

PROJECT DESCRIPTION FOR SCOPING (PDS)

Mag-Asawang Tubig River Dredging for the Restoration Project

**To be located at the Municipality of Naujan,
Province of Oriental Mindoro**

APRIL 2023



KEEN PEAK CORPORATION

PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

TABLE OF CONTENTS

1.0	Basic Project Information	2
	EIA Team	2
2.0	Project Description	3
2.1	Project Area, Location and Accessibility	3
	Geographical Coordinates (Shape File Data) of Project Area	5
2.1	Accessibility	17
2.2	Protected Area	17
2.3	Impact Areas	17
3.0	Project Rationale	22
4.0	Project Alternatives	22
4.1	Consequences of Non Proceeding with the Project or the “No Project Scenario”	22
5.0	Project Components	22
	Power Supply	23
	Fuel / Diesel Oil Requirement	23
	Water Supply	23
6.0	Process Technology	23
7.0	Project Size	24
8.0	Development Plan, description of Project phases and corresponding timeframes	24
8.1	Planning / Pre-Construction / Preparation Phase	24
8.2	Project Operation Phase	24
8.3	Project Decommissioning and Abandonment	25
9.0	Manpower Requirement	25
10	Indicative Project Investment Cost	25
11	Implementation Schedule	26
12	Photos of the Project Site	27

LIST OF TABLES

Table 1	Project Fact Sheet	2
Table 2	EIA Team Composition	2
Table 3	Geographical Coordinates (WGS 84) River	5
Table 4	Geographical Coordinates (WGS 84) Offshore Area	12
Table 5	Project Components	22
Table 6	Manpower Requirement	25
Table 7	Preliminary identified Environmental Aspects for each alternative	28

LIST OF FIGURES

Figure 1	Project Area and Location Map	4
Figure 2	Project Location Map	13
Figure 3	Map of Protected Area vis-à-vis Regional and Provincial Boundaries	14
Figure 4	Map of Project Area vis-à-vis Municipal Boundaries	15
Figure 5	Map of Project Area vis-à-vis Barangay Boundaries	16
Figure 6	Relative Location of Project Area and Protected Area	18
Figure 7	Map of Impact Areas - LAND	19
Figure 8	Map of Impact Area - WATER	20
Figure 9	Map of Impact Areas - PEOPLE	21

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

PROJECT DESCRIPTION REPORT for SCOPING (PDS)

1.0 BASIC PROJECT INFORMATION

Table PD-1. *Project Fact Sheet*

Name of Project	Mag-Asawang Tubig River Dredging for the Restoration Project
Project Location	Barangays Estrella and San Antonio, Municipality of Naujan, Oriental Mindoro
Project Category & Type (based on Annex A of MC 2014-005)	Environmental Mitigation; Disaster Risk Reduction; Climate Change Adaptation. Considered critical due to potential impact on bridge
Project Area	River length : 7.224 line km River Area: 17.18 ha Offshore area/navigational: 10.4 ha
Project Cost	PhP 77,110,400.00 (estimate)
Major Project Components	<ol style="list-style-type: none"> 1. Dredging zone/basin near river mouth, totaling 10.3 line km covering 17.18 hectares (river) and 1,037.33 hectares (offshore) 2. 10 meters minimum buffer zone (easement) from the toe of both sides of the river bank and 1km minimum for the protection of Mag-asawang Tubig Bridge 3. Bridge protection measures (ground sill geo-tube & armor rock bridge column protection and retaining walls at dredging basin). 4. Transport of dredged materials 5. Cost recovery through sale of dredged materials, subject to appropriate government regulations 6. Stockpile area, sheet pile, office, and other support facilities
Project Proponent	Keen Peak Corporation (KPC) Barangay Puro, Caoayan, Ilocos Sur Contact Person: Ms. Rosanna Santos Position: Administration Manager Tel No.: +63 998-5572665 / +632 8247-2003 Email: rs_708@yahoo.com
EIA Preparer	Environmental Advisers Office Administrative Services Engr. Emerson Darroles General Manager / Project Team Leader 09274926858 emersongeme20@gmail.com

EIA Team

The table showing the list of EIA Preparers is provided below.

Table PD-2. *EIA Team Composition*

Name	Field of Expertise	EMB Registry No.
Engr. Emerson B. Darroles	Team Leader / Water Quality Expert / ERA	IPCO-153
Nadia P. Conde	Assistant Team Leader / People Module / EIS Integrator	IPCO-102

KEEN PEAK CORPORATION

PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

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Name	Field of Expertise	EMB Registry No.
Angelie Faye Nicolas	EIS Integrator / People Module/Research	IPCO - 259
Engr. Jonathan Conde	Air/Noise/EMP	
Mr. Benjamin Francisco	Marine and Freshwater Ecology	IPCO-038
Mr. Michael Chester Francisco	Fisheries	IPCO-040
Lawrence S. Mojica	GIS / EIS Integrator	-

2.0 PROJECT DESCRIPTION

2.1 Project Area, Location and Accessibility

The proposed project is the dredging works along the lower portion of Mag-asawang Tubig River in the Municipality of Naujan, Province of Oriental Mindoro.

Oriental Mindoro covers a total area of 4,238.38 square kilometres (1,636.45 sq mi) occupying the eastern section of Mindoro island in Mimaropa region. The province is bordered by the Verde Island Passage to the north, by Marinduque, Maestre de Campo, Tablas Strait and the rest of Romblon to the east, by Semirara and the rest of Caluya Islands, Antique to the south, and by Occidental Mindoro to the west.

The western portion of the province is mountainous or rugged, while the east has hills and flood plains. Mount Halcon, standing 2,582 metres (8,471 ft) above sea level, is the 18th highest mountain in the country and is the province's and island's highest peak. Lake Naujan, the fifth largest lake in the country with an area of approximately 8,125 hectares (20,080 acres) of open water, is located at the northeastern part of the island and the province.

The Municipality of Naujan is a 1st class municipality in the province of Oriental Mindoro, Philippines. It covers a land area of 50,310 hectares (124,300 acres), making it the largest municipality in the province and accounting for 12% of the province's total land area. Naujan is 26 kilometres (16 mi) from Calapan.

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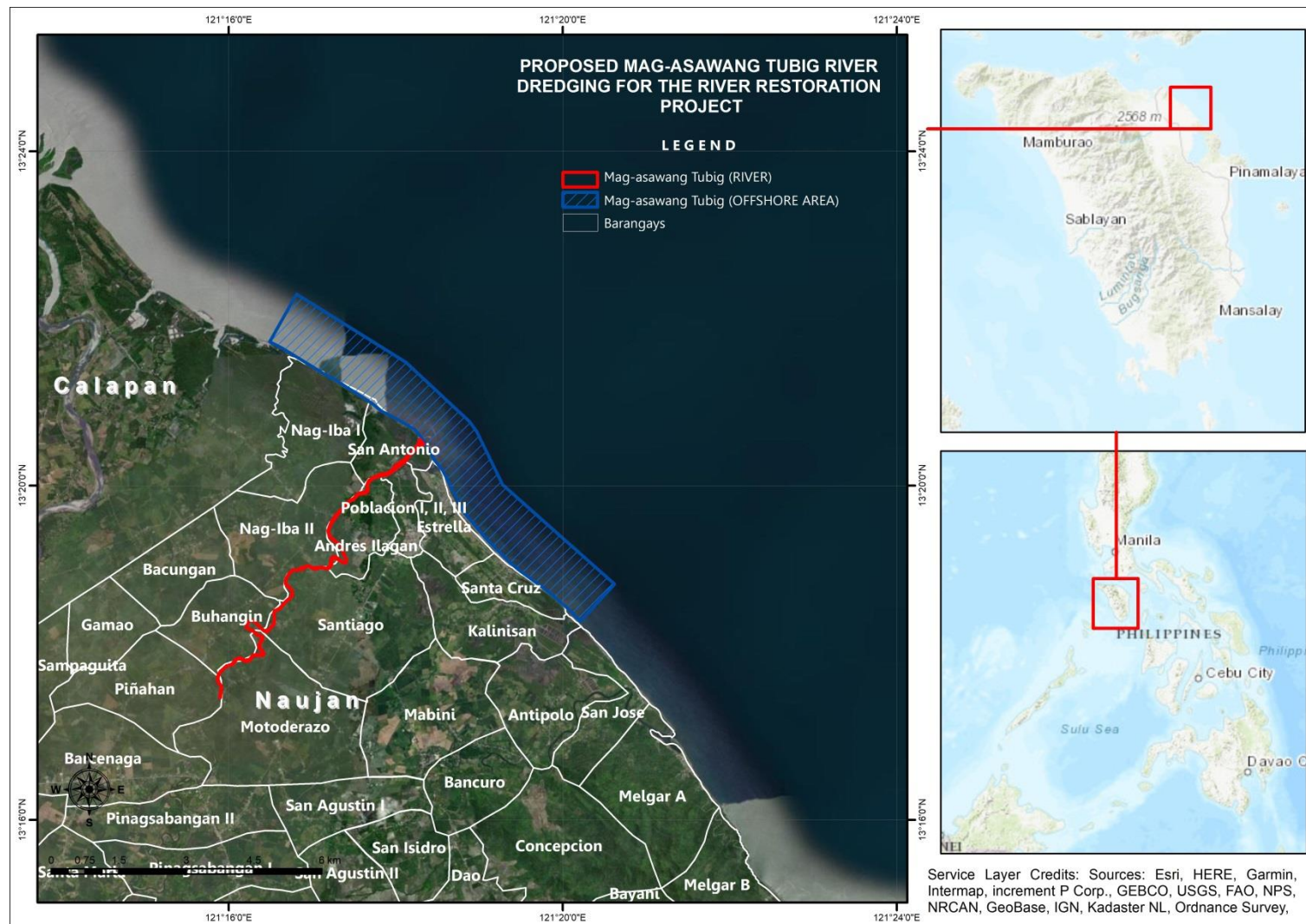


Figure PD-1. *Project Area and Location Map*

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

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Geographic Coordinates (Shape File Data) of Project Area

