

# Michael Versen & Associates

## Landscape Architecture ... Land Planning

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# Environmental Design

*“environmentally friendly, functionally efficient, aesthetically unique and cost effective”*

Over the years, Michael Versen & Associates has focused on designing with nature. Good site design begins with respecting the land's natural features of topography, vegetation and other physical characteristics and continues with “green and sustainable” landscape architectural techniques. These techniques reduce reflective heat emission of construction, cleanse and dissipate runoff water, address site construction erosion and enrich the aesthetics.

### **SUSTAINABLE DESIGN & LEED:**

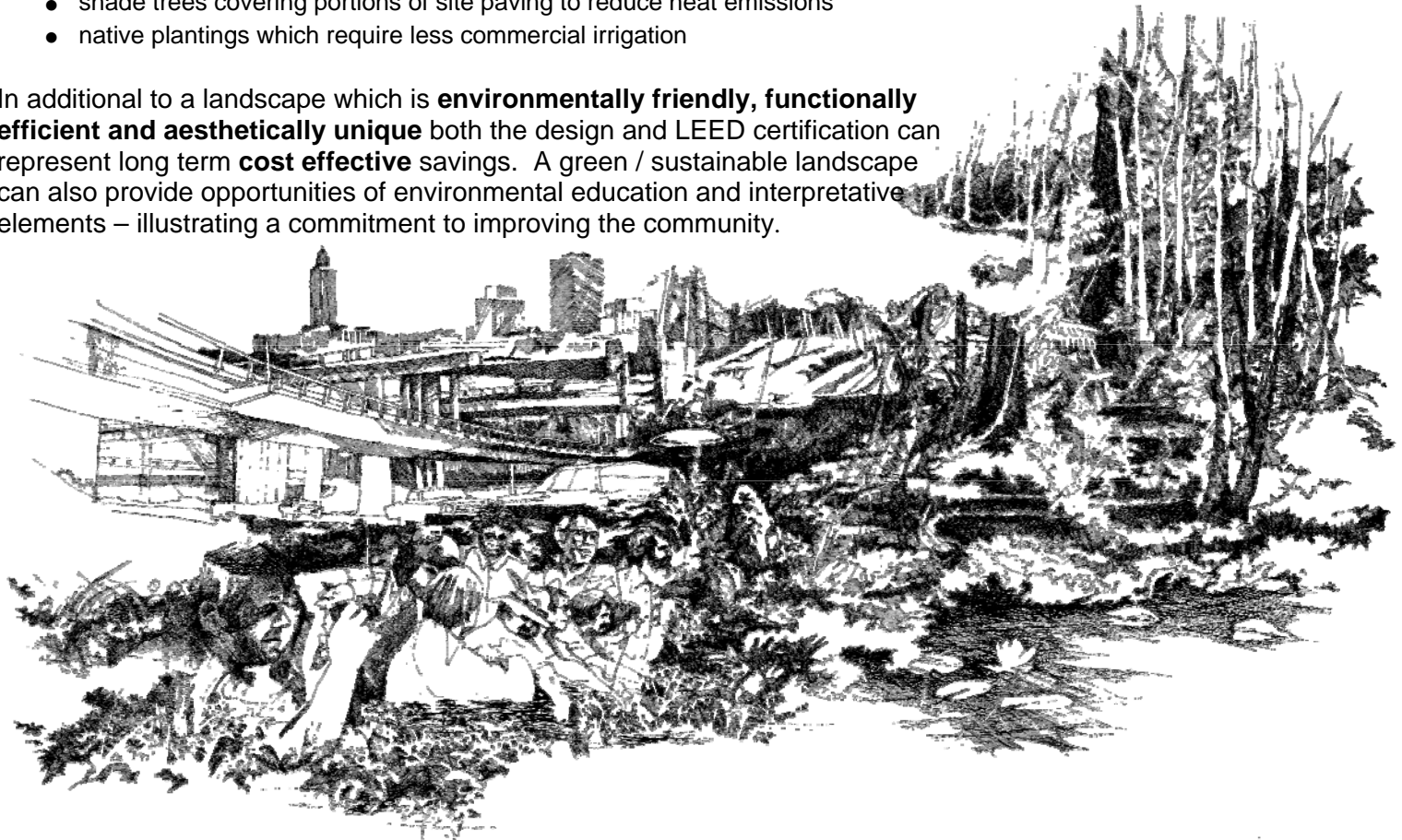
Many projects are now incorporating sustainable design and seeking LEED (Leadership in Energy and Environmental Design) certification for their developments. LEED provides a suite of standards for environmentally

