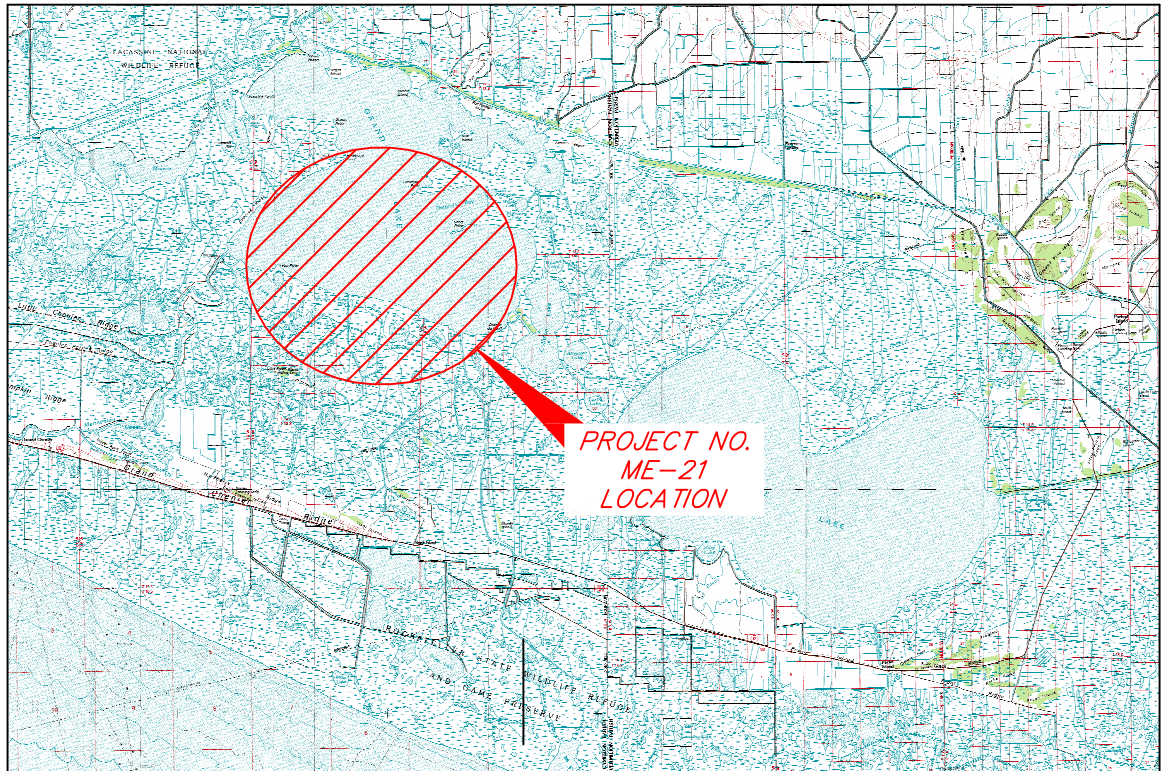


STATE OF LOUISIANA  
OFFICE OF COASTAL PROTECTION AND RESTORATION  
ENGINEERING BRANCH

ACCESS CHANNEL, FLOTATION CHANNEL, AND ROCK BREAKWATERS  
MAGNETOMETER SURVEY

GRAND LAKE SHORELINE PROTECTION  
PROJECT (ME-21)  
CAMERON PARISH, LOUISIANA



VICINITY MAP (N.T.S.)

