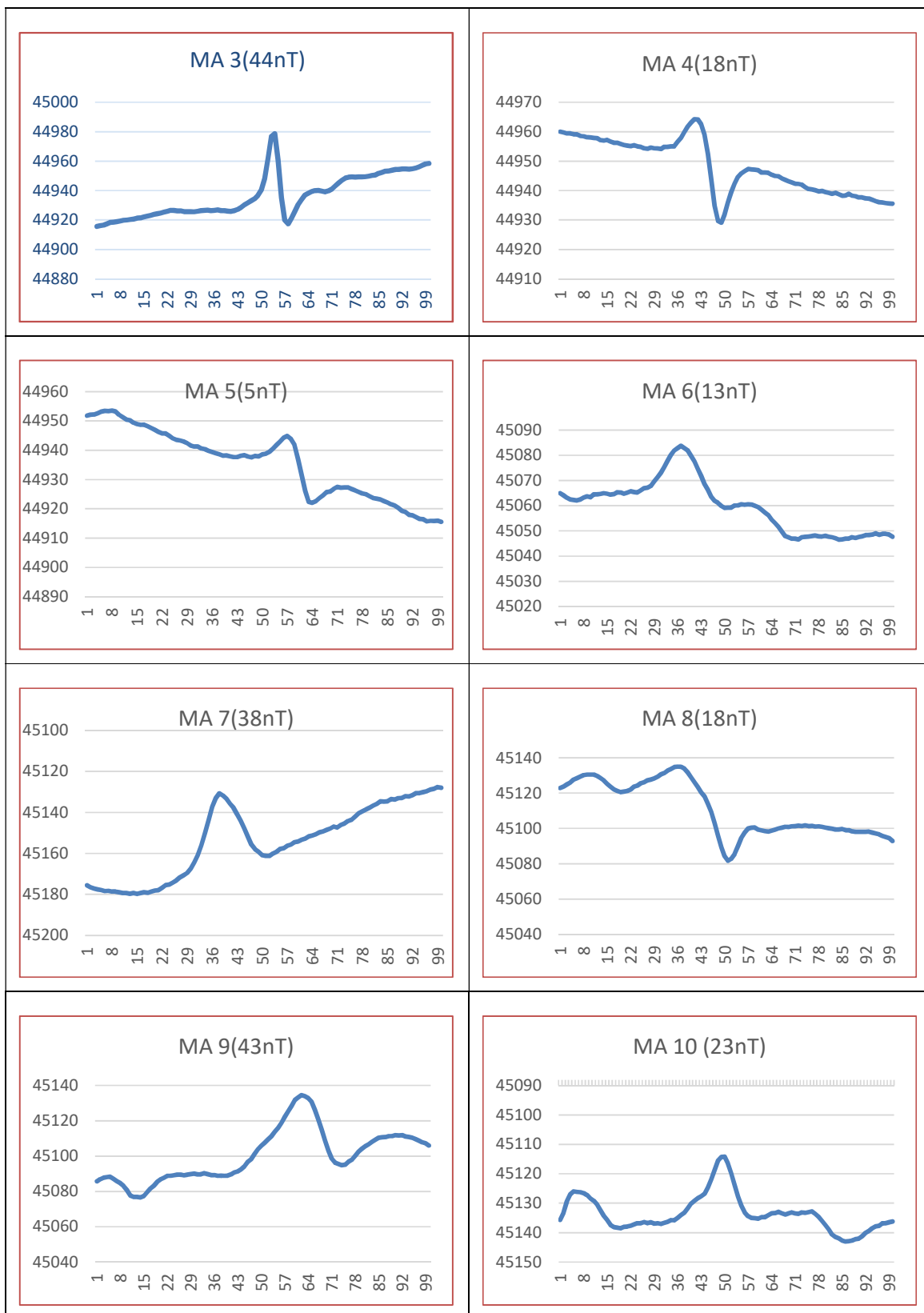
19	SB 19	Location 71	626570.27	2540270.83	22°57'57.0369" N	70°14' 4.8374" E
20	SB 20	Location 78	627110.95	2538535.91	22°57'0.478" N	70°14'23.30" E
21	SB 21	Location 87	625222.61	2535403.59	22°55'19.15" N	70°13'16.098" E
22	SB 22	Location 89	622480.61	2533986.63	22°54'33.81" N	70°11'39.45" E
23	SB 23	Location 97	621520.8	2532879.97	22°53'58.08" N	70°11'5.45" E
24	SB 24	Location 109	618457.9	2531381.65	22°53'10.16" N	70°10'17.54" E
25	SB 25	Location 117	616986.91	2529972.89	22°52'24.72" N	70°08'25.54" E

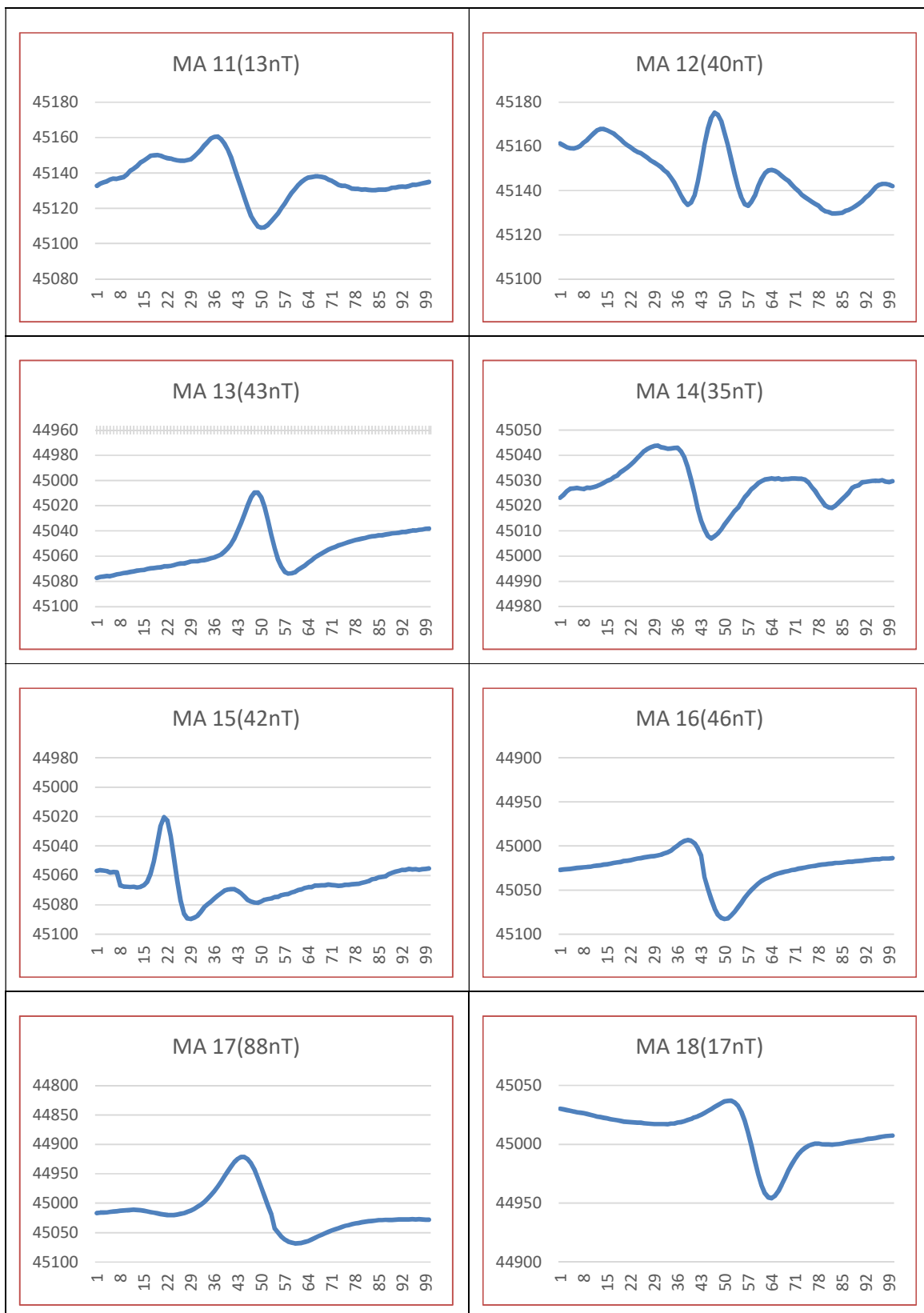
Generally, sub-bottom is composed by different sedimentary formation at various depth. The second acoustic boundary which is called second layer, has also been observed few meters below from the seabed at assorted locations. The maximum acoustic boundary has been delineated at a distance of 8m below seabed. The sub-bottom profiles do not show any buried hard rock within the penetrated limit.

