GROUP 2 PRESENTATION

CE332A SURVEY CAMP

Instructor: Prof. Onkar Dikshit

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Alok Kumar Mishra	200096
Ayush Pratap Singh	200251
Divyansh Patel	200353
Ravi Kumar	200776

Acknowledgements

- We would like to express our heartfelt gratitude to Professor Onkar Dixit, Shitla sir, Hari Babu sir, and Vipul sir for their guidance, affection, and invaluable support during the camp.
- We would also like to extend our gratitude to Rohit, Prashant and other supporting staff members for their support and supervision.
- To our fellow surveyors, we are indebted for their cooperation and understanding.

Introduction

At the heart of it surveying is collection of data or information.

The major principles of Surveying are:

- Work from whole to part
- There must be adequate provisions for check
- Choose the method of survey that is most suitable for the purpose
- Record the field data carefully

Objective

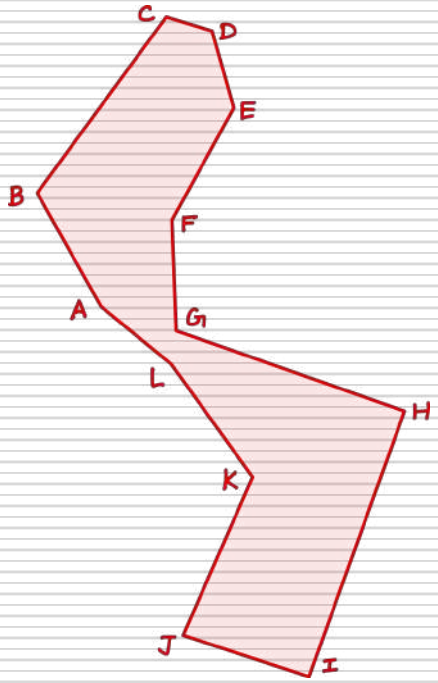
- Conduct a survey of the Aarogyadham area using surveying tools such as ETS, GNSS, auto-level and GIS to make a full-fledged topographic map.
- Create a longitudinal profile of a 315m road by plotting the elevation of the road along its length and create cross-sectional profiles at 5m intervals.
- Make a Juno map of the area around Kamadgiri Hill by collecting geospatial data using the Trimble Juno 3B handheld device.

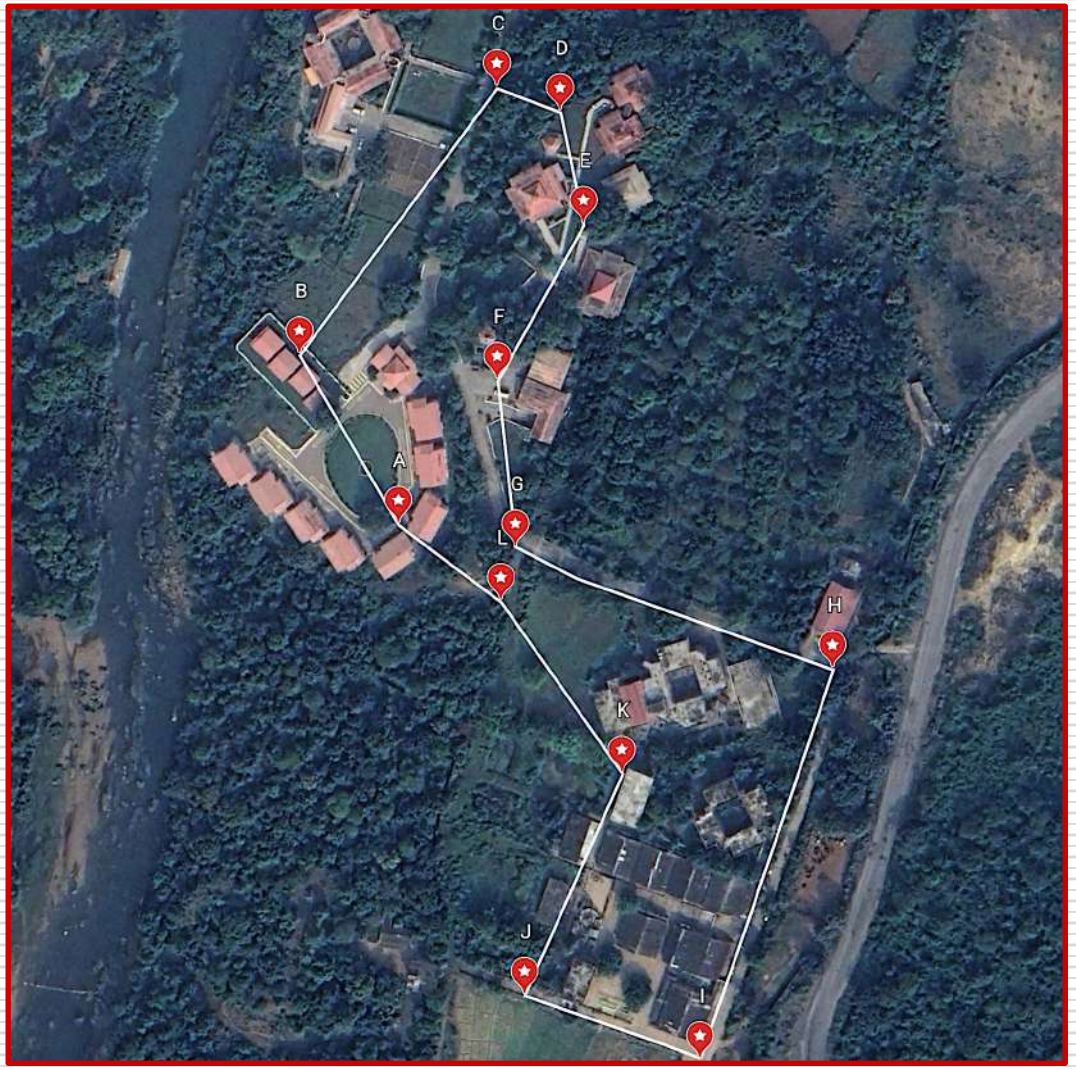
Reconnaissance (Recy Survey)