Table PD-3. Geographical Coordinates (WGS 84) – RIVER

Point	Longitude (DD)	Latitude (DD)	Longitude (DMS)	Latitude (DMS)
1	121.2648617	13.29104307	121°15'53.5"	13°17'27.76"
2	121.2649212	13.2915629	121°15'53.72"	13°17'29.63"
3	121.2650692	13.29236778	121°15'54.25"	13°17'32.52"
4	121.2651811	13.29288799	121°15'54.65"	13°17'34.4"
5	121.2650873	13.29331584	121°15'54.31"	13°17'35.94"
6	121.2648866	13.29365942	121°15'53.59"	13°17'37.17"
7	121.2645223	13.29414426	121°15'52.28"	13°17'38.92"
8	121.2644207	13.29463059	121°15'51.91"	13°17'40.67"
9	121.2643671	13.29502112	121°15'51.72"	13°17'42.08"
10	121.2645465	13.29561467	121°15'52.37"	13°17'44.21"
11	121.2647166	13.29593608	121°15'52.98"	13°17'45.37"
12	121.2650256	13.29626297	121°15'54.09"	13°17'46.55"
13	121.2653504	13.29664665	121°15'55.26"	13°17'47.93"
14	121.2658124	13.29711149	121°15'56.92"	13°17'49.6"
15	121.2661966	13.29740337	121°15'58.31"	13°17'50.65"
16	121.2665625	13.29745925	121°15'59.63"	13°17'50.85"
17	121.2671977	13.29767797	121°16'1.91"	13°17'51.64"
18	121.2676959	13.2982335	121°16'3.71"	13°17'53.64"
19	121.2679422	13.29864385	121°16'4.59"	13°17'55.12"
20	121.2683603	13.29887703	121°16'6.1"	13°17'55.96"
21	121.2689242	13.29899955	121°16'8.13"	13°17'56.4"
22	121.2693581	13.29883784	121°16'9.69"	13°17'55.82"
23	121.2698382	13.29856665	121°16'11.42"	13°17'54.84"
24	121.2707658	13.29868708	121°16'14.76"	13°17'55.27"
25	121.2710902	13.29904087	121°16'15.92"	13°17'56.55"
26	121.2711645	13.29921606	121°16'16.19"	13°17'57.18"
27	121.2714815	13.29954798	121°16'17.33"	13°17'58.37"
28	121.2717276	13.29961818	121°16'18.22"	13°17'58.63"
29	121.2723365	13.29969368	121°16'20.41"	13°17'58.9"
30	121.2727413	13.29965608	121°16'21.87"	13°17'58.76"
31	121.2732336	13.29959299	121°16'23.64"	13°17'58.53"
32	121.2734704	13.30010172	121°16'24.49"	13°18'0.37"
33	121.2733135	13.30040489	121°16'23.93"	13°18'1.46"
34	121.2730537	13.30065794	121°16'22.99"	13°18'2.37"
35	121.2727376	13.3009575	121°16'21.86"	13°18'3.45"
36	121.2726519	13.30124661	121°16'21.55"	13°18'4.49"
37	121.272678	13.30161864	121°16'21.64"	13°18'5.83"
38	121.272643	13.30135182	121°16'21.51"	13°18'4.87"
39	121.2728389	13.3019737	121°16'22.22"	13°18'7.11"
40	121.2730421	13.30239217	121°16'22.95"	13°18'8.61"
41	121.273235	13.30275031	121°16'23.65"	13°18'9.9"
42	121.2731179	13.30321282	121°16'23.22"	13°18'11.57"
43	121.2726335	13.30349057	121°16'21.48"	13°18'12.57"
44	121.2724201	13.30358789	121°16'20.71"	13°18'12.92"
45	121.2721643	13.30366599	121°16'19.79"	13°18'13.2"
46	121.2718811	13.30395288	121°16'18.77"	13°18'14.23"
47	121.271569	13.30433653	121°16'17.65"	13°18'15.61"
48	121.2720389	13.30377509	121°16'19.34"	13°18'13.59"
49	121.2711927	13.30452898	121°16'16.29"	13°18'16.3"
50	121.2707969	13.3046987	121°16'14.87"	13°18'16.92"
51	121.2704149	13.30485384	121°16'13.49"	13°18'17.47"

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52	121.2702137	13.30505919	121°16'12.77"	13°18'18.21"
53	121.2701828	13.30528432	121°16'12.66"	13°18'19.02"
54	121.2702172	13.30567717	121°16'12.78"	13°18'20.44"
55	121.2702871	13.30577074	121°16'13.03"	13°18'20.77"
56	121.2704786	13.30608254	121°16'13.72"	13°18'21.9"
57	121.2707938	13.30645643	121°16'14.86"	13°18'23.24"
58	121.2710405	13.30651423	121°16'15.75"	13°18'23.45"
59	121.2716036	13.30637252	121°16'17.77"	13°18'22.94"
60	121.2719065	13.30625274	121°16'18.86"	13°18'22.51"
61	121.2721631	13.30597039	121°16'19.79"	13°18'21.49"
62	121.2726334	13.30536491	121°16'21.48"	13°18'19.31"
63	121.2730658	13.30496181	121°16'23.04"	13°18'17.86"
64	121.2737571	13.30439609	121°16'25.53"	13°18'15.83"
65	121.2742128	13.30426915	121°16'27.17"	13°18'15.37"
66	121.2745388	13.30441816	121°16'28.34"	13°18'15.91"
67	121.2747156	13.3047274	121°16'28.98"	13°18'17.02"
68	121.2748851	13.30501871	121°16'29.59"	13°18'18.07"
69	121.2750786	13.30519704	121°16'30.28"	13°18'18.71"
70	121.2755175	13.30557116	121°16'31.86"	13°18'20.06"
71	121.2756576	13.30590827	121°16'32.37"	13°18'21.27"
72	121.2757351	13.30684884	121°16'32.65"	13°18'24.66"
73	121.2757055	13.30726295	121°16'32.54"	13°18'26.15"
74	121.2755955	13.30779212	121°16'32.14"	13°18'28.05"
75	121.275691	13.30820898	121°16'32.49"	13°18'29.55"
76	121.2757957	13.30841444	121°16'32.86"	13°18'30.29"
77	121.2760754	13.30853096	121°16'33.87"	13°18'30.71"
78	121.2764695	13.30872622	121°16'35.29"	13°18'31.41"
79	121.2767976	13.30885053	121°16'36.47"	13°18'31.86"
80	121.2770199	13.30908874	121°16'37.27"	13°18'32.72"
81	121.277325	13.30940783	121°16'38.37"	13°18'33.87"
82	121.2775181	13.30967368	121°16'39.07"	13°18'34.83"
83	121.277701	13.30991196	121°16'39.72"	13°18'35.68"
84	121.2779378	13.31017696	121°16'40.58"	13°18'36.64"
85	121.2781471	13.3103795	121°16'41.33"	13°18'37.37"
86	121.2786387	13.31081637	121°16'43.1"	13°18'38.94"
87	121.278958	13.31104356	121°16'44.25"	13°18'39.76"
88	121.2792489	13.311377	121°16'45.3"	13°18'40.96"
89	121.2792879	13.31210553	121°16'45.44"	13°18'43.58"
90	121.2791095	13.3126017	121°16'44.79"	13°18'45.37"
91	121.2788069	13.31294928	121°16'43.7"	13°18'46.62"
92	121.2782435	13.3134215	121°16'41.68"	13°18'48.32"
93	121.2780842	13.31363856	121°16'41.1"	13°18'49.1"
94	121.2779796	13.31386386	121°16'40.73"	13°18'49.91"
95	121.2779762	13.3145452	121°16'40.71"	13°18'52.36"
96	121.2780203	13.31469817	121°16'40.87"	13°18'52.91"
97	121.2781117	13.31490473	121°16'41.2"	13°18'53.66"
98	121.278435	13.31540172	121°16'42.37"	13°18'55.45"
99	121.2787262	13.3158955	121°16'43.41"	13°18'57.22"
100	121.2793583	13.31647283	121°16'45.69"	13°18'59.3"
101	121.2796192	13.31656099	121°16'46.63"	13°18'59.62"
102	121.2801655	13.31659678	121°16'48.6"	13°18'59.75"
103	121.2803965	13.31658382	121°16'49.43"	13°18'59.7"
104	121.2808031	13.31672998	121°16'50.89"	13°19'0.23"
105	121.2813624	13.31704933	121°16'52.9"	13°19'1.38"

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106	121.2818377	13.31718065	121°16'54.62"	13°19'1.85"
107	121.2823122	13.3173512	121°16'56.32"	13°19'2.46"
108	121.2826027	13.31737742	121°16'57.37"	13°19'2.56"
109	121.2829243	13.31727459	121°16'58.53"	13°19'2.19"
110	121.283139	13.31710191	121°16'59.3"	13°19'1.57"
111	121.2833803	13.31695513	121°17'0.17"	13°19'1.04"
112	121.2840567	13.31703489	121°17'2.6"	13°19'1.33"
113	121.2848313	13.31706236	121°17'5.39"	13°19'1.42"
114	121.2851177	13.31709771	121°17'6.42"	13°19'1.55"
115	121.2854105	13.31705459	121°17'7.48"	13°19'1.4"
116	121.2861583	13.31684556	121°17'10.17"	13°19'0.64"
117	121.2867978	13.31727223	121°17'12.47"	13°19'2.18"
118	121.2870558	13.31857302	121°17'13.4"	13°19'6.86"
119	121.2871389	13.31880405	121°17'13.7"	13°19'7.69"
120	121.2873312	13.31909147	121°17'14.39"	13°19'8.73"
121	121.2874802	13.31925095	121°17'14.93"	13°19'9.3"
122	121.2877483	13.31921031	121°17'15.89"	13°19'9.16"
123	121.2879162	13.31914295	121°17'16.5"	13°19'8.91"
124	121.2882714	13.31897777	121°17'17.78"	13°19'8.32"
125	121.2886811	13.31858802	121°17'19.25"	13°19'6.92"
126	121.2894233	13.31810294	121°17'21.92"	13°19'5.17"
127	121.2898504	13.3180725	121°17'23.46"	13°19'5.06"
128	121.2899881	13.31831328	121°17'23.96"	13°19'5.93"
129	121.2900821	13.31847432	121°17'24.3"	13°19'6.51"
130	121.2901074	13.31862592	121°17'24.39"	13°19'7.05"
131	121.2899903	13.31887351	121°17'23.97"	13°19'7.94"
132	121.2897597	13.31929887	121°17'23.13"	13°19'9.48"
133	121.2894104	13.32004762	121°17'21.88"	13°19'12.17"
134	121.2893596	13.32047953	121°17'21.69"	13°19'13.73"
135	121.2891865	13.32113772	121°17'21.07"	13°19'16.1"
136	121.2889532	13.32143987	121°17'20.23"	13°19'17.18"
137	121.2883576	13.32187325	121°17'18.09"	13°19'18.74"
138	121.2870114	13.32285882	121°17'13.24"	13°19'22.29"
139	121.2866716	13.32343484	121°17'12.02"	13°19'24.37"
140	121.2864594	13.32415687	121°17'11.25"	13°19'26.96"
141	121.2864783	13.32444093	121°17'11.32"	13°19'27.99"
142	121.2868713	13.3255708	121°17'12.74"	13°19'32.05"
143	121.2871395	13.32614998	121°17'13.7"	13°19'34.14"
144	121.287845	13.32727229	121°17'16.24"	13°19'38.18"
145	121.2885511	13.32805935	121°17'18.78"	13°19'41.01"
146	121.2891734	13.32857342	121°17'21.02"	13°19'42.86"
147	121.2895014	13.3290361	121°17'22.21"	13°19'44.53"
148	121.2899496	13.32966741	121°17'23.82"	13°19'46.8"
149	121.2903247	13.32998082	121°17'25.17"	13°19'47.93"
150	121.2908328	13.33038417	121°17'27"	13°19'49.38"
151	121.2915583	13.33077922	121°17'29.61"	13°19'50.81"
152	121.2918359	13.33104903	121°17'30.61"	13°19'51.78"
153	121.292102	13.33139612	121°17'31.57"	13°19'53.03"
154	121.2923578	13.33166682	121°17'32.49"	13°19'54"
155	121.2927937	13.33190093	121°17'34.06"	13°19'54.84"
156	121.2932327	13.33201818	121°17'35.64"	13°19'55.27"
157	121.2939801	13.3320497	121°17'38.33"	13°19'55.38"
158	121.294308	13.33282049	121°17'39.51"	13°19'58.15"
159	121.2941855	13.33338624	121°17'39.07"	13°20'0.19"