### AII.5.3. Magnetometer survey Results

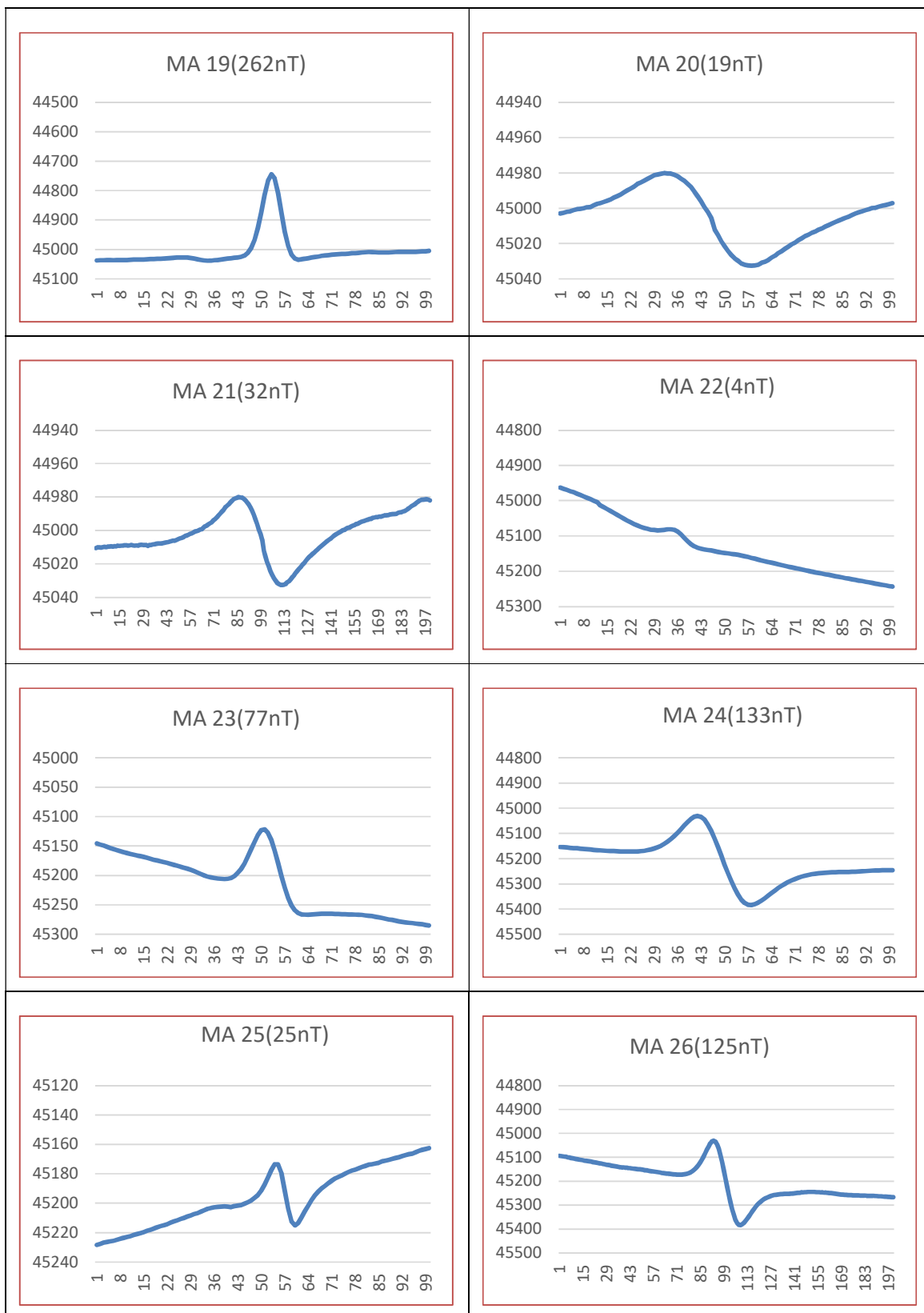
The magnetic survey data shows that there are 88 marine magnetic anomalies present at surveyed location. The deviation from Earth's magnetic field caused by presence of man-made debris/objects are classified and plotted in the plate 1. The targets namely MA1 to MA88, identified through magnetometer survey are presented in Figs. 11 to 16. The details of the targets/objects and its geographical locations are given in the table AII.4.

