Hauppauge Library
Sustainable Site Strategies

In support of the Library's vision and goals, the site layout and landscape design includes sustainable systems, materials, and elements that provide multiple benefits and values. These green infrastructure strategies are completely integrated with the building/site design form, are synergistic with the library's many uses, and help provide a healthier, more beautiful setting for learning, reading, discovering, and community activities.

Living systems incorporated with the building's mechanical systems will help to achieve a high level of environmental performance and maintain it over time- water supply, water treatment, renewable energy, the building envelope, and indoor air quality. These systems will serve to reinforce the connection between interior space and the outdoors, provide valuable ecosystem services, be restorative to the ecology of Hidden Pond Park, and offer learning opportunities and demonstrations of sustainable practices to library patrons and visitors.

A primary environmental objective is to balance water locally; rainwater will be slowed, cooled, cleansed, stored, and infiltrated (primarily) on the library site. Harvested rainwater will supply water needs in the landscape, as well as potentially non-potable needs indoors (toilet flushing). All water used on-site will be treated with natural living systems and either recycled or returned the groundwater as a resource. This water balance mimics natural hydrology essential to sustain healthy ecology, and will serve as a catalyst to support the restoration of Hidden Pond Park and the Hauppauge region in general. Rainwater will be celebrated and made visible with artful elements to direct water from the roof into storage cisterns which overflow into the landscape, where is will be absorbed. Hardened surfaces will be developed with permeable pavement and/or other methods to direct, cleanse, store, and infiltrate rainwater. Specially engineered rain gardens will help to infiltrate any surplus rainwater from pavement and roof surfaces.

Natural hydrology supports another primary objective, which is to preserve and restore the natural ecology and landscape authentic to Hidden Pond Park as a unique and valuable resource. The portion of the site that retains a native soil structure and supports native plants is being retained and enhanced as a children's garden. The remainder of the site (heavily impacted, containing a road and compacted wooded areas), will be re-vegetated with a diverse array of primarily native and locally adapted plant species. The tree canopy will thinned to mimic a native condition; existing trees to be preserved will be retained in place or temporarily moved to allow for construction and then returned to the site.

Sustainable site features and strategies include:

- **Entry/Wetland Garden**
  The main entrance to the library in the northern courtyard space is adjacent to a created wetland garden that represents the natural wetlands for which Hidden Pond Park is named. This water element will be maintained with harvested rainwater, include aquatic vegetation, and be capable of supporting other aquatic organisms (fish).

- **Reading Garden**
  As a reading garden, the northern portion of the site will provide a pleasant setting for individuals and small groups to gather outside of the adult section of the library, with a paved terrace and seating. This area includes a visible rainwater overflow into the cistern from a portion of the roof, and a rain garden to store and infiltrate any surplus rainwater.

- **South Terrace**
  The south terrace provides a paved surface to provide outdoor gathering space immediately adjacent to the meeting room and the children's section of the library. Rainwater will be directed from the roof surface down into the space, to a small water path leading to the children's garden.

- **Children's Garden**
  The southeast portion of the site includes an area of woodland vegetation evocative of an authentic

woodland landscape native to Long Island. This area will be preserved and enhanced to connect library patrons, especially children, with a sense of the Hidden Pond Park landscape ecology. A small path will meander through the area to a series of small “reading/discovery rooms”.

- **Treatment Wetland**
  The area south of the building will include a treatment wetland, which will pre-treat wastewater from the building before it is released into the infiltration field. Wastewater from the building will be directed to a septic tank, and then flow sub-surface into the treatment wetland, where the bacteria is decomposed and the nutrients largely consumed by plants and other organisms, resulting in clean water. This will provide a valuable demonstration for an ecologically beneficial method of treating wastewater as a resource for Long Island.

- **Vegetated green roof**
  A portion of the building roof will be covered with a vegetated surface (green roof). The waterproofing membrane is married to system of lightweight growing medium (soil) and drainage layer. This will buffer and absorb rainwater, cool the air over the building, protect and add longevity to the roof surface, and other benefits. It will also serve as a valuable demonstration of green building practices.

- **Bio-wall (green wall)**
  Inside the building, indoor air quality will be enhanced with a bio-wall. A type of living (or green) wall, a bio-wall is a vertical surface of vegetation that airflow is directed through. As part of the buildings fresh air system, the plant roots help filter and purify the air, providing a healthier living environment that better supports learning and discovery.

- **Rainwater harvesting and re-use**
  Rainwater from the roof will be directed into several storage cisterns, where it will be available to provide supplemental water for the landscape, including make-up water for the created wetland garden. It may also be used for other non-potable needs, primarily toilet flushing. This will help to reduce reliance on potable water sources, and reduce energy use associated with water transport.

- **Permeable paving/access/parking lot**
  The parking lot immediately west of the library will be slightly re-configured to improve safety and pedestrian movement to and from the library, and to the eastern portion of the Rinx facility. A walkway will be added to the edge of the parking lot, and a mid-lot crosswalk will be incorporated to calm traffic and provide a clear path to the main entrance. The portion along the west edge of the library site may be reconstructed, and any new pavement will be done with high-performance, permeable, interlocking unit pavers. This system of specially designed unit pavers laid over varying depths of open-graded stone provide infiltration, cooling, and cleansing of rainwater, as well as temporary detention storage.

- **Native trees/woodland vegetation**
  Most of the trees on-site are oaks and pines native to Long Island; however, they are at a density that shades out the ground plane, which does not support healthy understory vegetation. Trees will be retained on the undisturbed portions of the site, but thinned to reflect natural conditions. On the portions of the site that will be disturbed for grading and utility installation, trees will be temporarily relocated and then returned to the site once the soil has been properly prepared.

  The ground plane will be planted with perennial grasses, ferns, and flowering forbs native to Long Island, which will approximate the sense of a native woodland. It will vary to the degree that the cultural practices the native plants require are varied. For example, the Long Island landscape was historically sustained by the native people, who burned it annually, and selectively harvested wood from the trees and certain plants for food, medicine, dyes, and clothing. The landscape will be adapted to the type of stewardship (maintenance and care) that can be performed in the garden spaces of the library site.