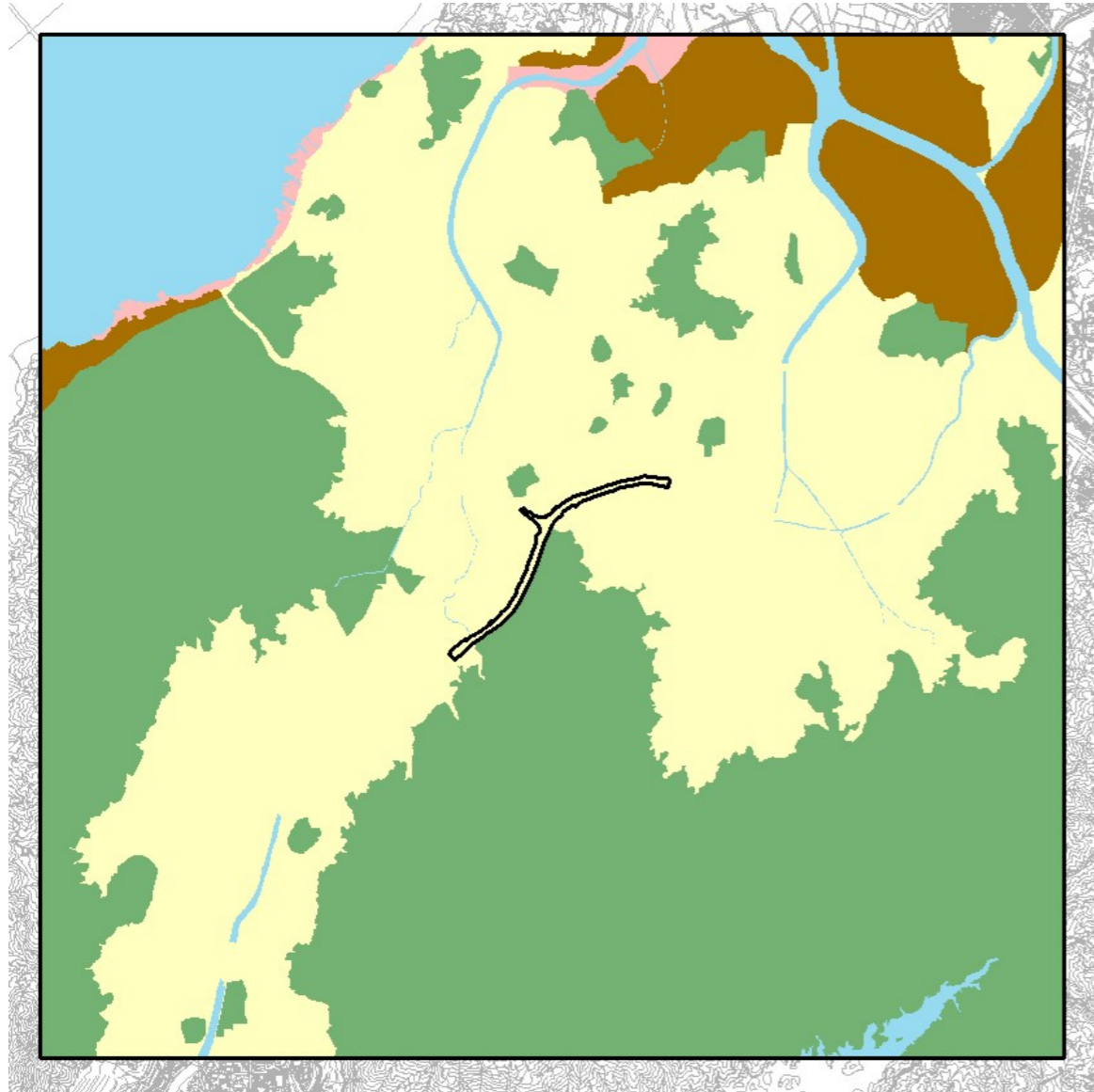


### Appendix 3.6 Determination of Surface Characteristics