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160	121.2944353	13.33412751	121°17'39.97"	13°20'2.86"
161	121.2946519	13.33440759	121°17'40.75"	13°20'3.87"
162	121.2950371	13.33466986	121°17'42.13"	13°20'4.81"
163	121.2954206	13.33495509	121°17'43.51"	13°20'5.84"
164	121.295881	13.33514554	121°17'45.17"	13°20'6.52"
165	121.2967756	13.33563216	121°17'48.39"	13°20'8.28"
166	121.2977106	13.33551204	121°17'51.76"	13°20'7.84"
167	121.2984721	13.3358835	121°17'54.5"	13°20'9.18"
168	121.2992823	13.33650837	121°17'57.42"	13°20'11.43"
169	121.2995161	13.33691476	121°17'58.26"	13°20'12.89"
170	121.3000545	13.33755415	121°18'0.2"	13°20'15.19"
171	121.3006821	13.33785864	121°18'2.46"	13°20'16.29"
172	121.3019218	13.33877108	121°18'6.92"	13°20'19.58"
173	121.3021973	13.33917735	121°18'7.91"	13°20'21.04"
174	121.3024609	13.33944298	121°18'8.86"	13°20'21.99"
175	121.3032197	13.34007904	121°18'11.59"	13°20'24.28"
176	121.3037808	13.34065507	121°18'13.61"	13°20'26.36"
177	121.3045157	13.34186846	121°18'16.26"	13°20'30.73"
178	121.3047435	13.34258933	121°18'17.08"	13°20'33.32"
179	121.305575	13.34160258	121°18'20.07"	13°20'29.77"
180	121.3048282	13.34145611	121°18'17.38"	13°20'29.24"
181	121.3040671	13.34077177	121°18'14.64"	13°20'26.78"
182	121.30363	13.34015877	121°18'13.07"	13°20'24.57"
183	121.3034964	13.34000381	121°18'12.59"	13°20'24.01"
184	121.302802	13.33942823	121°18'10.09"	13°20'21.94"
185	121.3022353	13.33868328	121°18'8.05"	13°20'19.26"
186	121.3017572	13.33799767	121°18'6.33"	13°20'16.79"
187	121.3003233	13.33701717	121°18'1.16"	13°20'13.26"
188	121.2991643	13.33603327	121°17'56.99"	13°20'9.72"
189	121.298206	13.33548909	121°17'53.54"	13°20'7.76"
190	121.297147	13.33528937	121°17'49.73"	13°20'7.04"
191	121.296273	13.33511955	121°17'46.58"	13°20'6.43"
192	121.2955227	13.33485227	121°17'43.88"	13°20'5.47"
193	121.2948162	13.33430501	121°17'41.34"	13°20'3.5"
194	121.2944564	13.33369353	121°17'40.04"	13°20'1.3"
195	121.2944034	13.33328377	121°17'39.85"	13°19'59.82"
196	121.2945031	13.3328448	121°17'40.21"	13°19'58.24"
197	121.2943827	13.33230045	121°17'39.78"	13°19'56.28"
198	121.2941522	13.33191555	121°17'38.95"	13°19'54.9"
199	121.2939223	13.33182262	121°17'38.12"	13°19'54.56"
200	121.2932029	13.33172609	121°17'35.53"	13°19'54.21"
201	121.2925255	13.33160165	121°17'33.09"	13°19'53.77"
202	121.2921054	13.3311422	121°17'31.58"	13°19'52.11"
203	121.2915356	13.33058483	121°17'29.53"	13°19'50.11"
204	121.2908529	13.33027479	121°17'27.07"	13°19'48.99"
205	121.290401	13.32989732	121°17'25.44"	13°19'47.63"
206	121.2901107	13.32962836	121°17'24.4"	13°19'46.66"
207	121.289741	13.32901538	121°17'23.07"	13°19'44.46"
208	121.2895569	13.32876949	121°17'22.4"	13°19'43.57"
209	121.2890827	13.32832202	121°17'20.7"	13°19'41.96"
210	121.2887132	13.32793272	121°17'19.37"	13°19'40.56"
211	121.2882999	13.32742213	121°17'17.88"	13°19'38.72"
212	121.288151	13.32720474	121°17'17.34"	13°19'37.94"
213	121.2878607	13.32685608	121°17'16.3"	13°19'36.68"

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

Point	Longitude (DD)	Latitude (DD)	Longitude (DMS)	Latitude (DMS)
214	121.2873496	13.32610319	121°17'14.46"	13°19'33.97"
215	121.2869508	13.32540688	121°17'13.02"	13°19'31.46"
216	121.2868066	13.32494602	121°17'12.5"	13°19'29.81"
217	121.2866094	13.32444572	121°17'11.79"	13°19'28"
218	121.28655	13.32424684	121°17'11.58"	13°19'27.29"
219	121.2866257	13.32389827	121°17'11.85"	13°19'26.03"
220	121.2868401	13.3234078	121°17'12.62"	13°19'24.27"
221	121.2871219	13.32301836	121°17'13.64"	13°19'22.87"
222	121.2875173	13.32264124	121°17'15.06"	13°19'21.51"
223	121.2882744	13.32205251	121°17'17.79"	13°19'19.39"
224	121.2889961	13.3215336	121°17'20.39"	13°19'17.52"
225	121.2892841	13.32119478	121°17'21.42"	13°19'16.3"
226	121.2893717	13.32082669	121°17'21.74"	13°19'14.98"
227	121.2894569	13.32024124	121°17'22.04"	13°19'12.87"
228	121.2896129	13.31978429	121°17'22.61"	13°19'11.22"
229	121.2897683	13.3194368	121°17'23.17"	13°19'9.97"
230	121.290062	13.31888814	121°17'24.22"	13°19'8"
231	121.2901954	13.31858492	121°17'24.7"	13°19'6.91"
232	121.2901664	13.31822395	121°17'24.6"	13°19'5.61"
233	121.2900169	13.31800472	121°17'24.06"	13°19'4.82"
234	121.2897566	13.31792737	121°17'23.12"	13°19'4.54"
235	121.2893719	13.31800978	121°17'21.74"	13°19'4.84"
236	121.2891483	13.31818991	121°17'20.93"	13°19'5.48"
237	121.2885026	13.31861737	121°17'18.61"	13°19'7.02"
238	121.2879718	13.31886536	121°17'16.7"	13°19'7.92"
239	121.2875521	13.31888964	121°17'15.19"	13°19'8"
240	121.2872703	13.31863774	121°17'14.17"	13°19'7.1"
241	121.287273	13.31825355	121°17'14.18"	13°19'5.71"
242	121.2872294	13.31784772	121°17'14.03"	13°19'4.25"
243	121.2870558	13.31735333	121°17'13.4"	13°19'2.47"
244	121.2868591	13.3170761	121°17'12.69"	13°19'1.47"
245	121.2866302	13.31687358	121°17'11.87"	13°19'0.74"
246	121.2863223	13.3167663	121°17'10.76"	13°19'0.36"
247	121.286002	13.31678553	121°17'9.61"	13°19'0.43"
248	121.2856866	13.31688609	121°17'8.47"	13°19'0.79"
249	121.2851797	13.31701544	121°17'6.65"	13°19'1.26"
250	121.2849491	13.31701389	121°17'5.82"	13°19'1.25"
251	121.2845734	13.31688963	121°17'4.46"	13°19'0.8"
252	121.2843146	13.31677313	121°17'3.53"	13°19'0.38"
253	121.2840093	13.316714	121°17'2.43"	13°19'0.17"
254	121.2835184	13.3167819	121°17'0.67"	13°19'0.41"
255	121.2831285	13.31695675	121°16'59.26"	13°19'1.04"
256	121.2828292	13.31718512	121°16'58.19"	13°19'1.87"
257	121.2825126	13.31729295	121°16'57.05"	13°19'2.25"
258	121.2820239	13.31720887	121°16'55.29"	13°19'1.95"
259	121.2817513	13.31702284	121°16'54.3"	13°19'1.28"
260	121.2814998	13.3167902	121°16'53.4"	13°19'0.44"
261	121.2813293	13.31667459	121°16'52.79"	13°19'0.03"
262	121.2810406	13.31662443	121°16'51.75"	13°18'59.85"
263	121.280816	13.31654513	121°16'50.94"	13°18'59.56"
264	121.2803728	13.31654213	121°16'49.34"	13°18'59.55"
265	121.2799326	13.31651736	121°16'47.76"	13°18'59.46"
266	121.2796322	13.31651533	121°16'46.68"	13°18'59.46"
267	121.2793709	13.3164013	121°16'45.74"	13°18'59.04"

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

Point	Longitude (DD)	Latitude (DD)	Longitude (DMS)	Latitude (DMS)
268	121.2791306	13.31619112	121°16'44.87"	13°18'58.29"
269	121.2789825	13.31601426	121°16'44.34"	13°18'57.65"
270	121.2787762	13.31581832	121°16'43.59"	13°18'56.95"
271	121.2785288	13.31547654	121°16'42.7"	13°18'55.72"
272	121.2781038	13.31477438	121°16'41.17"	13°18'53.19"
273	121.2780497	13.31450796	121°16'40.98"	13°18'52.23"
274	121.2780282	13.31404866	121°16'40.9"	13°18'50.58"
275	121.2780893	13.31373965	121°16'41.12"	13°18'49.46"
276	121.2782625	13.31352956	121°16'41.75"	13°18'48.71"
277	121.2784793	13.31338428	121°16'42.53"	13°18'48.18"
278	121.2789007	13.31292394	121°16'44.04"	13°18'46.53"
279	121.2792373	13.31255821	121°16'45.25"	13°18'45.21"
280	121.2793329	13.31234843	121°16'45.6"	13°18'44.45"
281	121.2793574	13.31202166	121°16'45.69"	13°18'43.28"
282	121.2793338	13.31153076	121°16'45.6"	13°18'41.51"
283	121.2792227	13.3111826	121°16'45.2"	13°18'40.26"
284	121.2788673	13.31089756	121°16'43.92"	13°18'39.23"
285	121.2784731	13.3105854	121°16'42.5"	13°18'38.11"
286	121.2781051	13.31025796	121°16'41.18"	13°18'36.93"
287	121.277738	13.3098697	121°16'39.86"	13°18'35.53"
288	121.277503	13.30950473	121°16'39.01"	13°18'34.22"
289	121.2771643	13.3091736	121°16'37.79"	13°18'33.02"
290	121.2769248	13.30891409	121°16'36.93"	13°18'32.09"
291	121.2768	13.30877661	121°16'36.48"	13°18'31.6"
292	121.2763308	13.3085854	121°16'34.79"	13°18'30.91"
293	121.2758769	13.30840166	121°16'33.16"	13°18'30.25"
294	121.275694	13.30815572	121°16'32.5"	13°18'29.36"
295	121.2756794	13.30781729	121°16'32.45"	13°18'28.14"
296	121.2757616	13.30723596	121°16'32.74"	13°18'26.05"
297	121.2757779	13.30682454	121°16'32.8"	13°18'24.57"
298	121.2757462	13.30625318	121°16'32.69"	13°18'22.51"
299	121.2756843	13.30579341	121°16'32.46"	13°18'20.86"
300	121.2755702	13.30552907	121°16'32.05"	13°18'19.9"
301	121.2749022	13.30496642	121°16'29.65"	13°18'17.88"
302	121.2746398	13.30449381	121°16'28.7"	13°18'16.18"
303	121.27454	13.30433	121°16'28.34"	13°18'15.59"
304	121.2743059	13.30421978	121°16'27.5"	13°18'15.19"
305	121.2740544	13.30421807	121°16'26.6"	13°18'15.19"
306	121.2737158	13.30435419	121°16'25.38"	13°18'15.68"
307	121.2732318	13.30475583	121°16'23.63"	13°18'17.12"
308	121.2728764	13.30507567	121°16'22.36"	13°18'18.27"
309	121.2725644	13.30538528	121°16'21.23"	13°18'19.39"
310	121.2723824	13.30561169	121°16'20.58"	13°18'20.2"
311	121.2720088	13.30607697	121°16'19.23"	13°18'21.88"
312	121.2717847	13.30623804	121°16'18.42"	13°18'22.46"
313	121.2710813	13.30645899	121°16'15.89"	13°18'23.25"
314	121.2708059	13.30637051	121°16'14.9"	13°18'22.93"
315	121.2706163	13.30617468	121°16'14.22"	13°18'22.23"
316	121.2703195	13.30570048	121°16'13.15"	13°18'20.52"
317	121.2702747	13.30537298	121°16'12.99"	13°18'19.34"
318	121.2704572	13.30489452	121°16'13.65"	13°18'17.62"
319	121.2707742	13.30477971	121°16'14.79"	13°18'17.21"
320	121.2713528	13.30455004	121°16'16.87"	13°18'16.38"
321	121.2715154	13.30446278	121°16'17.46"	13°18'16.07"

