Waste Management and Disposal Plan in Two Laning with Paved Shoulder of Magadi to near Somwarpeth (Km 51.000 to Km 221.833) of Karnataka State Highway (SH-85), INDIA.

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Abstarct:

Mainly the Municipal Solid waste, Constructional and Demolition waste is the waste Majorly genearated from the different activities. These waste is an Environmentaly, Socialy,Economically Challenge to Government. This study of Waste Management is to encourage Reduce from Source, Reuse and Recycling of Waste. This Paper refer the recifying the amount of constructional waste produced from the during of highway Construction. The waste which is produced during a Road Construction, Demolision, renovation, realignment activities are called as Constructional Waste. The waste which is produced during Demolision of Existing roads, old minor bridges, is called Demolision Waste. The Contractor will provide separate garbage bins for biodegradable, non-biodegradable and hazardous wastes in the camps and ensure these are regularly emptied and disposed-off in a hygienic manner. So in this paper , describe about Solid waste management in Road construction Camp, office, Material Testing Lab, Highways, Quarrey , Barrow areas. etc. The Management of Construction waste debris as per annexure 8.7

Key Words: Waste Management, Disposal plan, Constructional Waste, Bituminous Waste.

Introduction:

As per Karnataka Government (Karnataka State Highway Improvement project-KSHIP) guideline for Sitting & Management of Debris disposal waste Discarded Plastic bags, Paper and Paper products, Bottles, Packaging Material, Gunny bags, Hessian, Metal Containers, Strips and Scraps of metal, PVC Pipe, Scrubber and Poly Urethane foam, Auto mobile Spares, Tubes, Tires, Belts, Filters, Waste oil,

Drums and other such materials shall be either Reused or Sold /Given out for Recycling. This Paper Mainly focus on the Reuse and Reutilization of Waste materials. .No Incineration or Burning of wastes shall be carried out by the Contractor. . The disposal of any Biodegradable matter shall be carried out in Pits covered with a layer of Earth within camp Site. POL (Petroleum, Oil and Lubricants) Waste shall be disposed-off by transfer only to Recycler/Re-refiners possessing valid authorization from the State Pollution Control Board (KSPCB) and Valid Registration from the Central Pollution Control Board. Used Lead Batteries, disposed as per proposed draft rules called the Battery Waste Management Rules 2020 includes Batteries of all kinds, unlike Batteries (Management & Handling) Rules 2001 will be Resold as By back policy.Quarry areas Should be Protected from Illegal dumping of waste by Third parties. The Overburden will be kept as Minimum to Maximize the Commercial Efficiency of the Quarry, It can be utilized for Creating Earth bunds to Mitigate the Noise and Visual impacts and also for the site Rehabilitation process. No Quarry waste shall be dumped within a 100 m either side of the road. The over burden should be Reused or disposed properly. Site for overburden disposal should be planned within the quarry site or any other appropriate site.

Waste Management and Disposal plan in Two Laning with Paved Shoulder of Magadi to nea Somwarpeth

(Km 51.000 to Km 221.833) of Karnataka State Highway (SH-85)

Policy of Waste management planning is as under based on the types of waste as guided in CA , Appendix L-1 of Schedule- W

- Proper Collection, Transportation & Disposal of waste is Ensured.
- The dry & wet waste segregated from Camp ,accordingly Good industry practice. Kitchen wet waste from Camps Collected in drums & supplied to small Pig farm house to nearby Village Kowdley.
- Dry waste dumped in compost pit made near camps.
- Waste oil for recycling in containers labeled ‘Waste Oil’ & planning to sell to authorized vendors, which is under progress. Waste oil 2000 Litres for recycling in containers labeled ‘Waste Oil’ & sold off to MoEF /SPCB authorized KSPCB vendors.
- Old battery scrap is sent to authorized vendors like EXIDE, etc, for recycling purpose, which is under negotiation.

- ❖ Bituminous waste from Existing Road Reused in road work construction**.**
- ➢ Non bituminous wastes/Extract from old structures are utilized in high embankment , if it is suitable or planning to dump in low laying areas , which is under dissection with local Panchayats /Municipalities. Fly ash will be transported to site in covered dumper.
- ❖ Discarded automobile rubber tires and tubes planning to sold to Vendors.

Materials and Methodology:

The Material and Methodology includes, Study Area, Survey , Types of Constructional and Demolition wastes, Reuse , Reduce, Recycling of Waste Materials, Data Collections and information uses of Wastes are the Primary Data for the Study. All Data's, information collected from the Sources is in well Manner Before start to Analyze.