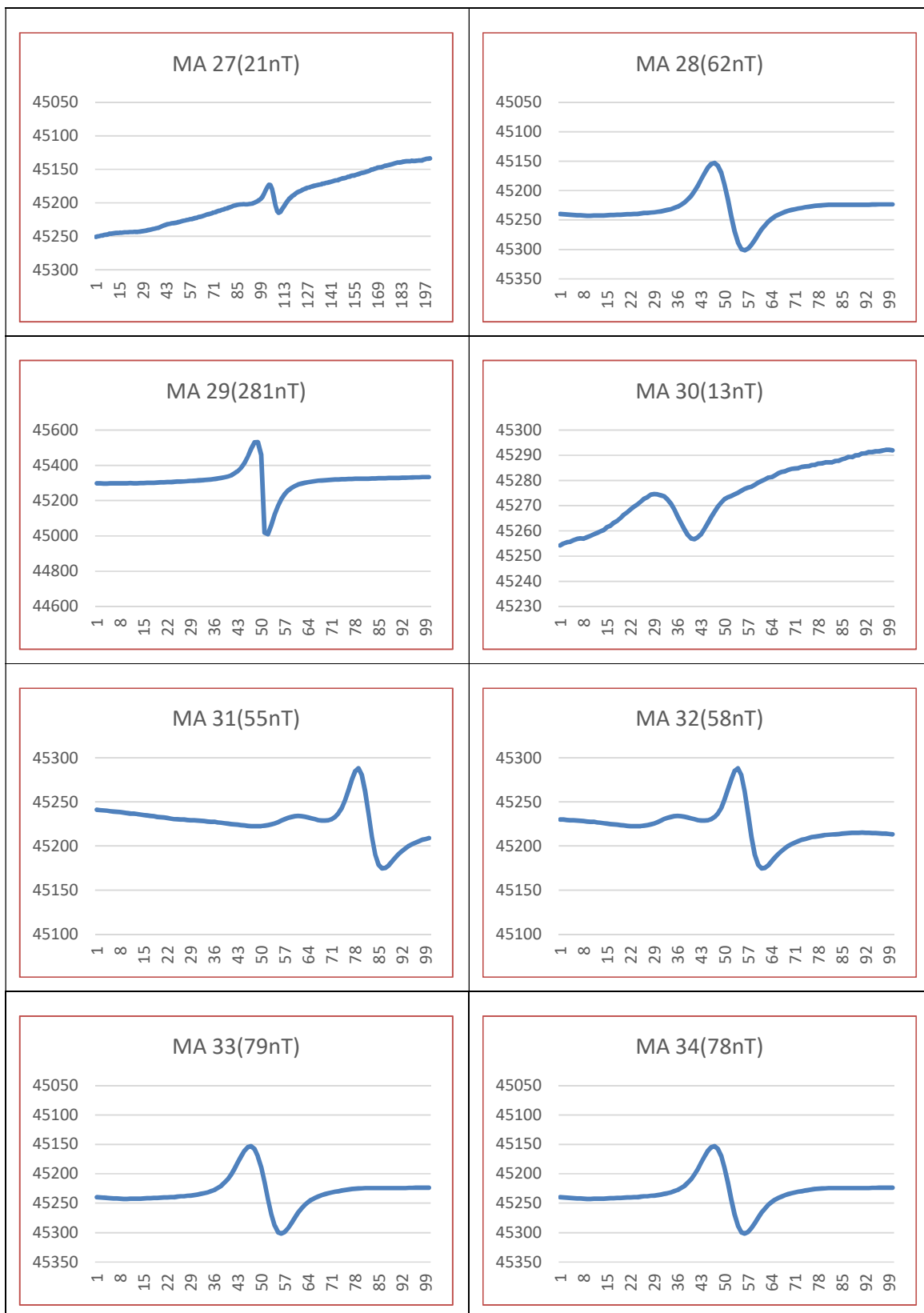


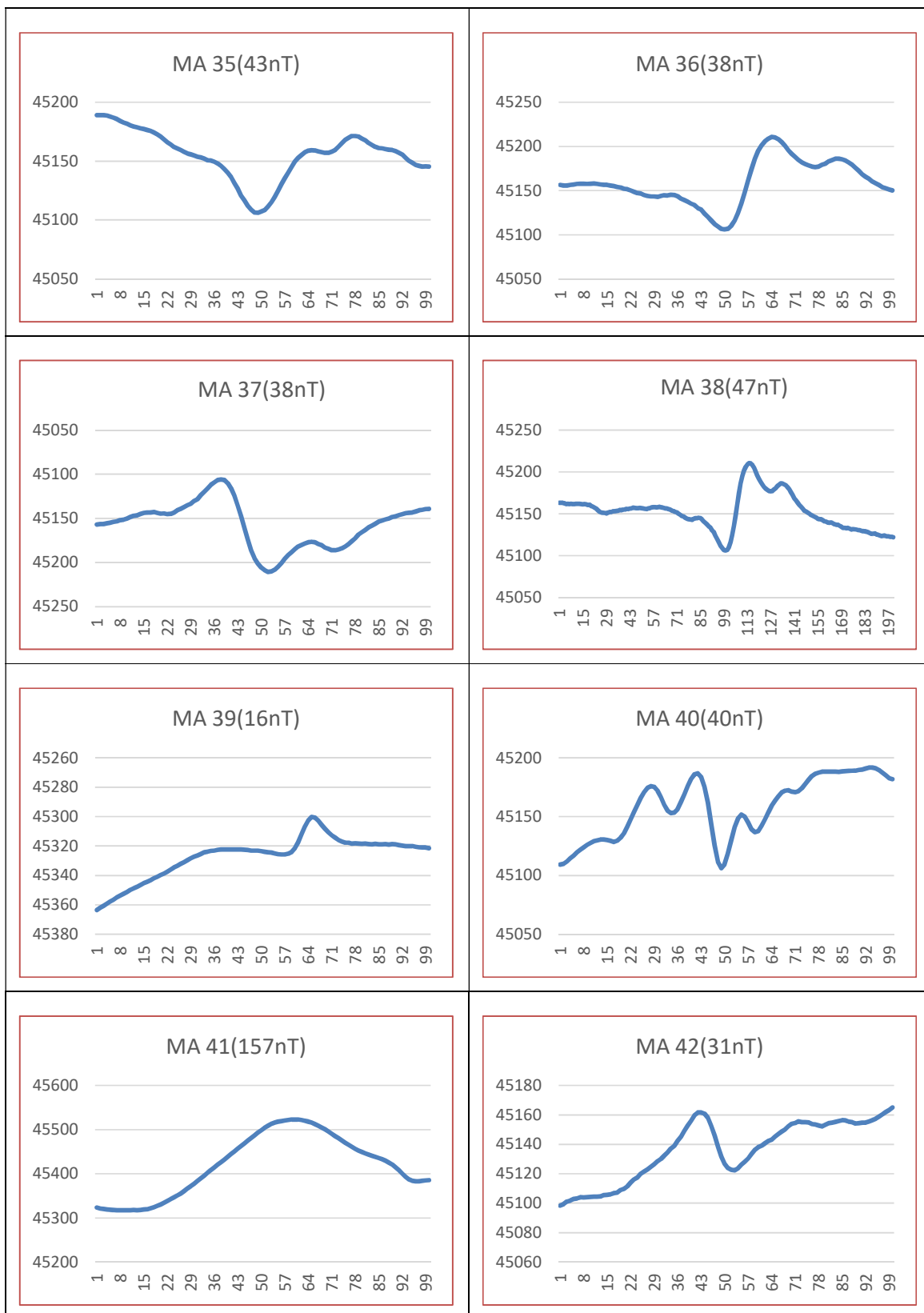


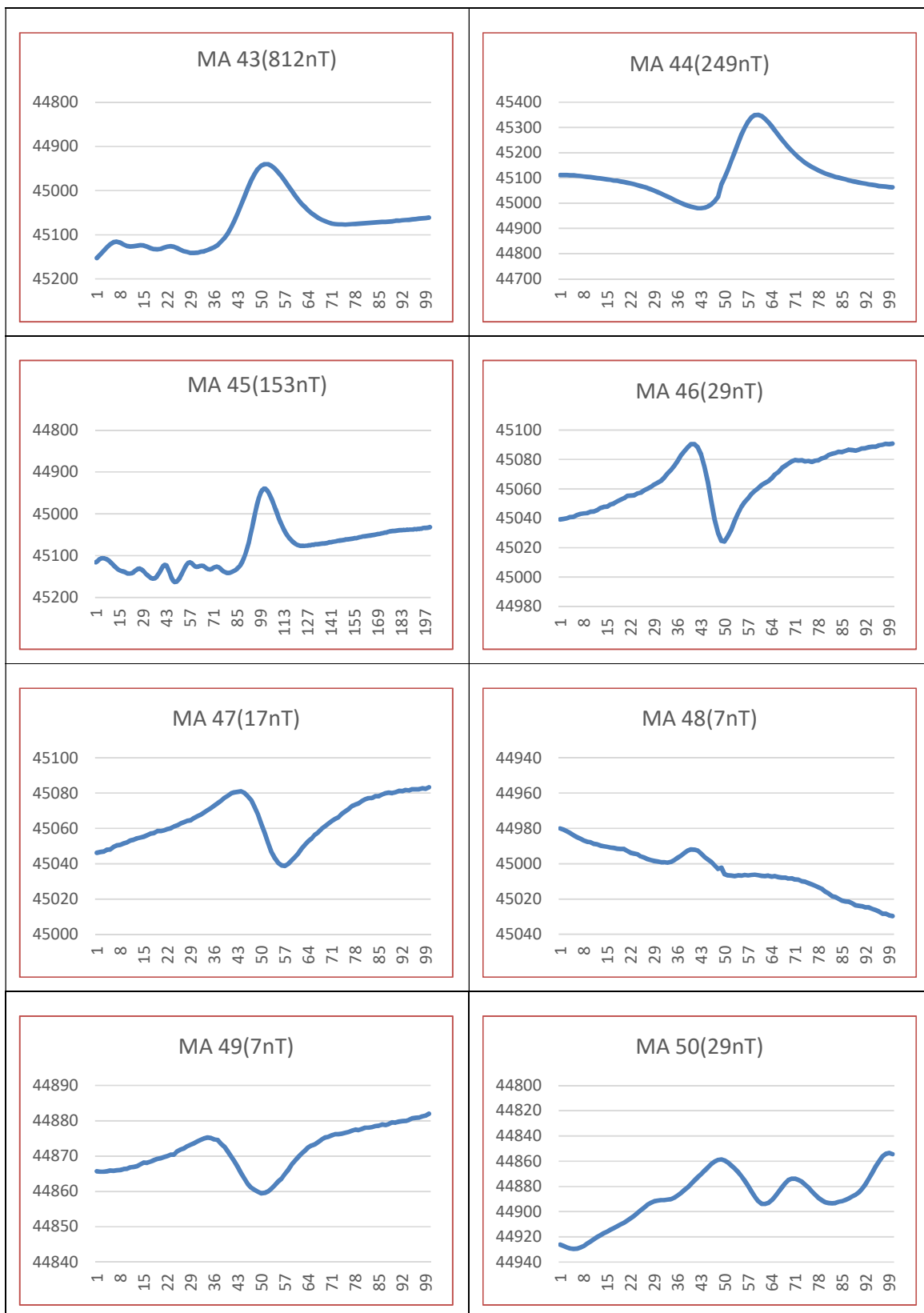


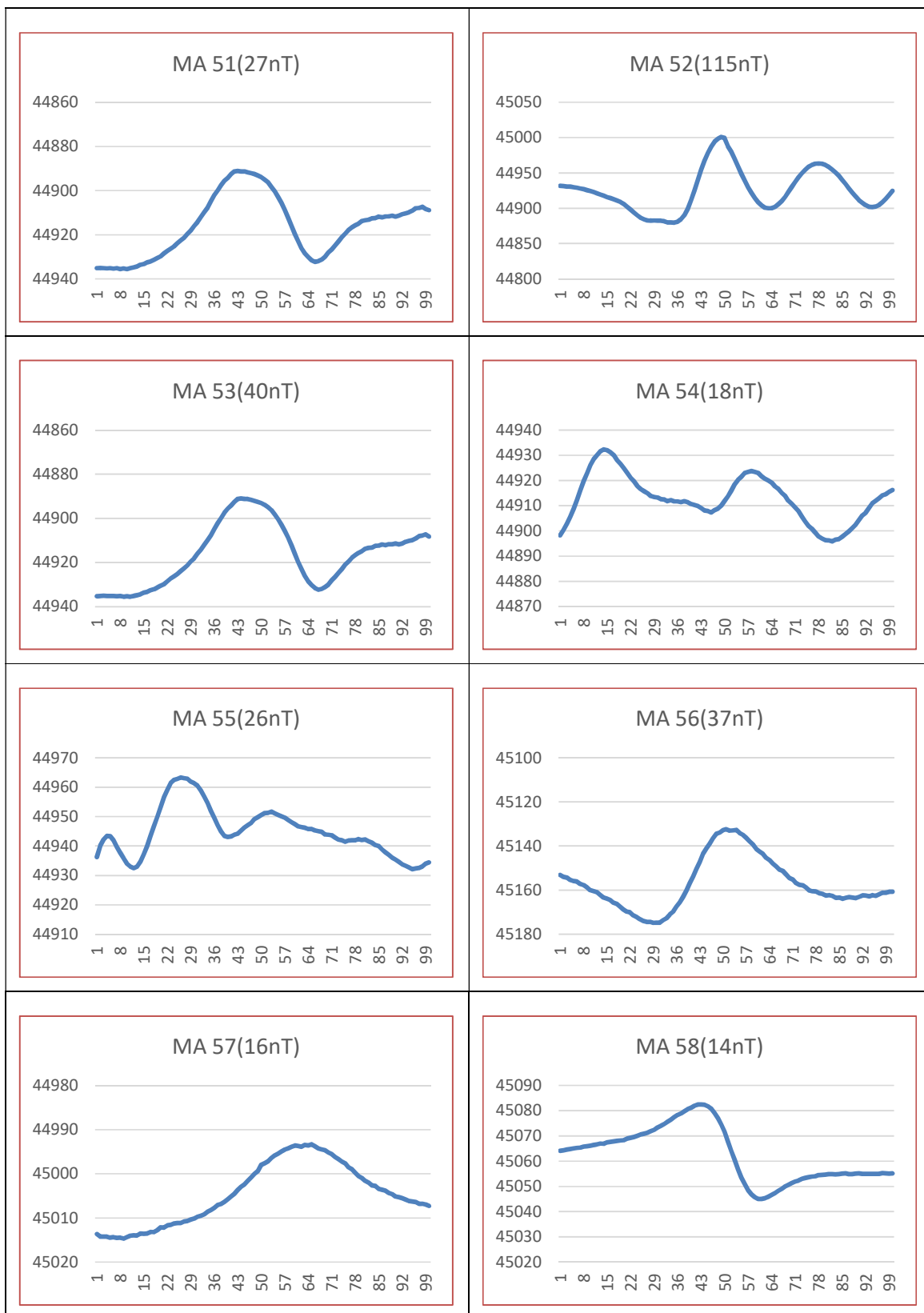












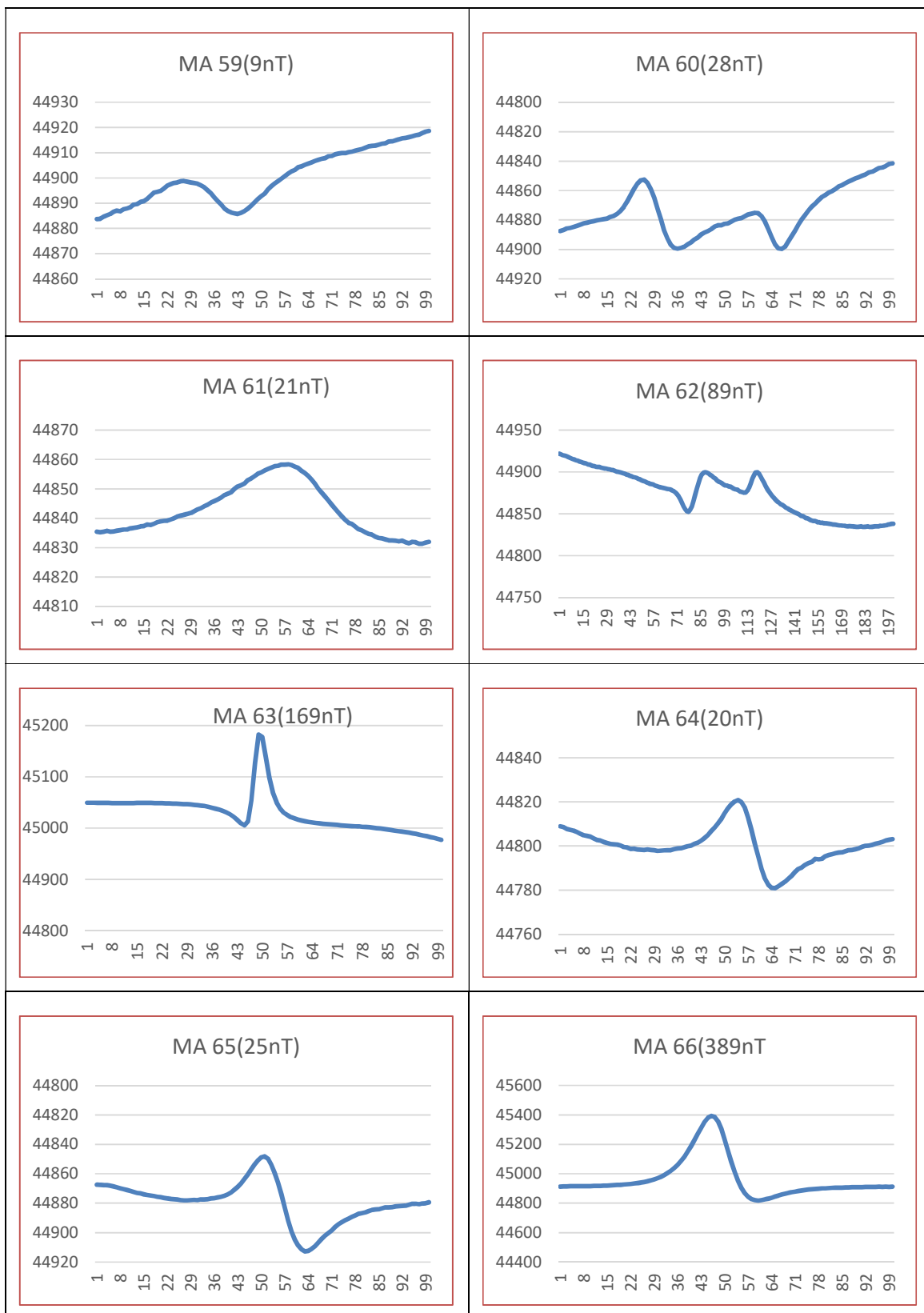






Plate 1: Magnetic anomaly MA01 to MA69

Table AII.4 Details of the targets/objects locations

S.No	Anomaly Code	Location	UTM (Zone 42)		Geographic Location	
	MAGI		X (m)	Y (m)	Latitude	Longitude
1	MA 1	Location 1	625296.467	2550917.838	23°03'43.5486"N	70°13'23.2331"E
2	MA 2		625349.345	2550842.873	23°03'41.0969"N	70°13'25.069"E
3	MA 3	Location 2	625201.639	2550728.503	23°03'37.4186"N	70°13'19.8456"E
4	MA 4		625256.468	2550667.07	23°03'35.4064"N	70°13'21.754"E
5	MA 5		625155.846	2550672.31	23°03'35.6041"N	70°13'18.2201"E
6	MA 6	Location 3	625280.963	2550157.183	23°03'18.8219"N	70°13'22.4649"E
7	MA 7	Location 4	624989.146	2549989.445	23°03'13.4475"N	70°13'12.1629"E
8	MA 8	Location 5	625187.424	2549972.588	23°03'12.8456"N	70°13'19.1243"E
9	MA 9		625215.897	2549965.48	23°03'12.6068"N	70°13'20.1225"E
10	MA 10	Location 6	625248.402	2549839.622	23°03'8.506"N	70°13'21.2276"E
11	MA 11	Location 7	625193.949	2549783.475	23°03'6.6952"N	70°13'19.298"E
12	MA 12	Location 8	625154.524	2549691.016	23°03'3.6999"N	70°13'17.8857"E
13	MA 13	Location 9	625000.377	2549214.079	23°02'48.2351"N	70°13'12.3303"E
14	MA 14	Location 10	625254.237	2549239.215	23°02'48.9835"N	70°13'21.2564"E
15	MA 15	Location 11	625413.389	2549214.014	23°02'48.1209"N	70°13'26.8404"E
16	MA 16	Location 12	625051.136	2549014.766	23°02'41.7411"N	70°13'14.0552"E
17	MA 17	Location 13	625150.026	2549036.722	23°02'42.4282"N	70°13'17.5358"E



18	MA 18		625149.179	2549022.448	23°02'41.9643"N	70°13'17.5019"E
19	MA 19	Location 14	625354.644	2549014.803	23°02'41.6599"N	70°13'24.718"E
