A Detailed Report On Storm water Drain Risk And Analysis In Construction Management

M.Baskar[1], Soundhirarajan.K[2]
[1]Dept of civil Engineering
[2]Asst Prof., Dept of civil Engineering
[1, 2] Gnanamani College of Technology, Namakkal, Tamilnadu. India

Abstract- *The height of the drain surface should be 6 inches above road level Inlet chambers with rainwater harvesting are set up every 30 m to collect more rainwater and increase the groundwater level. Pre-cast RCC drainage is recommended depending on the condition of the site with inputs at 10 m intervals. PVC pipes are provided at storm water drain crossings to accommodate electricity and other uses.*

The canals are built with a retaining wall, which retains the banks of the earth and the earth subsides during floods, giving the canal an aesthetic appearance. There is a ground facility to make it easy for people and machinery to do the dredging work. Sewage always goes through some storm drains that pass through densely populated areas, commercial areas and areas without sewers.

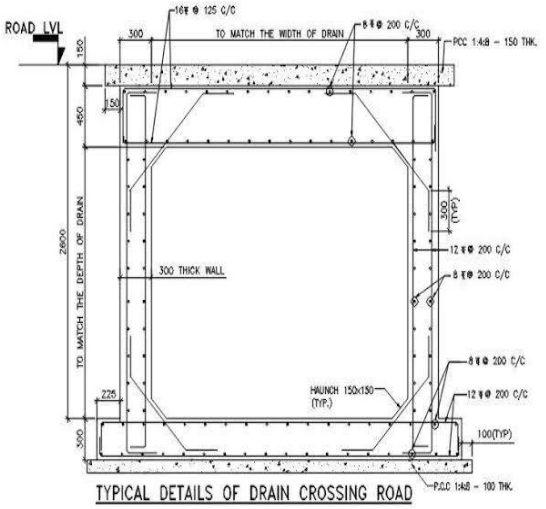
I. INTRODUCTION

Now-a-days, in modern world, people need safe and fastest transportation which requires a road system. As we know that there is vast improvement in pavement design construction and maintenance, But for our developing country (India), we need a road system which is more economical. The main reason for that was construction of buildings in lakes and lack of infiltration of rain water because the whole area is covered by buildings and pavements. In order to prevent storm water stagnation on pavement, we adopt porous pavement by crumb rubber modified bitumen . We choose our study area as vellachery and Indiranagar in Chennai.Gutters are efficient flow conveyance structures. This is not always an advantage if removal of pollutants and reduction of runoff is an objective. Therefore, impervious surfaces should be disconnected hydrologically where possible and runoff should be allowed to flow across pervious surfaces or through grass channels. Gutters should be used only after other options have been investigated and only after runoff has had as much chance as possible to infiltrate and filter through vegetated areas. It may be possible not to use gutters at all, or to modify them to channel runoff to off road pervious areas or open channels. Use road cross sections that include grass channels or swales instead of gutters to provide for pollution reduction and reduce the impervious area required illustrates a roadway cross section that eliminates gutters for residential neighborhoods For example, curb opening type designs take roadway runoff to smaller feeder grass channels.

Care should be taken not to create erosion problems in off-road areas .Protection during construction, establishment of strong stands of grass, and active maintenance may be necessary in some areas.

POROUS PAVEMENTIN STORM DRAIN

Porous pavement provides a way to percolate rain water and prevents water stagnation on roads. Lot of porous pavements and designs are there. Our idea is using crumb rubber as admixture with bitumen. The strength and rutting resistance of pavement is more than the conventional As crumb rubber is the waste material from tire recycling process in industries, it reduces the volume of waste in disposal yards .Crumb rubber modified bitumen (Initially, both bitumen and crumb rubber is weighed. After that, bitumen is heated at 125°C for 1 to 2 hours and then crumb rubber is added about 15% of bitumen by weight with that and heated for 30 minutes to 1 hour. It is used in order to resist the direct infiltration of water into soil. Perforated Pipe The perforated pipe of 8 cm diameter is used to collect water from reservoir layer.Reservoir layer is the main part in design as it can withstand the total load above it. The thickness of about 20-30 cm of aggregate size 40-50 mm with 40 % voids is used. The drain pipe having perforated voids of size 8 cm diameter is used in bottom of reservoir layer to collect the water and send it to storage tanks



TYPICAL DETAILS OF DRAIN CROSSING ROAD

RISK AND ANALYSIS,

Risk and analysis in storm drain and porous Pavement Bubblers which is used for regulating water flow from the tank to the canal, which aids in reducing the mud content in the water. Considering the size of the waterbody, several such bubblers will be installed in different spots.