- Reconnaissance refers to going to my area and have an idea of it.
- Control Point Marking:
  - Open to sky
  - Maximum area coverage
  - Fixed surface required
  - Minimum number of control points
  - Intervisibility between the two consecutive control points
  - Closed loop

Control Network

- Maximum area coverage
- Minimum no. of control points
- No. of control points = 12





Electronic Total Station (ETS) Traversing

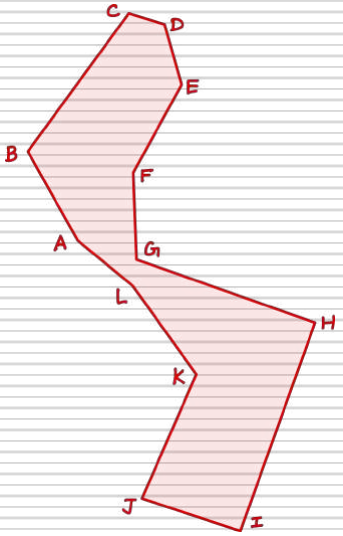
- Traversing refers to locating the relative coordinate positions of control points.
- The closing error and the quality of survey:

Traversing	Closing Error	Permissible Error	Quality
Distances	0.01105 m (11.05 mm)	1:25000 (for 1st order)	1:90000 (1st order)
Angles	5''	20.78''	1st order

Auto Level Levelling

- Levelling is done to determine the relative height or elevation of the points.
- The levelling process was conducted in three loops.
- The misclosure error and the quality of survey :

Loop No.	Misclosure Error	Permissible Error	Quality
Loop 1	+0.008 m (8 mm)	11.09 mm	Accurate
Loop 2	-0.005 m (5 mm)	6.87 mm	Accurate
Loop 3	+0.001 m (1 mm)	2.12 mm	Precise



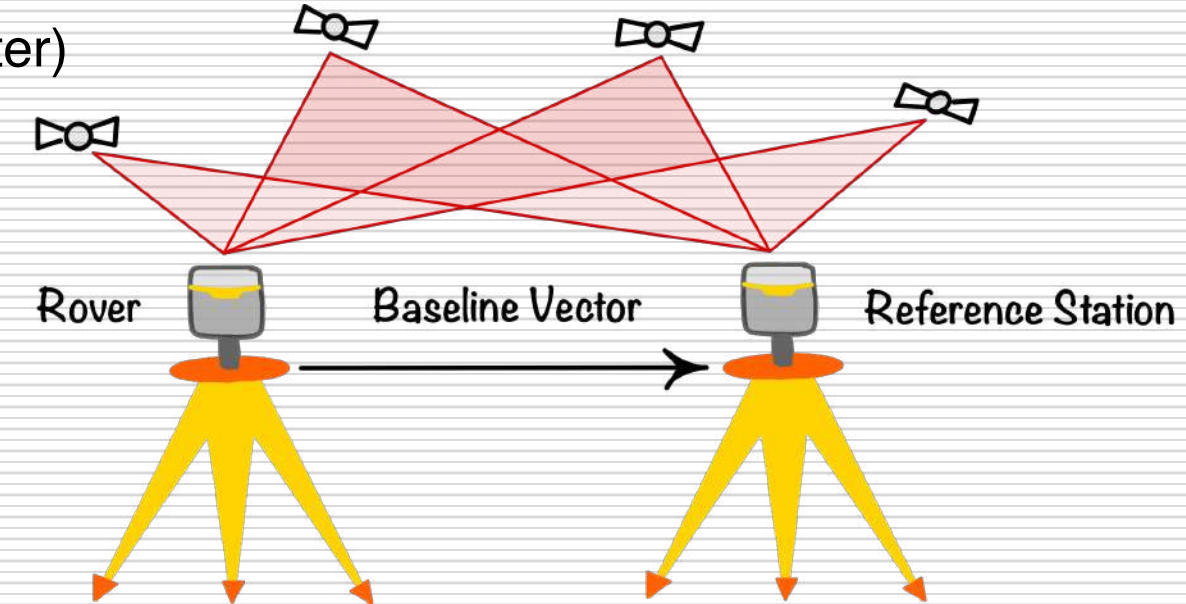
Global Navigation Satellite System (GNSS)

- GNSS was used to get global coordinates of the 12 control points.
- WGS 84 (World Geodetic System 1984)
- UTM (Universal Transverse Mercator) Zone 44N

