The St. Kilda Triangle a been identified as being very susceptible to flooding and storm surges and while Melbourne has taken steps in stormwater management and treatment, there is evidently no initiative for St. Kilda. For this reason it appears to a viable decision to construct a stormwater park with featured ponds and wetlands to help mitigate the risk of flooding while also generating sustainable energy in the process.

Roughly 4,700 ML of untreated stormwater enters Port Phillip Bay per year without filtration and it is the design intent to collect this water for filtration, retention, and energy production.

By constructing a wetland environment, collected stormwater is able to be filtered while also allowing visitors to celebrate its use and utilize it for building requirements. Wooden walkways are constructed amongst the reeds and marshes that guide pedestrians to a multipurpose use concrete cultural center with reflecting pools that allow for light filtration within the building. This cultural center is separated into three parts integrated within the sloping landscape where visitors can have an embedded underground experience while also interacting with the environment. Dimensions for the whole center are roughly 237’ x 223’ x 233’.

Three natural ponds are to be constructed that would be retain filtered stormwater collected. Pools constructed on top of hardscape would be mainly used to generate energy through use of microtubular turbines that use the elevation shift of a 5ft drop to force water into the turbine to produce electrical energy.

By constructing a stormwater wetland park it is possible for people to wander throughout an urban but natural environment while also lessening the risk of flooding that the area is prone to. By use of hydropower the site can be self-sustainable and still be an attraction destination.

 5ft drop = 1.524 meters

9.8 x 1.524 m x (0.3m^3/s) x 0.75 x 2 = 6.72kW

6.72kW x 24 hours x 365 days x 0.8 (capacity usage)

47,093 kWh per year