INDEX TO SHEETS




<u>SHEET NO.</u>	<u>DESCRIPTION</u>
1	TITLE PAGE
2-7	MAG. SURVEY

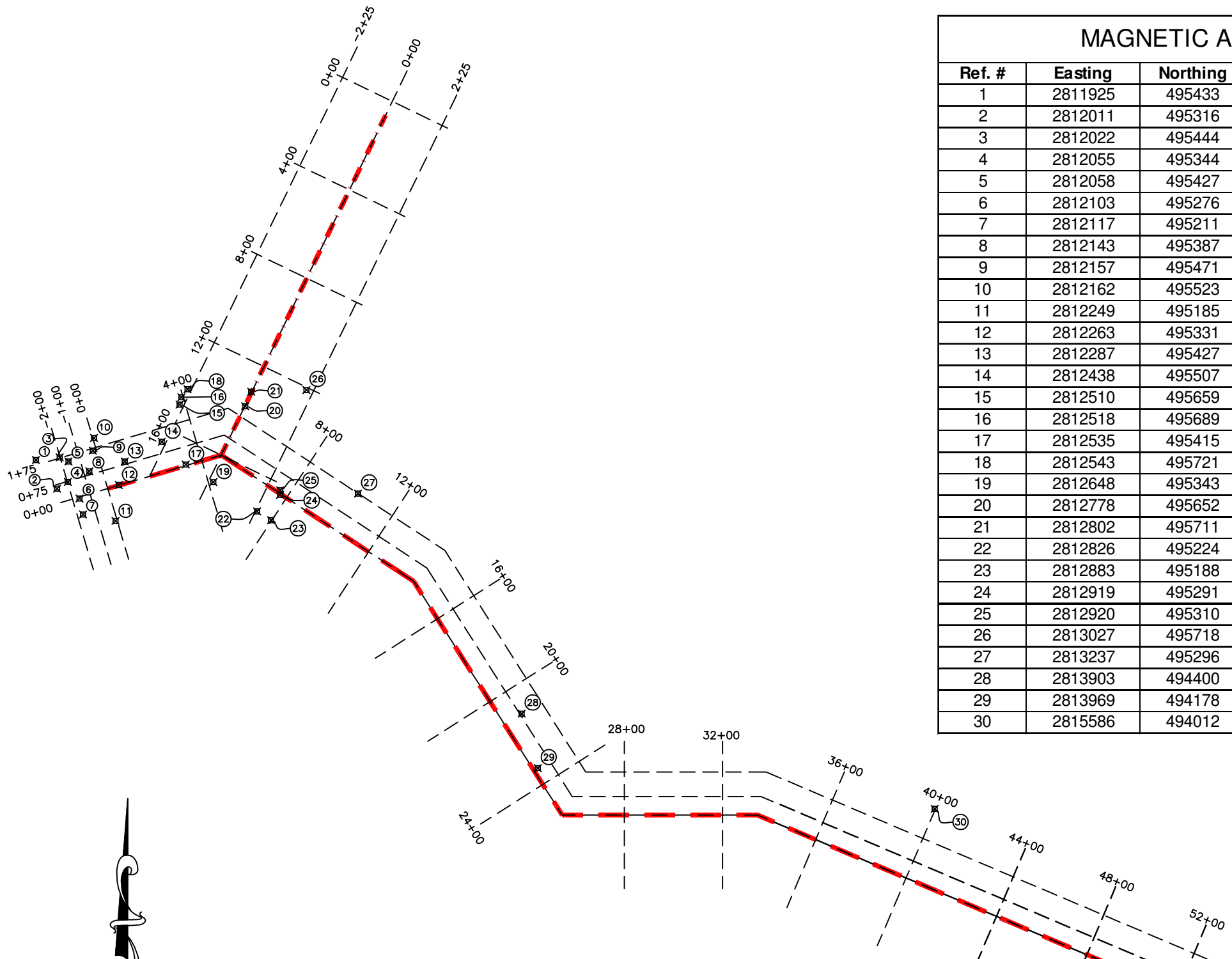


THIS MAP REPRESENTS AN ACTUAL FIELD  
SURVEY MADE UNDER DIRECT  
SUPERVISION OF THE UNDERSIGNED.

*Keith J. Roberts*

KEITH J. ROBERTS, PLS # 4780  
1129 HUVAL LANE  
BREAUX BRIDGE, LA. 70517  
(337) 454-6320

REVISED BY:	DATE:	 	<b>GRAND LAKE SHORELINE PROTECTION PROJECT (ME-21) BEFORE DREDGE MAGNETOMETER SURVEY OF ACCESS CHANNELS, FLOTATION CHANNEL, AND ROCK BREAKWATERS (TITLE PAGE) CAMERON PARISH, LA.</b>
<p>PLAN SCALE SCALE: NTS</p> 		PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - LAND SURVEY DIVISION - 1129 HUVAL LANE, BREAUX BRIDGE, LA. 70548	
DATE: 08/08/09	JOB# 2091028	FILE: GRAND LAKE MAG SURVEY.DWG	SHEET: 1 OF 7



MAGNETIC ANOMALY TABLE

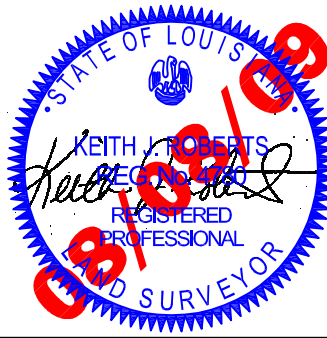
Ref. #	Easting	Northing	Amplitude	Type	Duration (FT)
1	2811925	495433	297	M	1
2	2812011	495316	104	M	4
3	2812022	495444	268	M	5
4	2812055	495344	100	M	6
5	2812058	495427	201	M	4
6	2812103	495276	188	M	4
7	2812117	495211	460	M	6
8	2812143	495387	281	M	10
9	2812157	495471	392	M	6
10	2812162	495523	270	M	9
11	2812249	495185	627	M	10
12	2812263	495331	66	M	8
13	2812287	495427	127	M	5
14	2812438	495507	368	M	4
15	2812510	495659	104	M	25
16	2812518	495689	84	M	16
17	2812535	495415	107	M	8
18	2812543	495721	69	M	4
19	2812648	495343	346	M	7
20	2812778	495652	30	M	5
21	2812802	495711	33	D	3
22	2812826	495224	897	M	3
23	2812883	495188	326	M	5
24	2812919	495291	2131	M	20
25	2812920	495310	107	M	52
26	2813027	495718	74	M	6
27	2813237	495296	488	M	10
28	2813903	494400	70	D	8
29	2813969	494178	183	M	3
30	2815586	494012	223	M	35