20	MA 20		625339.326	2549001.666	23°02'41.237"N	70°13'24.176"E
21	MA 21	Location 15	625666.963	2548712.884	23°02'31.7587"N	70°13'35.6014"E
22	MA 22	Location 16	625384.302	2548513.453	23°02'25.3516"N	70°13'25.6127"E
23	MA 23	Location 17	625495.113	2548474.33	23°02'24.0495"N	70°13'29.494"E
24	MA 24		625476.069	2548468.542	23°02'23.8665"N	70°13'28.8233"E
25	MA 25	Location 19	625624.349	2547962.431	23°02'7.371"N	70°13'33.8835"E

26	MA 26	Location 20	625383.005	2547888.558	23°02'5.0349"N	70°13'25.3836"E
27	MA 27		625365.773	2547880.445	23°02'4.7758"N	70°13'24.7758"E
28	MA 28	Location 21	625920.299	2547698.066	23°01'58.6951"N	70°13'44.2021"E
29	MA 29	Location 24	625679.99	2546698.796	23°01'26.2716"N	70°13'35.4664"E
30	MA 30	Location 26	625915.796	2545832.392	23°00'58.0381"N	70°13'43.4941"E
31	MA 31	Location 27	626168.481	2545828.204	23°00'57.8329"N	70°13'52.3683"E
32	MA 32		626164.686	2545785.495	23°00'56.4454"N	70°13'52.2224"E
33	MA 33	Location 29	626223.145	2545527.614	23°00'48.045"N	70°13'54.1995"E
34	MA 34	Location 29	625684.043	2545288.432	23°00'40.4155"N	70°13'35.194"E
35	MA 35	Location 30	625670.165	2544962.245	23°00'29.814"N	70°13'34.6107"E
36	MA 36		625642.884	2544967.617	23°00'30"N	70°13'33.6541"E
37	MA 37		625642.801	2544953.948	23°00'29.5517"N	70°13'33.6472"E
38	MA 38	Location 31	625743.53	2544897.566	23°00'27.6911"N	70°13'37.1684"E
39	MA 39		625747.523	2544882.503	23°00'27.2003"N	70°13'37.3043"E
40	MA 40		625767.96	2544863.62	23°00'26.5808"N	70°13'38.0165"E
41	MA 41	Location 32	625743.098	2544764.761	23°00'23.3734"N	70°13'37.1142"E
42	MA 42		625791.823	2544729.25	23°00'22.2055"N	70°13'38.8151"E
43	MA 43		625697.703	2544708.21	23°00'21.5471"N	70°13'35.5032"E
44	MA 44		625665.994	2544703.962	23°00'21.4176"N	70°13'34.3883"E
45	MA 45	Location 33	625885.941	2544091.122	23°00'1.4325"N	70°13'41.9329"E