Parameters

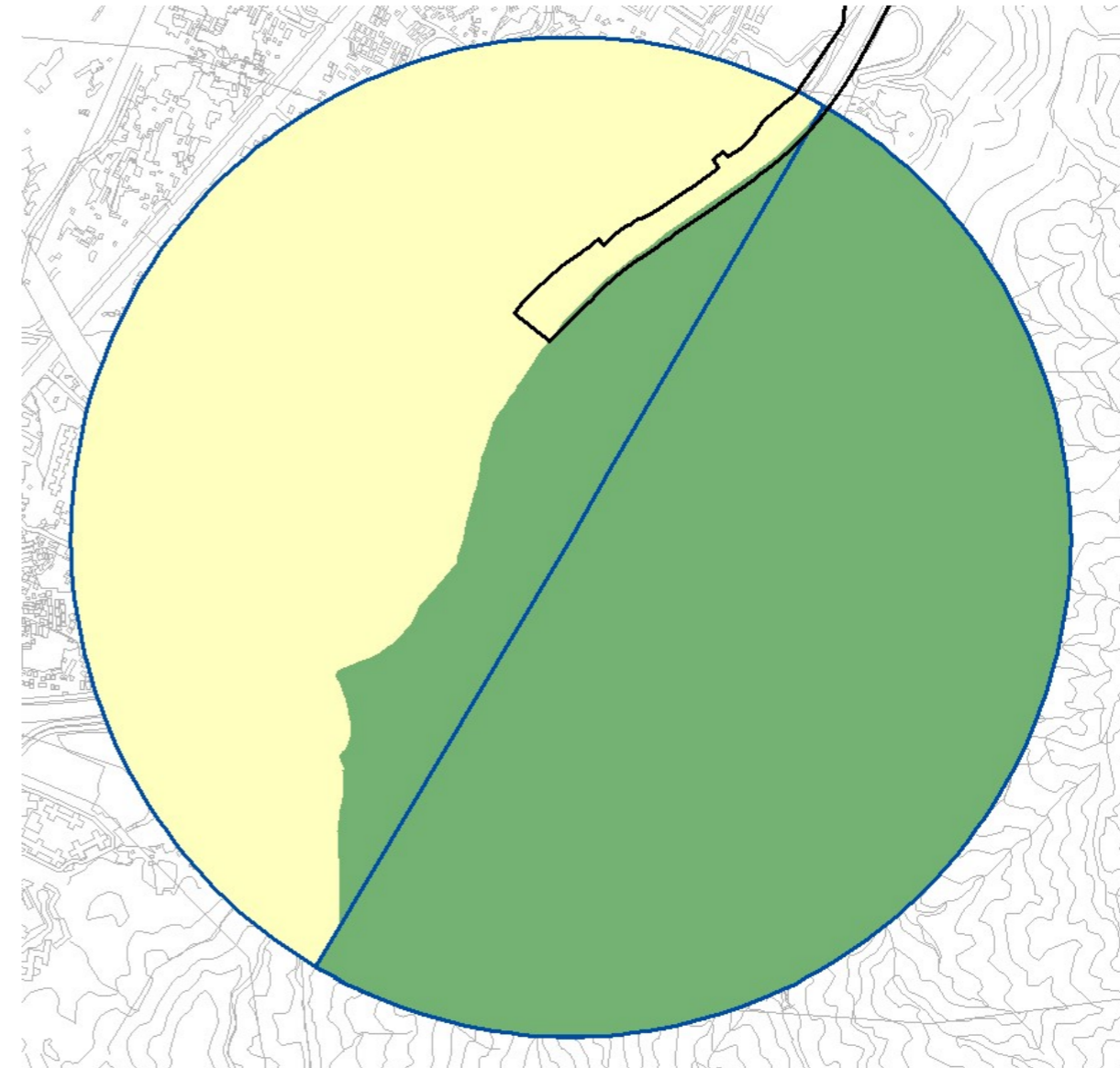
10km by 10km Region Centered at the Project Site



