



GOVERNMENT OF THE PEOPLE'S REPUBLIC OF BANGLADESH

MINISTRY OF WATER RESOURCES

BANGLADESH WATER DEVELOPMENT BOARD

COASTAL EMBANKMENT IMPROVEMENT PROJECT PHASE-1 (CEIP-1)

Report on Riverbank & Slope Protection works

(GPS Survey of the Slope Protection and Riverbank Protection Works of 4 Polders, Package 01)

Submitted to:

Project Management Unit

CEIP-1

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in association with BETS Consulting Services, Ltd.

Third Party M&E Consultants for Overall Project Implementation

(CONTRACT PACKAGE NO. CEIP-1/ C2/S3)



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1.0 Objective

To find out the location of the Slope Protection and the Riverbank Protection Works in 4 Polders of Package.

2.0 Methodology

- Multiple GPS coordinates have been taken by handheld GPS machine in each SPW and BPW
- GPS coordinate data has been procdd in QGIS software.
- Using geospatial tools, the length of the SPW and BPW have been measured

3.0 Finding of the Survey

- In many cases, the chainage-wise length of the SPW and the BPW didn't match with the ground, and also the length of the SPW and BPW didn't match with the RDPP.

4.0 Recommendation

M&E team has surveyed by handheld GPS of the SPW and the BPW, and the precision level of handheld GPS is +- 10m. It the strongly recommended that to get the length of the SPW and BPW precisely, using RTK-GPS and Total Station are a must.

5.0 Summary of the Survey

5.1 Slope Protection Works

5.1.1 Polder # 32

No.	As Per RDPP			GPS Surveyed by M&E	Chainage Wise Works at Ground
	Starting Chainage (Km)	Ending Chainage (Km)	Length in Km	Length in	
1	4.8	5.5	0.700	0.705	
2	7.1	7.7	0.600	0.5997	
3	9	10	1.000	1.07	
4	15	16	1.000	1.01	
Total Length (Km) =			3.300		

5.1.2 Polder # 33

No.	As Per RDPP			GPS Surveyed by M&E	Chainage Wise Works at Ground
	Starting Chainage (Km)	Ending Chainage (Km)	Length in KM	Length in Km	
1	28.5	28.6	0.100	0.900	
2	41.734	43.934	2.200	2.198	
3	44.03	44.07	0.040	0.036	
4	45	45.11	0.110	0.108	
5	45.3	45.465	0.165	0.261	Not matched
6	45.465	45.565	0.100	0.392	Not matched
7	45.6	46.6	1.000	0.493	Not matched
8	47.87	48.17	0.300	0.3	
Total (Km)			4.015		

5.1.3 Polder # 35/1

No.	As Per RDPP			GPS Surveyed by M&E	Chainage Wise Works at Ground
	Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	Length in Km	
1	2.023	2.300	0.277	1.110	
2	2.300	3.300	1.000		
3	3.800	4.573	0.773	0.248	
4	5.117	5.300	0.183	0.300	
5	5.300	5.567	0.267	0.451	
6	8.000	8.750	0.750	0.75	
7	13.500	14.000	0.500	3.611	
8	14.000	17.000	3.000		
9	20.500	23.500	3.000	4.871	
10	23.500	25.500	2.000		
Total(Km)			11.750		

5.1.4 Polder # 35/3

No.	As Per RDPP			GPS Surveyed by M&E	Chainage Wise Works at Ground
	Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	Length (Km)	
1	39.1	40	0.900	0.690	
Total (Km)					

5.2 Riverbank Protection Works

5.2.1 Polder # 32

No.	As Per RDPP			GPS Surveyed by M&E	Chainage Wise Works at Ground
	Starting Chainage (Km)	Ending Chainage (Km)	Length in Km	Length in Km	
1	20.493	21.243	0.750	Length not found	
2	25.450	25.950	0.500	Length not found	
3	48.824	49.574	0.750	0.787	
4	7.500	8.500	1.000	Length not found	
5	14.500	15.000	0.500	Length not found	Not Matched
6	16.400	16.800	0.400	Length not found	Not Matched
7	18.600	19.200	0.600	Length not found	
8	30.700	31.100	0.400	Length not found	Not Matched
9	44.800	45.900	1.100	Length not found	Not Matched
Total (Km) =			6.000		

5.2.2 Polder # 33

No.	As Per RDPP			GPS Surveyed by M&E	Chainage Wise Works at Ground
	Starting Chainage (Km)	Ending Chainage (Km)	Length in Km	Length in Km	
1	0	0.2	0.200	0.142	
2	0.99	1.39	0.400	0.39	
3	17.36	17.86	0.500	0.409	
4	21.58	21.88	0.300	0.203	
Total (Km)			1.400		

5.2.3 Polder # 35/1

No.	As Per RDPP			GPS Surveyed by M&E	Chainage Wise Works at Ground
	Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	Length in Km	
1	0.300	0.600	0.300	No length found	
2	3.300	3.900	0.600	0.6	
Total (Km) =			0.900		

5.2.4 Polder # 35/3

No.	As Per RDPP			GPS Surveyed by M&E	Chainage Wise Works at Ground
	Starting Chainage (Km)	Ending Chainage (Km)	Length in Km	Length in Km	
1	36.22	36.37	0.150	0.15	
Total Length (Km) =			0.150		