Control point (ID)	Easting (Meter)	Northing (Meter)	Elevation (Meter)
A	486211.503	2781778.83	86.454
B	486176.469	2781842.6	87.042
C	486248.62	2781941.07	80.787
D	486274.104	2781933.12	88.413
E	486286.031	2781890.1	89.661
F	486252.029	2781827.96	89.525
G	486254.395	2781765.14	89.546
H	486381.701	2781719.75	90.941
I	486328.531	2781570.59	92.193
J	486258.729	2781594.86	91.151
K	486296.744	2781682.54	86.3
L	486251.584	2781746.08	87.728

Baseline Processing Report

- Baseline processing refers to the calculation of the relative position between two or more GNSS receivers, using the measurement of the pseudo range and carrier phase from the GNSS satellites.
- The resulting positions are relative to each other, rather than to a fixed reference frame, and represent the distance between the receivers, also known as the baseline.
- Baseline processing is used for surveying to improve the accuracy of the position estimates and to correct for errors in the GNSS signals.
- TBC (Trimble Business Center)



Topographic Map

- This map provides a visual representation of the topography of the Arogyadham area.
- The scale of the map is 1:1800, meaning 1 cm on the map represents 18 m on the ground.
- The contour interval is 0.5 m, indicating that each contour line on the map represents a 0.5 m change in elevation.
- Large-scale map : meaning that it shows a small area in great detail
- Plottable error = 45 cm

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AARROGYADHAM, CHITRAKOOT, MADHYA PRADESH

SCALE 1:1800

0 50 100 m

Contour Interval = 0.5 m

LEGEND

Electric Pole	Fencing
CP	Cement Road
Tree	Park
Petrol Pump	Road
Pond	Raw Road
Building	Contours
Wall	

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Road Profile

LONGITUDINAL PROFILE OF MAIN ROAD OF AAROGYADHAM, CHITRAKOOT

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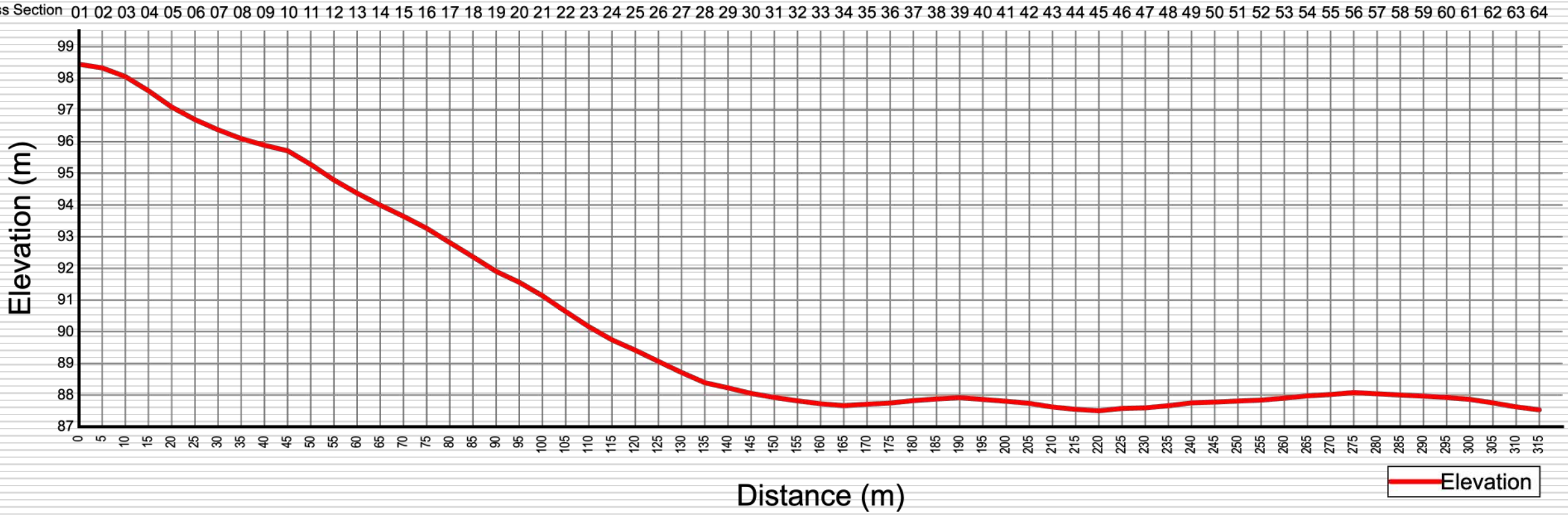
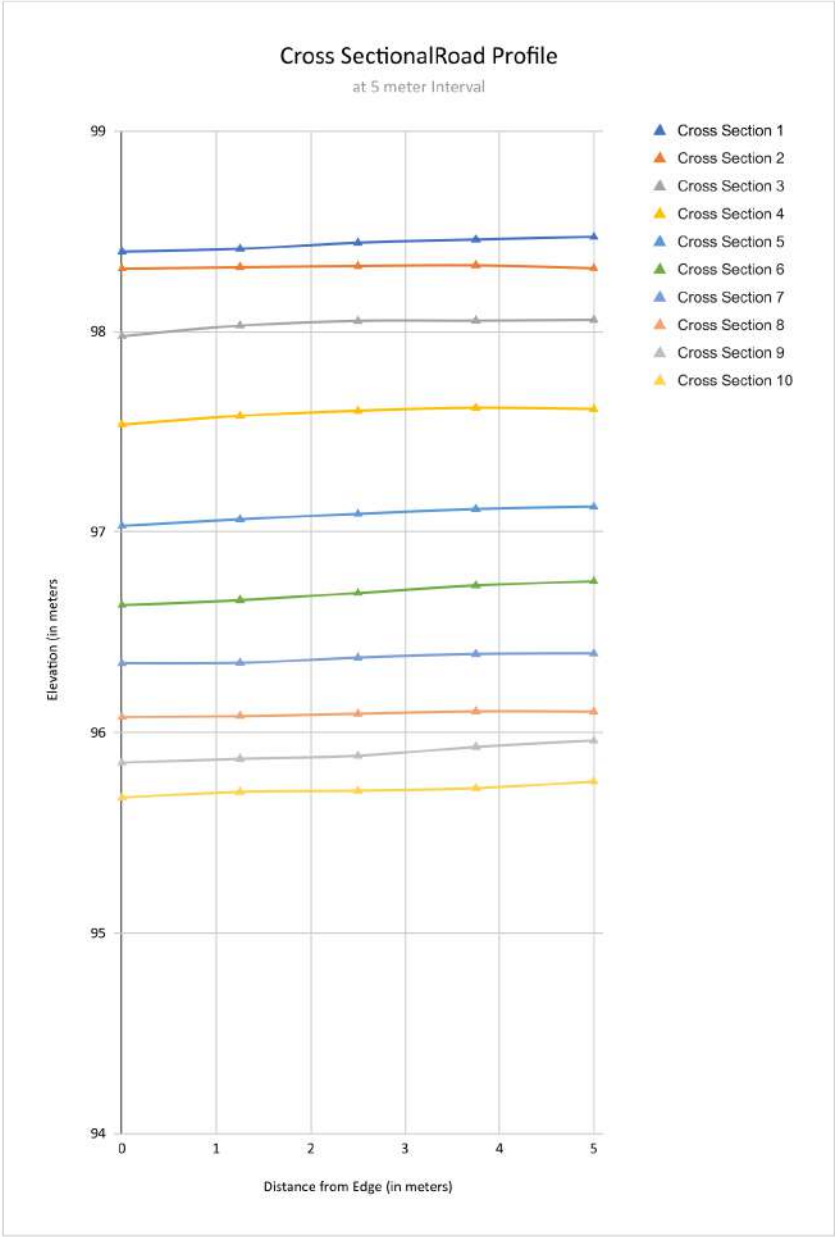