46	MA 46		625856.113	2544074.507	23°00'0.9004"N	70°13'40.8804"E
47	MA 47		625832.828	2544075.32	23°00'0.9332"N	70°13'40.0629"E
48	MA 48	Location 34	625826.772	2543887.35	22°59'54.8234"N	70°13'39.7949"E
49	MA 49	Location 36	625816.545	2543697.86	22°59'48.6653"N	70°13'39.38"E
50	MA 50	Location 39	625706.754	2543410.821	22°59'39.3627"N	70°13'35.4399"E
51	MA 51	Location 45	625897.463	2543029.754	22°59'26.9212"N	70°13'42.0253"E
52	MA 52		625951.249	2543024.26	22°59'26.7279"N	70°13'43.9125"E
53	MA 53		625921.101	2543001.027	22°59'25.9808"N	70°13'42.847"E
54	MA 54	Location 48	625947.408	2542717.598	22°59'16.7585"N	70°13'43.6874"E
55	MA 55		625981.757	2542702.461	22°59'16.257"N	70°13'44.8892"E
56	MA 56	Location 50	626291.486	2542714.982	22°59'16.5796"N	70°13'55.7697"E
57	MA 57	Location 53	626299.663	2541303.045	22°58'30.6712"N	70°13'55.6404"E
58	MA 58	Location 55	626420.101	2540999.743	22°58'20.777"N	70°13'59.78"E
59	MA 59	Location 56	626744.097	2540843.187	22°58'15.5983"N	70°14'11.1101"E
60	MA 60	Location 57	626907.226	2540222.062	22°57'55.359"N	70°14'16.6541"E
61	MA 61	Location 58	627061.624	2540081.43	22°57'50.7443"N	70°14'22.0335"E
62	MA 62	Location 59	626891.57	2539739.341	22°57'39.6686"N	70°14'15.9615"E
63	MA 63	Location 61	627246.224	2538863.713	22°57'11.1021"N	70°14'28.1536"E
64	MA 64	Location 62	627150.187	2538838.245	22°57'10.3004"N	70°14'24.7744"E
65	MA 65	Location 64	627621.753	2538237.317	22°56'50.6328"N	70°14'41.1513"E
66	MA 66	Location 65	627529.949	2537986.091	22°56'42.49"N	70°14'37.8537"E
67	MA 67	Location 66	626696.937	2536881.222	22°56'6.7959"N	70°14'8.284"E
68	MA 68	Location 68	625372.714	2535616.486	22°55'26.0352"N	70°13'21.4301"E
69	MA 69	Location 69	624986.878	2535531.782	22°55'23.3853"N	70°13'7.8624"E