**Legend**

- Project Boundary
- 10km by 10km Region Centered at the Project Site

1km Boundary from Grid 2244



**Legend**

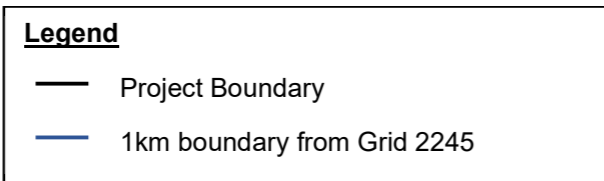
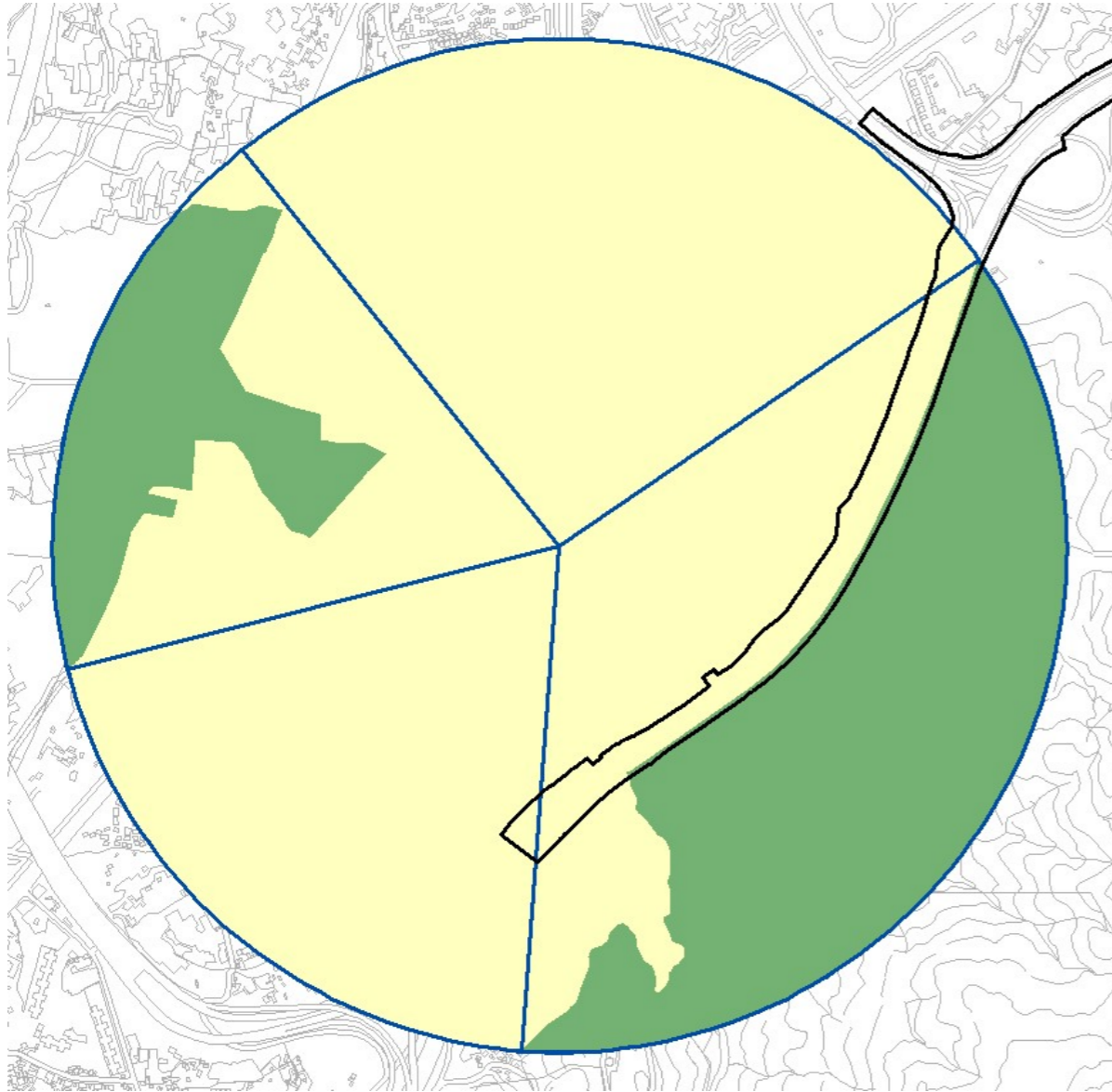
- Project Boundary
- 1km boundary from Grid 2244

Note:

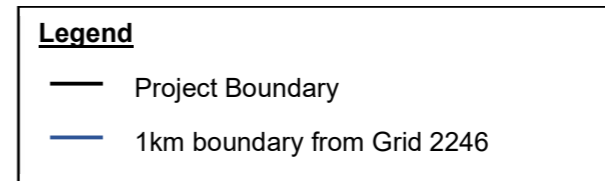
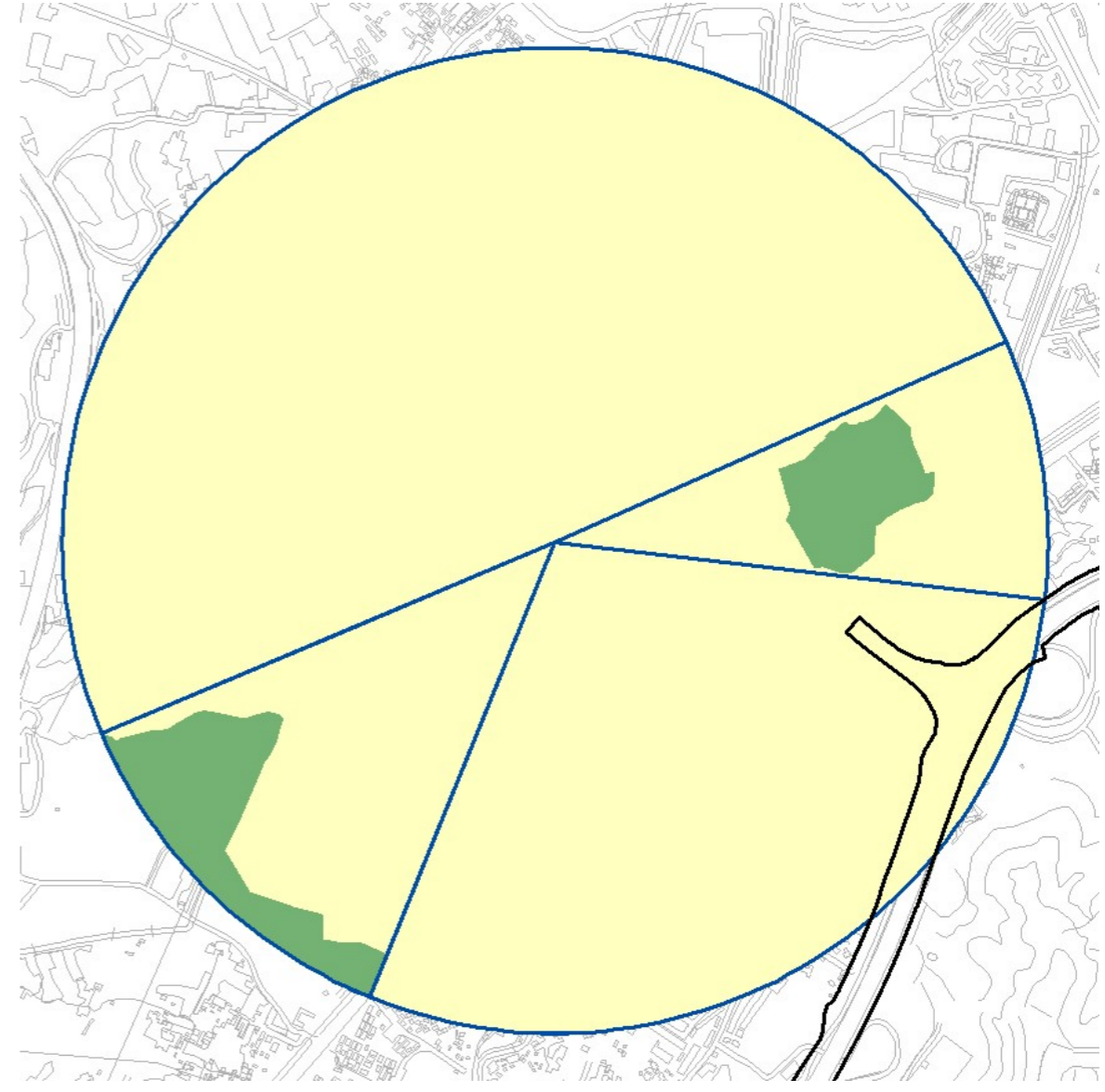
Green area is classified as grassland area. Yellow area is classified as urban area. Blue area is classified as water area. Pink area is classified as swamp area. Brown area is classified as cultivated land.