Annexures -1: Details of Riverbank & Slope Protection works

Annex 2- Polder # 32: Slope Protection Works

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
4.8	5.5	0.700	22.509073	89.430043	0.705
			22.509121	89.428061	
			22.50483	89.428144	



Photograph-1



Photograph-2

Slope Protection Works shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
7.1	7.7	0.600	22.51304	89.443882	0.5997
			22.512737	89.442429	
			22.51119	89.43843	

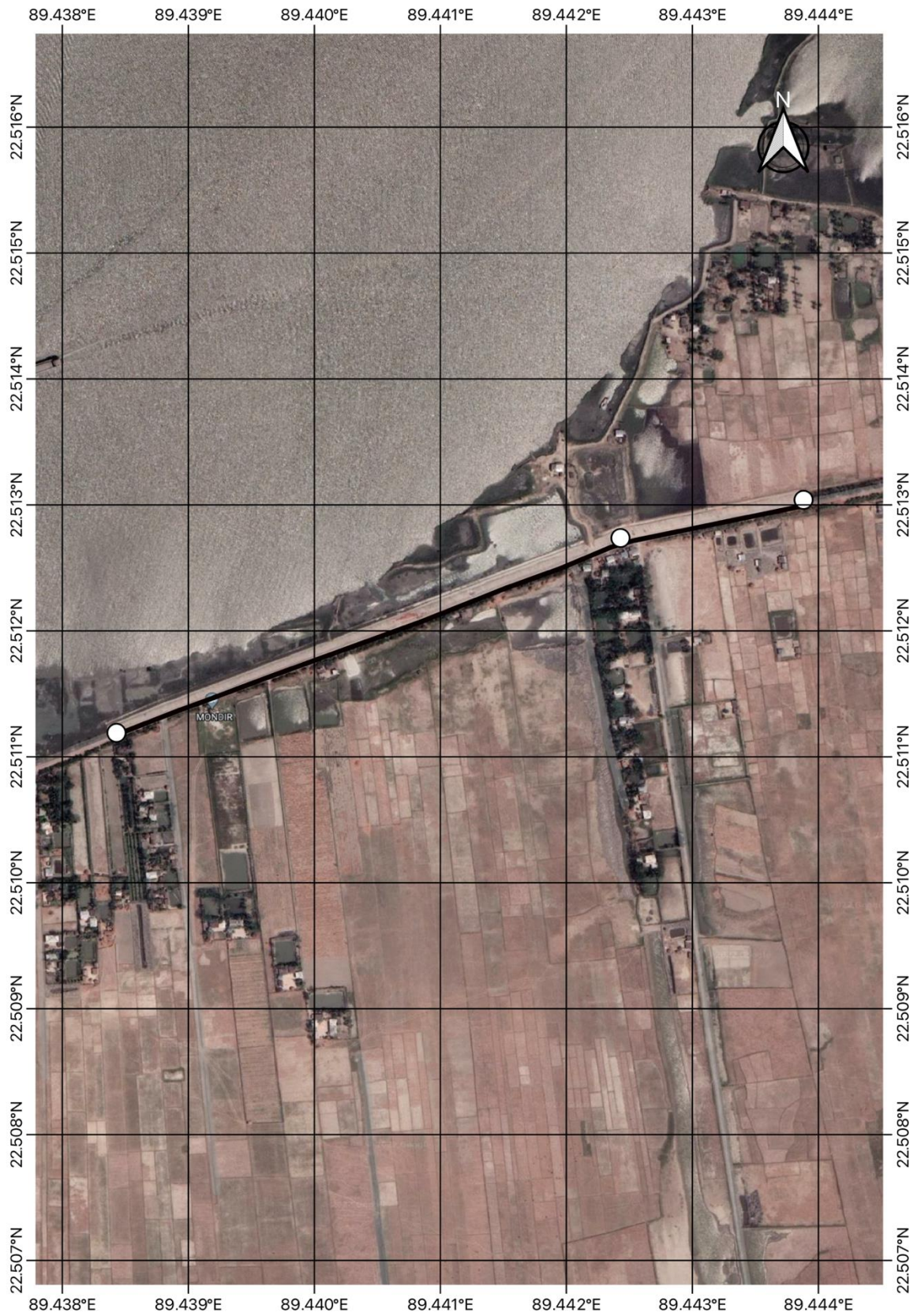


Photograph-1



Photograph-2

Slope Protection Works shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
9	10	1.000	22.530681	89.445679	1.070
			22.526643	89.445057	
			22.524462	89.445332	
			22.522182	89.446620	



Photograph-1



Photograph-2

Slope Protection Works Shown on Satellite image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
15	16	1.000	22.562946	89.466907	1.01
			22.565571	89.461891	
			22.565798	89.457976	



Photograph-1



Photograph-2

Slope Protection Works shown on Satellite Image



Annex 3- Polder # 32: Riverbank protection Works

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
20.493	21.243	0.750	22.565999	89.495332	No length found due to unidentified the Blocks
			22.568373	89.495299	
			22.568621	89.493905	
			22.571106	89.491617	
			22.574980	89.490118	
Remarks: It was founded during the low tidal period (note: starting point and endpoint could be not identified)					