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

Point	Longitude (DD)	Latitude (DD)	Longitude (DMS)	Latitude (DMS)
322	121.2716921	13.30426929	121°16'18.09"	13°18'15.37"
323	121.2723223	13.30367878	121°16'20.36"	13°18'13.24"
324	121.2729958	13.30342288	121°16'22.78"	13°18'12.32"
325	121.2732704	13.30329876	121°16'23.77"	13°18'11.88"
326	121.2734457	13.30312405	121°16'24.4"	13°18'11.25"
327	121.2734487	13.30270073	121°16'24.42"	13°18'9.72"
328	121.2732485	13.30235613	121°16'23.69"	13°18'8.48"
329	121.2729854	13.30211934	121°16'22.75"	13°18'7.63"
330	121.2728191	13.30149471	121°16'22.15"	13°18'5.38"
331	121.2728572	13.30095961	121°16'22.29"	13°18'3.45"
332	121.2731739	13.30064042	121°16'23.43"	13°18'2.31"
333	121.2733697	13.30045457	121°16'24.13"	13°18'1.64"
334	121.2735941	13.30001296	121°16'24.94"	13°18'0.05"
335	121.2736318	13.29985431	121°16'25.07"	13°17'59.48"
336	121.2735744	13.29958163	121°16'24.87"	13°17'58.49"
337	121.2733051	13.29945031	121°16'23.9"	13°17'58.02"
338	121.2729658	13.29944801	121°16'22.68"	13°17'58.01"
339	121.2726354	13.29951553	121°16'21.49"	13°17'58.26"
340	121.2721547	13.2995366	121°16'19.76"	13°17'58.33"
341	121.2715147	13.29947699	121°16'17.45"	13°17'58.12"
342	121.2712792	13.2992003	121°16'16.61"	13°17'57.12"
343	121.2711486	13.29892453	121°16'16.13"	13°17'56.13"
344	121.2708837	13.29855263	121°16'15.18"	13°17'54.79"
345	121.2707303	13.29841382	121°16'14.63"	13°17'54.29"
346	121.2704982	13.29834232	121°16'13.79"	13°17'54.03"
347	121.2697936	13.29838594	121°16'11.26"	13°17'54.19"
348	121.2701074	13.29833966	121°16'12.39"	13°17'54.02"
349	121.2694482	13.29860462	121°16'10.01"	13°17'54.98"
350	121.2689957	13.29879755	121°16'8.38"	13°17'55.67"
351	121.2685075	13.29879422	121°16'6.63"	13°17'55.66"
352	121.2682063	13.29867628	121°16'5.54"	13°17'55.23"
353	121.2680055	13.29845647	121°16'4.82"	13°17'54.44"
354	121.2677751	13.29816678	121°16'3.99"	13°17'53.4"
355	121.2675559	13.29786641	121°16'3.2"	13°17'52.32"
356	121.2674343	13.29774068	121°16'2.76"	13°17'51.87"
357	121.267163	13.29758207	121°16'1.79"	13°17'51.3"
358	121.266986	13.29749551	121°16'1.15"	13°17'50.98"
359	121.2663453	13.29735628	121°15'58.84"	13°17'50.48"
360	121.2659172	13.29711935	121°15'57.3"	13°17'49.63"
361	121.2653395	13.29654772	121°15'55.22"	13°17'47.57"
362	121.2651832	13.2962599	121°15'54.66"	13°17'46.54"
363	121.2648755	13.29603141	121°15'53.55"	13°17'45.71"
364	121.264659	13.2956458	121°15'52.77"	13°17'44.32"
365	121.2645368	13.29526638	121°15'52.33"	13°17'42.96"
366	121.2645011	13.29494551	121°15'52.2"	13°17'41.8"
367	121.2645292	13.29454058	121°15'52.31"	13°17'40.35"
368	121.2645972	13.2942464	121°15'52.55"	13°17'39.29"
369	121.2648999	13.29376854	121°15'53.64"	13°17'37.57"
370	121.2651694	13.29333097	121°15'54.61"	13°17'35.99"
371	121.2652509	13.29296858	121°15'54.9"	13°17'34.69"
372	121.2652307	13.29258499	121°15'54.83"	13°17'33.31"
373	121.2651243	13.29212891	121°15'54.45"	13°17'31.66"
374	121.2650345	13.29167467	121°15'54.12"	13°17'30.03"
375	121.2649807	13.29119514	121°15'53.93"	13°17'28.3"

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

Point	Longitude (DD)	Latitude (DD)	Longitude (DMS)	Latitude (DMS)
376	121.2649465	13.29104518	121°15'53.81"	13°17'27.76"

Table PD-4. Geographical Coordinates (WGS 84) – OFFSHORE AREA

Point	Longitude (DD)	Latitude (DD)	Longitude (DMS)	Latitude (DMS)
1	121.3367926	13.30627158	121°20'12.45"	13°18'22.58"
2	121.3346036	13.30861826	121°20'4.57"	13°18'31.03"
3	121.3304429	13.31223316	121°19'49.59"	13°18'44.04"
4	121.3244576	13.31661992	121°19'28.05"	13°18'59.83"
5	121.3223407	13.31843847	121°19'20.43"	13°19'6.38"
6	121.3181681	13.32260563	121°19'5.41"	13°19'21.38"
7	121.3137058	13.32786002	121°18'49.34"	13°19'40.3"
8	121.3127742	13.32956714	121°18'45.99"	13°19'46.44"
9	121.3093045	13.33645851	121°18'33.5"	13°20'11.25"
10	121.3075634	13.3386486	121°18'27.23"	13°20'19.13"
11	121.3054237	13.34248465	121°18'19.53"	13°20'32.94"
12	121.3036819	13.34462516	121°18'13.25"	13°20'40.65"
13	121.3000124	13.34675111	121°18'0.04"	13°20'48.3"
14	121.2970232	13.34826594	121°17'49.28"	13°20'53.76"
15	121.295284	13.34975441	121°17'43.02"	13°20'59.12"
16	121.2898504	13.3531924	121°17'23.46"	13°21'11.49"
17	121.2879798	13.35446903	121°17'16.73"	13°21'16.09"
18	121.2866846	13.35503114	121°17'12.06"	13°21'18.11"
19	121.277295	13.36081351	121°16'38.26"	13°21'38.93"
20	121.274836	13.36206267	121°16'29.41"	13°21'43.43"
21	121.2801903	13.37155784	121°16'48.68"	13°22'17.61"
22	121.3020126	13.35797135	121°18'7.25"	13°21'28.7"
23	121.3147035	13.34611761	121°18'52.93"	13°20'46.02"
24	121.3161357	13.34417072	121°18'58.09"	13°20'39.01"
25	121.3213172	13.33357226	121°19'16.74"	13°20'0.86"
26	121.343657	13.31372703	121°20'37.17"	13°18'49.42"

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
 To be located at the Municipality of Naujan, Province of Oriental Mindoro

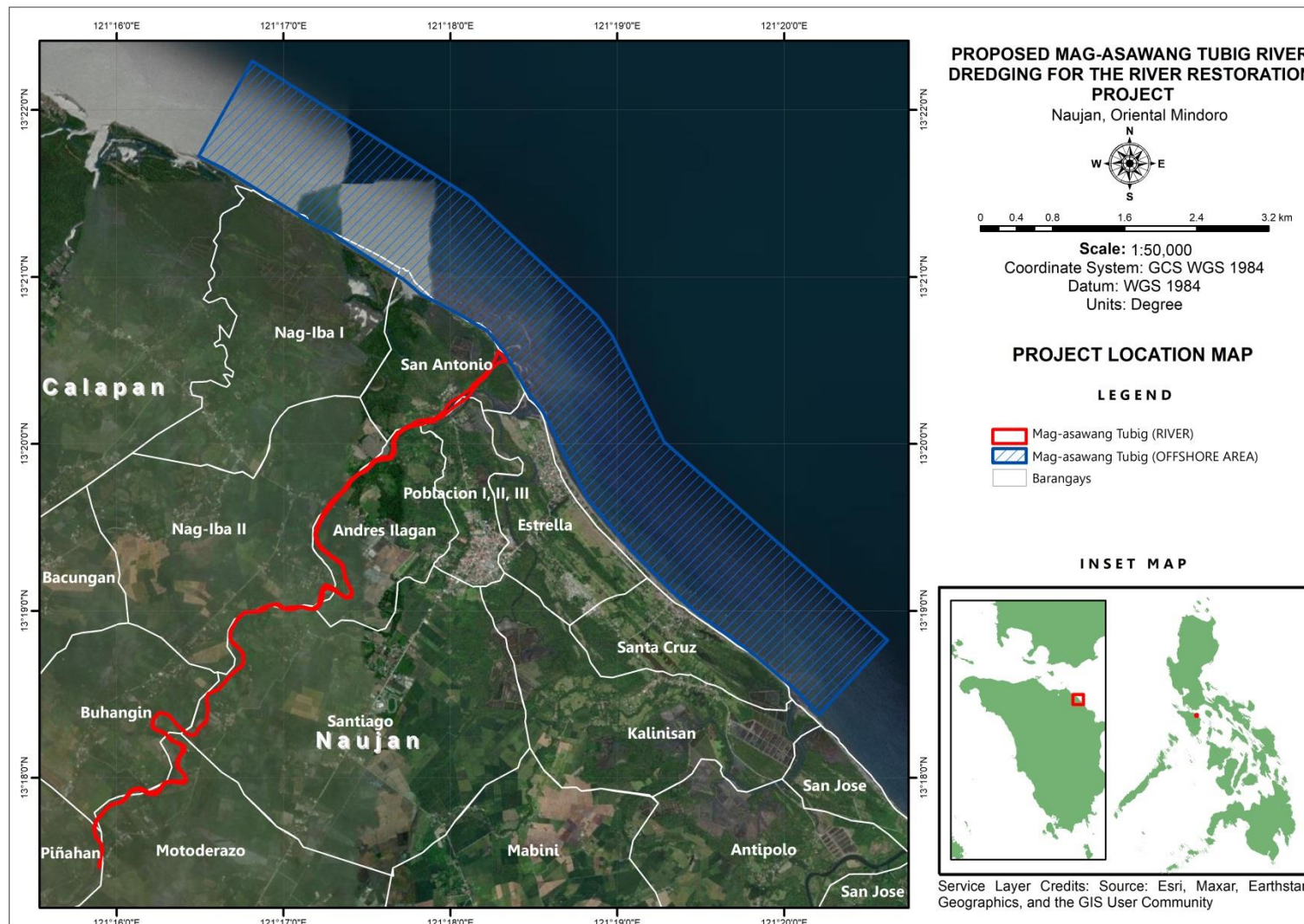


Figure PD-2. *Project Location Map*

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
 To be located at the Municipality of Naujan, Province of Oriental Mindoro