70	MA 70	Location 70	626507.09	2541876.75	22°58'49.26"N	70°14'3.09"E
71	MA 71	Location 73	627313.32	2539611.47	22°57'35.39"N	70°14'30.73"E
72	MA 72	Location 74	627336.48	2539472.565	22°57'30.87"N	70°14'31.50"E
73	MA 73	Location 77	627598.59	2538716.01	22°57'6.20"N	70°14'40.48"E
74	MA 74	Location 84	626661.68	2536872.6	22°56'6.52"N	70°14'7.04"E
75	MA 75	Location 85	626339.58	2536157.4	22°55'43.35"N	70°13'55.52"E
76	MA 76	Location 86	624673.24	2535609.61	22°55'26"N	70°12'56.87"E
77	MA 77	Location 89	622505.44	2533992.66	22°54'34"N	70°11'40.32"E
78	MA 78	Location 93	621462.63	2533355.17	22°54'13.55"N	70°11'3.54"E
79	MA 79	Location 92	622063.86	2533239.89	22°54'9.64"N	70°11'24.61"E
80	MA 80	Location 96	621349.38	2533031.81	22°54'3.06"N	70°10'59.47"E
81	MA 81	Location 97	621544.74	2532892.97	22°53'58.50"N	70°11'6.29"E
82	MA 82	Location 98	621057.22	2532785.26	22°53'55.12"N	70°10'49.15"E
83	MA 83	Location 101	620270.34	2532452.97	22°53'44.52"N	70°10'21.44"E
84	MA 84	Location 104	619912.49	2532195.52	22°53'36.25"N	70°10'8.81"E
85	MA 85	Location 109	618433.6	2531381.24	22°53'10.15"N	70°09'16.69"E
86	MA 86	Location 112	618267.44	2531081.81	22°53'0.46"N	70°09'10.78"E
87	MA 87	Location 114	618067.94	2530659.12	22°52'46.76"N	70°09'3.66"E
88	MA 88	Location 118	616930.77	2529875.3	22°52'21.56"N	70°08'23.54"E

#### AII.6. GPI Conclusion

The marine GPI carried out at inner and outer channel of Deendayal Port Trust (DPT) through SSS, SBP and MM surveys which reveals various significant results. The geophysical surveys show about 92 considerable targets on seabed by SSS, SBP study has shown about 25 buried/partially buried targets and MM survey reveals about 88 anomalies in the surveyed region. With the integration of these targets and anomalies, 88 locations are classified and marked. The seabed object maps are presented between Fig. 11 to 16.