SUSTAINABLE SITES .... WATER EFFICIENCY .... ENERGY AND ATMOSPHERE  
MATERIALS AND RESOURCES .... INNOVATION AND DESIGN PROCESS

Landscape architectural site features which promote LEED credits are:

- rain cisterns and gardens to collect, channel and disperse storm water.
- permeable paving surfaces to reduce water runoff
- bio-detention swales to channel, reduce and clean site water runoff.
- rain gardens to absorb and cleanse excess water
- shade trees covering portions of site paving to reduce heat emissions
- native plantings which require less commercial irrigation

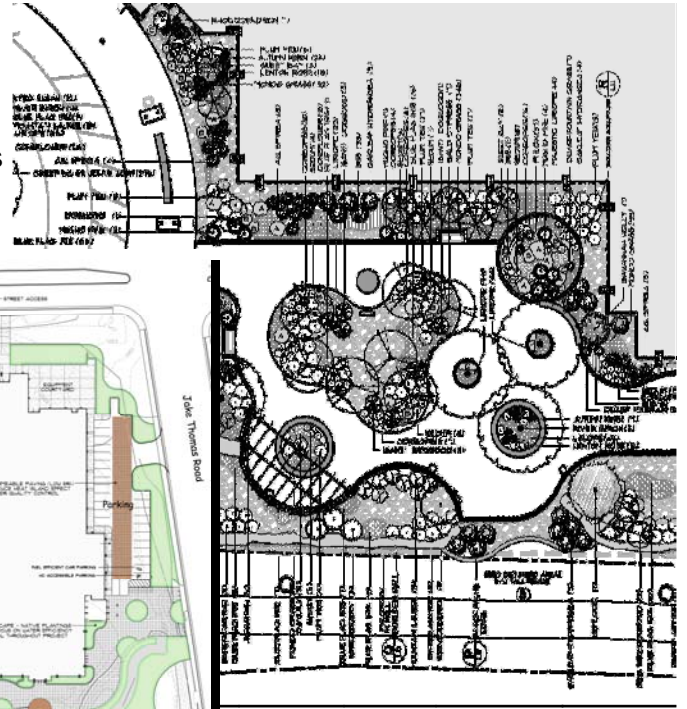
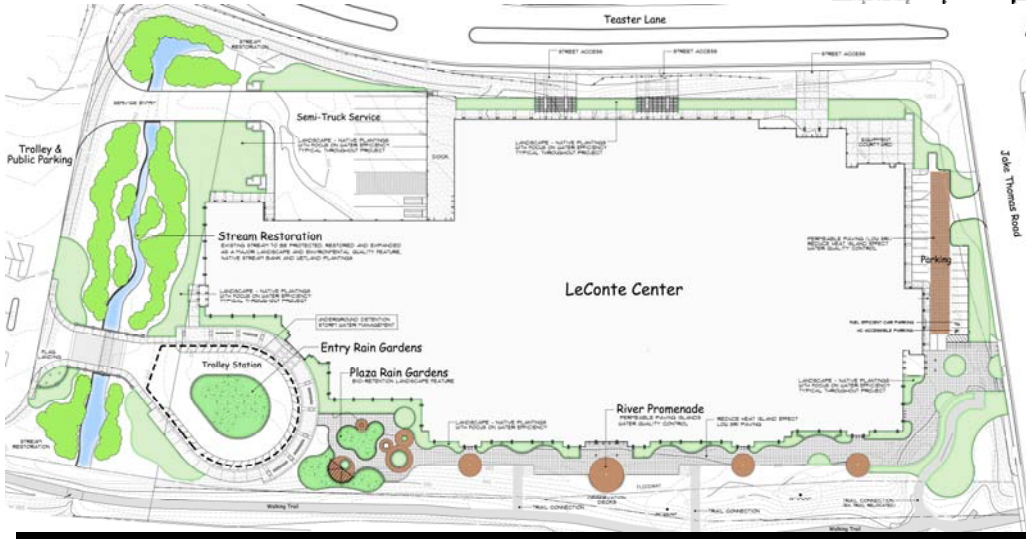
In addition to a landscape which is **environmentally friendly, functionally efficient and aesthetically unique** both the design and LEED certification can represent long term **cost effective** savings. A green / sustainable landscape can also provide opportunities of environmental education and interpretative elements – illustrating a commitment to improving the community.