Classification of waste	Type of waste*	Disposal Methods
Degradable Wastes	Vegetable and food waste	Supplied to village Farmers for Pig farm
Waste water	Sewage waster	Natural treatment (Soak pit)
Construction waste	Filling of Embankment	Near Quarry site Disposal Pit
Hazardous Substances	Rubber tyres & Tubes	Used Tiers are stored and it will be sent to stockyard of headquarter which will be Resold.
Waste oil	Waste oil	Spent Oil is Stored in Camp and will be Sold to authorized Vendor
Bituminous waste	Bituminous waste	Used to fill up the Pot holes in Constructional Road, Low-Laying Area, Road Diversion.
Batteries waste	Used Batteries	Sold as per buyback policy

Abstract of Utilization of Waste Management

Location for Waste storage areas to be identified & shed to be built for following waste

1. Oil waste.
2. Batteries waste.
3. Plastic waste.
4. Paper & Packaging waste.

5. Kitchen Wet waste from Camps supplied to Pig farm house.

6. Dry waste dumped in Pit.

Waste location sites identified at sites near store area in camp & will be labeled according to types of waste. The dry & wet waste segregated from camp accordingly available practices. 7 Waste Management Plan as per Annexure 8.8a of CA

Debris disposal Point: Bituminous & Non Bituminous debris ,This is as per Comprehensive Waste Management Plan as per Annex 8.8 Bituminous waste extracting from existing road materials are Milled & Proposed to reused for WMM. The bituminous waste will be used for development of roads inside the Construction Camps, Diversion roads and filling Pot holes in Rural roads.

Figure Shows the Photograph for Extracting of Milling Material from Existing Road.

Above figure Shows a Sample Bituminous Waste Materials.

Further the Surplus Extracted existing Bituminous Material is dispose in low laying area at location KM: 122+150 LHS, the arrangements are made according to EMP norms is as shown in the photos. The proposed pit for disposal is about area 50 Sq.m, having Holding capacity about 200 cum.

Preparation of pit for disposal

Spreading of Impervious layer at km :97+000 for disposal of bituminous waste

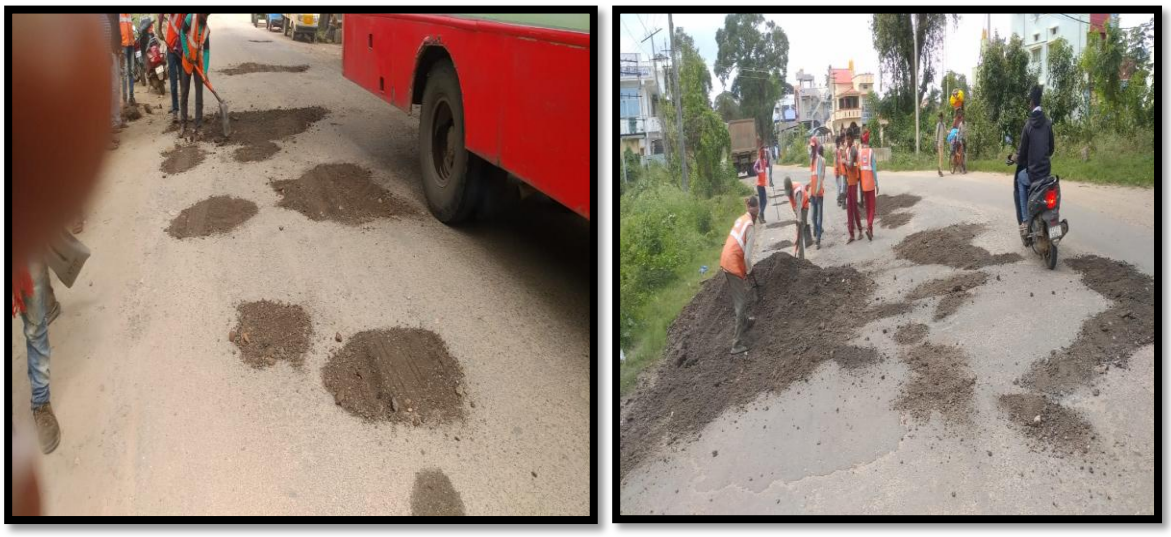
Spreading of Clay Soil

Collection of Clay Soil

Photo Showing Debris Dispose to Prepared Pit

Spreading of Clay Soil at Top Surface

Uses of Bituminous Waste and Non-Bituminous waste (Constructional Waste)



Fig(1) Images shows bituminous waste is used for Road Diversion and hauled roads

Bituminous waste from existing road materials are milled & reused 2 The bituminous waste will be used for development of roads inside the construction camps, haul roads, diversion roads and filling pot holes in rural roads.

