How can we apply the integration of environmental technology with permaculture practices in affluent suburban neighborhoods to reduce waste and increase sustainability?

**What is Permaculture?**
Permaculture is a set of agricultural design principles centered around whole systems philosophy, simulating or directly applying the patterns and resilient features observed in natural ecosystems. Through these practices, it will create closed loop energy systems that provide all the needs for humanity, while benefiting the environment.

**Goals:**
- Decrease the carbon footprint of the site by 25% (Achieved)
- Grow 75% of produce on site (Achieved)
- Become more self sustaining through principles of permaculture and environmental technology (Achieved)

**Existing Site Conditions:**
- 1.07 acres in Southampton, New York
- House is south facing
- Existing structures include house, pool house, and 2-car garage
- 24,000 sq ft of turf grass

**Concept Plan:**
Perspective 1: From the NE corner of the house looking NW

This perspective showcases the transformation of the backyard. Previously this was almost all turfgrass. Now, we have 4 plots of berries (marked A), with edible and bee pollinator plants behind them. The greenhouse will be used mostly for seed propagation, while harvesting rainwater that will be stored in the connected cistern. The cistern will be the source for the smart irrigation for the keyhole gardens (marked B), and the plants inside the greenhouse. The last missing piece for this original property was an outdoor kitchen, which will be placed on permeable pavers (marked C).

Perspective 2: From the front door of the house, looking south, toward the street.

This perspective displays the renovation of the front yard. This site, being located in an affluent area, means there is a certain aesthetic look that is expected. This is why I chose to install an orchard in the front yard. This area now, is not only visually appealing, but also produces a high yield of fruits and nuts. A part of Permaculture is to drop the use of any synthetic fertilizers. This is why this orchard contains nitrogen/nutrient fixing plants to supplement for the lack of fertilizers. Some examples of these beneficial plants are Black Locust and alfalfa.