Photograph-1



Photograph-2

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
25.450	25.950	0.500	22.536258	89.483637	No length found due to unidentified the Blocks
			22.539243	89.480223	
Remarks: It was founded during the low tidal period (note: starting point and endpoint could be not identified)					



Photograph-1



Photograph-2

As Per RDPP	As per Field Condition
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Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
48.824	49.574	750	22.466083	89.434849	0.787549
			22.464789	89.434757	
			22.460888	89.435335	
			22.459503	89.435777	

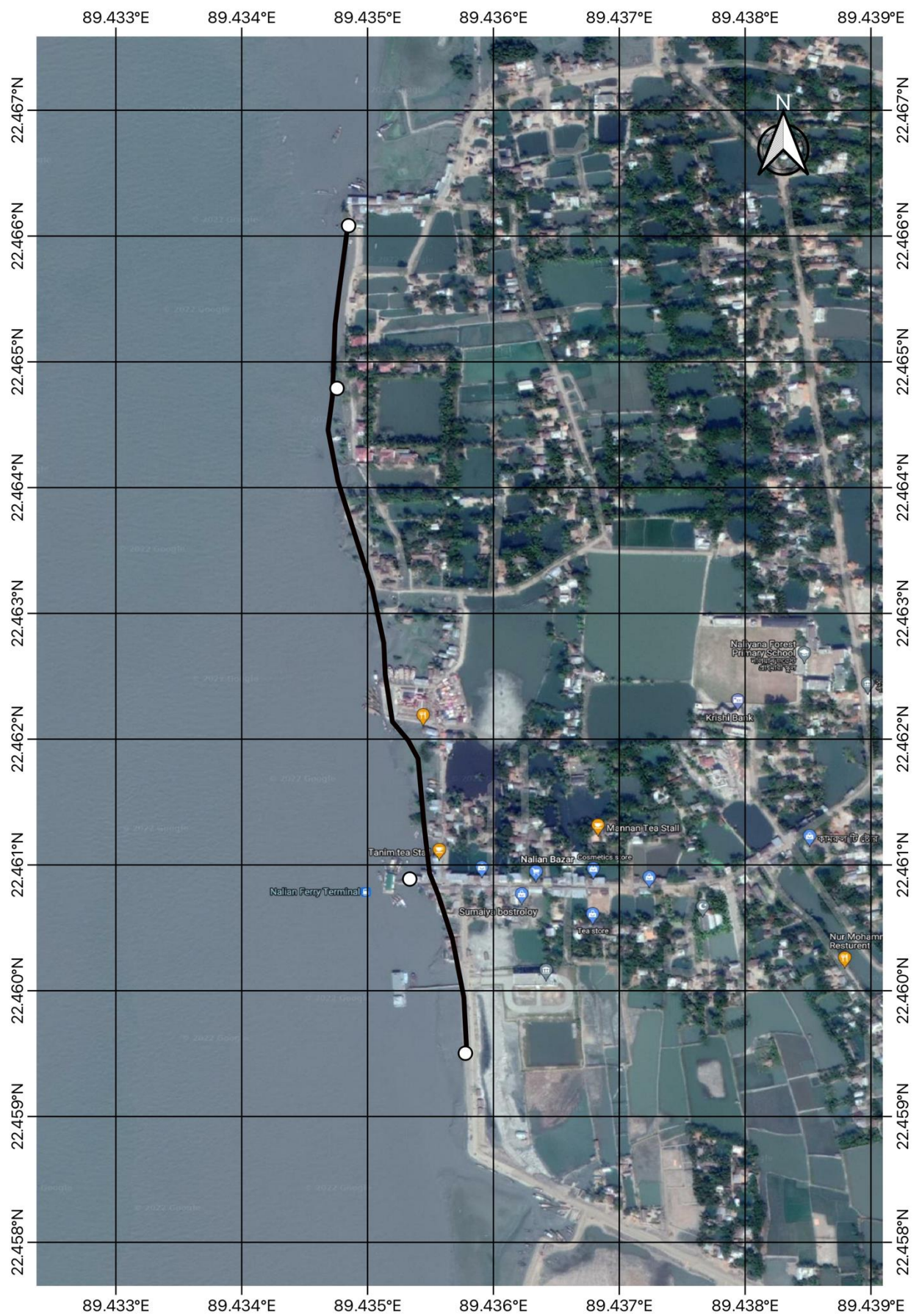


Photograph-1



Photograph-2

Slope Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
7.500	8.500	1.000	22.513342	89.441745	No length found due to unidentified the Blocks
Remarks: It could not be identified					



Photograph-1



Photograph-2

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
14.500	15.000	0.500	22.566512	89.457906	No length found due to unidentified the Blocks

Remarks: It could not be identified



Photograph-1



Photograph-2

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
16.400	16.800	0.400	22.563073	89.469717	No length found due to unidentified the Blocks
Remarks: It could not be identified					



Photograph-1



Photograph-2

As Per RDPP		As per Field Condition			
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
18.600	19.200	0.600	22.567224	89.477088	No length found due to unidentified the Blocks
Remarks: It could not be identified					