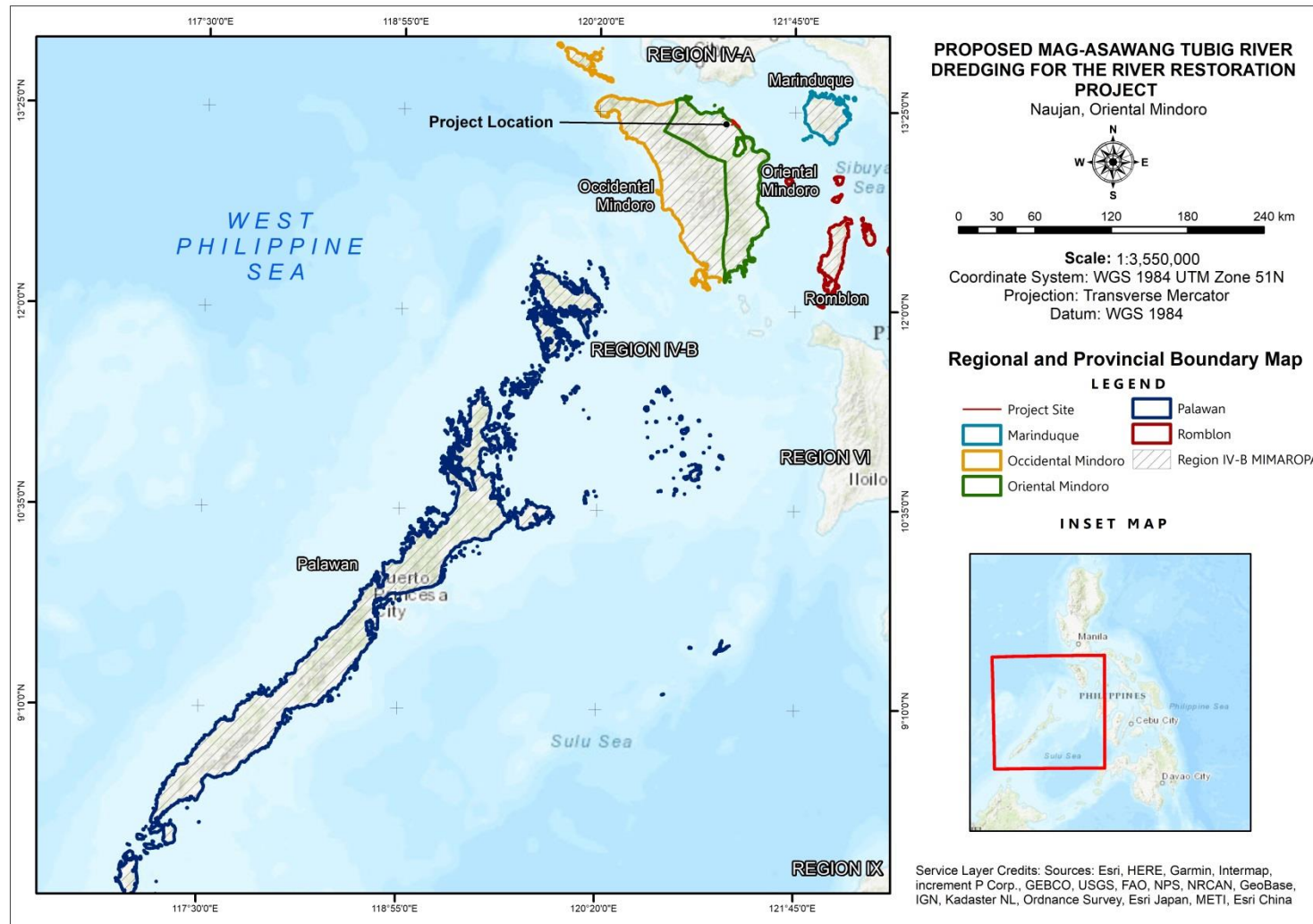


Figure PD-3. Map of Project Area vis-à-vis Regional and Provincial Boundaries

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PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
 To be located at the Municipality of Naujan, Province of Oriental Mindoro

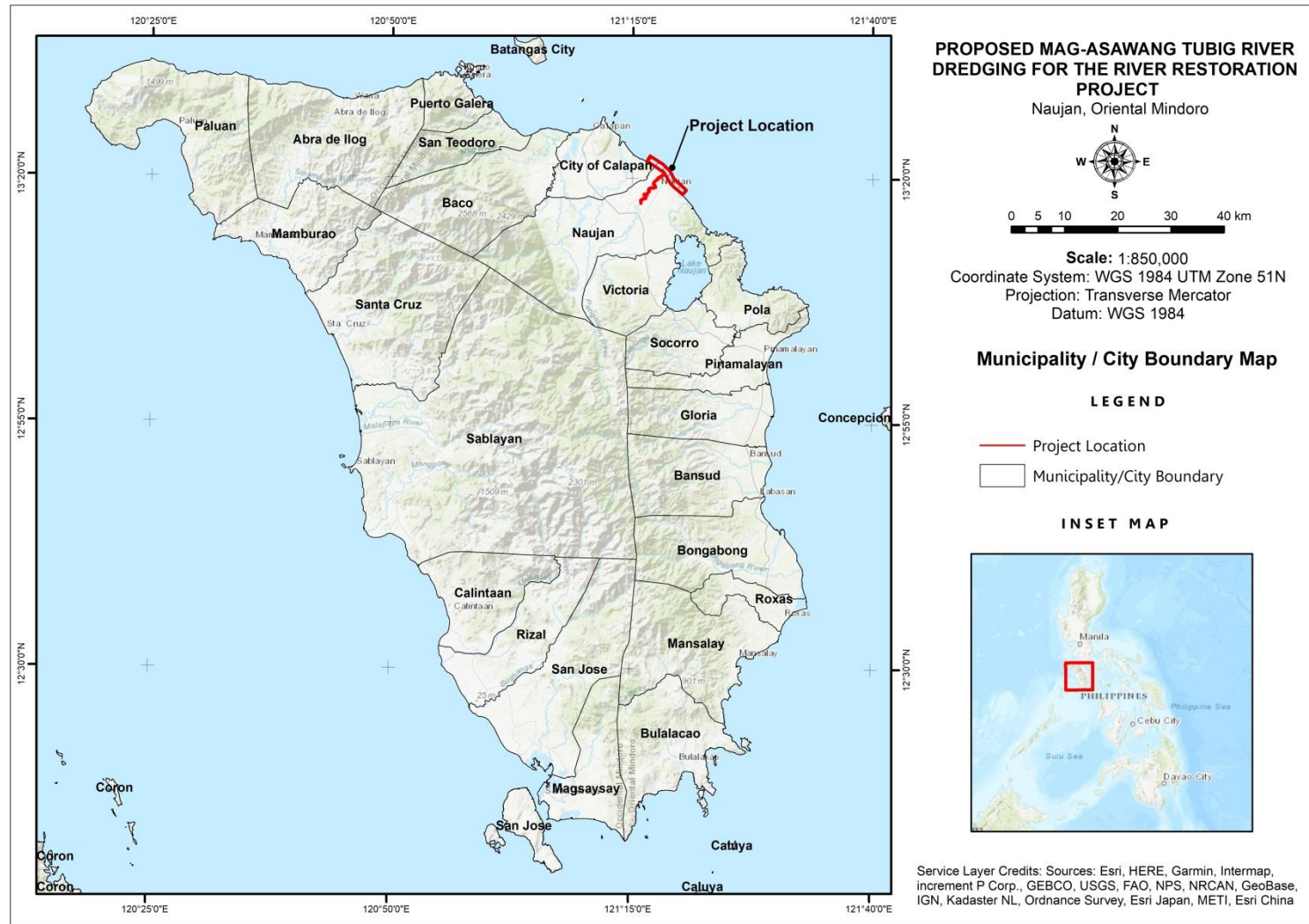


Figure PD-4. Map of Project Area vis-à-vis Municipal Boundaries

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PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
 To be located at the Municipality of Naujan, Province of Oriental Mindoro

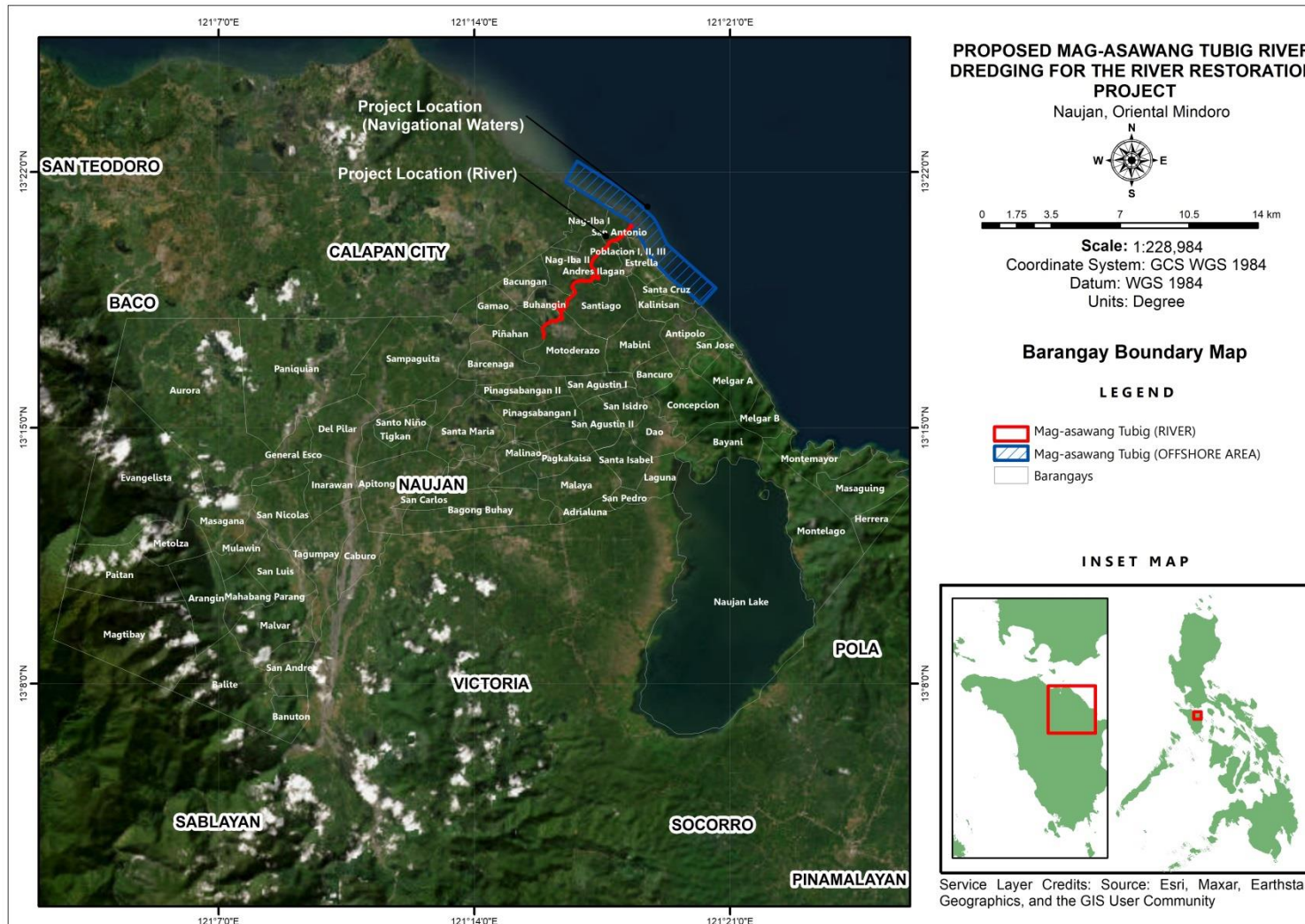


Figure PD-5. Map of Project Area vis-à-vis Barangay Boundaries

KEEN PEAK CORPORATION

PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

2.2 Accessibility

The Province of Oriental Mindoro is part of the MIMAROPA Region and is located approximately 140 kilometers directly south of Manila. From Manila, travel time going to Batangas Port takes up to 2 to 2.5 hours via private vehicle or bus. The island province is a one-hour fast craft ferry ride and two-to-three-hour roll-on-roll-off (RoRo) ferry ride from the International Port of Batangas which operates on a 24-hour basis. Calapan City, the seat of the Provincial Government, is the main gateway to the province. All the towns in the Province of Oriental Mindoro are connected through the Strong Republic Nautical Highway where public utility vehicles are available when one wants to transfer from one town to another.