LEGEND

- DIGITIZED PIPELINE
- PROPOSED ROCK BREAKWATERS
- PROPOSED ACCESS
- MAG ROUTE
- MAG ANOMALY
- DIGITIZED WELLS

NOTES

- ALL HORIZONTAL COORDINATES ARE BASED ON LOUISIANA SOUTH ZONE - NAD83 HPGN DATUM, US SURVEY FEET, DERIVED FROM KINEMATIC OBSERVATIONS CONSTRAINED TO PROJECT CONTROL (BENCHMARK ME20-SM-01)
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- THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.
- MAGNETOMETER SURVEY DATA ACQUISITION WAS PERFORMED AUGUST 4TH, 2009 THROUGH AUGUST 07, 2009. MAGNETIC DATA WAS COLLECTED USING A GEOMETRICS 882 MAGNETOMETER.
- DIGITIZED WELLS AND PIPELINES OBTAINED VIA LADNR SONRIS DATABASE.



REVISED BY:

DATE:

GRAND LAKE SHORELINE  
PROTECTION PROJECT (ME-21)  
BEFORE DREDGE MAGNETOMETER SURVEY  
OF ACCESS CHANNELS AND FLOTATION  
CHANNEL AND ROCK BREAKWATERS  
(MAGNETOMETER SURVEY RESULTS)  
CAMERON PARISH, LA.

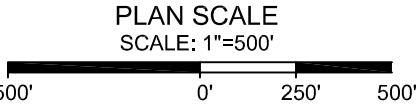
PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - LAND SURVEY DIVISION - 1129 HUVAL LANE, BREAUX BRIDGE, LA. 70548