### Appendix 3.6 Determination of Surface Characteristics Parameters

1km Boundary from Grid 2245



1km Boundary from Grid 2246

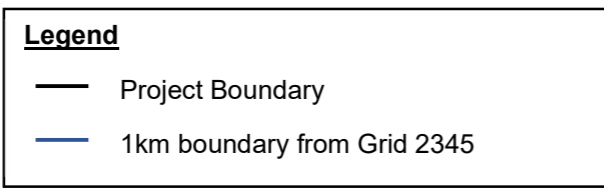
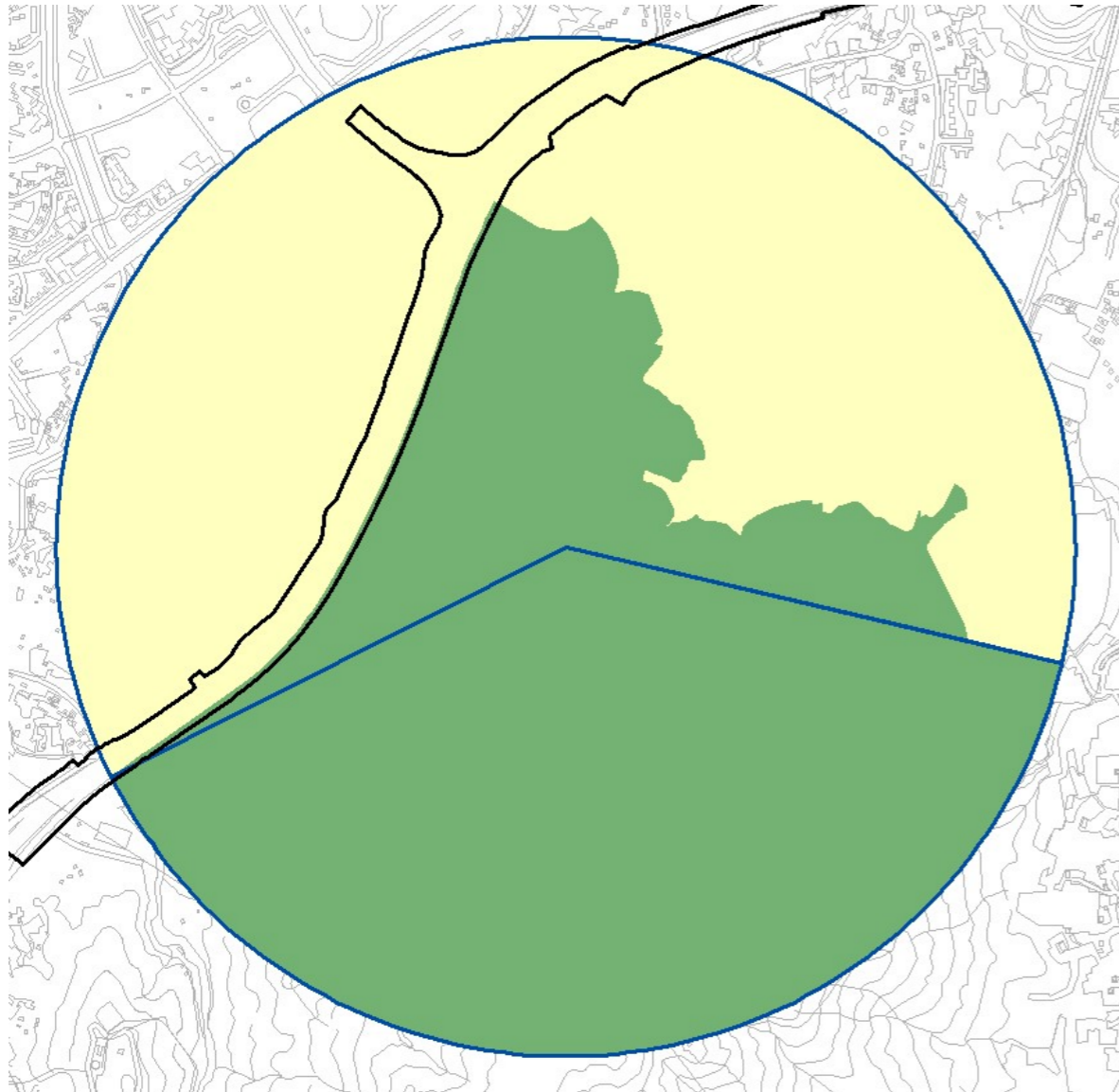


Note:

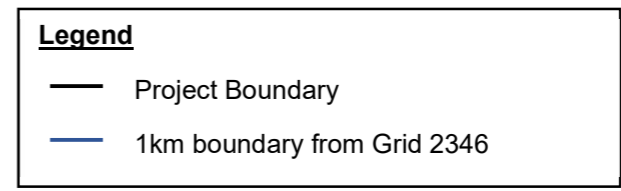
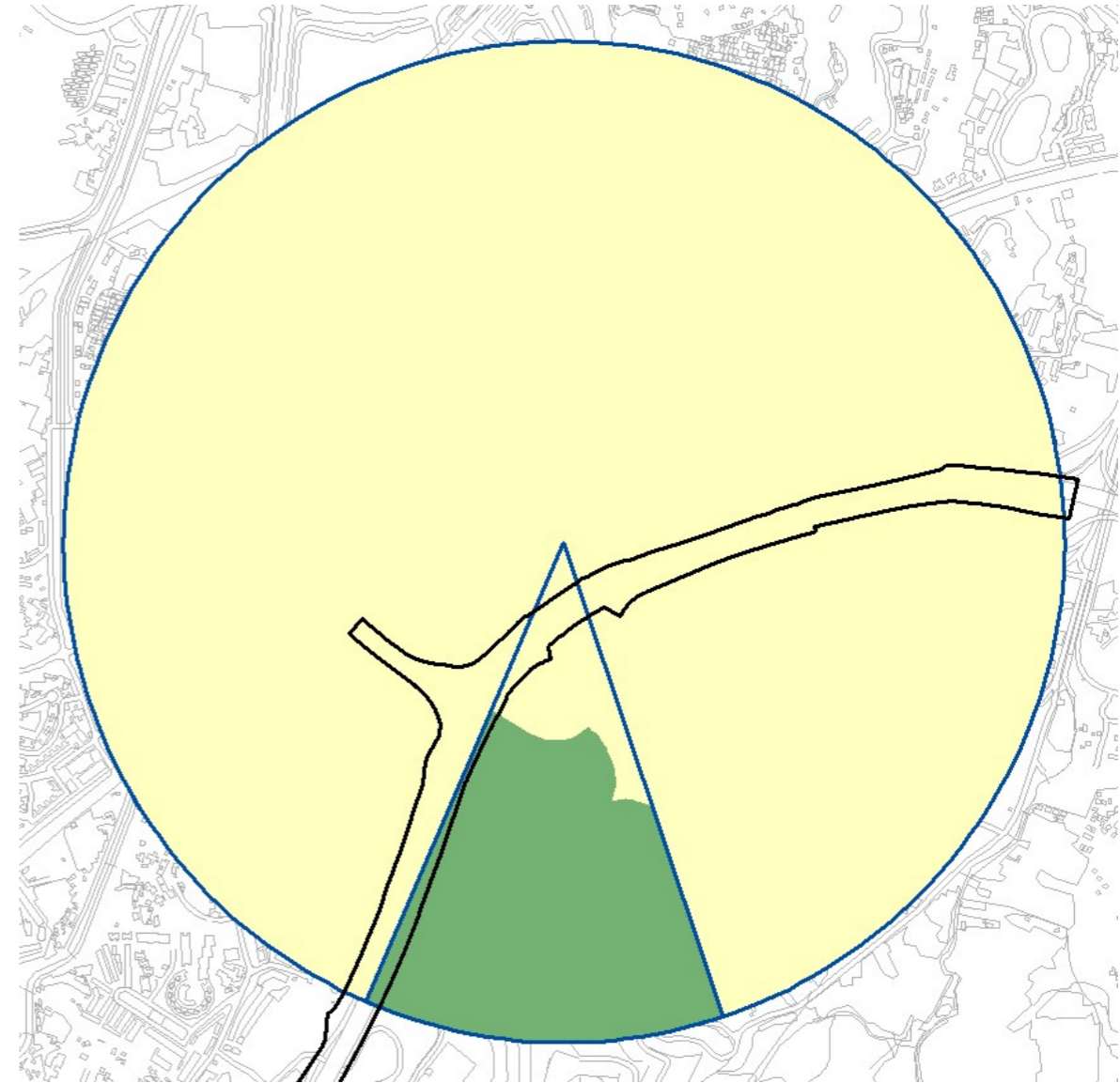
Green area is classified as grassland area. Yellow area is classified as urban area. Blue area is classified as water area. Pink area is classified as swamp area. Brown area is classified as cultivated land.