The Unsuitable Material dispose-off through filling up of Borrow areas for Rehabilitation of Borrow areas. Presently all Debris collected in Sites are reused & in future if required the debris disposal site will be made till now bituminous is in shortfall & plan to use bituminous scarified materials in WMM. 11 Debris disposal Debris disposal site not identified it should be identified early & proposal

to be sent to IE AS P Appendix L-1 of Schedule 1. Discarded debris material is left after all possible reuse. Since, several kilometers of new Alignment is to be constructed with significant embankment height (2-5 meter) , Debris generated during Dismantling of Existing Pavement Material will be used as filling Material, Approach Road, Pot Holes Roads & in Worker Camp. Debris generated from Structures Locations which Contains Concrete ,And also The Concrete Waste given to villagers for filling Pot Holes roads as per request from villagers.

Results and Discussion:

The Total length of Project up to date tackled 175 to 221.833=46.833Km and Realignment Length is 01.070 Km . Forest Length is 00.343 Km, Curve Improvement 07.040 Km, Rest of above Work not tackled 12.030 Km approx ,Earth work filling more than 1m is 14.350 Km, Total scarified bitumen area approximately is 12.000 Km Total Qty=12000x 3 x 0.04 Mtr is 1440.00 Cum of the waste Bituminous Wastes are Used.

Bituminous waste used in haul roads & diversion road approximate quantities	
Total length of Project up to date tackled (175 to 221.833=46.833Km)	46.833 Km
Realignment Length	01.070 Km
Forest Length	00.343 Km
Curve Improvement	07.040 Km
Rest of above Work not tackled	12.030 Km approx
Earth work filling more than 1m	14.350 Km
Total scarified bitumen area approximately	12.000 Km
Total Qty=12000x 3 x 0.04 mtr	1440.00 Cum

Bituminous waste used in haul roads & diversion road approximate quantities	
Total length of Project up to date tackled (51 to 175=124Km)	124 Km
Realignment Length	17.92 Km
Forest area	14.566 Km
Curve Improvement	24.23 Km
Common Portion	4.87 Km
Rest of above Work not tackled	15.0 Km approx
Earth work filling more than 1m	20.0 Km approx
Total scarified bitumen area approximately	27.414 Km
Total Qty=27414 x 3 x 0.04 meter	3289.68 Cu.m

The Table Shows, Waste is Generated by Chainage or Km wise along a State Highway- SH-85 Project.

Type of Construction waste	Location /Chainage		Estimated quantity generated (cum)	Re-used Quantity (cum)	Remaining quantity for disposal (cum)	Type of utilization/ reused	Location of utilization	Disposed Quantity (cum)	Disposal Location	Remarks
	From (km)	To (Km)								
Bituminous Waste	51+00	175+00	3289.68	80	100	Reused in Diversion, approach Road, Filling pot holes in Road	Between km 51+00 to 75+00	20	94+00	Approach road Refer photo-1
		221+833	1440.0	-						
Construction waste Non-bituminous Waste	54+00	100+00	20	5	15	Filling of embankment	In km 58+00	15	92+00	Near quarry site Disposal location -1
Domestic waste (Food material) - Camp-1	94+000	-	100	100	0	To Pig farm	Kowdley village	00	-	Per month
Domestic waste (food material) -Camp -2	174+00	-								
Other domestic (Household waste) -Camp-1	94+00		40 km	00	40	-	-	40	94+00	All the generated domestic waste material is disposed

										within camp in disposal pit.
Other domestic (Household waste) -Camp-2	174+00									
Other waste – Spent oil	94+00		100	40	60	To be sold	-	-	-	spent oil is stored in camp and it is sold to authorized vender
Used tyres										Tiers are stored, and sent to stockyard of headquarter which will be resold.
Used scrap/metals										Stored in base camp and sent to headquarter yard
Battery										Sold as per buyback policy.

Conclusion:

It has been established that waste materials and components from demolished Existing Road are being reused for Hauled roads work as well as in low laying areas in this Paper describe the this recycled material used for the road construction purpose. And also it reduced the cost of the road project also, in fact by reusing the and reducing, recycling the waste materials like debris such as Constructional and Demolition waste Ex. Bituminous waste these wastes are comes from the demolition of Existing Road and these wastes are used as filling of Pot holes in the Roads .and hence We can reduce the use of Natural Resources and we can Minimize the Environmental Pollution of Earth by less amount disposal of Solid Waste, Demolition and Constructional Wastes into Sanitary Landfills Sites.

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