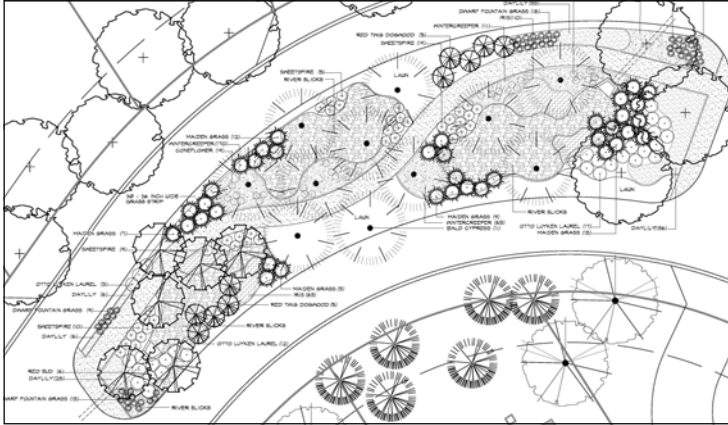
## LeCONTE EVENT CENTER AT PIGEON FORGE

The Center is designed to be the premier convention and community space of the area. Located on the west prong of the Little Pigeon River, the sustainable site design is focused on stream restoration, rain gardens, pervious pavements and a native landscape. Outdoor activity and interpretative spaces are paired with a 750 foot long river promenade featuring organic decorative paving designs.