STORM DRAIN EXCAVATION HAZARDS

Soil classification. Depth of cut. The water content of the soil.Changes due to weather and climate. Other operations in the vicinity .The employer or his designee must select and construct designs of support systems, shield systems, and other protective systems. Trenches more than 5 feet require shoring or must have a stabilized slope .

CONTROL FACTORS

Various factors need to be considered while designing a protective system against the hazards and risks of excavation. Those are Soil classification, Depth of cut, The water content of the soil, Changes due to weather and climate ,Other operations in the vicinity .The employer or his designee must select and construct designs of support systems, shield systems, and other protective systems.

CABLE LAYING

Shock from buried Cables. The area to be excavated shall be carefully seen for possible Cables laid already. Excavation permit shall be taken. While excavating near the Cables, the Cables shall be de energized. Area around the Cable shall be excavated with utmost care.

TAKING IR VALUE / HV TEST

a)Shock hazard due to test voltage

Ensure that the persons are away from the Cable terminals while Merging. Ensure that the Cable terminals at the farther end and are safe and isolated from human approach/caution boards are put. Discharge of Earth Cable before work.

b) Shock hazard due to wrong identification of cable.

Ensure that the Cable ends are properly identified before start Check the presence of Voltage by line tester/test lamp for L.T. Test for the presence of voltage by rein voltage Indicator for HT

Cable locating devices

Before work begins, underground cables must be located, identified and clearly marked. The position of the cable in or near the proposed work area should be pinpointed as accurately as possible by means of a locating device, using plans, and other information as a guide to the possible location of services and to help interpret the signal. Locators should be used frequently and repeatedly during the course of the work. People who use a locator should have received thorough training in its use and limitations. Locating devices should always be used in accordance with the manufacturer's instructions, regularly checked and maintained in good working order . Safe digging practices Excavation work should be carried out carefully and follow recognized safe digging practices. Once a locating device has been used to determine cable positions and routes, excavation may take place, with trial holes dug using suitable hand tools as necessary to confirm this.Excavate alongside the service rather than directly above it. Final exposure of the service by horizontal digging is recommended, as the force applied to hand tools can be controlled more effectively.Insulated tools should be used when hand digging near electric cables

ENVIRONMENTAL RISK

Stormwater running over rural land or from our catchment towns can pick up a range of pollutants: dissolved chemicals from various sources including pesticides and herbicides. waste from livestock and pets. sewerage and effluent from falling onsite wastewater treatment systems.

SAFETY RISK ANALYSIS OF PIPELINE

Due to soil unloading, the excavation leads to the movement of the bracing and underground continuous wall system (BUCWS), which led to the underground pipeline

displacement adjacent to the UCW. Wang et al. show that the pipeline failure is caused by differential ground movement associated with adjacent excavation, and the patterns of pipeline failure include transverse fractures caused by longitudinal bending moment and joint leakage of flexible pipes. In general, the pipeline damage is mainly in the following two modes:

(1) Pipeline damage by overlarge stress. On the effect of additional stress and strain, the pipeline (usually the flexible pipeline) will be deformed, which may cause the pipeline yield, cracks, and damage.

(2) Pipeline joint damage caused by overlarge deformation. Pipeline joint overlarge deformation and damage commonly appear in rigid pipelines under the excessive stress. Therefore, it is necessary to take measures to reduce the stress and displacement of pipelines

SHORING IN CONSTRUCTION

Shoring in construction means erecting a temporary structure to support unsafe excavation walls or other unsafe structures till work is finished. Provides a framework to work in Uses Wales, cross braces and uprights. Supports excavation wall Must know the soil type.

II. CONCLUSION

The performed flood analysis is based on up-to-date topographic and ground survey data of the investigated area. The obtained design floods in the previous design are overestimated due to the use of not recommended methodologies. The overestimated flood flows imposed reconstruction and rehabilitation of the existing storm sewer system which include:

a) construction of additional culvert under the runway,
b) construction of pumping station and diversion of pumped water The proposed technical measures are not only high costly, but are not recommended in flood control and flood management of urban areas. Therefore, the achievements of the performed analysis presented in this paper can be summarized as it follows. Analyzing the inflow and outflow hydrographs it is obvious that there is no significant delay of the peak flows, but there is significant peak flow reduction due to the retention capacity of the topographic area

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