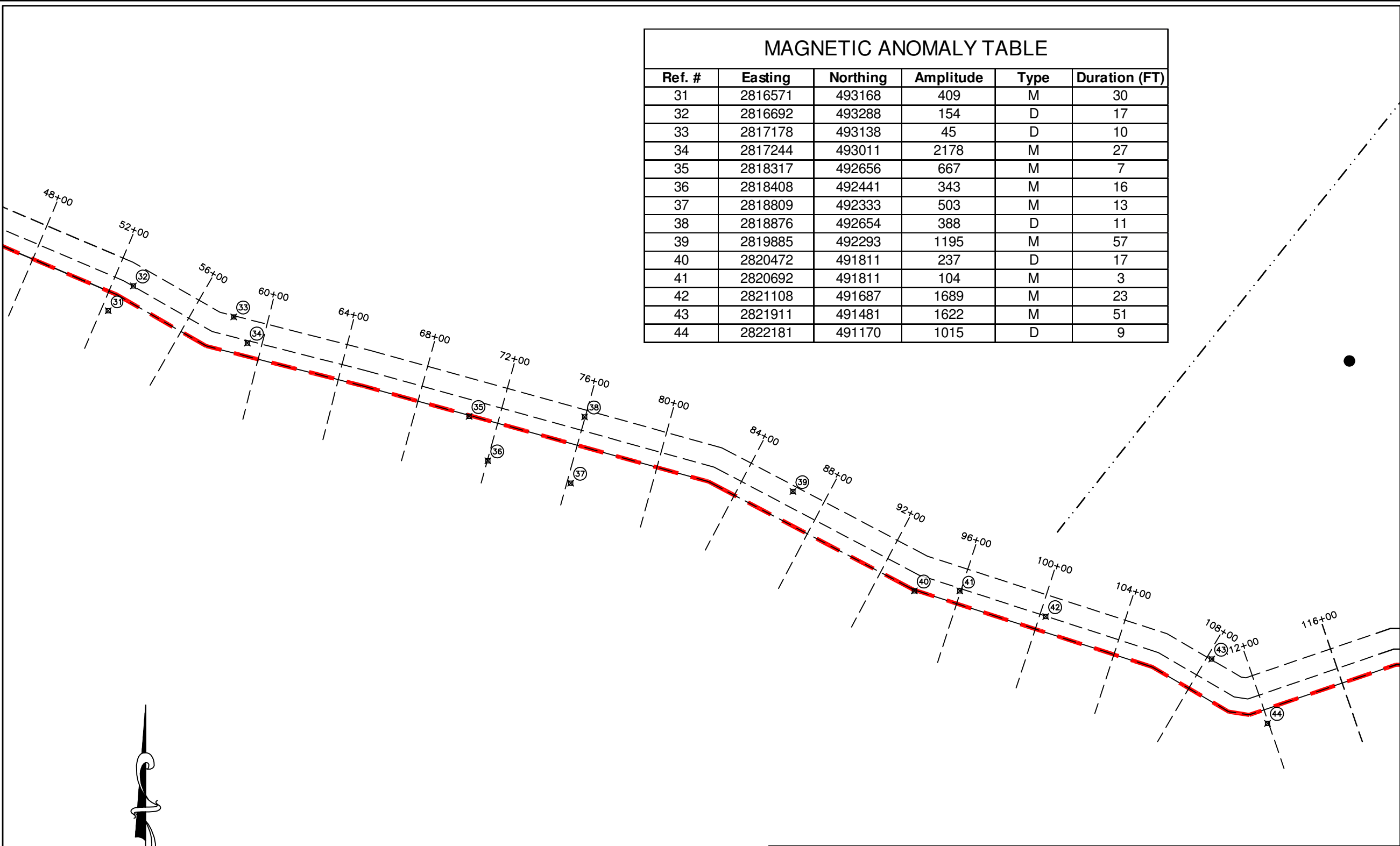
DATE: 08/08/09

JOB# 2091028

FILE: GRAND LAKE MAGNETOMETER SURVEY.DWG

SHEET: 2 OF 7





MAGNETIC ANOMALY TABLE					
Ref. #	Easting	Northing	Amplitude	Type	Duration (FT)
31	2816571	493168	409	M	30
32	2816692	493288	154	D	17
33	2817178	493138	45	D	10
34	2817244	493011	2178	M	27
35	2818317	492656	667	M	7
36	2818408	492441	343	M	16
37	2818809	492333	503	M	13
38	2818876	492654	388	D	11
39	2819885	492293	1195	M	57
40	2820472	491811	237	D	17
41	2820692	491811	104	M	3
42	2821108	491687	1689	M	23
43	2821911	491481	1622	M	51
44	2822181	491170	1015	D	9

LEGEND

DIGITIZED PIPELINE

PROPOSED ROCK BREAKWATERS

PROPOSED ACCESS

MAG ROUTE

MAG ANOMALY

DIGITIZED WELLS

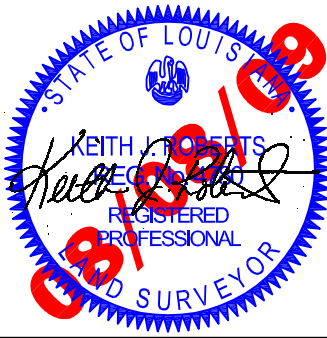
- NOTES
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3. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF SURVEY.

4. MAGNETOMETER SURVEY DATA ACQUISITION WAS PERFORMED AUGUST 4TH, 2009 THROUGH AUGUST 07, 2009. MAGNETIC DATA WAS COLLECTED USING A GEOMETRICS 882 MAGNETOMETER.

5. DIGITIZED WELLS AND PIPELINES OBTAINED VIA LADNR SONRIS DATABASE.



REVISED BY:

DATE:

PLAN SCALE

SCALE: 1"=500'

500'

0'

250'

500'

HYDROTERRA

TECHNOLOGIES, LLC

LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

WEEKS

MARINE

GRAND LAKE SHORELINE PROTECTION PROJECT (ME-21)  
BEFORE DREDGE MAGNETOMETER SURVEY  
OF ACCESS CHANNELS AND FLOTATION CHANNEL AND ROCK BREAKWATERS  
(MAGNETOMETER SURVEY RESULTS)  
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - LAND SURVEY DIVISION - 1129 HUVAL LANE, BREAUX BRIDGE, LA. 70548