The municipality of Naujan is accessible by sea from Batangas, Manila and Visayan Islands; by land from north and south sections of the province; and by air through private aircrafts. Alternative routes may be through Batangas-Calapan City-Sablayan, Batangas-Abra de Ilog- Sablayan - San Jose, and Manila-San Jose-Sablayan. Manila-Mamburao-Sablayan.

The inter-municipal shuttle-van plying the Calapan to the southern part of Oriental Mindoro route provides the long-distance transport requirement of Naujan. Jeepneys, on the other hand, service shorter inter-municipal as well as inter-barangay requirements. Intra-municipal movement is augmented by tricycles and motorcycles.

Mag-Asawang Tubig River is about 1 kilometers from the National Road and can be accessed via Barangay Estrella road. Tricycles and motorcycles are the common transportation used by the locals.

2.3 Protected Areas

NIPAS and RAMSAR

The identified protected area in proximity to the proposed project area is the Naujan Lake and Oriental Mindoro Watersheds (NL&OMW).

Naujan Lake and Oriental Mindoro Watersheds (NL&OMW) are situated in Oriental Mindoro province (Region 4B, MIMAROPA) and occupy a total area of 122,000 hectares. The Naujan Lake National Park, covering 21,655 hectares, was proclaimed a Protected Area in 1968 by virtue of Proc. No. 335. Naujan Lake is the 5th largest lake in the Philippines. It is recognized as a Ramsar Wetland of International Importance and part of the East Asian-Australasian Flyway for migratory birds. Meanwhile, the Oriental Mindoro watersheds include the Baco-Bucayao River, Bucayao River, Mag-asawang Tubig River and Pula River. These encompass the municipalities of Naujan, Victoria, Socorro, Pola, Baco, San Teodoro, and Calapan City.

NL&OMW have significant importance as natural habitat for endemic and endangered species, terrestrial and aquatic. The Philippine Duck is the flagship species of the Protected Area. The lake and watersheds also provide important ecosystem services to the island of Mindoro such as water for irrigation and hydro-power generation, wildlife habitat, flood protection, tourism, and other livelihood opportunities for nearby communities, including the indigenous Manyans in the area.

In 2010, the total forest cover in the priority site was at 2,400 hectares or 2% of the total area. However, threats of deforestation and continuous habitat degradation are prevalent, triggered by slash-and-burn farming, charcoal production, illegal tree cutting, and residential development. All of these contribute to forest degradation of at least 1,100 hectares a year.

The proposed Mag-Asawang Tubig River Dredging for the River Restoration Project is about 11.6 kilometers away from Naujan lake. Please refer to **Figure PD-6**.

2.4 Impact Areas

The identified EIA direct impact area (DIA) is the **7.224 -line kilometer, 17.18 hectares** of lower Mag-asawang Tubig River within barangays Estrella and San Antonio and **10.4 km** portion of offshore area for navigational lane. **Figures PD-7 to PD-9** show the impact area maps of the proposed project for land, water, and people, respectively.

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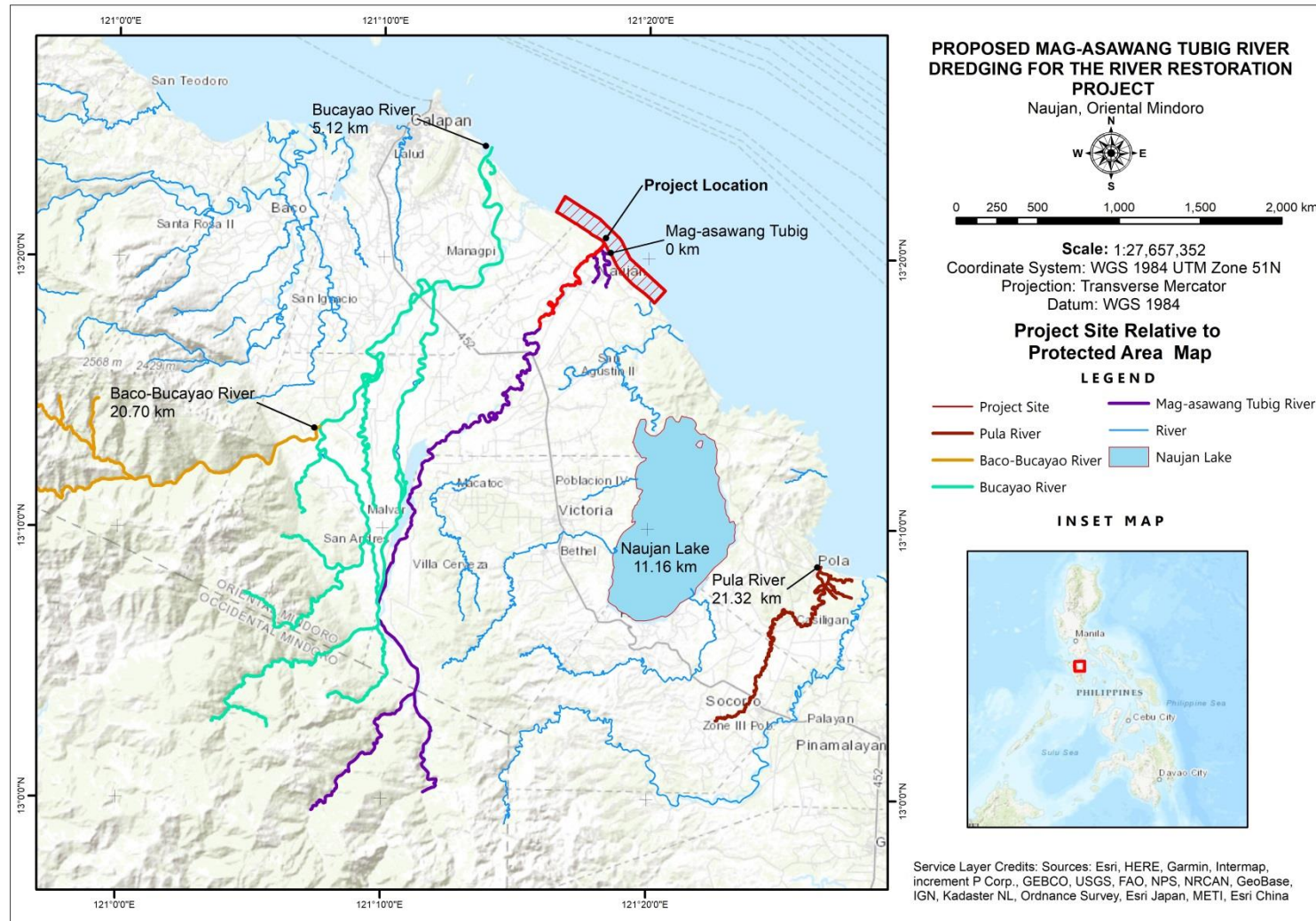


Figure PD-6. Relative Location of Project Area and Protected Areas

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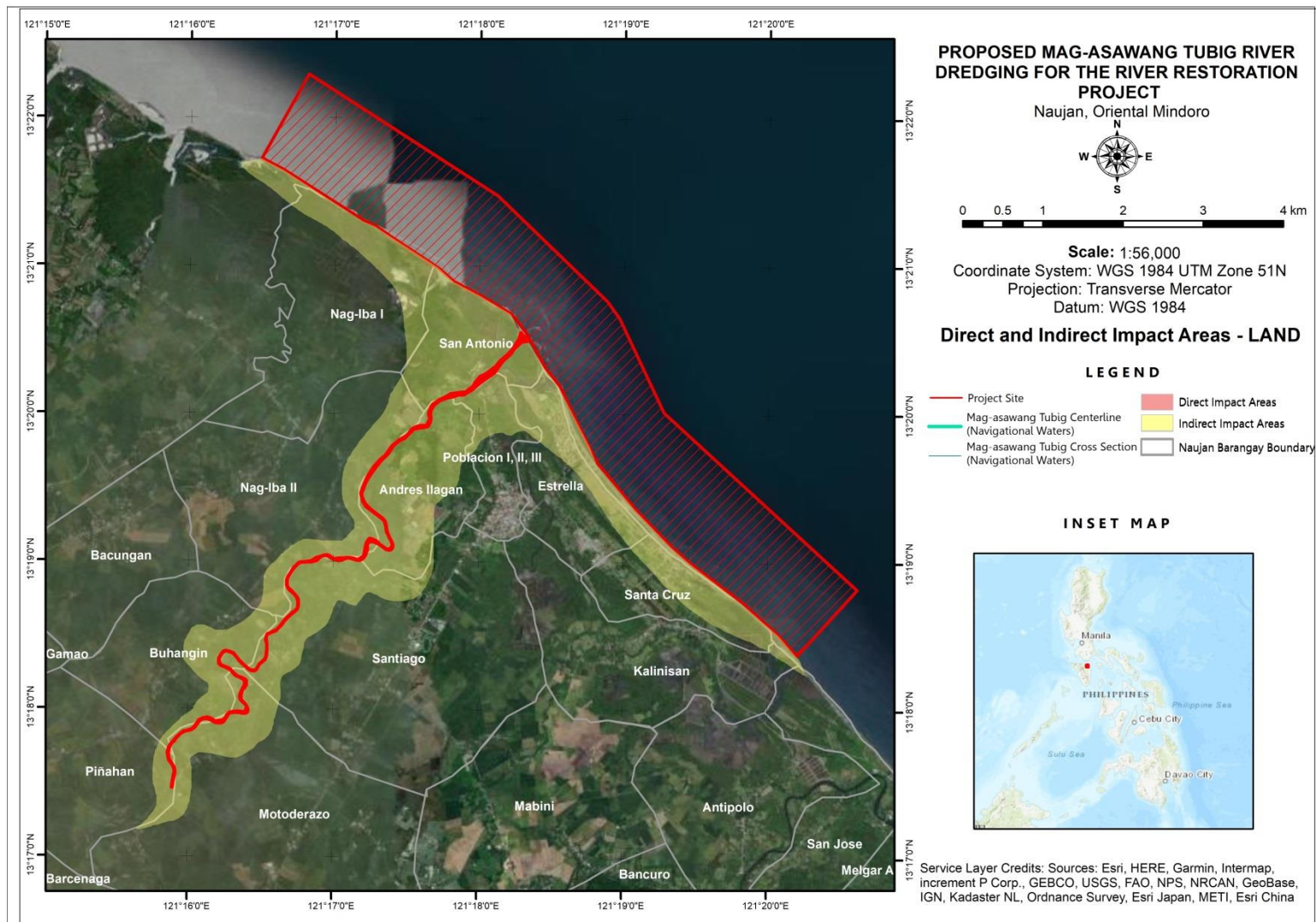


