



INTERNATIONAL JOURNAL OF ADVANCE RESEARCH, IDEAS AND INNOVATIONS IN TECHNOLOGY

ISSN: 2454-132X

Impact Factor: 6.078

(Volume 8, Issue 1 - V8I1-1304)

Available online at: <https://www.ijariit.com>

Converting chemical disposal plant Into artificial lake

Ria Gawai

ce2019.ria.gawai@ves.ac.in

Vivekanand Education Society's Polytechnic
College, Mumbai, Maharashtra

Sakshi Bhatt

ce2019.sakshi.bhatt@ves.ac.in

Vivekanand Education Society's Polytechnic
College, Mumbai, Maharashtra

Shruti Gholap

ce2019.shruti.gholap@ves.ac.in

Vivekanand Education Society's Polytechnic
College, Mumbai, Maharashtra

Mansee Pol

ce2019.mansee.pol@ves.ac.in

Vivekanand Education Society's Polytechnic College, Mumbai,
Maharashtra

Shobhana Walavalkar

shobhana.walavalkar@ves.ac.in

Vivekanand Education Society's Polytechnic College, Mumbai,
Maharashtra

ABSTRACT

Converting chemical disposal plant into artificial lake can be very useful for the areas where there are chemical industries nearby as they dump waste chemicals or chemicals which are not useful as soil is not good due to chemical disposed, we cannot construct buildings or any structure over there to overcome this problem we have come up with this project that is converting chemical disposal plant into artificial lake. Artificial lakes were built to store water for agricultural purposes, to guarantee water supply, in time, and irrigate the land. An artificial lake, in certain environments, can be used for naturalistic purposes, like the creation of bird habitats. Other smaller artificial lakes, with reduced dimensions, have also been built with an aesthetic purpose in mind, especially in parks, but also sports fishing purposes.

Keywords:

AUTOCAD.

1. INTRODUCTION

An artificial lake in a body of fresh water greater than 1 ha in area created by human invention in a location where a lake would not naturally exist. The project is based to make an artificial lake out of the area where the soil is hampered in a very bad way, because of that we cannot construct a structure in that area. In this project, we have tried not to saturate water for a very long time, as saturated water can cause various types of diseases which are harmful not only for aquatic lives but also for people visiting in that area or the people staying near that area. Also, the most important chemicals in a lake are nitrogen and phosphorus. These chemicals allow nutrient-rich plants and algae to grow. Other organisms feed off these plants and algae, creating a complex, healthy ecosystem.

2. OBJECTIVES OF THE PROJECT

The objectives of the project are mentioned below

1. To prevent the area from getting more spoiled.

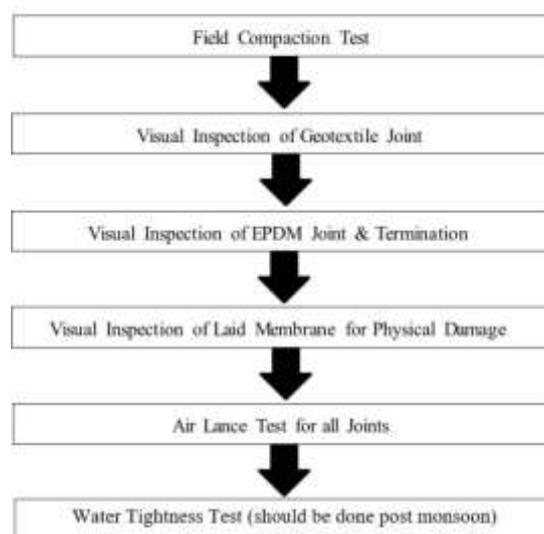
2. To design, build and maintain the artificial lake.

3. METHODOLOGY

How the project will work?

First, the area was surveyed. Checking of the soil was the next step. Thought & Discussed about all the pros and cons. As soon as the project was finalized. The excavation process for the lake was planned. Hydro geological consultant visits were done to check intensity of groundwater and to seek advice to divert water. Geotechnical consultants visit to seek advice to divert water. Water testing of groundwater was done to check for dissolved impurities or chemicals. After that the water test results were shared with manufacturer to ascertain compatibility with EPDM membrane. Planning was done to construct 3 Sumps at different locations. The next step was, construction of drainage media layers. After that soil slope profiling is the next manually done step by sprinkling water. Many tests were done on soil compaction.