Road Profile

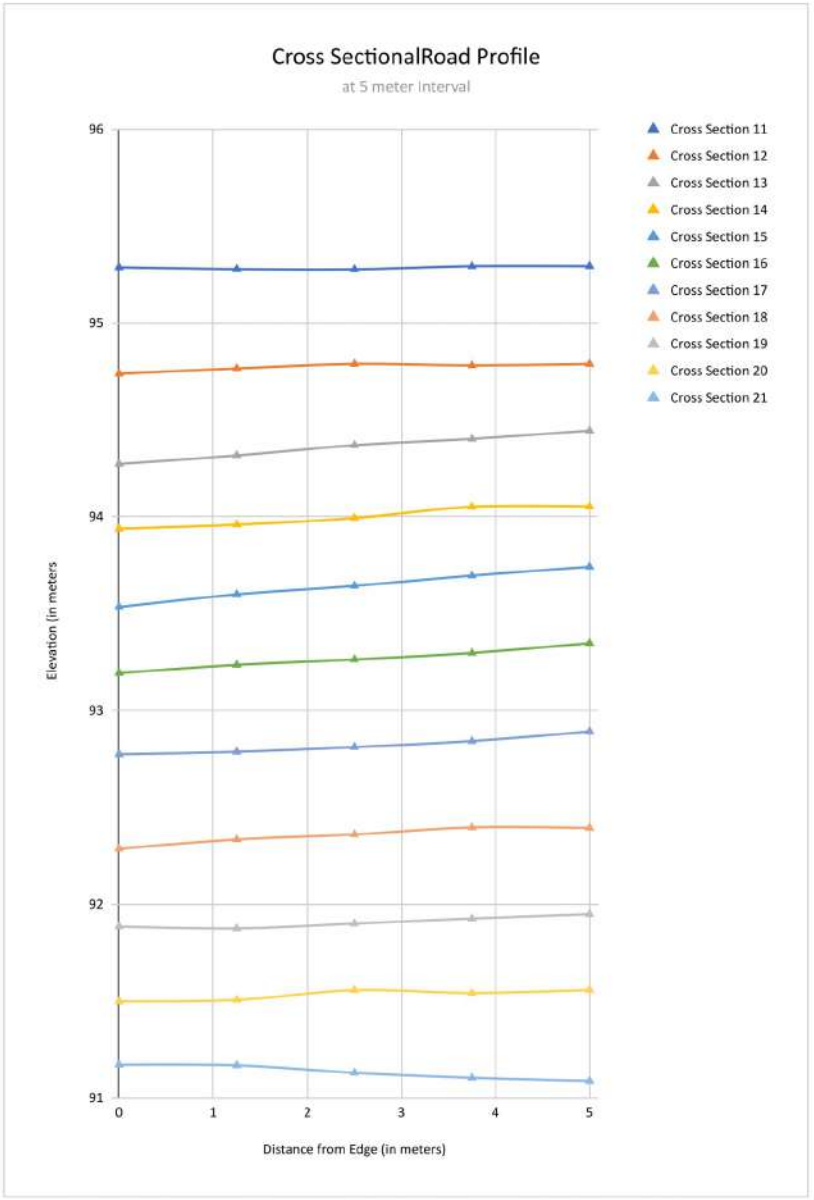
Cross Sectional Profile of the 315 m road

- 315 m long road was divided into 63 cross-sections at 5m intervals.
- Elevations of each cross-section were recorded using a ETS.
- The graph of elevation of the points on road was plotted for all the sections.
- Nth section represents the cross section at a distance of 5x(N-1) meters from the beginning.



