PI Name: Manojit Samanta

Project Title: Monitoring, and Assessment of Ground Vibration and Building Distress due to Adjacent Tunneling Work at Village Palli, Uttarakhand

Client: M/s UJVNL Lakhwar MPP Dakpatthar, Dehradun

Objective: (i) Mapping (distance from the tunnel alignment, depth of overburden, etc.) of the buildings (distress and stable) adjacent to the tunnel.

(ii) Categorization (material used, type of construction, number of storey, storey height, year of construction, etc.) of the buildings along the tunnel alignment.

(iii) NDT testing on typical sample building locations to estimate the existing strength parameters and sample collections from the buildings for laboratory testing.

(iv) Crack/distress mapping (quantification, location, passive or active crack, etc.) through instrumentation and periodic measurement(s) under CBRI supervision on regular basis. Suitable time interval to be decided as per site condition. Monitoring is to be done till a conclusive information is gathered form investigation point of view. Monitoring will not be continued after it.

(v) Analysis of tunnel deformation measurement and induced settlement, if any

(vi) Near and far-field monitoring of blast-induced ground vibration using seismographs under CBRI supervision on regular basis Suitable time interval to be decided as per site condition. Monitoring shall be done till conclusive information is gathered from the investigation point of view. Monitoring will not be continued after it.

(vii) Analysis of blast-induced ground vibration considering the frequency-based DGMS-India criteria and other international standards

(viii) Development of attenuation characteristics for the monitored data

(ix) Recommendations for optimum blast design to minimise the induced ground vibration if required

(x) Establishment of the causes of distress (cracks) to the buildings adjacent to the tunnel alignment (Village Pali).

(x1) Final report submission containing all the findings and recommendations.