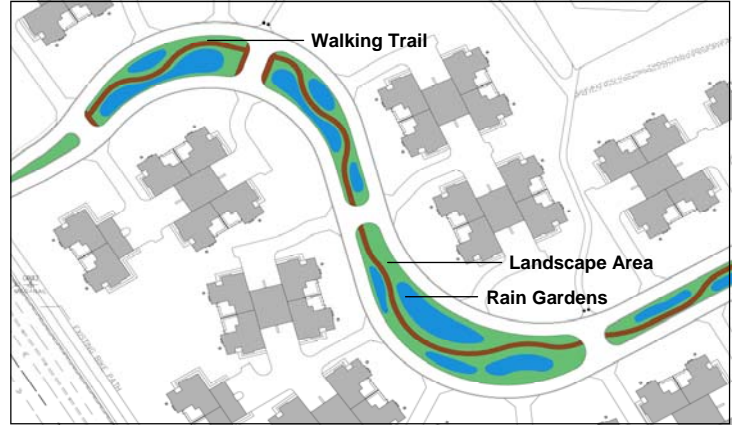




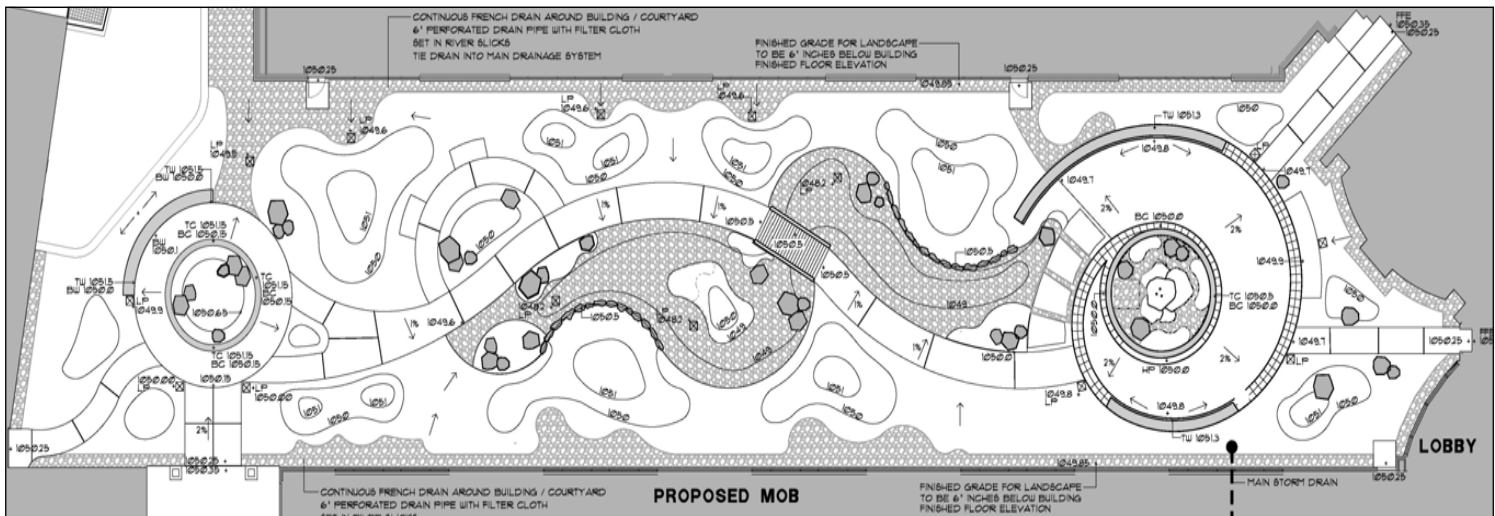
**BOULEVARD BIO-DETECTION SYSTEM PLANTING PLAN**



**BOULEVARD BIO-DETECTION SYSTEM**



**THE COTTAGES AT PRYSE FARMS**, Farragut, TN is multi-family housing which combines the use of large rain gardens and bio-detention swales in a wide median boulevard. Road drainage runs directly into the boulevard bio-detention system. A series of depressions and overflow swales absorb and clean the water before moving it to the detention pond. The site detention pond size is reduced because of the boulevard bio-detention system.



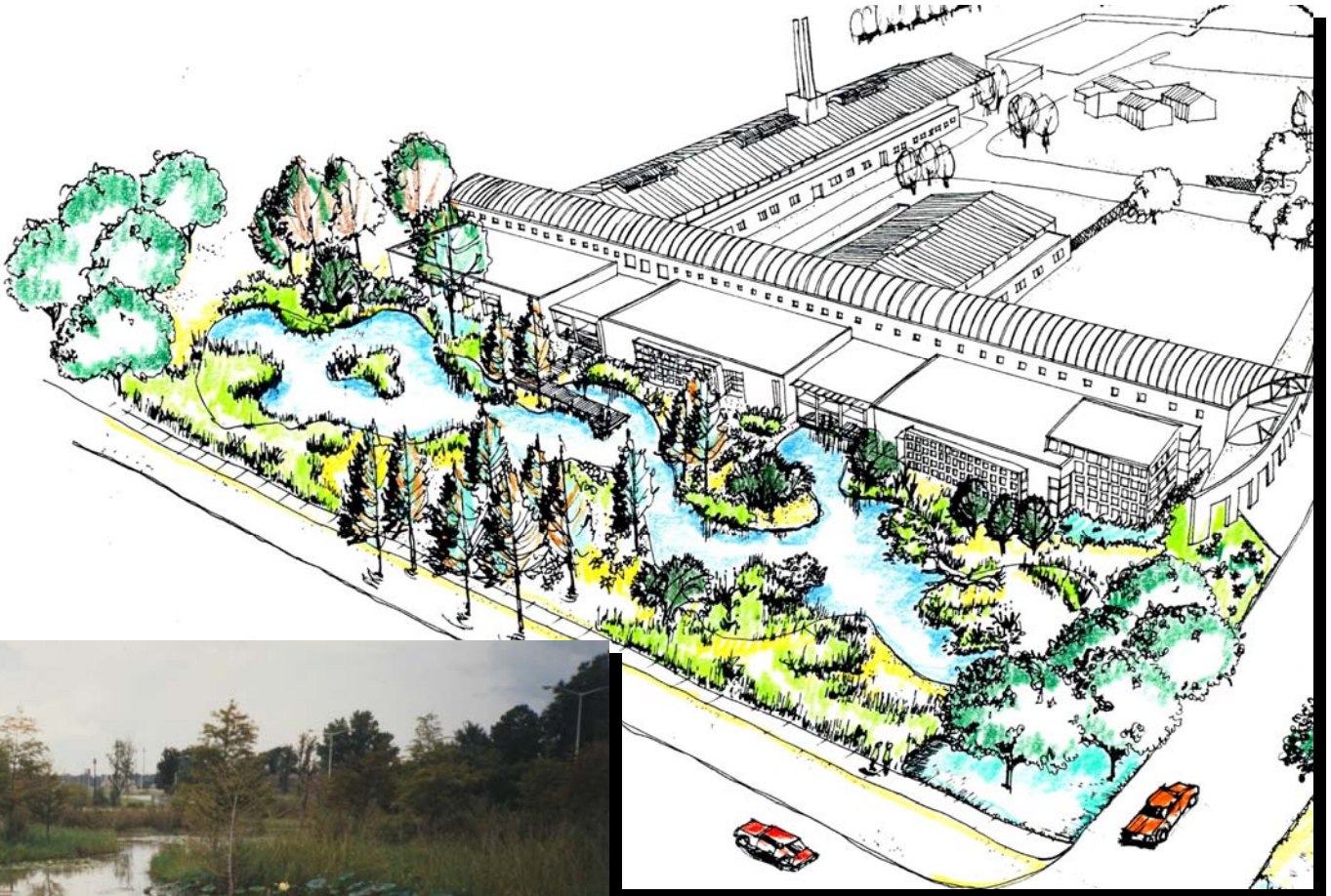
**THE COURTYARD AT ST. MARY'S NORTH MOB**, Knoxville, TN Designed using the "rain garden" concept integrating natural plantings, walkways and outdoor seating areas with bio-detention areas. Downspouts from the buildings were routed to these areas reducing water surge into the storm water drainage system.





