

CONSTRUCTION OF WATER ABSORBING ROADS WITH POROUS ASPHALT

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ABSTRACT

We know not only India but the whole world is suffering from temperature problem, plastic waste road reconstruction or road construction waste and the sound of vehicle. It is considerable that the use of natural aggregates for the road construction which makes the increase amount of the solid waste which makes attention to many researchers. The construction and the demolition of wastes including, Also the porous Asphalt pavements is designed for the dual duty it provides the payments for parking on the roads and it also serves the storm water storage and infiltration system. They are in demand because they offers the site planners and the public works officially and the opportunity to maintain the storm water in an environment friendly way and to improve the water quality.

Keywords: Storm Water, Waste Material, Payments, Reconstruction, Infiltration System.

I. INTRODUCTION

We all know the population of world is increasing continuously with this expanding world, the demand for extensive Road networks. As available natural resources become drastic for us as the recycled material of construction, including payments and construction over the past few centuries, increasing in the application of waste materials in different layers of flexible pavement including porous asphalt surface layer now what is so many waste material suggest porous pavement in a storm water drainage system, and it allows rain water, to runoff and move through the pavements surface to store a layer below it. An eventually seeping in the underlying soil. Permeable pavement is profitable to the environment because it reduce the storm water and volume. To treat the storm water quality and replenish, the ground water supply with low temperatures on hot days. Due to increase in the void ratio, and water to pass through the surface and it allows the infiltrate and evaporate. While the conventional surfaces will not do it so. The porous pavement surface has become an active participant of hydrological cycle. Rain fall is the run back through soil in ground water. This technology of pavement creates an more efficient land use by removing the need of Retention ponds, other storm water management devices. In doing so, the pervious concrete has the ability to lower the overall project costs on the first-cost basis. The previous concrete, carefully controlled the amount of water and cementation material are used to create a paste that form a thick coating around the aggregate particles. A pervious concrete mixture contain a little or no sand, creating the substantial void content. The porous asphalt with near to no use of bitumen was the quiet difficult task but we tried our best to innovate a road with no use of bitumen but it was a difficult task which also shows many negative impact but we to will tried to overcome with this problem. Our problem is that the roads will face drainage problem if we use bitumen and the cost will also increase and to reduce the cost to road we have to think differently. This is the concept which is looking something impossible but definitely this can work one day. We as engineers has to work on this .The good drainage system will be accompanied with roads having this much less use of bitumen.



Fig 1.1 Concrete mix

1.1 Objective

It allows any water that accumulate on the road side to drain through the surface and enter into the ground.

It solves the problem of flooding roads at rainy season.

To collect rain water instead of wasting it.

II. CASE STUDY

Generally the compressive strength of the pervious concrete is less the conventional concrete to justify the various compressive strength of cube with different fine fractions this test is conducted. Compressive strength is the resistance of a material to breaking under compression.

- Remove the specimen from water after 7 days curing time and wipe out excess water from the surface
- Clean the bearing surface of the testing machine.
- Place the specimen in the machine in such a manner that the load shall be applied to the opposite sides of the cube cast.
- Align the specimen centrally on the base plate of the machine.
- Rotate the movable portion gently by hand so that it touches the top surface of the specimen.
- Apply the load gradually without shock and continuously at the rate of 140 kg/cm² /minute till the specimen fails.
- Record the maximum load and note any unusual features in the type of failure.



Fig 2,1 Compression testing Machine

As the percentage of fly ash increases the compressive strength of concrete tends to increase up to certain percentage and then start's decreasing with the increase of ash content. The strength of 10% fly ash concrete is more than 5% fly ash concrete and strength of 5% fly ash concrete is more than normal concrete. This shows that till 10% fly ash concrete the strength increases while percentage of sugarcane bagasse ash increases.

III. RESULTS AND DISCUSSION

As the concrete used in the formation of the road plays the major role. The concrete used is of uniform size and it shows porous nature. The replacement of bitumen is also a controversial point to discuss and further deep study on this point is needed. As till now we know that concrete is the most important material for the construction of the road. But in this road construction we tried to fully replace the bitumen which shows various problems which we are trying to overcome in the future. Further test will be performed .

Compressive strength test result:-

Table 3.1 % of material vs & days compressive strength

%of material	7 days compressive strength
0	20.12mpa
5	22.83mpa
10	24.85mpa
15	21.63mpa



Fig 3.1 Concrete mixture

IV. CONCLUSION

1. This paper conclude the relation of the values of porous asphalt in the project.
2. Water quality control aspect and design maintenance are relevant to the practitioner. The most important target is the pollutants hydrocarbon, heavy metals and nutrients.
3. New inventions highlight and explained the further research work which was outlined. The development of cooling water treatment and recycling payment system is promising.

V. REFERENCES

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