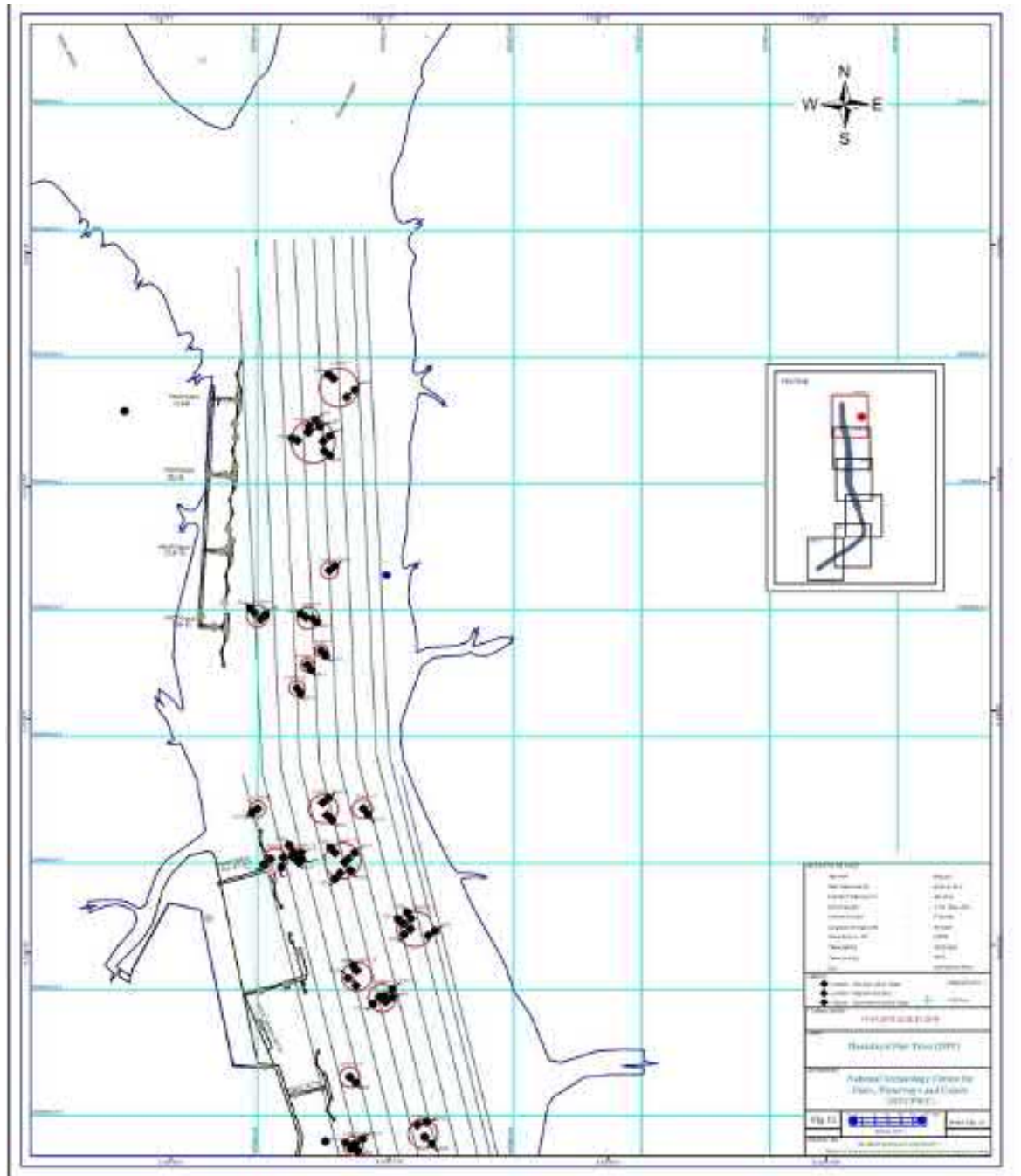


Fig. AII .11. Kandla Creek DPT Proposed Oil Jetty Seabed objects map of GPI





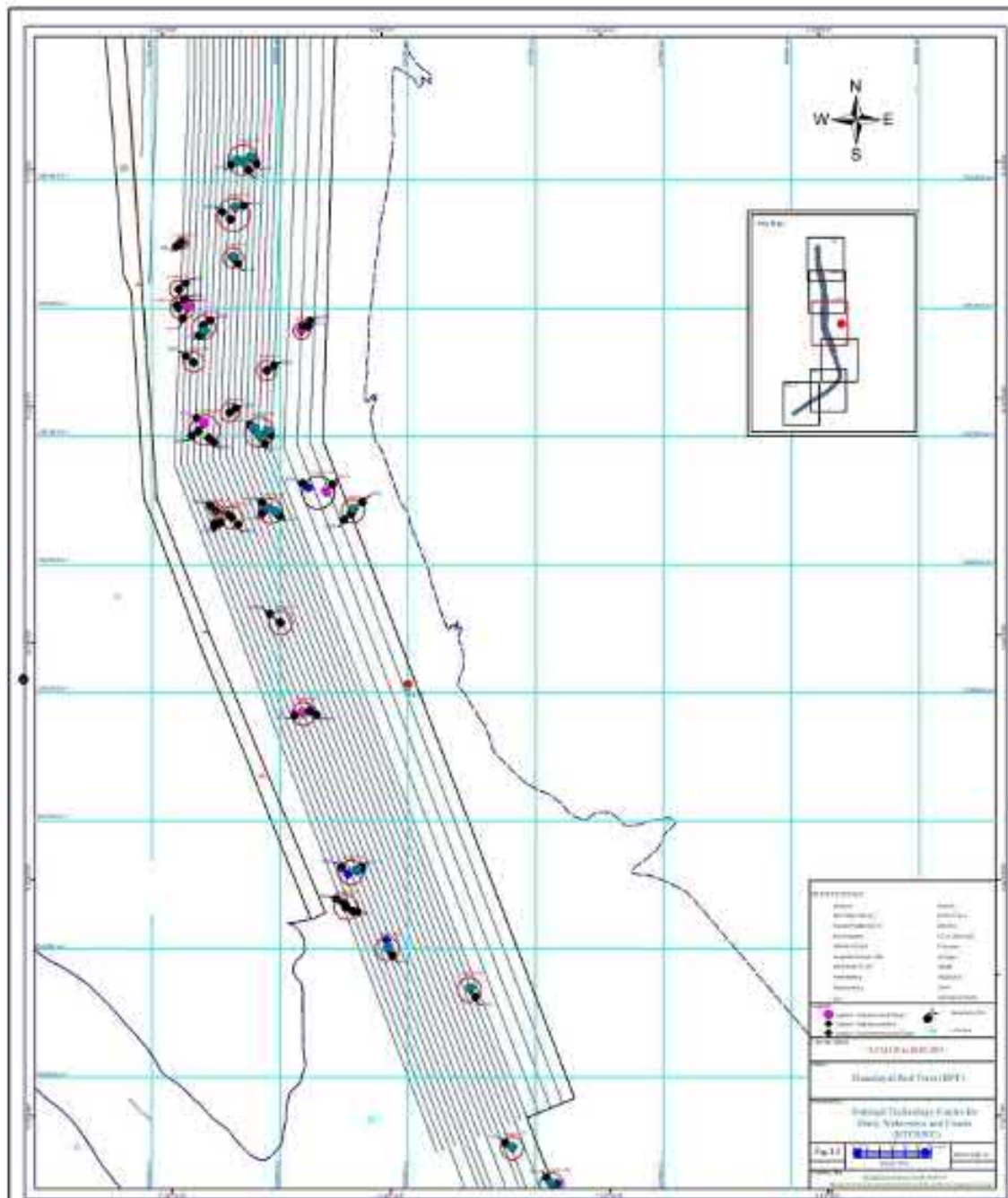


Fig. AII.13. Kandla Creek DPT Cargo Jetty Seabed objects map of GPI



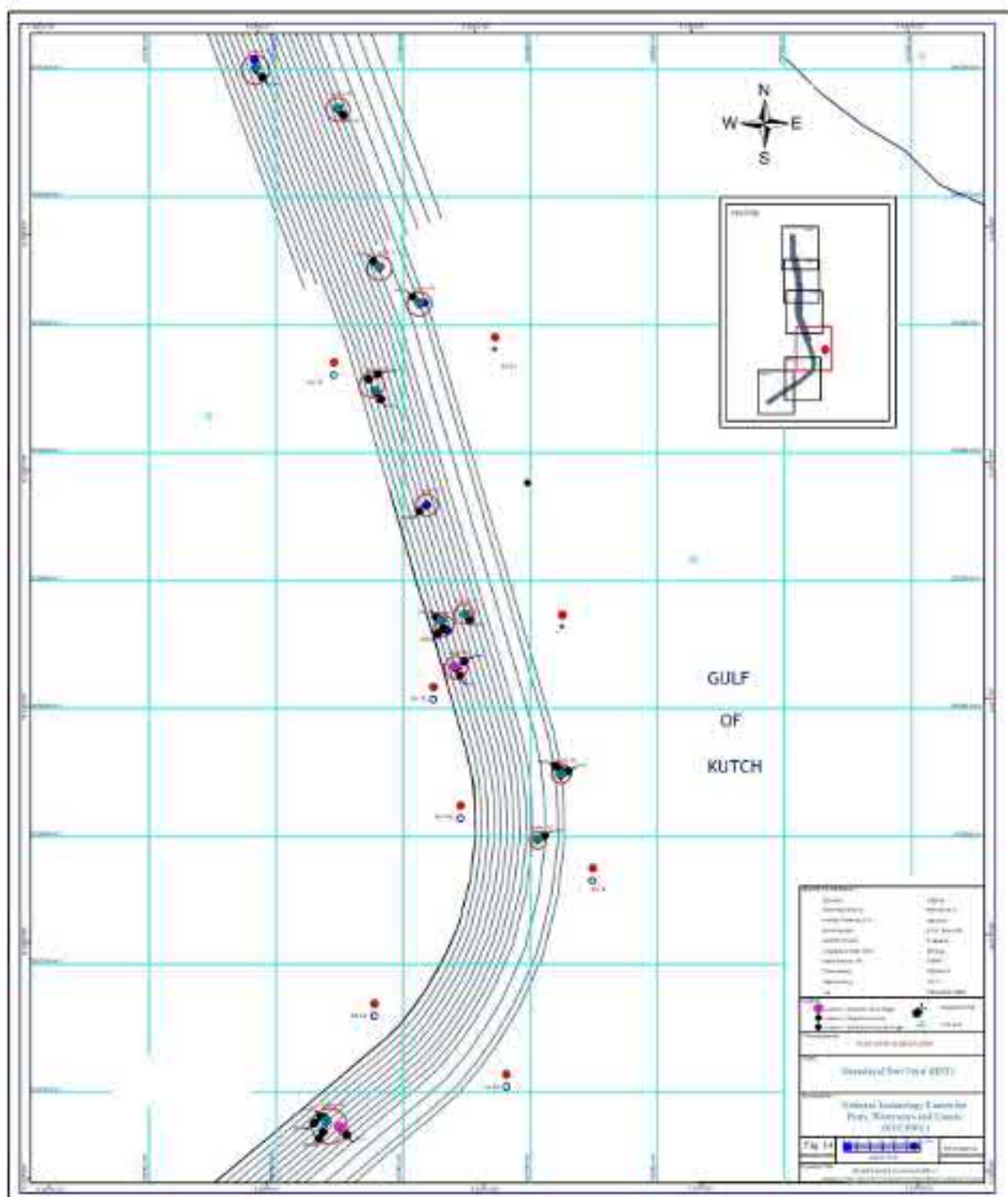


Fig. AII.14. DPT Zone 1 Seabed objects map of GPI

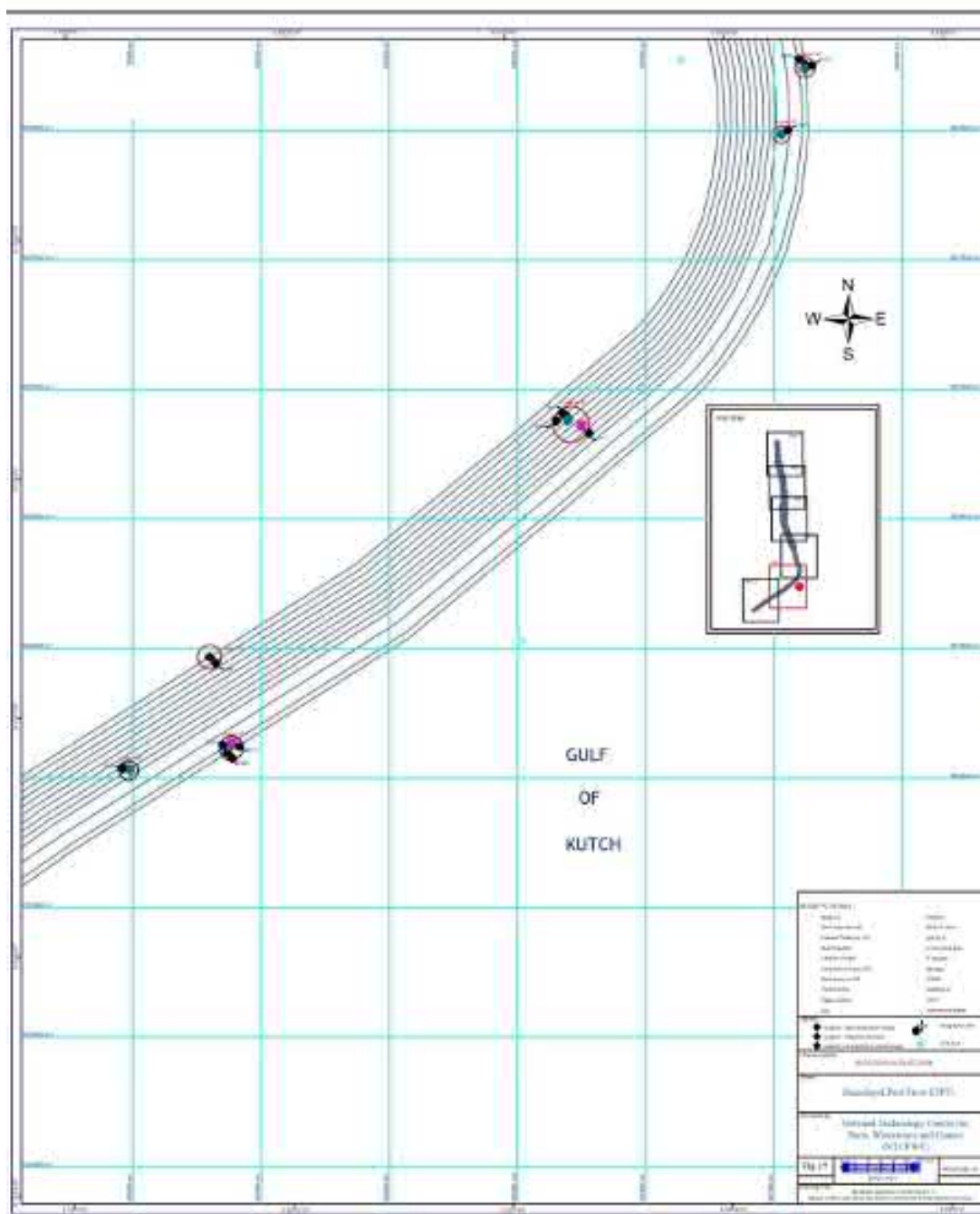


Fig. AII.15. DPT Zone 2 Seabed objects map of GPI



The table AII.5 shows the object based on the presence anomalies identified through SSS, SBP and MM surveys. The objects identified and mapped are based on GPI. Ground-truth verification by appropriate methods mandatory in order to confirm the findings in terms of shape/material/geometry and other properties of objects/targets.

**Table AII.5** Details of the targets/object based on SSS, SBP & MM

Sl.No	Locations	Side Scan Target	Sub Bottom Target	Magnetic Anomaly
1	Location 1			√
2	Location 2	√	√	√
3	Location 3			√
4	Location 4	√		√
5	Location 5			√
6	Location 6			√
7	Location 7			√
8	Location 8			√
9	Location 9			√
10	Location 10		√	√
11	Location 11			√
12	Location 12		√	√
13	Location 13	√		√
14	Location 14		√	√
15	Location 15	√	√	√
16	Location 16	√		√
17	Location 17		√	√
18	Location 18	√		
19	Location 19	√		√
20	Location 20	√		√
21	Location 21		√	√
22	Location 22	√		
23	Location 23	√		
24	Location 24			√
25	Location 25	√		
26	Location 26			√
27	Location 27	√		√
28	Location 28			
29	Location 29	√		√
30	Location 30	√		√
31	Location 31	√		√
32	Location 32	√		√
33	Location 33			√
34	Location 34	√		√
35	Location 35	√		



Sl.No	Locations	Side Scan Target	Sub Bottom Target	Magnetic Anomaly
36	Location 36			√
37	Location 37	√		
38	Location 38	√	√	
39	Location 39	√		√
40	Location 40	√	√	
41	Location 41	√		
42	Location 42	√		
43	Location 43	√		
44	Location 44	√	√	
45	Location 45			√
46	Location 46	√		