Figure PD-7. Map of Impact Areas – LAND

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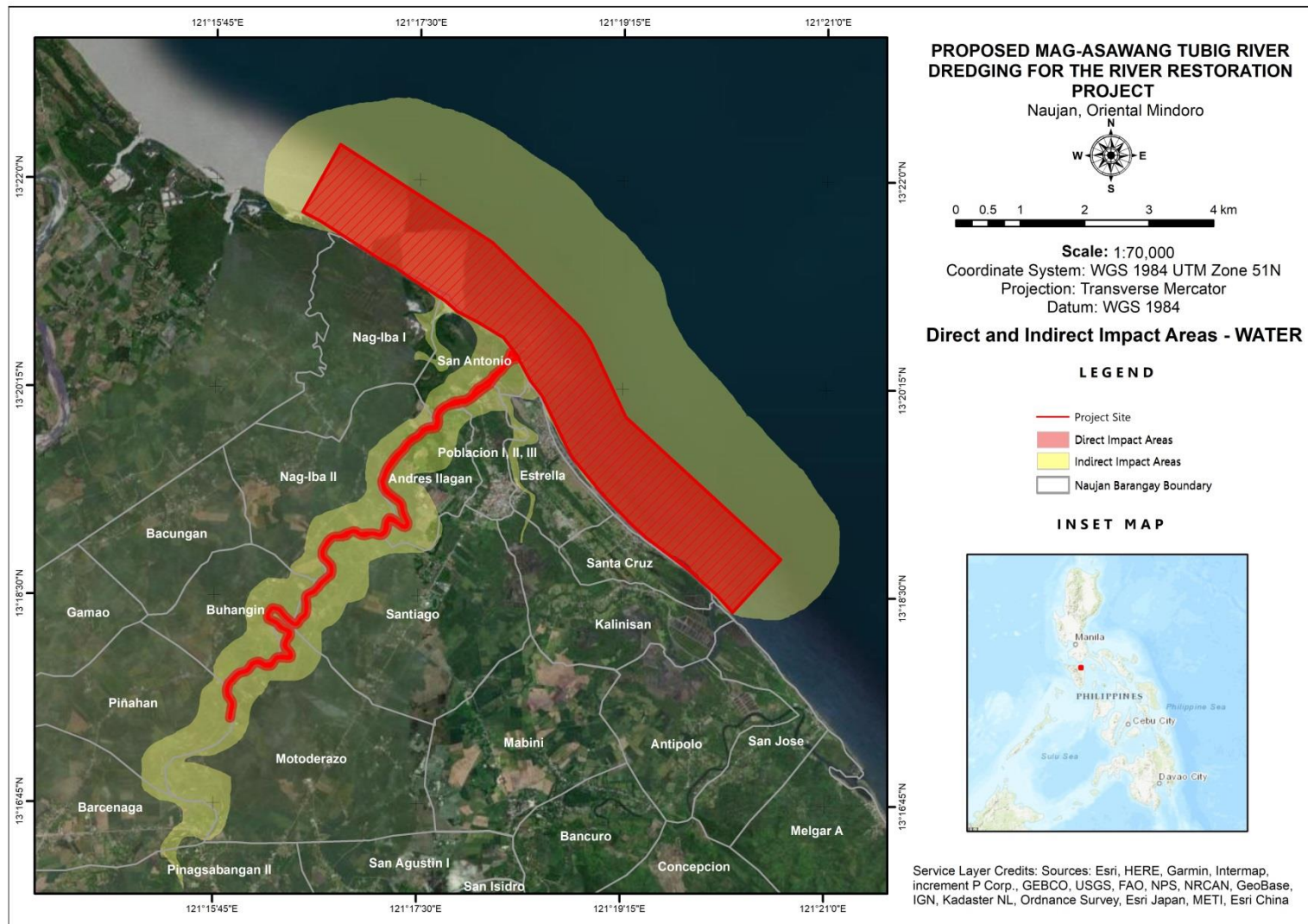


Figure PD-8. Map of Impact Areas – WATER

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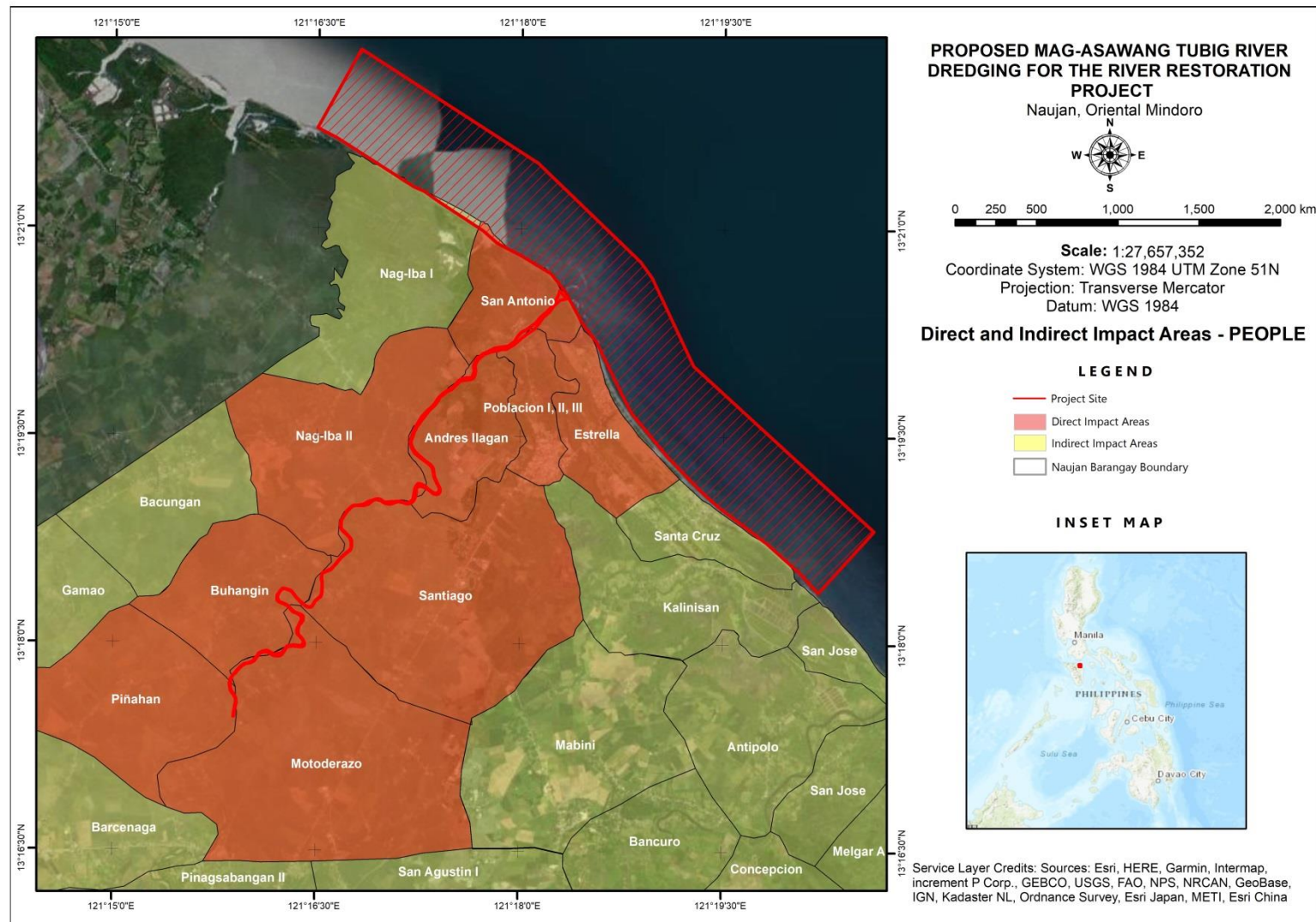


Figure PD-9. Map of Impact Areas – PEOPLE

KEEN PEAK CORPORATION

PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

3.0 PROJECT RATIONALE

This Project is in line with the government's efforts to mitigate flood risks in the province of Oriental Mindoro where river dredging was identified as a safety measure that can reduce water levels in flooding events.

The proposed dredging at Mag-asawang Tubig River will reduce siltation which reduces the flood-carrying capacity of the river. During heavy rains, flooding affects highly-populated areas of Naujan, Oriental Mindoro.

Generally, a large sized sandbar causes a larger bank erosion, the size of sandbar is usually measured by its wave length. Furthermore, the sandbar moves downward enduring floods, being accompanied by the movement of stream convergence point. The movement of stream convergence point brings about a new bank erosion at the downstream. Finally, the movement of sandbar causes bank erosion at every river section. However, if the movement of sandbar is restricted by some river morphological characteristics, bank protection works can be concentrated on some limited river sections.

Flood control is a basic government service. With the issuance of the DPWH Department Order 139, the Government provides guidelines for private sector participation in the delivery of flood control services, similar to the principle of harnessing private sector participation in the provision and operation of important basic services such as water, road infrastructures, and telecommunications.

Private sector participation in the delivery of basic services will enable the government to utilize its limited resources for other development purposes, while providing an important basic service which impacts on public safety, agricultural productivity, avoidance of losses to the economy from damage to infrastructure and private property due to regular flooding.

4.0 PROJECT ALTERNATIVES

4.1 Consequences of Not Proceeding with the Project or the "No Project Scenario".

No Project Scenario means to allow siltation/sedimentation to accumulate until the riverbed is completely choked, for the flooding and destruction of agricultural crops to continue, and for the risks to life and property to continue.

Not pursuing this Project will prolong the agony and increase risks to life and property sustained yearly by the people of Brgys. Estrella and San Antonio and neighboring affected areas. The high volume of sediment transported from the watershed catchment of Mag-asawang Tubig River to the sea will continue, the sediment accumulation in the riverbed will increase, and extreme rainfall volume in extreme Tropical Storms will become more frequent and Government expenditures for disaster preparedness, management, relief, rescue and repair of flood-damaged structures will increase.. Doing nothing about the situation costs the Philippine Government and the residents, annually.

To do nothing is not a wise option when there are alternatives being offered at no obligation to the Government.

5.0 PROJECT COMPONENTS

The key components, with corresponding details are presented in **Table PD-5**.

Table PD-5. Project Components

Component	Description
Dredging zone/basin	7.224 line kilometers located downstream of Mag-asawang Tubig Bridge to river mouth, totaling 17.18 hectares plus the 10.4 km for offshore areas
Buffer zone	10 meters minimum from the toe of existing river bank and 1km minimum from the existing bridge
Bridge protection measures	Ground sill geo-tube & armor rock bridge column protection and retaining walls at dredging basin

PD-22	Project Description Report for Scoping (PDS)
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KEEN PEAK CORPORATION

PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

Component	Description
Transport of dredged materials	Thru barge
Cost recovery through sale of dredged materials	Subject to appropriate government regulations
Support facilities	sheet pile, stockpile area, office, camp, motor pool with oil lubricants storage, etc.

Power Supply

The power supply for land-based equipment and the office camp will be sourced from existing power service provider (Oriental Mindoro Electric Cooperative, Inc – ORMECO) while the dredging vessel shall have its own power generating unit.

Fuel / Diesel Oil Requirement

The estimated diesel/oil requirement that will be needed to fuel the dredging equipment, accessories and other equipment is around 3,980 liters per day or 95,520 liters per month.

Fuel, oil and lubricants shall be supplied either by a local fuel station or private oil company and contained in DOE-MARINA approved containers and on-board dispensers. The containers will be regularly brought onboard the dredgers through the cargo barge. The dispensing mechanism shall be required to have a latch-on mechanism with the recipient fuel tank before these release petroleum fuel. The barge and dredger crew will be given by the Proponent updated orientation of petroleum fuel management (likewise waste management, safety and disaster response) protocols and these will form part of the Dredging Contractors' Health, Safety and Environmental Management Plan.

Water Supply

The dredging activity is not a water intensive activity.

The water requirement of the dredger and anchor barge will be transported in appropriate containers filled from permitted local sources and brought on-board by barge.

Water requirements of the crew are expected to be for normal human physical cleaning, drinking and cooking.

For land-based personnel and operations, the domestic water supply shall come from the local water concessionaire.

The drinking water needs of the crew, both onboard and on land shall be the purified water contained in 10-gallon canisters to be purchased from local suppliers.

6.0 PROCESS TECHNOLOGY

The dredging operation will involve simple, straightforward dredging and haul out of dredged materials. This process will be repetitive until the desired river bed elevation based on the Dredging Master Plan is attained. It is important to mention that dredging in itself is a mitigating process to address the perennial and increasing flooding problem in Mag-asawang Tubig River.

The dredging process will be implemented using heavy equipment such as a cutter suction dredger to initially break up a small channel at the river mouth to the silting / catchment basin, and to remove the deposits at the dredging channel in and the river mouth.

