

Construction of Runways by Soil Stabilisation/Recycling Technology Gmr Airport Hyderabad

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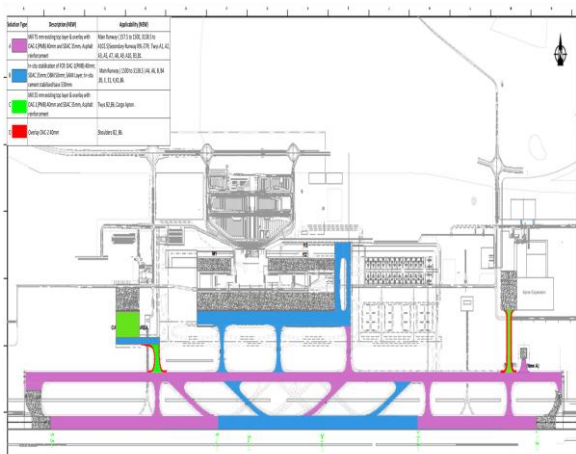
Abstract- Rajiv Gandhi international airport servers as a important international Airport in south India.The RITES has done a comprehensive study of the Existing Pavement and identified the weak areas. Stabilization has been taken up in those areas. The total area of stabilization work is 7 Lakh Sqm which includes main runway, secondary runway and taxiway. Out of this 7 Lakhs Sqm Approximately 33(2,30,000 Sqm) Approximately 67% (4.70,000 Sqm) for relaying works.

Keywords- stabilization work, RITES,etc.

I.INTRODUCTION

The Rajiv Gandhi International Airport at Hyderabad is well set to establish the city prominently on the global aviation map, contributing to the prosperity, growth and economic development of the region. The Rajiv Gandhi International Airport (RGIA) has been adjudged as the third best Airport in the world in the 5-15 MPPA category in Airport Service Quality by Council International (ACI). The RITES is the engineering consultancy company speacializing in the field of Trasportation infrastructure and maintenance. It has done a comprehensive study of the Existing Pavement and identified the weak areas in the Rajiv Gandhi international stadium .

KEY PLAN, GMR AIRPORT



Phase-1-Approvals

1. Sampling, Testing and Approval of materials
- 2 Approval of Pavement Design and mix design
- 3 Approval of QAP, EHS, Construction methodology

Phase-2-Construction

- Cleaning of working area
- Survey and Demarcation of working Area
- Milling of existing Wearing course layer as per approved drawings
- Spreading of Asphalt Reinforcement
- Application of prime Coat
- Laying of SDAC (semi dense asphalt concrete)
- Laying of DAC (dense asphalt concrete)
- Finishing & Marking

II.CONSTRUCTION

1. Cleaning of working area

Before Survey and Demarcation cutting, removing and disposing of all materials such as tress, bushes, shrubs, roots grass, weeds, top organic soil not exceeding 150mm, stacking of wood after cutting trees. Dismantling of structures acquired with in ROW and shorting out dismantled materials, disposal of unserviceable materials as directed by the Engineer.

2. Clearing & grubbing:

Prior to the commencement of the work the site boundary shall be established by surveyor. Details like number of trees to be cut size of girth and there location with reference alignment along with stacking procedure, dumping location shall be submitted to client/consultant and necessary approvals shall be obtained from the Client/Consult ant. Thick vegetation/trees/roots and other deleterious matter unsuitable for incorporation in the embankment/subgrade shall be removed by using dozer of adequate capacity. Tree stumps shall be removed with ripper. Trees stumps, etc. falling with in excavation and fill lines shall be cut to such depth below ground level that in no case these fall within 500mm of the sub-grade. Trimming of branches of trees extending above the

roadway shall be done in consultation with client/consultant. Excavations below the general ground level arising out of the removal of trees, stumps, etc., shall be filled with suitable material and compacted thoroughly conform to surrounding area. Anthills both above and below the ground, shall be removed and their workings, which may extend to several meters, shall be suitably treated. All the cleared trees and shrubs shall be stacked /dumped at the approved locations. Road side trees, shrubs, pole lines, fences, signs, monuments, buildings, pipelines, sewers and all highway facilities with and adjacent to the highway which are not to be disturbed shall be protected from injury or damage

3. Dism Dismantling Pavements and Other Structures.

3.1 Dismantling Pavements

Pavements, kerb, gutters, and other structures where portions of the existing construction are to be left in the finished work, the same shall be removed sufficiently to provide proper grades and connections with the new work. All concrete pavements, base courses in carriageway and shoulders etc., designated for removal shall be broken to pieces and stockpiled at designated locations if the material is to be used later or otherwise arranged for disposal as per approved procedures.