Photograph-1



Photograph-2

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
30.700	31.100	0.400	22.426083	89.437277	No length found due to unidentified the Blocks
Remarks: It could not be identified					



Photograph-1



Photograph-2

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
44.800	45.900	1.100	22.502983	89.491229	No length found due to unidentified the Blocks
Remarks: It could not be identified (around the 1 km), Note: local people were said that this place did not work					



Photograph-1



Photograph-2

Annex 4- Polder # 33: Slope Protection Works

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
28.5	28.6	0.100	22.579354	89.515043	0.900
			22.580049	89.515359	



Photograph-1



Photograph-2

Slope Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
41.734	43.934	2.200	22.525699	89.571976	2.198
			22.521463	89.573901	
			22.516893	89.575472	
			22.513545	89.576835	
			22.506896	89.578163	

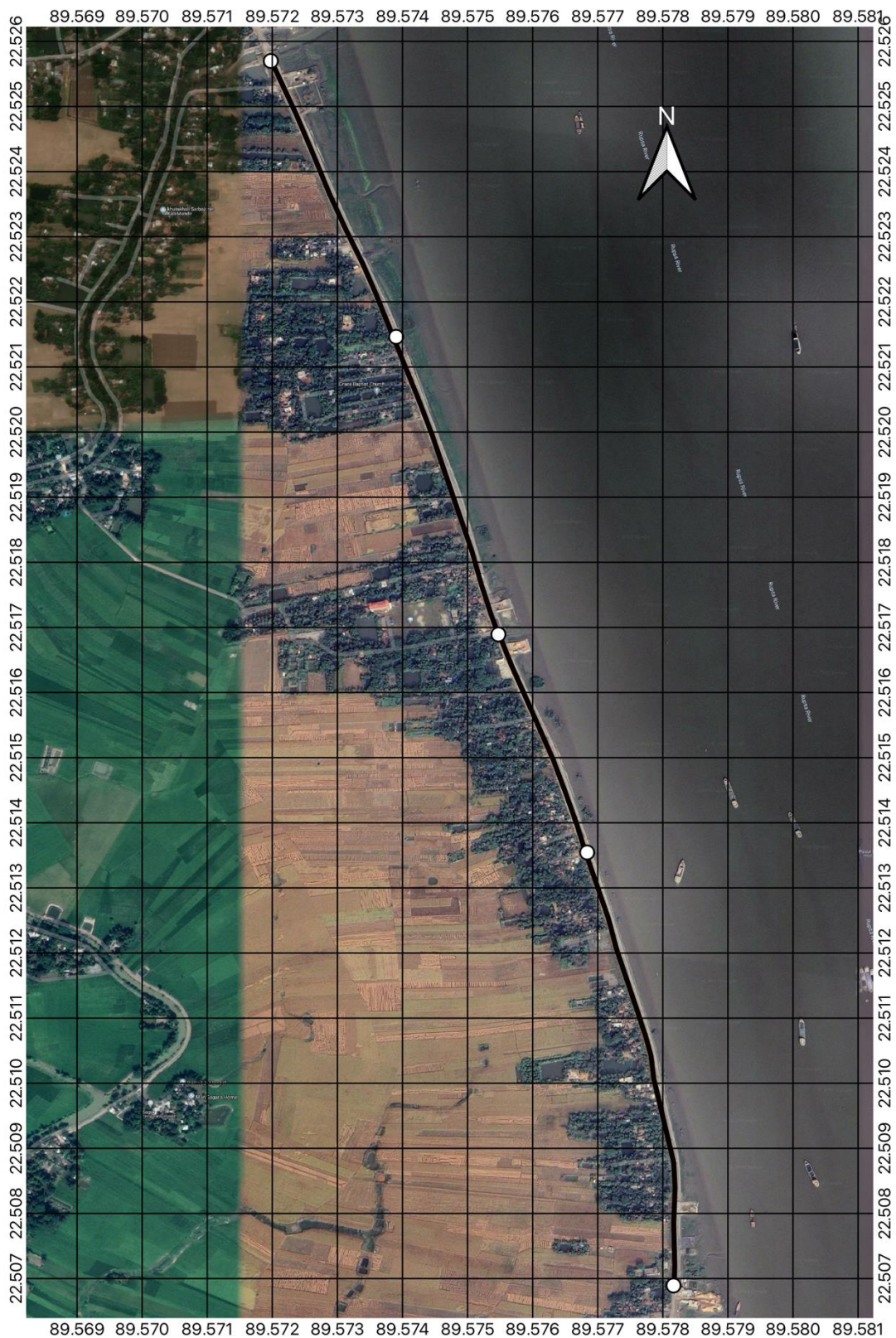


Photograph-1



Photograph-2

Slope Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate Latitude	longitude	Length Calculate by ArcGIS Software (Km)
44.03	44.07	0.040	22.50604	89.578128	0.036
			22.50571	89.57806	



Phoograph-1



Phoopraph-2

Slope Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate Latitude	longitude	Length Calculate by ArcGIS Software (Km)
45	45.11	0.110	22.497571	89.580441	0.108
			22.496603	89.580615	



