



CASE STUDY

Stormwater Retention System

DESCRIPTION

Ensuring this recycling and the solid waste facility was able to maintain compliance with strict regulatory directives by preventing any untreated surface water from leaving the site during rain events. This project included the installation of a large stormwater retention system that implemented various methods of collecting runoff and a complex filtration system.

MAIN TASKS

- Design the stormwater retention system to fit within the footprint of a large parking area and maximize the use of existing infrastructure.
- Saw cutting and removal of all pavement.
- Install collection drains, pre-filters, drain boxes, and PCV conveyance pipes.
- Create an infiltration bed in a 6' deep excavation with 2' of ¾" crushed rock, a filter fabric cover, and corrugated 3' diameter pipes.
- Rebuild the inflow and outflow of the existing 3-stage clarifier.
- Backfill the infiltration gallery with ¾" crushed rock.
- Resurface the entire area.

CHALLENGES

Site Traffic – The facility's operations included heavy truck traffic throughout the day, which required a carefully coordinated workflow.

Excavation Risks – The site's native soils were mostly sand below 2ft, which meant the careful implementation of construction and sloping techniques were required to avoid sidewall collapse during excavation.

INTERESTING POINTS

Acting as a collection, filtration, and dispersion system, this stormwater

retention system was designed to collect all surface water – including stormwater and facilities operational runoff – and ensure it is directed safely back into the groundwater through two large infiltration galleries.

The stormwater retention system consisted of:

A collection drains with pre-filters at every location where water could leave the property.

PCV conveyance pipes collecting from all the drain boxes and routing back to a 3-stage clarifier.

Two filtration galleries that accept the outflow from the clarifier – made of several rows of large diameter, corrugated half-pipe sections that were constructed in an excavation with a bed of crushed rock.

On completion, the entire area was resurfaced with reinforced concrete.



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