### Appendix 3.6 Determination of Surface Characteristics Parameters

1km Boundary from Grid 2345



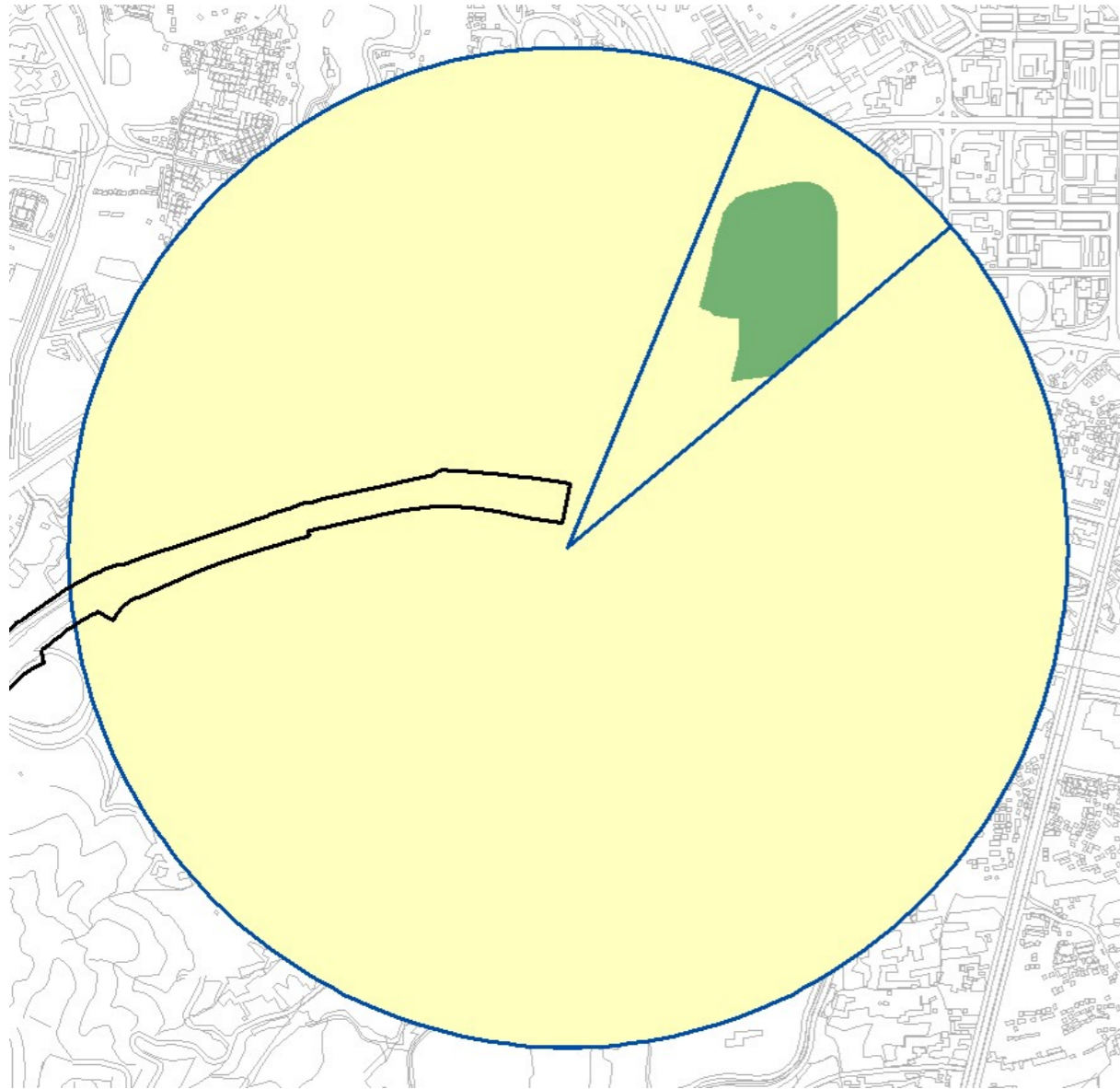
1km Boundary from Grid 2346





Note: Green area is classified as grassland area. Yellow area is classified as urban area. Blue area is classified as water area. Pink area is classified as swamp area. Brown area is classified as cultivated land.

## Appendix 3.6 Determination of Surface Characteristics Parameters

1km Boundary from Grid 2446



<b>Legend</b>	
	Project Site
	1km boundary from Grid 2446

Note:

Green area is classified as grassland area. Yellow area is classified as urban area. Blue area is classified as water area. Pink area is classified as swamp area. Brown area is classified as cultivated land.

## Appendix 3.6 Determination of Surface Characteristics Parameters

### Summary of Surface Characteristics for the Study Area

#### Grid 2244

Sector (degrees in clockwise)	Land Use	Area (m <sup>2</sup> )	Distance (m)	Weighting (Fraction/Distance)	Albedo <sup>1,4,5</sup>	Bowen Ratio <sup>2,4,5</sup>	Surface Roughness (m) <sup>3,5</sup>	Remark
30 - 210	Grassland	1574880.32	-	-	0.17	0.81	0.0533	Grassland from northeast to southwest
210 - 30	Grassland	304493.67	100	0.001944			0.1999	Grassland and Urban development from southwest to northeast
	Urban	1261803.00	505	0.001595				
	Total	1566296.67	-	0.003539				