Phoograph-1



Phoograph-2

Slope Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate Latitude	longitude	Length Calculate by ArcGIS Software (Km)
45.3	45.465	0.165	22.494823	89.58084	0.2613
			22.49253	89.581074	



Phoograph-1



Phoograph-2

Slope Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate Latitude	longitude	Length Calculate by ArcGIS Software (Km)
45.465	45.565	0.100	22.492187	89.581062	0.392
			22.488648	89.581062	

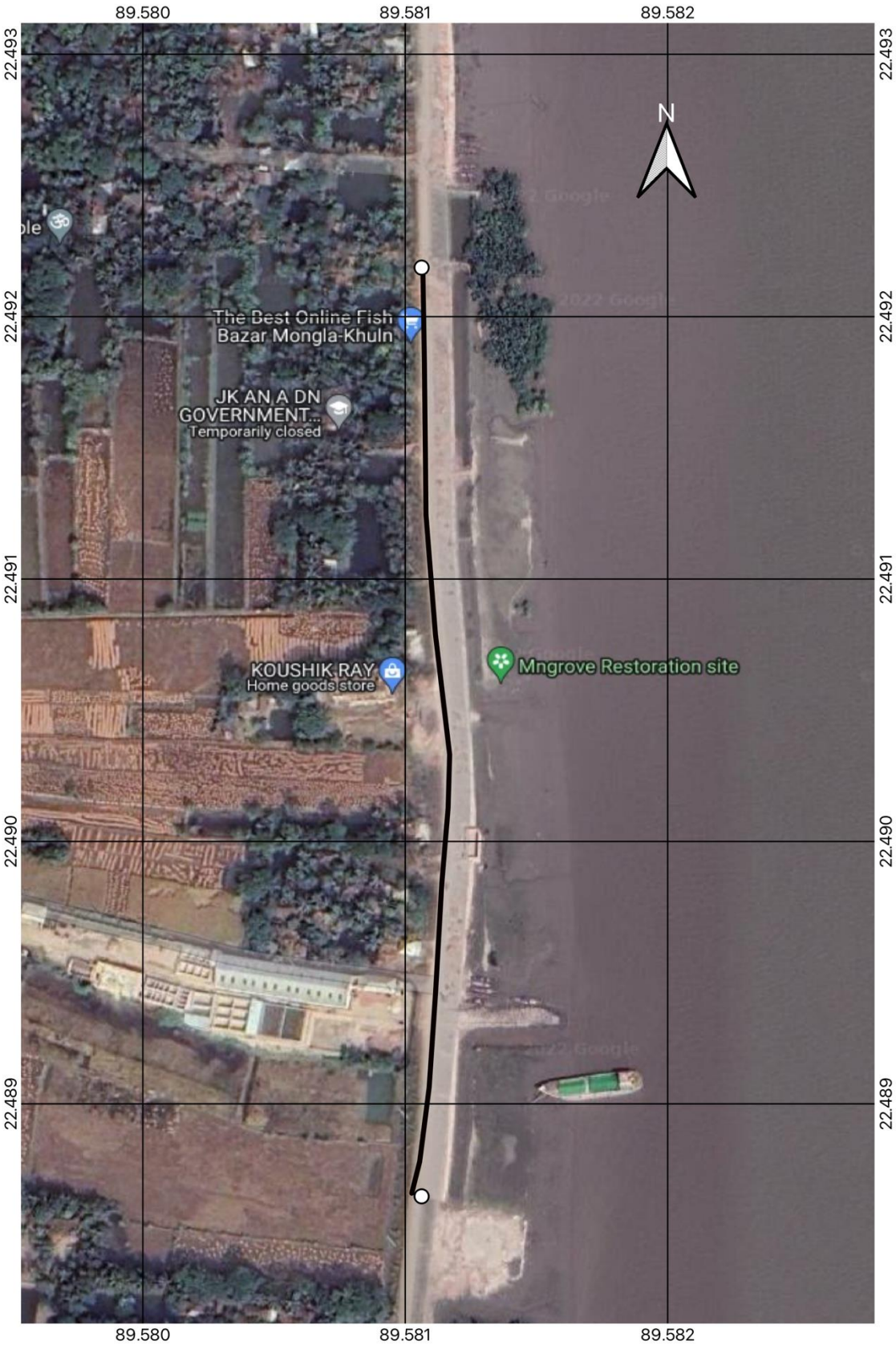


Phoograph-1



Phoograph-2

Slope Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate Latitude	longitude	Length Calculate by ArcGIS Software (Km)
45.6	46.6	1.000	22.488087	89.580995	0.493
			22.485234	89.580988	
			22.483597	89.580967	



Photograph-1



Photograph-2

Slope Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate Latitude	longitude	Length Calculate by ArcGIS Software (Km)
47.87	48.17	0.300	22.471824	89.582513	0.300
			22.469192	89.583101	



Phoograph-1



Phoograph-2

Slope Protection Works Shown on Satellite Image



Annex 5- Polder # 33: Riverbank Protection Works

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
0	0.2	0.200	22.458936	89.584051	0.142
			22.457751	89.583666	



Phoograph-2



Phoograph-2

Riverbank Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
0.99	1.39	0.400	22.450362	89.580988	0.390
			22.449192	89.578859	
			22.448259	89.578376	