47	Location 47	√		
48	Location 48	√		√
49	Location 49	√	√	
50	Location 50	√		√
51	Location 51	√		
52	Location 52	√	√	
53	Location 53	√		√
54	Location 54	√		
55	Location 55			√
56	Location 56			√
57	Location 57			√
58	Location 58			√
59	Location 59	√		√
60	Location 60	√		
61	Location 61			√
62	Location 62	√		√
63	Location 63	√	√	
64	Location 64	√		√
65	Location 65			√
66	Location 66	√	√	√
67	Location 67	√		
68	Location 68	√	√	√
69	Location 69			√
70	Location 70			√
71	Location 71		√	
72	Location 72	√		
73	Location 73			√
74	Location 74			√
75	Location 75	√		
76	Location 76	√		
77	Location 77			√





Sl.No	Locations	Side Scan Target	Sub Bottom Target	Magnetic Anomaly
78	Location 78		√	
79	Location 79	√		
80	Location 80	√		
81	Location 81	√		
82	Location 82	√		
83	Location 83	√		
84	Location 84			√
85	Location 85	√		√
86	Location 86			√
87	Location 87	√	√	
88	Location 88	√		
89	Location 89		√	√
90	Location 90	√		
91	Location 91	√		
92	Location 92			√
93	Location 93			√
94	Location 95	√		
95	Location 96			√
96	Location 97		√	√
97	Location 98			√
98	Location 99	√		
99	Location 100	√		
100	Location 101			√
101	Location 102	√		
102	Location 103	√		
103	Location 104			√
104	Location 105	√		
105	Location 106	√		
106	Location 107	√		
107	Location 108	√		
108	Location 109		√	√
109	Location 110	√		
110	Location 111	√		
111	Location 112			√
112	Location 113	√		
113	Location 114			√
114	Location 115	√		
115	Location 116	√		
116	Location 117	√	√	
117	Location 118			√
118	Location 119	√		
119	Location 120	√		







Sl.No	Locations	Side Scan Target	Sub Bottom Target	Magnetic Anomaly
120	Location 121	√		
121	Location 122	√		
122	Location 123	√		
123	Location 124	√		
124	Location 125	√		
125	Location 126	√		
126	Location 127	√		
127	Location 128	√		
128	Location 129	√		
129	Location 130	√		

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