#### Grid 2245

Sector (degrees in clockwise)	Land Use	Area (m <sup>2</sup> )	Distance (m)	Weighting (Fraction/Distance)	Albedo <sup>1,4,5</sup>	Bowen Ratio <sup>2,4,5</sup>	Surface Roughness (m) <sup>3,5</sup>	Remark
55 - 185	Grassland	654787.47	685	0.000852	0.17	0.81	0.3135	Grassland and Urban development from northeast to south
	Urban	467074.39	320	0.001301				
	Total	1121861.86	-	0.002153				
185 - 255	Urban	624144.21	-	-			1.0000	Urban development from south to southwest
255 - 320	Grassland	237345.58	795	0.000523			0.3963	Grassland and Urban development from southwest to northwest
	Urban	333189.22	515	0.001134				
	Total	570534.80	-	0.001657				
320 - 55	Urban	824636.14	-	-	1.0000	Urban development from northwest to northeast		

#### Grid 2246

Sector (degrees in clockwise)	Land Use	Area (m <sup>2</sup> )	Distance (m)	Weighting (Fraction/Distance)	Albedo <sup>1,4,5</sup>	Bowen Ratio <sup>2,4,5</sup>	Surface Roughness (m) <sup>3,5</sup>	Remark
65 - 95	Grassland	63708.78	615	0.000387	0.17	0.81	0.4752	Grassland and Urban development from northeast to east
	Urban	204028.27	670	0.001137				
	Total	267737.05	-	0.001524				
95 - 200	Urban	916677.50	-	-			1.0000	Urban development from east to south
200 - 245	Grassland	101760.09	880	0.000296			0.5797	Grassland and Urban development from south to southwest
	Urban	288399.94	570	0.001297				
	Total	390160.04	-	0.001593				
245 - 65	Urban	1566602.42	-	-	1.0000	Urban development from southwest to northeast		

#### Grid 2345

Sector (degrees in clockwise)	Land Use	Area (m <sup>2</sup> )	Distance (m)	Weighting (Fraction/Distance)	Albedo <sup>1,4,5</sup>	Bowen Ratio <sup>2,4,5</sup>	Surface Roughness (m) <sup>3,5</sup>	Remark
105 - 245	Grassland	1221190.65	-	-	0.17	0.81	0.0533	Grassland from east to southwest
245 - 105	Grassland	474588.56	145	0.001705			0.2553	Grassland and Urban development from southwest to east
	Urban	1445397.79	385	0.001955				
	Total	1919986.35	-	0.003660				

## Appendix 3.6 Determination of Surface Characteristics Parameters

### Grid 2346

Sector (degrees in clockwise)	Land Use	Area (m <sup>2</sup> )	Distance (m)	Weighting (Fraction/Distance)	Albedo <sup>1,4,5</sup>	Bowen Ratio <sup>2,4,5</sup>	Surface Roughness (m) <sup>3,5</sup>	Remark
160 - 200	Grassland	303877.82	730	0.001137	0.17	0.81	0.1499	Grassland and Urban development from southeast to south
	Urban	62358.06	275	0.000619				
	Total	366235.88	-	0.001756				
200 - 160	Urban	2774941.12	-	-			1.0000	Urban development from south to southeast

### Grid 2446

Sector (degrees in clockwise)	Land Use	Area (m <sup>2</sup> )	Distance (m)	Weighting (Fraction/Distance)	Albedo <sup>1,4,5</sup>	Bowen Ratio <sup>2,4,5</sup>	Surface Roughness (m) <sup>3,5</sup>	Remark
20 - 50	Grassland	80705.90	685	0.000492	0.17	0.81	0.3872	Grassland and Urban development from north to northeast
	Urban	158756.03	645	0.001028				
	Total	239461.93	-	0.001520				
50 - 20	Urban	2901715.07	-	-			1.0000	Urban development from northeast to north

#### Notes:

- Reference to AERMOD Implementation Guide, the determination of the albedo should be based on a simple unweighted arithmetic mean (i.e., no direction or distance dependency) for the same representative domain as defined for Bowen ratio, with a default domain defined by a 10km by 10km region centered at the measurement site.
- Reference to AERMOD Implementation Guide, the determination of the Bowen ratio should be based on a simple unweighted geometric mean (i.e., no direction or distance dependency) for a representative domain, with a default domain defined by a 10km by 10km region centered on the measurement site.
- Surface roughness length is based on an upwind distance of 1km relative to the grid.
- Land use within 10km by 10km region centered at the measurement site included 39.81% Urban (39810176.74 m<sup>2</sup>), 43.12% Grassland (43122598.69 m<sup>2</sup>), 9.11% Water (9105224.50 m<sup>2</sup>), 0.69% Swamp (691354.63 m<sup>2</sup>) and 7.27% Cultivated land (7270474.86 m<sup>2</sup>).
- For the parameters including albedo, Bowen Ratio and surface roughness, the default value for "Winter" is excluded from calculating the representative values.