Phoograph-1



Phoograph-2

Riverbank Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
17.36	17.86	0.500	22.497779	89.492732	0.409
			22.498872	89.493065	
			22.501367	89.493495	

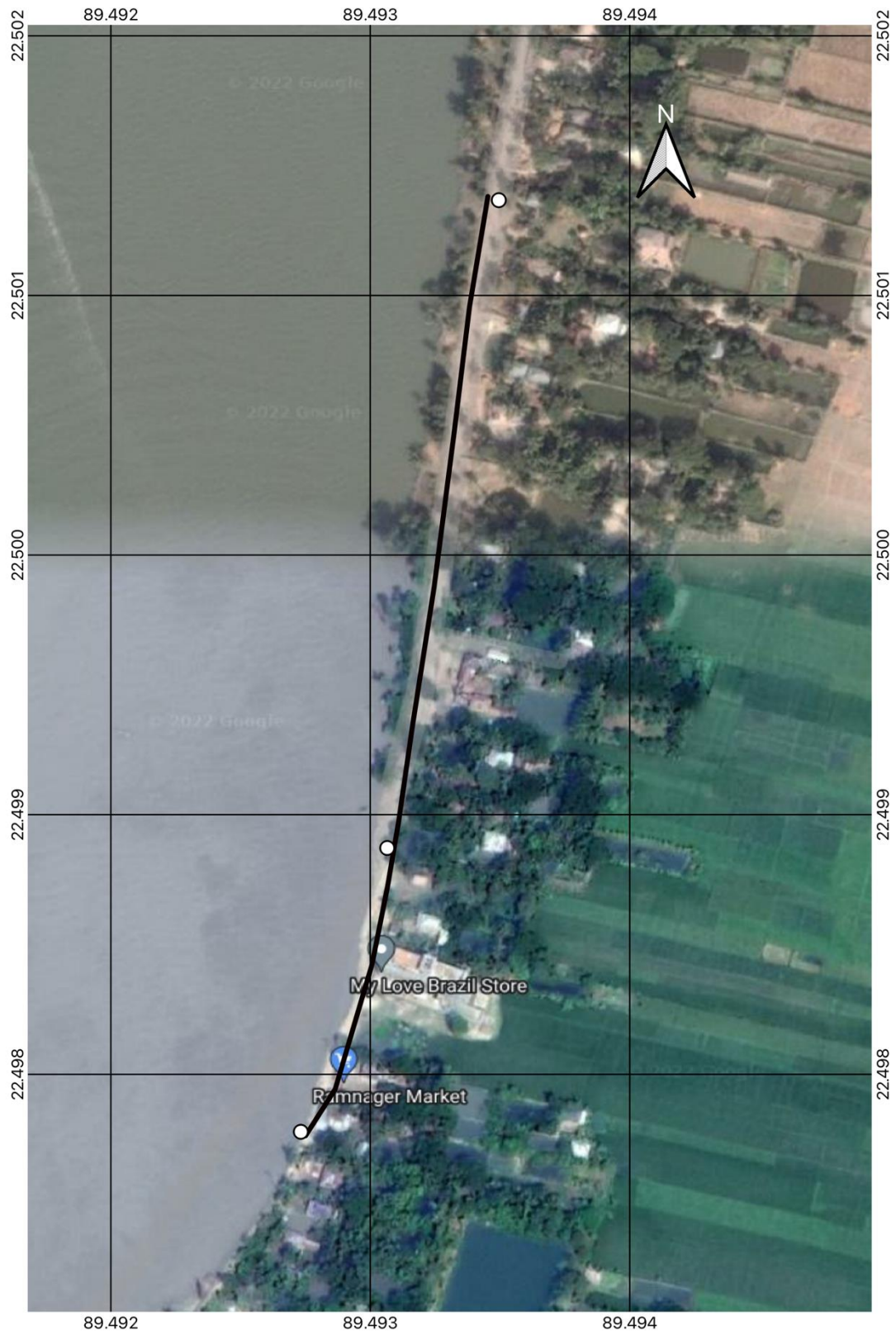


Photograph-1



Photograph-2

Riverbank Protection Works Shown on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
21.58	21.88	0.300	22.534092	89.489551	0.203
			22.535312	89.488124	



Phoograph-1



Phoograph-2

Riverbank Protection Works Shown on Satellite Image



Annex 6- Polder # 35/1: Slope Protection Works

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
2.023	2.300	1.277	22.379525	89.885485	1.11
			22.378426	89.885016	
			22.377521	89.884396	
			22.376507	89.884884	
2.300	3.300		22.369788	89.884999	



Photograph-1



Photograph-2

Slope Protection Works on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
3.800	4.573	0.773	22.365337	89.885385	0.248451006
			22.363257	89.886162	
Remarks: It's found, Note: This chainage (km) seems to be less length than RDPP					



Photograph-1



Photograph-2

Slope Protection Works on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
5.117	5.300	0.183	22.361748	89.886198	0.300240746
			22.35904	89.886225	



Photograph-1



Photograph-2

Slope Protection Works on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
			5.300	5.567	
			22.350085	89.883332	
Physical Works didn't match between chainage and actual works					