Note: nth section represents the cross section at a distance of 5(n-1) meters from the beginning.

Cross Sectional Road Profile



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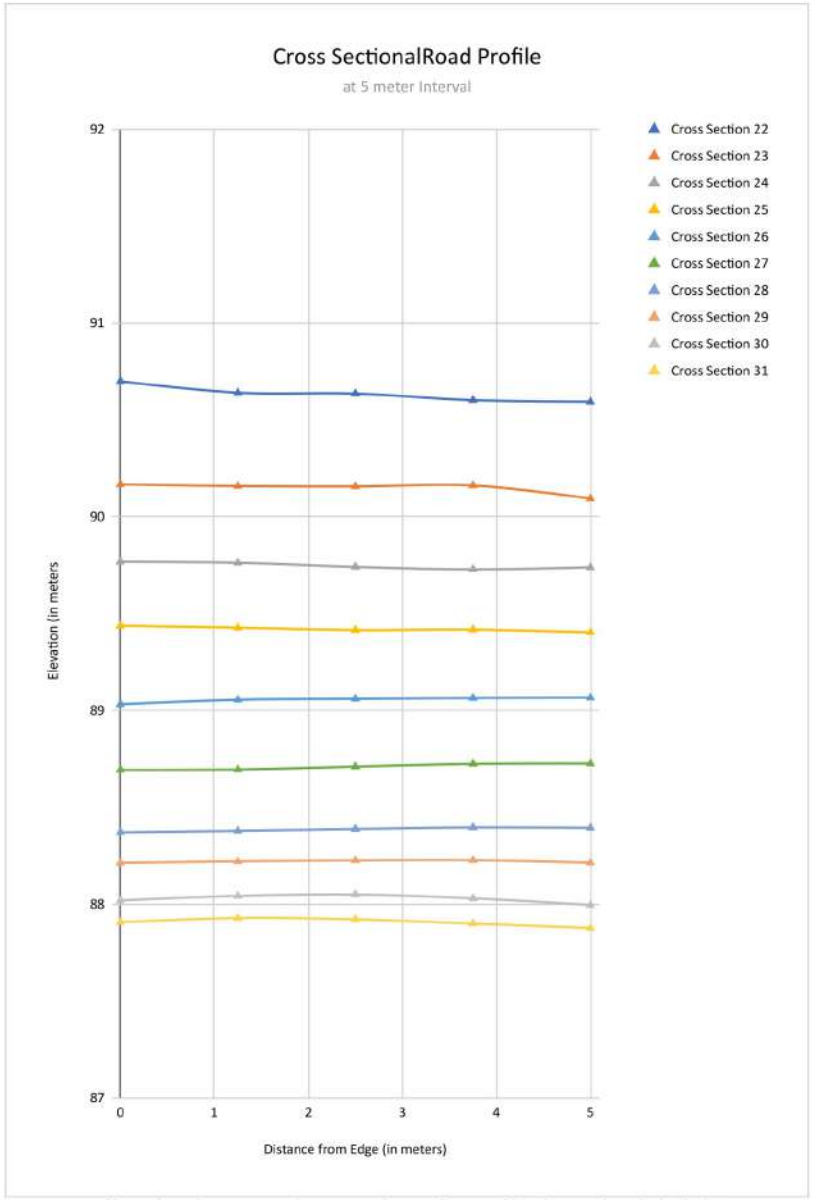