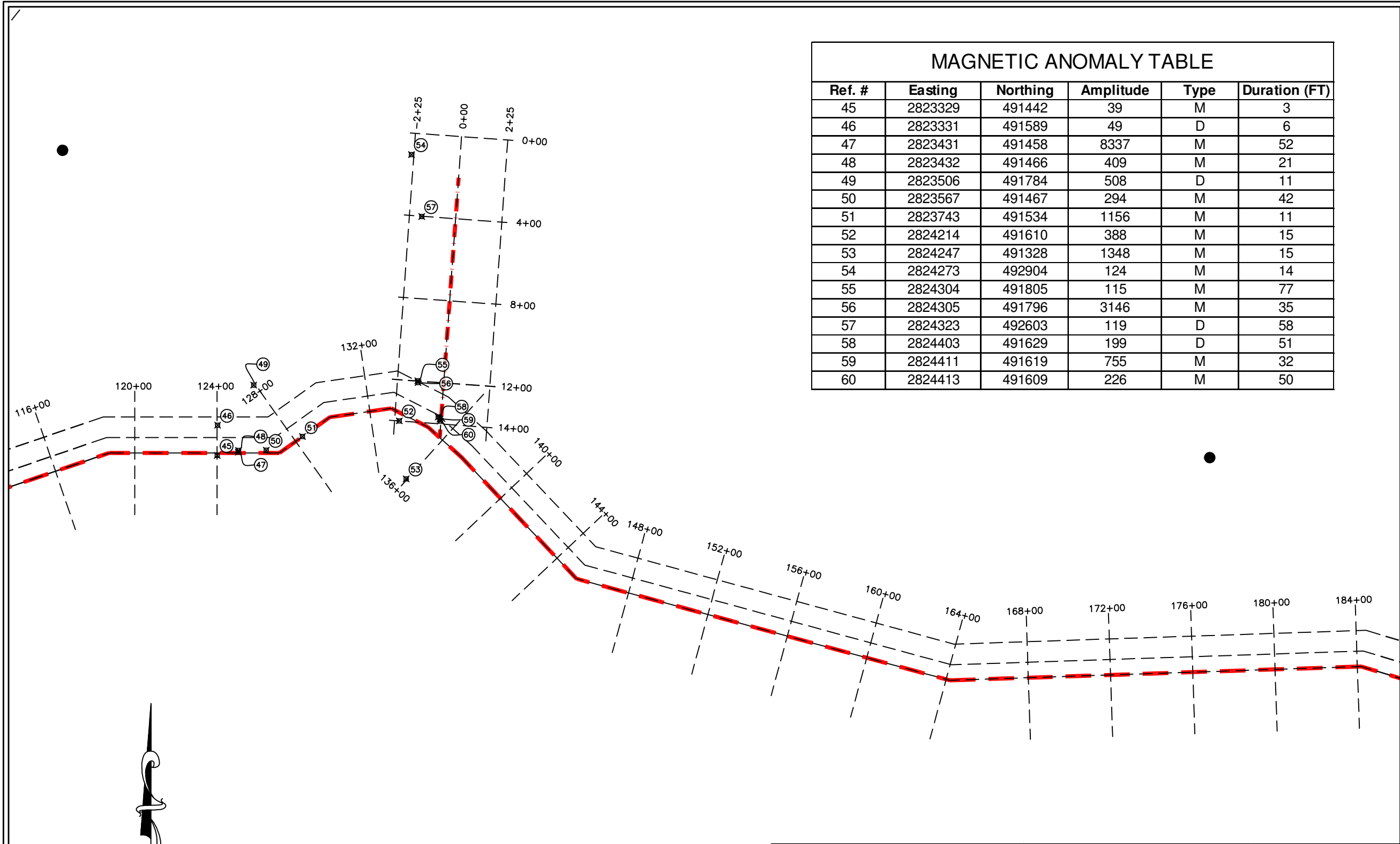
DATE: 08/08/09

JOB# 2091028

FILE: GRAND LAKE MAGNETOMETER SURVEY.DWG

SHEET: 3 OF 7





MAGNETIC ANOMALY TABLE

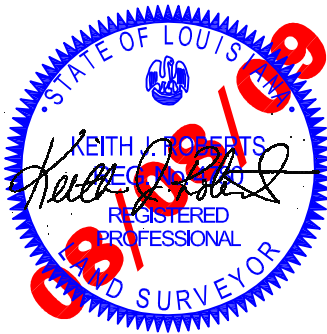
Ref. #	Easting	Northing	Amplitude	Type	Duration (FT)
45	2823329	491442	39	M	3
46	2823331	491589	49	D	6
47	2823431	491458	8337	M	52
48	2823432	491466	409	M	21
49	2823506	491784	508	D	11
50	2823567	491467	294	M	42
51	2823743	491534	1156	M	11
52	2824214	491610	388	M	15
53	2824247	491328	1348	M	15
54	2824273	492904	124	M	14
55	2824304	491805	115	M	77
56	2824305	491796	3146	M	35
57	2824323	492603	119	D	58
58	2824403	491629	199	D	51
59	2824411	491619	755	M	32
60	2824413	491609	226	M	50

LEGEND

- DIGITIZED PIPELINE
- PROPOSED ROCK BREAKWATERS
- PROPOSED ACCESS
- MAG ROUTE
- MAG ANOMALY
- DIGITIZED WELLS

NOTES

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REVISED BY:

DATE:

PLAN SCALE  
SCALE: 1"=500'

500' 0' 250' 500'

LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

GRAND LAKE SHORELINE  
PROTECTION PROJECT (ME-21)  
BEFORE DREDGE MAGNETOMETER SURVEY  
OF ACCESS CHANNELS AND FLOTATION  
CHANNEL AND ROCK BREAKWATERS  
(MAGNETOMETER SURVEY RESULTS)  
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - LAND SURVEY DIVISION - 1129 HUVAL LANE, BREAUX BRIDGE, LA. 70548