Photograph-1



Photograph-2

Slope Protection Works on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
8.000	8.750	0.750	22.337527	89.872361	0.75042
			22.333706	89.869838	
			22.332876	89.86849	
			22.332272	89.868098	



Photograph-1



Photograph-2

Slope Protection Works on Satellite Image



As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
13.500	14.000	3.500	22.314638	89.855841	3.611
			22.314203	89.857852	
			22.313863	89.857931	
			22.312338	89.857215	
			22.310425	89.856057	
			22.309836	89.855529	
			22.307129	89.854079	
			22.305493	89.854048	
			22.304635	89.853942	
			22.300835	89.852206	
			22.297879	89.850399	
			22.294182	89.848616	
			22.287126	89.845788	
14.000	17.000		22.286238	89.845544	



Photograph-1



Photograph-2

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
20.500	23.500	5.000	22.25917	89.836321	4.871
			22.255787	89.835222	
			22.251536	89.834262	
			22.248249	89.833715	
			22.24315	89.832878	
			22.238986	89.832609	
			22.233296	89.832753	
			22.230629	89.833046	
			22.227447	89.832743	
			22.226685	89.832538	
			22.218781	89.835105	
23.500	25.500		22.21641	89.836158	

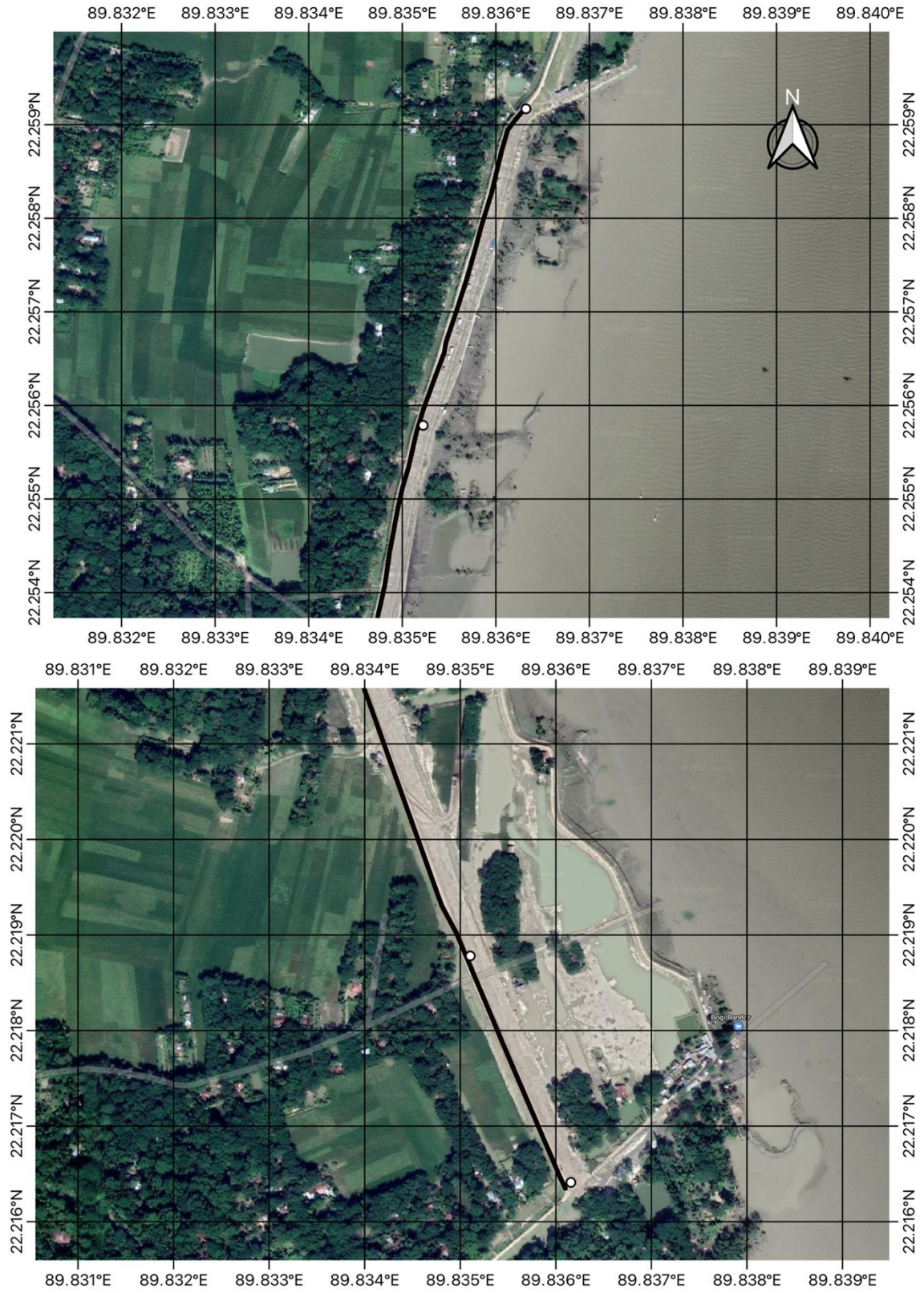


Photograph-1



Photograph-2

Slope Protection Works on Satellite Image



Annex 7- Polder # 35/1: Riverbank protection Work

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
0.300	0.600	0.300	22.395005	89.874884	No length found because no BPW didn't at this section
This section didn't find in the field, even the local people said, no work at this place					



