PREFACE

Topographic knowledge aids cartography, modelling, and understanding of earthly phenomena. Topographic data helps plan and create, making life easier. Connecting remote areas to risk management and sustainable life management centres requires knowledge of road and rail networks. Forests provide us with countless benefits, and it is important that sustainable forest management takes into account all of these, from timber and non-timber products, to watershed regulation and water supply, to climate regulation and outdoor recreation. Forest roads and railroads have long allowed people to learn about, enjoy, reflect on, and harvest resources from forests. Thus, a transit network between the forest and other isolated locations is essential.

GIS and remote sensing help decision-makers manage risk and LULC by visualizing and extracting transportation-related road and rail networks. The advantages, issues, and threats facing society and the forest will be balanced with high-quality, current topography data. It will help them take the best management decision based on the road's purpose, consequences, usability time and persistence, number of roads and layout, width, and surface characteristics (paved or unpaved), as well as maintenance requirements.

Topographic airborne LiDAR, also known as Airborne Laser Scanning (ALS), has revolutionized elevation data collection by providing a fast, accurate instrument. It has made elevation data gathering fast, accurate, and affordable, making it relevant to local and regional geomorphological study. The active remote sensing system's capacity to acquire landscape point data even under forest cover allows for the automated production of Digital Elevation Models.

Thus, the main objective of this study is to use LIDAR data from the primary data collection to do a final location pre-construction evaluation of the new BG line between Salona/Jakhalabandha and Khumtai/Badulipar station in N F Railway.