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JOB# 2091028

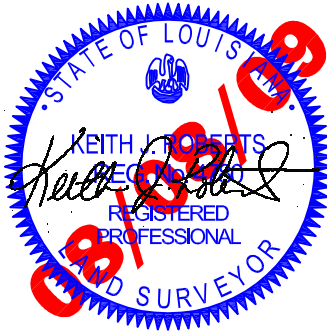
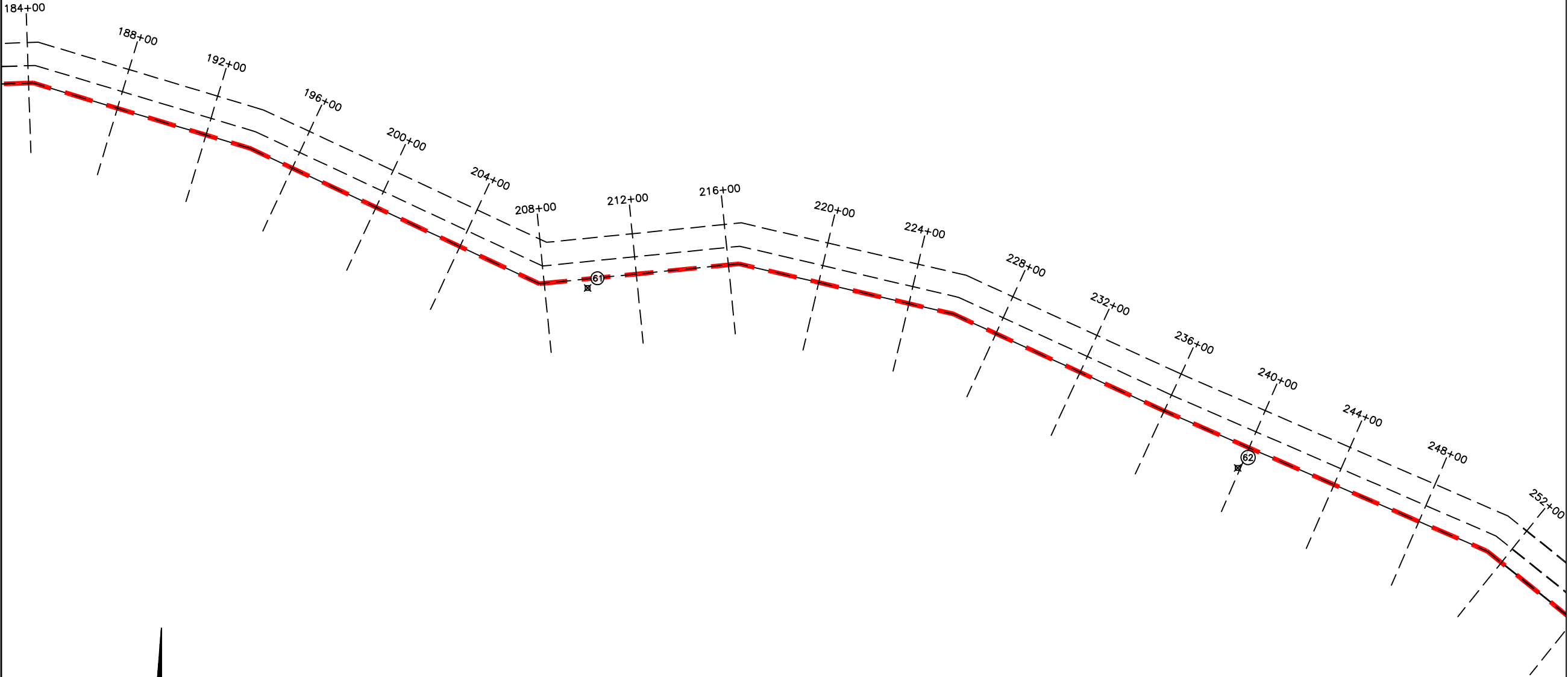
FILE: GRAND LAKE MAGNETOMETER SURVEY.DWG


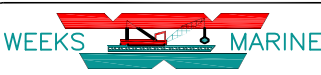
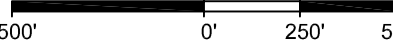
SHEET: 4 OF 7

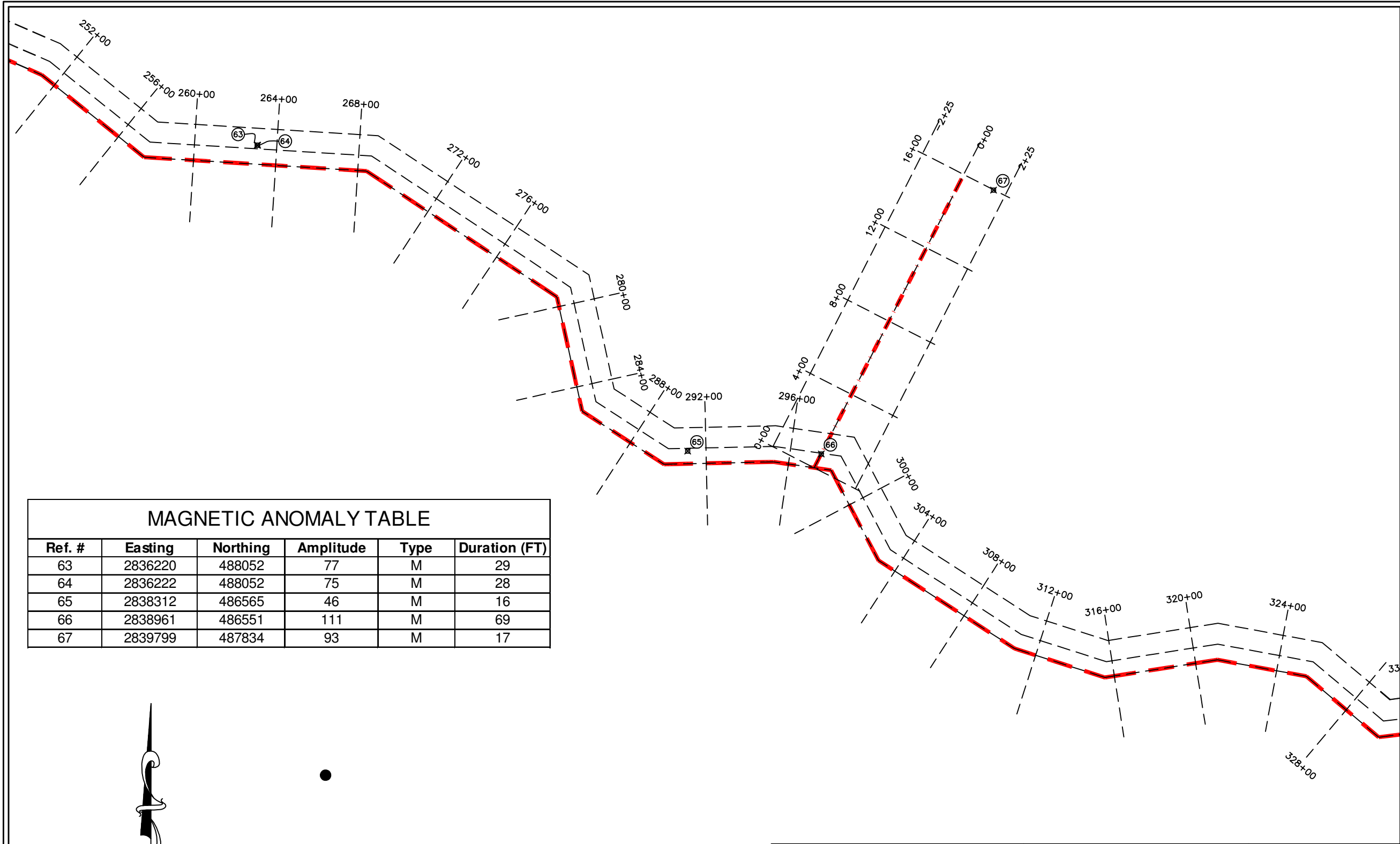
MAGNETIC ANOMALY TABLE					
Ref. #	Easting	Northing	Amplitude	Type	Duration (FT)
61	2831286	489530	221	M	3
62	2834095	488753	185	M	23

