Training

Data resources
MIS 3003 is the standard of SMT
MIS3103 standards for Contractors

Choose a good installation site

- Determining wind speed of installation from database or meteorological data

- Determine terrain type

- Determine if there are significant obstructions to the installation site

- Adjust wind speed according to terrain and obstacles

- Selection points of installation site

Type one of installation site

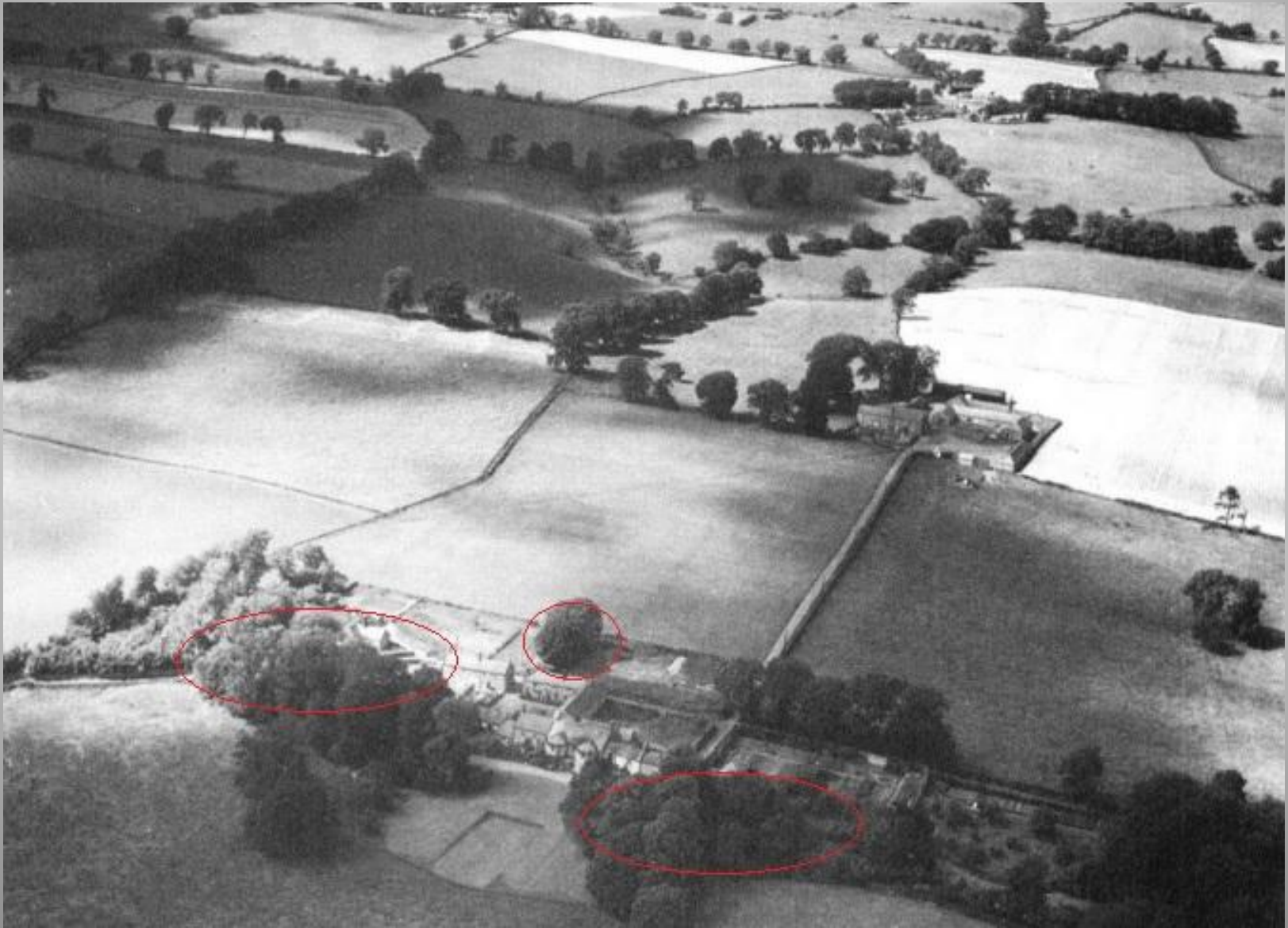Flat grasslands, savanna or bare soil, no fences and only a small number of isolated obstacles