3.2 Dismantling of structures:

The structures shall be dismantled carefully, and the resulting materials so removed shall not cause any damage to the part of structure to be retained and the structures nearby. Unless otherwise specified, the superstructure portion of culverts/ bridges shall be entirely removed up to at least 600mm below the sub grade, slope face or original ground level whichever is lowest. Where existing culverts/bridges are to be extended or otherwise incorporated in the new work, only such part or parts of the existing structure shall be removed as are necessary to provide a proper connection to the new work. The connecting edges shall be cut, chipped and trimmed to the required lines and grades without weakening or damping any part of structure. Pipe culverts shall be carefully removed in such a manner as to avoid damage to the pipes.

3.3 Back-filling.

Holes and depressions caused by dismantling operations shall be backfilled with approved materials and compacted to required degree of compaction.

3.4 Disposal of Material.

All materials obtained by dismantling shall be stacked / disposed as per the instructions issued by client/consultant



Fig.1. Surface after Cleaning Process -Gmr, Rgia Hyderabad.

III. MILLING ASPHALT PAVEMENT

The equipment to be used shall be with automatic grade and slope controls, capable of cold milling the existing asphalt pavement to an accurate depth of cut, profile and cross slope and shall be capable of loading the milled material directly into trucks. The cutting head of the cold milling machine shall be a minimum width of 1.9 metres. The area to be milled shall be surveyed and demarcated on the ground. Cold milling of asphalt pavement shall be performed in a manner which prevents the tearing and breaking of underlying and adjacent pavement. All milled material shall be loaded directly into the trucks from the milling machine and hauled to stockpile or disposed of. The milled Material of Runway and Taxiway surface shall be swept clean. At all locations, the areas shall be swept in a manner which minimizes dust ejection.

The localized areas of distress in the milled surface that may present a hazard to traffic be promptly repaired if any. At the point of daily termination of cold milling operations, changes in Runway and Taxiway surface profile or cross-section shall be limited to 50 mm and longitudinal transitions shall be a maximum of 25 mm vertically per metre. In the event of rain or other inclement weather, the cold milling operations shall be suspended. Necessary allowances for drainage of water be arranged by channelling that may pond in areas where the milled sections have not been paved.





Fig .2. Construction of Asphalt Pavement - Gmr, Rgia Hyderabad

GMR TAXI WAY, RGiA, HYDERABAD

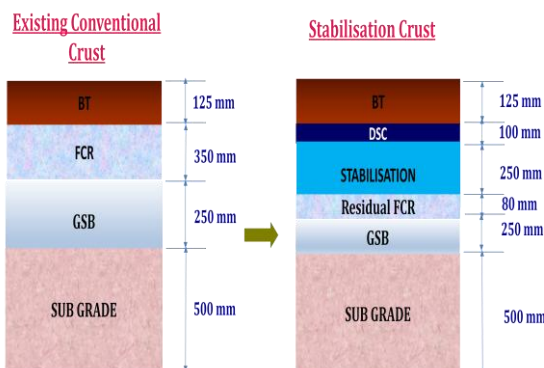


Fig. 3 Dac Application Gmr, Rgia Hyderabad.

IV. GENERAL REQUIREMENTS

The aggregate shall consist of crushed stone, crushed gravel/shingle or other stones. They shall be clean, strong, durable, of cubical shape and free from disintegrated pieces, organic or other deleterious matter and adherent coating. If crushed shingle/gravel is used, not less than 90% by weight of the gravel/shingle pieces retained on 4.75mm sieve shall have at least two fractured faces. The aggregates shall preferably be hydrophobic and of low porosity. If hydrophilic aggregates are to be used, the bitumen shall be treated with anti-stripping agents of approved quality in suitable dose. The aggregates shall satisfy the requirements provided in the MoRT&H specifications.

V. CONCLUSIONS

The Relaying and stabilization of Airfield pavement has been completed and they also satisfies the parameters

such as quality, strength of sub surface of Runway. The DAC applications has been studied Asphalt properties has been studied

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