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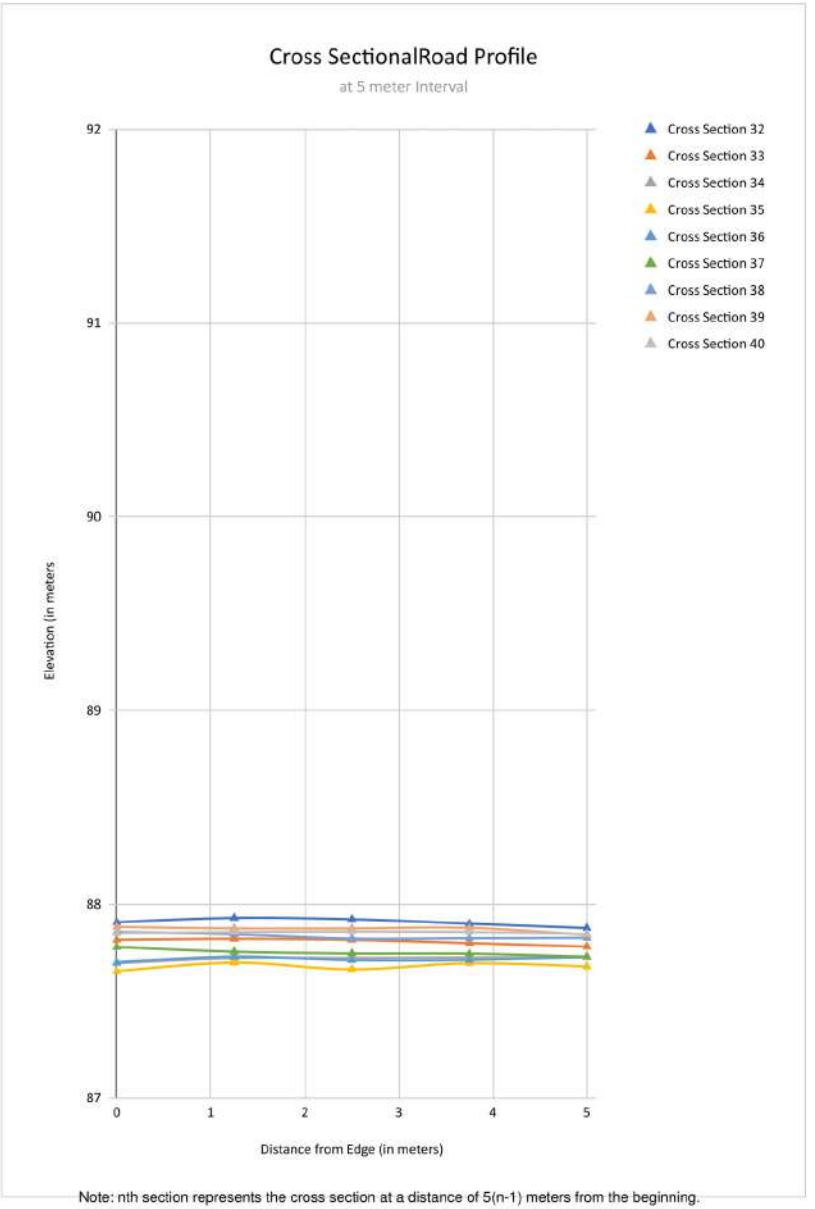
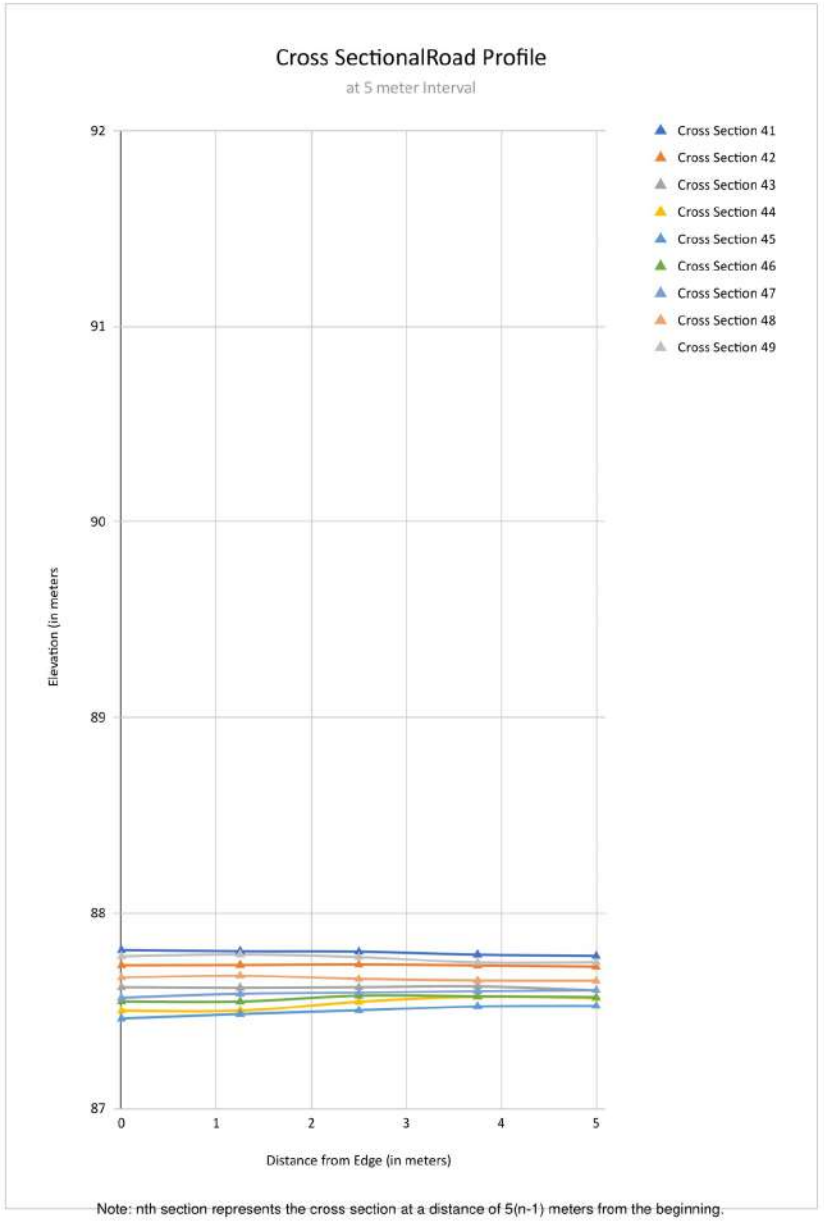


Note: nth section represents the cross section at a distance of 5(n-1) meters from the beginning.