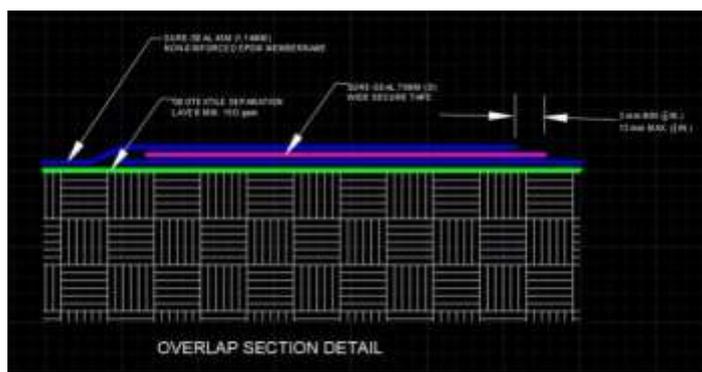
Flowchart Of Quality Tests at a Glance



Steps are provided. Surface preparation at steps is very important step as it includes grinding of sharp corners, cleaning of concrete surface etc. Started planning of laying the geotextile sheet with the help of adhesive. Overlapping the laying of EPDM membrane on geotextile sheet. Termination sections and overlapping sections are shown in detail with the help of AutoCAD.

Termination of EPDM membrane on concrete surface and on soil has been provided. Termination of EPDM membrane around penetration of sump is compulsory. Final procedure, air lance testing which should be done at 50 bar air pressure & then finally lake filling

OVERLAPPING SECTION IN DETAIL ON AUTOCAD



4. FUTURE SCOPE

Many types of work can be done in future with artificial lake. Artificial lake built with an aesthetic purpose in mind especially in parks or sport fishing purpose and it is made to save water. So, it does not get dry during summer. Lake constitutes important habitats and food resources for diverse array of fish aquatic life and wildlife lake ecosystems and under grow rapid environmental changes often leading to significant decline in the aesthetics recreational and aquatic ecosystem functions. Artificial lake will maintain the ecosystem and to generate hydroelectric power. Due to this sport fishing, people staying nearby also get an opportunity to work there and earn on daily wages. The reason of keeping aquatic lives in the lake is that it does not allow the water to pollute in extreme manner. Even, there are water filters and fountains which recycles the water and doesn't keep it saturated.

5. REFERENCES

Max Gibbs (2012): Review Paper on Guidelines for Artificial Lake.

The guidelines for artificial lakes were produced in response to a need for a better understanding of how water quality and water quality management issues should be addressed in the planning and resource consent process. As with dam design, construction and operation, water quality management, monitoring and mitigation are specialist fields that councils may not have readily available in-house. It is the intention of the Guidelines to provide a summary of the relevant information in one place as a first step for understanding the processes that occur in water when it is impounded in an artificial lake.

Chris Hickey (2012): Review Paper on Guidelines for Artificial Lake.

The majority of artificial lakes were built to generate electricity. Collecting water from large artificial basins - filled with the waters of nearby rivers and torrents - can in fact regulate the water level, exploiting the kinetic energy as the water falls downwards. Chemical waste is regulated by the Environmental Protection Agency (EPA) through the Resource Conservation and Recovery Act (RCRA). It cannot be disposed of in regular trash or in the sewer system. Most chemical wastes must be disposed of through the EHS Hazardous Waste Program. Increased levels of toxic substances can cause genetic defects, disease, headaches, nausea and many more issues that can seriously impact human life. Anytime you dump or release chemical waste, it will have an effect. As it rains, those chemicals are washed into rivers, which feeds the waterfalls and then goes into the ocean. Improperly disposed chemicals pollute marine life and kills sea mammals, corals, and fish.

M. Raj Sekhar (2009): Study of Lakes & surface water reservoir are the planet's most important fresh water resources and provided innumerable benefit. They are source of water for domestic use and Irrigation and renewable energy in the form of hydropower and are essential for induction. They have important social and economic benefits as a result of tourism and recreation and are culturally and aesthetically important for people throughout the world. The information on the water quality at various depths with the main objectives of presenting the base line data before the proposed hypolimnetic aeration to restore the lake.

- [1] <https://books.google.co.in/books?id=hSxCQEjqVfoC&printsec=frontcover#v=onepage&q=converting%20chemical%20disposal%20plant%20into%20artificial%20lake&f=false>
- [2] <https://scholar.google.com/>
- [3] <https://www.ideals.illinois.edu/bitstream/handle/2142/99839/ISWSCR-429.pdf?sequence=2>