LEGEND	
	DIGITIZED PIPELINE
	PROPOSED ROCK BREAKWATERS
	PROPOSED ACCESS
	MAG ROUTE
	MAG ANOMALY
	DIGITIZED WELLS

- NOTES
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  5. DIGITIZED WELLS AND PIPELINES OBTAINED VIA LADNR SONRIS DATABASE.



REVISED BY:	DATE:	 	<b>GRAND LAKE SHORELINE PROTECTION PROJECT (ME-21) BEFORE DREDGE MAGNETOMETER SURVEY OF ACCESS CHANNELS AND FLOTATION CHANNEL AND ROCK BREAKWATERS (MAGNETOMETER SURVEY RESULTS) CAMERON PARISH, LA.</b>
<b>PLAN SCALE SCALE: 1"=500'</b> 		PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - LAND SURVEY DIVISION - 1129 HUVAL LANE, BREAUX BRIDGE, LA. 70548	
DATE: 08/08/09	JOB# 2091028	FILE: GRAND LAKE MAGNETOMETER SURVEY.DWG	SHEET: 5 OF 7



LEGEND

DIGITIZED PIPELINE

PROPOSED ROCK BREAKWATERS

PROPOSED ACCESS

MAG ROUTE

MAG ANOMALY

DIGITIZED WELLS

- NOTES
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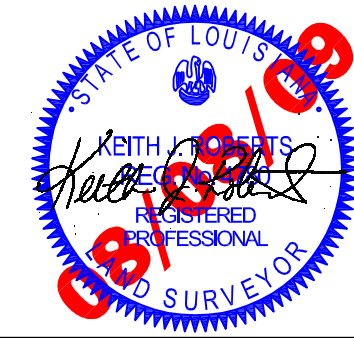
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MAGNETIC ANOMALY TABLE

Ref. #	Easting	Northing	Amplitude	Type	Duration (FT)
63	2836220	488052	77	M	29
64	2836222	488052	75	M	28
65	2838312	486565	46	M	16
66	2838961	486551	111	M	69
67	2839799	487834	93	M	17



REVISED BY:

DATE:

PLAN SCALE  
SCALE: 1"=500'

500' 0' 250' 500'

HYDROTERRA

TECHNOLOGIES, LLC

LAND SURVEY AND HYDROGRAPHIC SOLUTIONS

WEEKS

MARINE

GRAND LAKE SHORELINE  
PROTECTION PROJECT (ME-21)  
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CAMERON PARISH, LA.