Cross Sectional Road Profile



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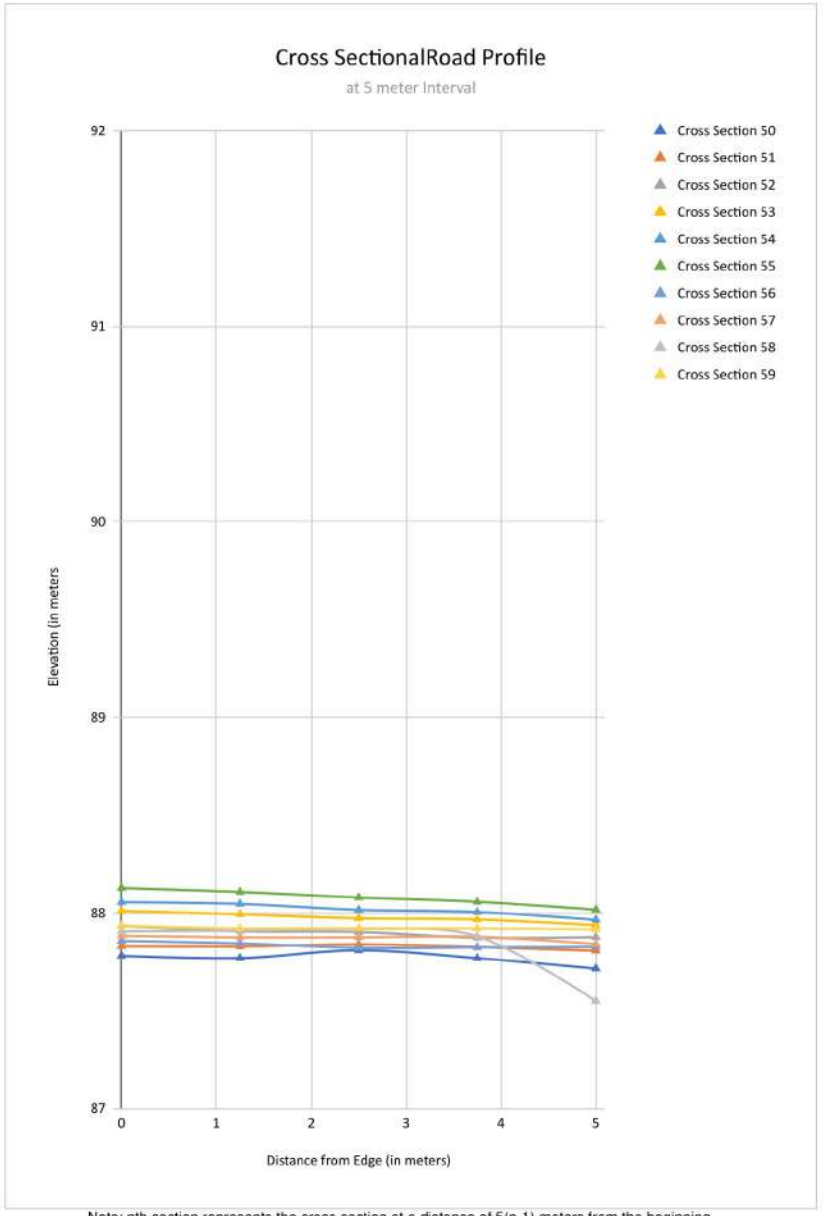

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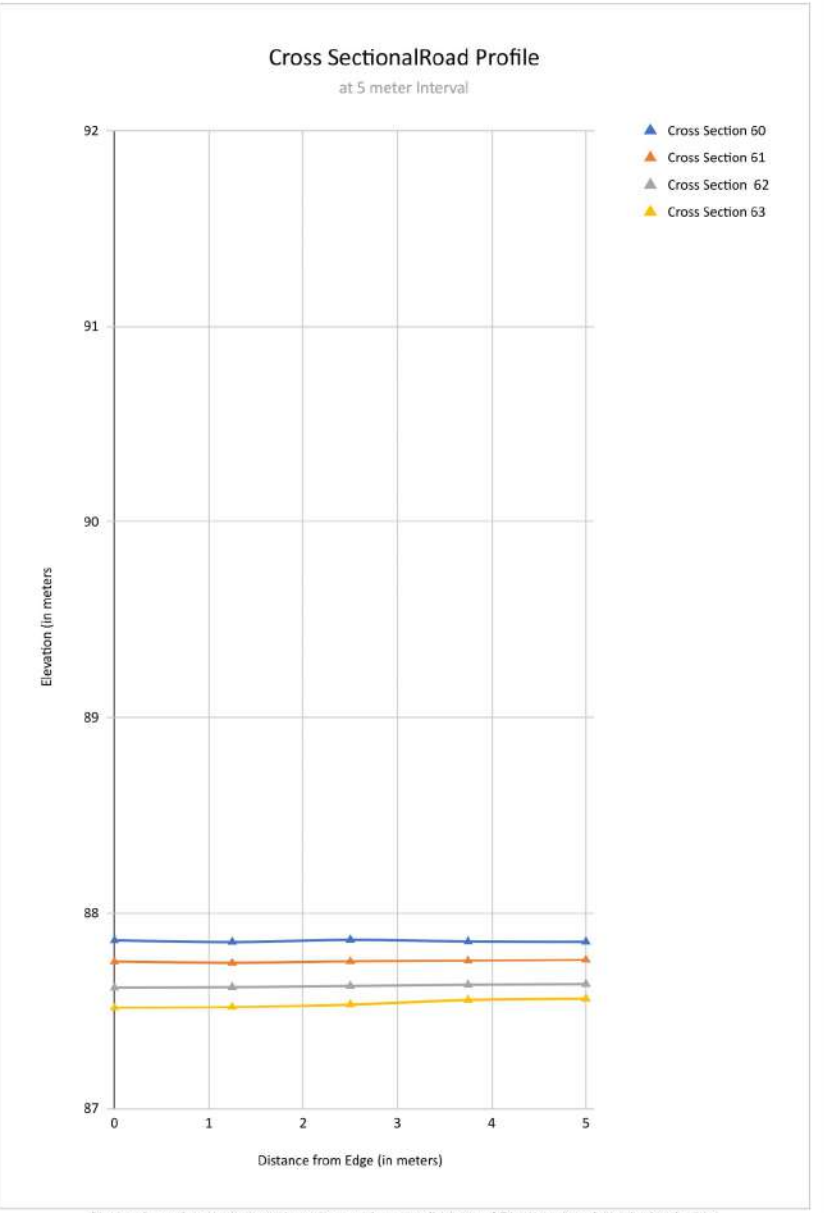