Photograph-1



Photograph-2

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km)
			Latitude	longitude	
3.300	3.900	0.600	22.369788	89.884999	0.600
			22.365234	89.885767	
			22.363743	89.886106	



Photograph-1



Photograph-2

Riverbank Protection Works Shown on Satellite Image



Annex 8- Polder # 35/3: Slope Protection Works

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km) Remarks
			Latitude	longitude	
39.1	40	0.900	22.536833	89.755198	-0.690
			22.536158	89.75874	
			22.536142	89.759318	
			22.536636	89.761738	

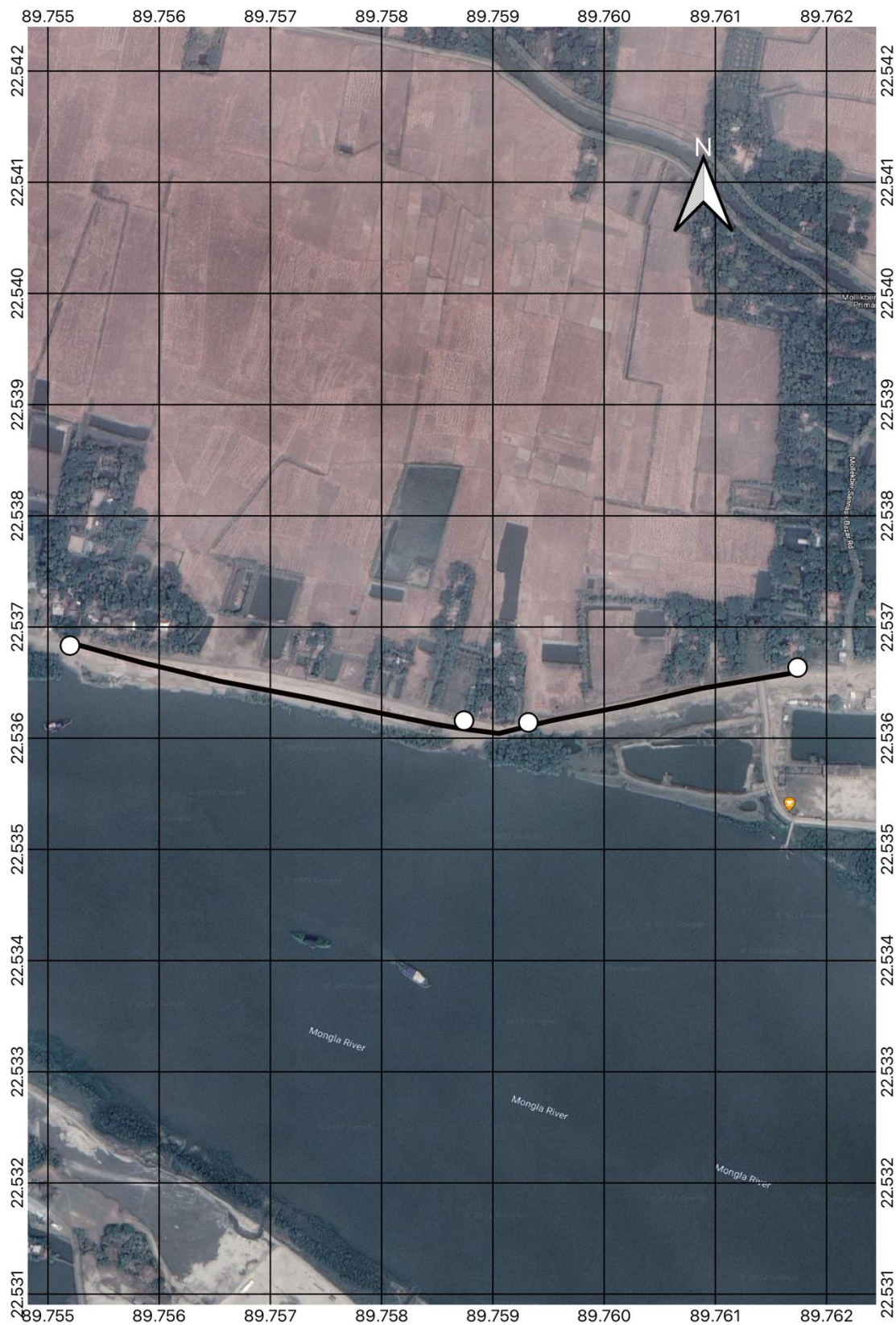


Photograph-1



Slope: Photograph-2

Slope Protection Works Shown on Satellite Image



Annex 9- Polder # 35/3: Riverbank Protection Works

As Per RDPP			As per Field Condition		
Starting Chainage (Km)	Ending Chainage (Km)	Length (Km)	GPS coordinate		Length Calculate by ArcGIS Software (Km) Remarks
			Latitude	longitude	
36.22	36.37	0.150	22.545913	89.736214	0.150
---	---	---	22.546491	89.734919	



Photograph-1



Photograph-2

Riverbank Protection Works Shown on Satellite Image