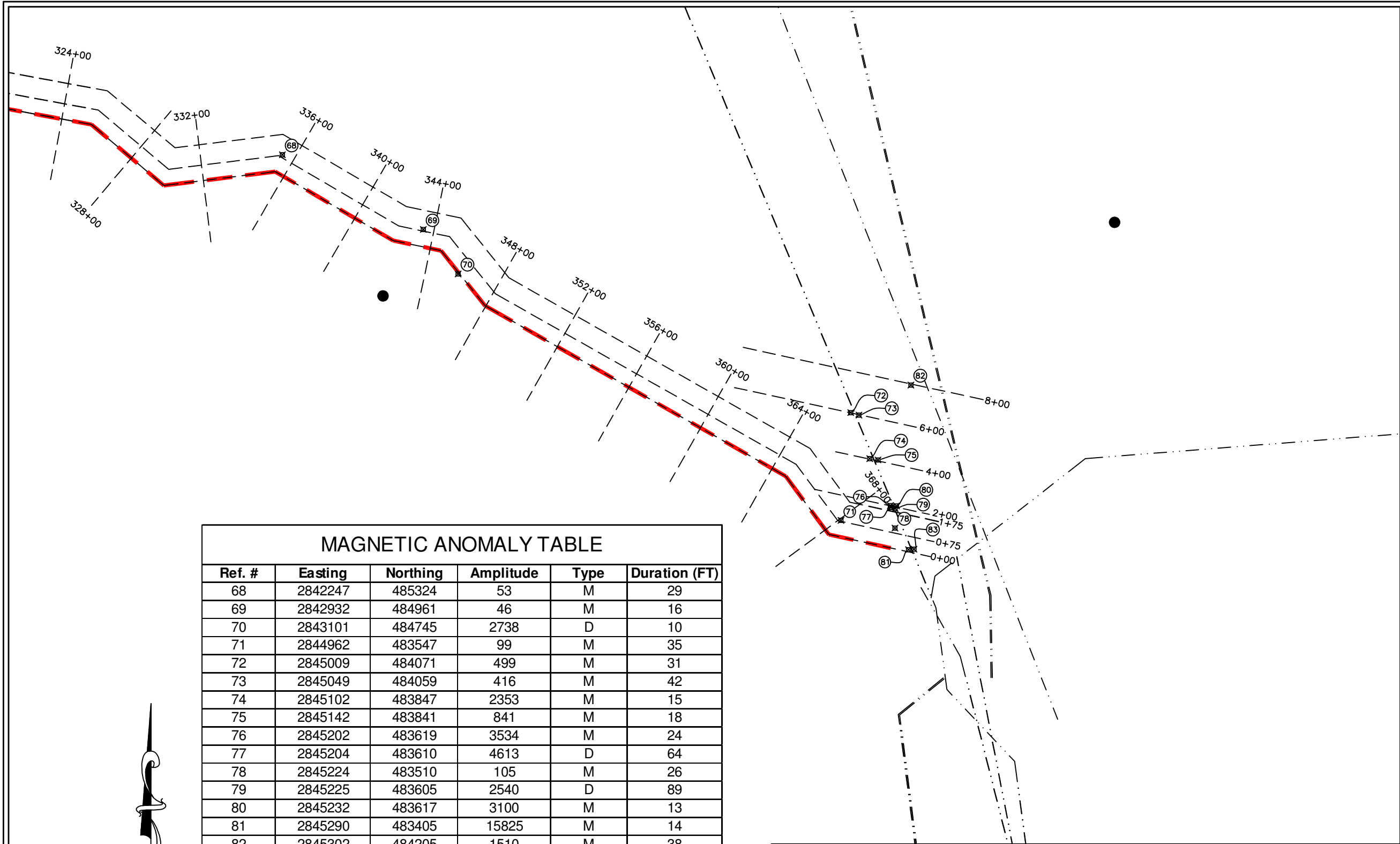
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DATE: 08/08/09

JOB# 2091028

FILE: GRAND LAKE MAGNETOMETER SURVEY.DWG

SHEET: 6 OF 7

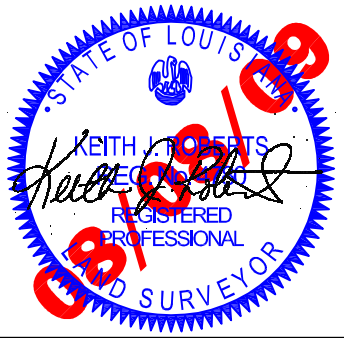


MAGNETIC ANOMALY TABLE

Ref. #	Easting	Northing	Amplitude	Type	Duration (FT)
68	2842247	485324	53	M	29
69	2842932	484961	46	M	16
70	2843101	484745	2738	D	10
71	2844962	483547	99	M	35
72	2845009	484071	499	M	31
73	2845049	484059	416	M	42
74	2845102	483847	2353	M	15
75	2845142	483841	841	M	18
76	2845202	483619	3534	M	24
77	2845204	483610	4613	D	64
78	2845224	483510	105	M	26
79	2845225	483605	2540	D	89
80	2845232	483617	3100	M	13
81	2845290	483405	15825	M	14
82	2845302	484205	1510	M	38
83	2845317	483407	1155	M	6

LEGEND	
	DIGITIZED PIPELINE
	PROPOSED ROCK BREAKWATERS
	PROPOSED ACCESS
	MAG ROUTE
	MAG ANOMALY
	DIGITIZED WELLS

- NOTES
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GRAND LAKE SHORELINE  
PROTECTION PROJECT (ME-21)  
BEFORE DREDGE MAGNETOMETER SURVEY  
OF ACCESS CHANNELS AND FLOTATION  
CHANNEL AND ROCK BREAKWATERS  
(MAGNETOMETER SURVEY RESULTS)  
CAMERON PARISH, LA.

PREPARED BY: HYDROTERRA TECHNOLOGIES, LLC. - LAND SURVEY DIVISION - 1129 HUVAL LANE, BREAUX BRIDGE, LA. 70548

DATE: 08/08/09    JOB# 2091028    FILE: GRAND LAKE MAGNETOMETER SURVEY.DWG    SHEET: 7 OF 7

