**Electrical Clearances (132kV)**

Switchgear arrangement is designed for an impulse withstand voltage of 170% peak.

Flexible connections must be arranged such that the following minimum clearances are satisfied assuming a maximum swing of conductors.

1. Phase to earth - 1,000mm
2. Phase to phase - 1,000mm
3. Between conductors of the same phase - 900mm

Note: All clearances are measured from the closest point of contact of the conductor to the face of the insulator or other component.

Futhermore, all paths that can be energised at fault potential must be set less than the minimum clearance above any standing position.

**Switchyard Plan**

**Main Equipment Legend**

- 113kV LV CT
- 113kV LV Transformer
- 113kV High Voltage Bus Support
- 113kV Low Voltage Bus Support
- LV CT
- LV Transformer
- LV Cables
- LV Switchgear
- LV Switchboard

**Verve Western Power**

**Notes:**

1. The following conductors are used in the layout:
   - 113kV rigid aluminum tubular (20awg) w/insulators
   - 113kV rigid aluminum tubular (16awg) w/insulators
   - 113kV phase conductors and flexible connections - 113kV AAC, 57.73%
2. For aluminum to aluminum connections refer to D.L.20-EM-WP-12-76.31
3. For substation setup refer to layout D.L.20-EM-WP-12-76.31
4. Phase spacing between 113kV conductors to be 1,000mm
5. Locate plane detectors not lower than the transformer conservator and direct to the center of the transformer.
6. Locate plane detectors on building walls above station transformer and circuit to the center of the transformer base.
7. Locate plane detectors on lightning mast for system protection to the center point of the transformer base.
8. Locate plane detectors inside generator enclosure - fuel shutdown interlock.

**SE-MUM-SS-BA-C-62 SH 001**

**Mumbai Integrated Wind Farm**

**Electrical**

113kV Substation General Arrangement Layout

**References:**

- D.L.20-EM-WP-12-76.31
- D.L.20-EM-WP-12-76.31
- D.L.20-EM-WP-12-76.31
- D.L.20-EM-WP-12-76.31

**Drawings and Records:**

- Design Engineer: A. B. Desai
- Project Manager: A. B. Desai