Type 2 of installation site

Fields of grain, scarce low fences and low trees

Type 3 of installation site

Farmland, high fences, and occasional farmhouses and trees

Type 4 of installation site

Type 5 of installation site

Dense urban area (e.g. 4 floors or above) with a density greater than 20%
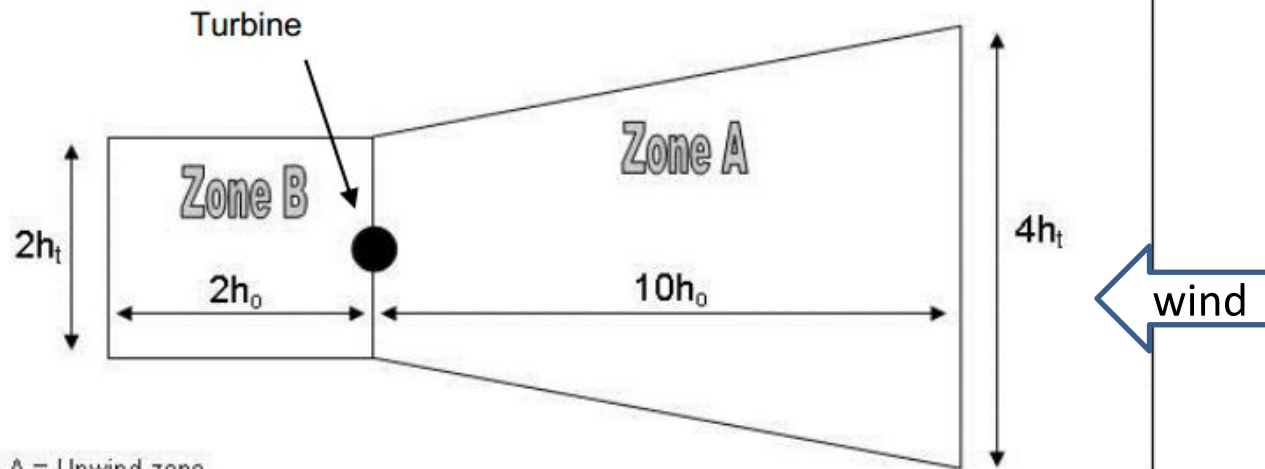
Installation environment of wind turbines

Ht=Hub center high of wind mill

Ho=height of the highest point of the obstacle

A significant obstruction is considered to be any solid item (e.g. building, wall etc) or semi permeable item (e.g. trees or bushes) that is greater than 0.5m at its widest part and reaches to a height greater than 0.25 of the hub height of the turbine. This includes any building on which the turbine is mounted.
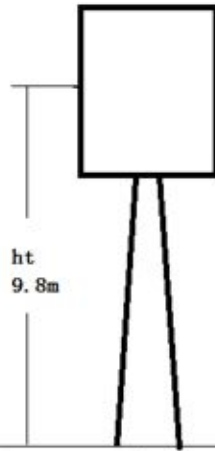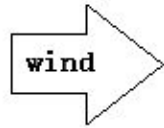
Definition of obstacles: House, wall, or half black (tree, Bush). Width 0.5 meters above, 1/4 Hub Center Height.

Turbine

Zone B

Zone A

$2h_t$

$2h_o$

$10h_o$

$4h_t$

wind

Zone A = Upwind zone
Zone B = Downwind zone
h_t = turbine hub height
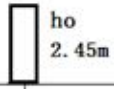h_o = height of obstacle

Explanation of obstacles
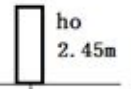
Downwind, distance 4.9m from the turbine is an obstacle.

Use 7.5m tower, Upwind, Height of 2.45m, distance of 24.5m of objects are counted as obstacles

wind

ht 9.8m

ho 2.45m

ho 2.45m

2ho

10ho

Downwind, distance 3.9m from the turbine is an obstacle.

Use 5.5m tower, Upwind, Height of 1.95m, distance of 19.5m of objects are counted as obstacles
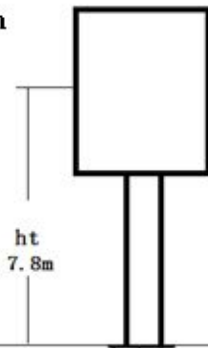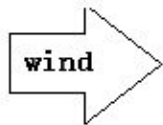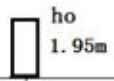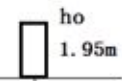
wind

ht 7.8m

ho 1.95m

ho 1.95m

2ho

10ho

Wind speed correction table

hc=ht-0.8ho

ht=Hub height of turbine

ho=Obstacle height

7.5m tower ht=9.8m

5.5m tower ht=7.8m

$V_{(Amended)}=V_{(Meteorological)}*$ (Coefficient)

h_c	Terrain Categories	Category of terrain			
	1	2	3	4	5
1	0.74	0.60	0.43	0.24	0.05
1.5	0.80	0.67	0.51	0.33	0.14
2	0.85	0.72	0.56	0.39	0.20
2.5	0.89	0.76	0.60	0.43	0.25
3	0.92	0.79	0.64	0.47	0.29
3.5	0.94	0.82	0.67	0.50	0.33
4	0.96	0.84	0.69	0.53	0.35
4.5	0.98	0.86	0.71	0.55	0.38
5	1.00	0.88	0.73	0.57	0.40
6	1.03	0.91	0.77	0.61	0.44
7	1.05	0.94	0.80	0.64	0.48
8	1.08	0.96	0.82	0.67	0.51
9	1.09	0.99	0.84	0.69	0.53
10	1.11	1.00	0.86	0.71	0.56
11	1.13	1.02	0.88	0.73	0.58
12	1.14	1.04	0.90	0.75	0.60

Site Selection Essentials

1、Open Terrain

2、At least the main wind has no obstruction.

3、10kw turbine, the distance between two turbines is 60m

10kw

L ≥ 60m