Going upstream to non-navigable portions, the backhoe-truck tandem shall be used in dredging.

The cargo barge hauls the dredged material to the designated and permitted disposal site/s.

KEEN PEAK CORPORATION

PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

7.0 PROJECT SIZE

The proposed Project is approximately 7.224 line km, 17.18 hectares for the river and 10.4 km for the offshore areas to cover the navigational lane. The estimated volume of materials to be extracted is 933,233.46 million tons per annum.

8.0 DEVELOPMENT PLAN, DESCRIPTION OF PROJECT PHASES AND CORRESPONDING TIMEFRAMES

8.1 Planning / Pre - Operation / Preparation Phase

Project planning, Pre-operation and Preparation phase will include the following activities, which are not expected to generate adverse environmental impacts. Project Preparation Phase will resume as soon as the Project Dredging Permit is approved.

1. Information, Education and Communication Activities
2. Securing agreements with other permit holders in the area, as necessary
3. Other Government Permitting and Clearance Requirements such as the LGU
4. Detailed Operations Planning
5. Detailed Safety Procedure Planning for Dredger and Anchor Boat
6. Detailed Contractor's Environmental Management Plan preparation.

The Project preparation phase may last from one (1) to three (3) months due to the numerous players involved.

8.2 Project Operation Phase

The Project implementation / operation activities are as follows:

1. Cutter Suction Dredger will open up the shoreline entry channel.
2. Cutter Suction Dredger will break-up and dredge from settling / catchment basin (maintain 120m x 120m x 4m operating area to provide provision for natural repose of materials at edges of basin).
3. Lay the geo-tube retaining walls for the silting / catchment basin in appropriate locations under the supervision of the Project Manager, to be undertaken in the dry season. A suitable mounted small crane will be needed to lay the geo-tube retaining walls. The geo-tube suppliers also provide engineers to oversee the installation. Necessary hoisting equipment is provided by the Proponent.
4. The pilot channel is dredged by an amphibious dredger and the backhoe/truck tandem according to the approved dredging plan. Dredged materials are piped by hydraulic means and/or trucks to the stockpile near the shoreline.
5. Repetitive removal of sediments overburden by dredger, conveyance of dredged materials to stockpile area and then to haul barges by hydraulic means and/or trucks, and haul out of dredged material by cargo barge to designated disposal site. The repetition continues until desired river bed elevation is attained.
6. The designated dredged material stockpile area shall have adequate facilities to handle the volume of materials without causing negative environmental effects.
7. The sediment volume to be dredged by the Project will only be limited to what is available in the pilot channel and the silting / catchment basin, which have to be maintained according to the approved design.
8. Bridge columns and flood control dike footings will be regularly fully reinforced with armor rock cover to protect against scouring forces as early as downward movement of river bed expose the substructures. Lowering of river bed is expected as it is how Patrick-Viga River will regain /attain flood handling capacity for a 50-year flood.
9. As necessary, the Proponent may organize additional dredging teams to maintain the dredging areas as per specified dimensions, to facilitate continuous flow and removal of the obstructing materials.

The Operation Phase is expected to last at least five (5) years at an average annual extraction rate of **1 million** cubic meters (1) due to the volume of silt that need to be removed to restore the flood carrying capacity of Mag-asawang Tubig River and (2) to consider the extraction of other private sector partners in flood control.

KEEN PEAK CORPORATION

PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT

To be located at the Municipality of Naujan, Province of Oriental Mindoro

8.3 Project Decommissioning and Abandonment

The following conditions will be met by the Project to enable it to safely relinquish the area and be released from accountability for the Project site:

- The unobstructed and efficient surface flow in Mag-asawang Tubig River is observed, the riverbed elevation enables it to handle a storm with longer term return period such as a 50-year ARI storm as approved by the DPWH.
- A buffer of at least 10 meters minimum at both banks of Mag-asawang Tubig River is maintained.
- All Project structures, equipment and the geo-tube retaining walls are removed from the Project site
- All social commitments made by the Proponent, if any, have been fulfilled.
- The Project office site shall have been cleared of debris and hazardous materials;
- No complaint on damage to property against the Proponent remains unresolved.

9.0 MANPOWER REQUIREMENT

The project will be requiring a total manpower of 51 as presented in the table below.

The Company will hire technical and skilled workers for dredging operations. Nonetheless, the company will prioritize hiring of local residents in its operation. It will ensure that the requirements of the Labor Code of the Philippines will be met in determining the compensation and workplace concerns including wages, benefits and workplace health and safety.

Table PD-6. *Manpower Requirement*

Position	Number of Personnel
Resident Manager	1
Production Supervisor	2
Maintenance Supervisor	1
Deck Officer	2
Engine Officer	2
Vessel Crew	6
Heavy Equipment Operator	6
Dump Truck Driver	4
Water Truck Driver	2
Spotter	4
Mechanic/Welder/Auto-Electrician	4
Gen Set Operator/Electrician	2
Administrative Officer	1
Accounting Clerk/Cashier	1
Mine Environmental Protection and Enhancement Officer	1
Community Relations Officer	1
Safety Officer/Pollution Control Officer	1
Office Clerk	1
Warehouseman	2
Service Driver	1
Security Guard	6
Total	51

10.0 INDICATIVE PROJECT INVESTMENT COST

The estimated project investment cost is P77,110,400 (**estimate**)

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
 To be located at the Municipality of Naujan, Province of Oriental Mindoro

11.0 IMPLEMENTATION SCHEDULE

Project Phases	Year																											
	1				2				3				4				5				6				7			
	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4
Planning/ Pre-operations																												
Operation																												
Decommissioning																												

12.0 PHOTOS OF THE PROJECT SITE



KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
To be located at the Municipality of Naujan, Province of Oriental Mindoro

Table PD-7. *PRELIMINARY IDENTIFIED ENVIRONMENTAL ASPECTS FOR EACH ALTERNATIVE*

Project Activity which will likely Impact the Environmental Component	Environmental Component Likely to be Affected	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Responsible Entity
PRE-CONSTRUCTION PHASE				
• Staking of Dredging Limits & Location of geo-tubes / protection measures	LAND	None expected	Not Applicable	
	WATER	Slight resuspension of suspended solids due to ground staking	None necessary	
	AIR	None expected	Not Applicable	
	PEOPLE	<ul style="list-style-type: none"> Perceived conflict with other sand and gravel interest in Mag-asawang Tubig River Fears and apprehensions of the people regarding project environmental impacts Potential displacement of workers expecting employment in other sand and gravel quarry projects along Mag-asawang Tubig River. 	Conduct of community-based IEC to discuss project activities, impacts, co-existing with other sand and gravel quarry interests mitigating measures employment opportunities and areas set aside for small scale.	KPC
OPERATIONS PHASE				
Construction of support facilities; like site office;	LAND	Bank erosion	<ul style="list-style-type: none"> Easement of at least 10 meters minimum between bank and dredging operations 	KPC
		Waste management	All operating units to have respective waste management facilities (segregated garbage, waste water receptacles, all subject to proper disposal.	KPC
	WATER	Change in river hydrology	Maintain a central pilot channel to guide stream flow	KPC
		Pollution of marine waters	<ul style="list-style-type: none"> Confine dredging to a basin with barrier to the sea 	KPC

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
To be located at the Municipality of Naujan, Province of Oriental Mindoro

Project Activity which will likely Impact the Environmental Component	Environmental Component Likely to be Affected	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Responsible Entity
			<ul style="list-style-type: none"> Allow accumulated sediments to rebuild the equipment entrance channel to lower Mag-asawang Tubig River 	
		Oil spills from dredging and hauling equipment	<ul style="list-style-type: none"> Regular equipment maintenance outside of river channel Refueling by appropriate dispensers (latch-lock between dispenser and receiving fuel tank) Prepare belt oil skimmer for oil spill emergency 	KPC
		Contamination from equipment and human waste water	<ul style="list-style-type: none"> Provision of portalet in water- operating vessels Prevention of disposal of un-or improperly treated wastewater to water environment 	KPC
		Increase turbidity in dredging areas	<ul style="list-style-type: none"> Dredging basin serves as settling pond 	KPC
	AIR	Greenhouse gas emissions and particulates from operating equipment and transport vehicles	<ul style="list-style-type: none"> Install catalytic converters for SOx & NOx and particulate filters to operating equipment including genset Opt for solar -powered equipment for site office 	KPC
		Increase in noise	<ul style="list-style-type: none"> Choose less noisy equipment or cover noisy equipment with suitable noise reducing sheets 	KPC
	PEOPLE	Conflict with other interest in sand and gravel quarry	<ul style="list-style-type: none"> Quarterly meetings to communicate and resolve conflicts 	KPC
		Solid and liquid waste management issues	Solid waste management and provision of sanitary facilities.	KPC
		Equipment and personnel safety during rainy season	<ul style="list-style-type: none"> Use amphibious dredger, define quick shelter route in event of strong rain Set up barometer and anemometer at site, provide trained person to monitor weather and all-weather communication equipment with all operators. Provide training for adaptation of working procedures and protocol under all weather conditions 	KPC

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
To be located at the Municipality of Naujan, Province of Oriental Mindoro

Project Activity which will likely Impact the Environmental Component	Environmental Component Likely to be Affected	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Responsible Entity
		Generation of employment	Able and trainable local residents will be given first priority in hiring, posting of notice at LGU	KPC
		Increase in population due to employment opportunities	Hiring of non-residents will be limited to highly skilled, trained or confidential staff	P KPC
		Occupational safety and public health	<ul style="list-style-type: none">Occupational safety, health and work environmental management orientation will be conducted with emphasis on environmental compliance.Workers will be required to do Protective Personal Equipment while at work.Warning and safety signs will be provided where needed	KPC
		Fair wages and laborers benefit	Project will provide employees’ wages and benefits as prescribed by law	KPC
DECOMMISSIONING AND ABANDONMENT PHASE				
Removal / dismantling of equipment and infrastructures	LAND	Possible stockpiling of waste materials at riverbanks	All waste materials will be hauled out by hauling company	KPC
	WATER	Increase in turbidity due to sediment resuspension	Maintain sediment barrier until sediment transport is below the limit for Class C	KPC
		Possible spillages of oil lubricants, waste water	All waste fluids will be hauled out through accredited 3rd party hazardous waste treater	KPC
	AIR	Greenhouse Gas particulate emissions from operating equipment	Provide catalytic converters and particulate filters for petroleum-fueled equipment	KPC
	PEOPLE	Safety issue aesthetic / visual impact	<ul style="list-style-type: none">All equipment will be hauled out Area will be tested for and must attain environmental compliance (air quality, water quality, absence of hazardous materials and unsafe formations)	KPC

KEEN PEAK CORPORATION
PROPOSED MAG-ASAWANG TUBIG RIVER DREDGING FOR THE RESTORATION PROJECT
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Project Activity which will likely Impact the Environmental Component	Environmental Component Likely to be Affected	Potential Impact	Options for Prevention or Mitigation* or Enhancement	Responsible Entity
			<ul style="list-style-type: none"> Dredging basin will be replenished by natural sediment transport; river surface flow will be restored Area will be left clear of all structures. Beach side will be levelled for aesthetic view 	
		Possible health and safety issues regarding handling of hazardous materials	<ul style="list-style-type: none"> Personnel will be trained in handling used oil; Use of PPE will be mandatory. a 3rd party treater will be contracted to haul out and treat all hazardous materials (used oil, spent batteries, busted light bulbs). 	KPC
		Unemployment	<ul style="list-style-type: none"> Agreement with LGU on the use of local mineral excise tax for livelihood development; Participatory planning for livelihood projects to start self-sustaining livelihood preparation and implementation in due course. 	CSR