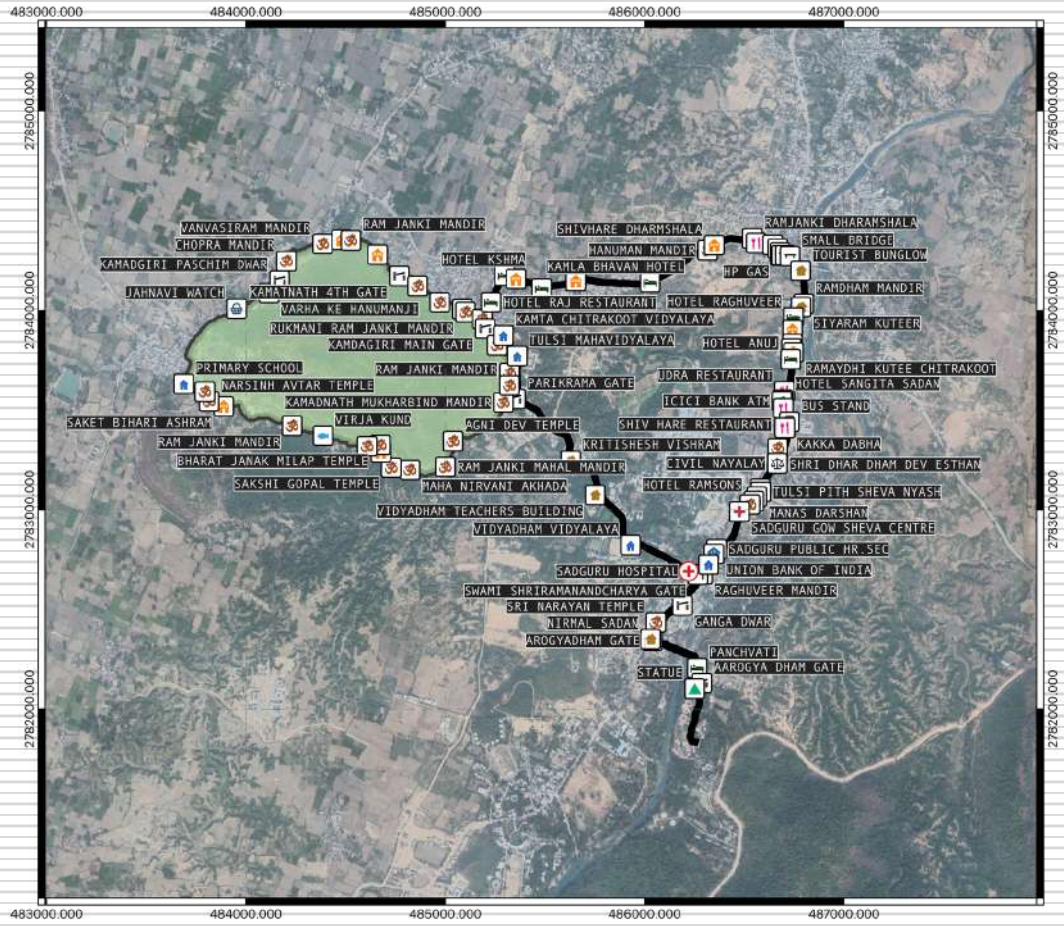
Note: nth section represents the cross section at a distance of 5(n-1) meters from the beginning.

Juno Map

- This is a navigational map of the Kamadgiri Hill area in Chitrakoot, MP.
- The scale of the map is 1:18000, meaning 1 cm on the map represents 180 meters on the ground.
- The map was created using the Juno 3B-Handled GPS, a high-precision mapping instrument.
- Small-scale map, meaning that it shows a large area with less detail.
- Precision of collected data (Postprocessing):

Range	Percentage
0-1m	--
1-2m	5.35%
2-5m	44.21%
>5m	50.44%

Juno Map of Kamadgiri Hill
Aarogyadham, Chitrakoot, Madhya Pradesh, India



LEGEND

- PETROL PUMP
- ATM
- BANK
- BRIDGE
- BUSSTAND
- COURT
- DHABA
- DHARMSHALA
- GATE
- HOSPITAL
- HOTEL
- MEDICAL
- POND
- RESIDENCY
- SCHOOL
- SHOP
- STATUE
- TEMPLE

0 250 500 m

SCALE 1:18000

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Thank You!

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