

# Study and Development of Soil Compaction under Mixed Traffic Flow By Using Total Station

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## Abstract:

The compaction is the usual process taken in the construction of the road structure. A particular type of soil has been laid in the work place before laying the soil the reading has been noted down then the compaction process will be carried out. If the layer failed then the re watering/dewatering has to be made then again the rolling has to be carried out in this process lot of time and labour and the finance will be wasted in this project the soil sample will be collected and tested in the laboratory and the number of passing for each type of soil will be identified so that if it is implemented in the field then the compaction will be achieved, this help in saving lot of time and manpower and also help in the saving in the financial condition.

**Keywords** — Put your keywords here, keywords are separated by comma.

## I. INTRODUCTION

The process of reducing the air voids content between the solid particles. It involves the orientation of the solid particles and also the packing into the more compacted and dense and arrangement of the particles; the part by part of road consists of base, sub-grade and sub base and also from bottom to top. The asphalt mixture is the combination of pavement .The layer of stone fragments and soil aggregates is called as base layer .The soil having specified grading is constructed and it is called as sub grade.Through the procedure of compaction, soil strength and stability can be increased to the larger extent and also the magnitude required as per the design specifications.In order to explain in short as compaction is the process of reducing the voids filled with air content and bring more strength so that layer of any materials can get more strength.

## II. OBJECTIVE AND SCOPE OF PRESENT STUDY:

1. Here time plays a major role in the process of compaction; in explaining with the soil compaction it

2. takes a lot of time to complete each layer of compaction.

2. After each layer of compaction the strength has to be checked and it has to be achieved according to the specification given by the designer and it has to be satisfied if it is failed to achieve den the watering has to be made and the rolling should be carried out.

3. After each layer of compaction the soil has to be collected according to the gridlines and then it has to be sent to the laboratory to check it for the compaction level.

4. Till than the next level of the compaction will not be further continued if the laboratory results failed then that level of the compaction has to be rebuilt and has to reach the compaction level.

5. But during this level of process lot of the schedule of the construction will be varied and hence the lot of time and manpower and also the finance will be wasted.

6. In the present days manpower getting is very difficult and generating finance will be very difficult.

7. This is the major reason why the company will be facing the financial crises.

8. Hence the research of the paper will help to avoid such kind of the activities to be wasted and help in progress in all manners.

### III. METHODOLOGY

#### Project location @ VEMGAL INDUSTRIAL AREA (Kolar)

Kolar district is located in the southern region of the easternmost district of the Karnataka State. The Kolar district is surrounded by the Bangalore Rural district in the west Chikballapur district in the northern side, Chittoor District of Andhra Pradesh in the eastern side and Krishnagiri and Vellore district of Tamil Nadu on southern side. On 10th September 2007, Kolar district was divided to form the new district of Chikballapur. Due to the modern discovery of the Kolar Gold Fields, Kolar has become popularly known as the "Golden Land" of India.



#### Major industrial areas in Kolar District

Kolardistrict has been subdivided into 2 noteworthy parts, 1 medium and 1 minor modern zone .

1.Vemgal Industrial Area–It lies in Chikkaballapura road. Vemgal likewise involves

Hero Motocorp and Railway Wagon Factory, which is 17 km from Kolar.

2. Narasapura Industrial Area –It is situated close Narasapuravillage. Narasapura mechanical range embodies major commercial ventures, for example, HMSI, Volvo, Volkswagen India, Scania AB, Mahindra Aerospace Etc. also, lies crosswise over Bangalore Road (joined Towards National Highway 4) in Kolar district and 12 km away from Kolar.

3. Tamaka Industrial Area –It lies in Chennai Road (NH4) embodies little scale businesses, lies 5 km from Kolar.

4. Malur Industrial Area –It lies in Hosur road which is 35 km far from Kolar, and has medium scale commercial enterprises.

The proposed Industrial Area is arranged at a separation of more or less 17 km from Kolar city. The degree of the zone is 666.41 sections of land covering Kuragal, Harjenahalli, Perjenahalli & Shingihalli Villages of Kolar Taluk. The Proposed Industrial Area lies in the middle of Latitude 17°15' & Longitude 76°52' and Latitude 17° 16' & Longitude.

#### TEST CONDUCTED ON THE SOIL USED FOR COMPACTION

The soil obtained from the field was tested in the laboratory for the properties like moisture content, specific gravity, particle size distribution analysis, plastic limit test, shrinkage limit test, compaction test, tri-axial shear test. All test were performed as per BIS specifications.

SL NO	TYPE OF TEST
1	Moisture content
2	Specific gravity
3	Particle size distribution
4	Plastic limit
5	Shrinkage limit
6	Compaction test
7	Tri-axial shear
8	Liquid limit

**RESULTS:**

1. average specific gravity=2.61
2. The liquid limit of the given soil sample is 32.57%
3. The shrinkage limit is 27.2
4. Average water content (PL) = 34.22%

**IV. CONCLUSIONS**

Here time assumes a note worthy part during the time spent compaction; in explaining with the dirt compaction it takes a great deal of time to finish every layer of compaction. After every layer of compaction the quality must be checked and it must be accomplished by particular given by the fashioner and it must be fulfilled on the off chance that it is neglected to accomplish lair the watering must be made and the moving ought to be done. After every layer of compaction the dirt must be gathered by gridlines and afterward it must be sent to the research center to check it for the compaction level till than the following level of the compaction won't be further proceeded with if the lab results fizzled then that level of the compaction must be modified and needs to achieve the compaction level yet amid this level of procedure part of the timetable of the development will be changed and subsequently the parcel of time and labor furthermore the account will be squandered.

Subsequently the examination of the paper will help to maintain a strategic distance from such sort of the exercises to be squandered and help in advancement in all conduct.

**FUTURE SCOPE**

As mentioned in the above report the work is more effective in the future process. If this methodology adopted in the working area then the lot of the time and manpower and financial condition can be improved. This help in the progress of the work with no obstruction and also help in the easy moment of the work. Before the start of any work this adopting of this method will help in all manner

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