**NATIONAL WETLANDS RESEARCH FACILITY** Lafayette, Louisiana

The landscape architectural design concept created a working wetland in an urban environment. The wetlands provide bio-retention of excess site rain runoff and clean impurities from discharged lab water samples. Utilizing an all native plant palette and providing access with a boardwalk system, the wetland is used as an outdoor educational and interpretative classroom for area students. The project exemplifies that a functional bio-detention / retention feature can also be an attractive and educational contribution to the community.

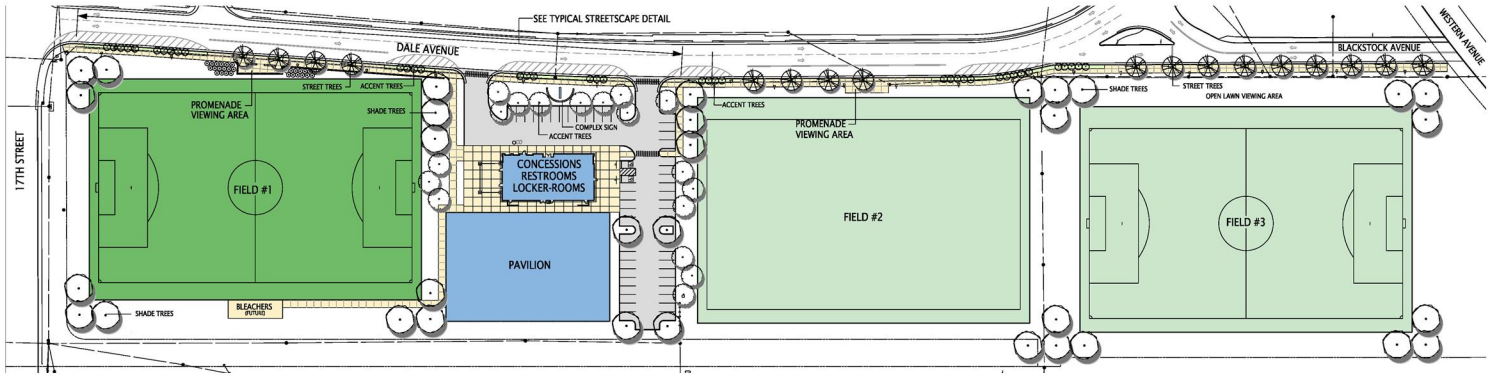




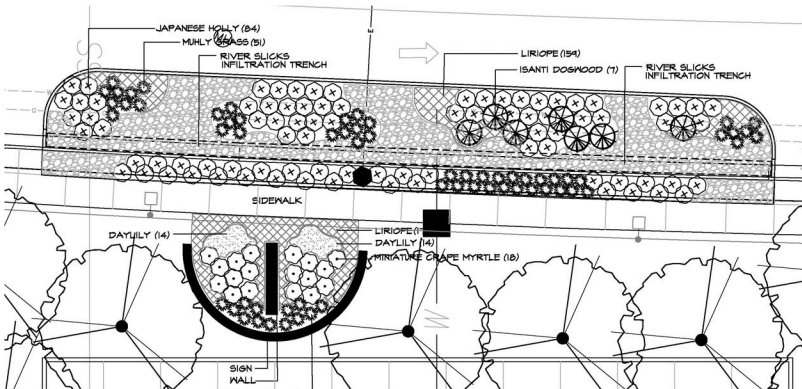
# SANSOM SPORTS COMPLEX STREETScape

Knoxville, Tennessee

Located on Dale Avenue near downtown Knoxville, this new sports complex includes a new 21,600 square foot soccer pavilion and three artificial turf soccer fields with supporting concession and restroom building. Versen and Associates developed the overall master site plan and construction details including rain garden islands.



OVERALL SITE PLAN

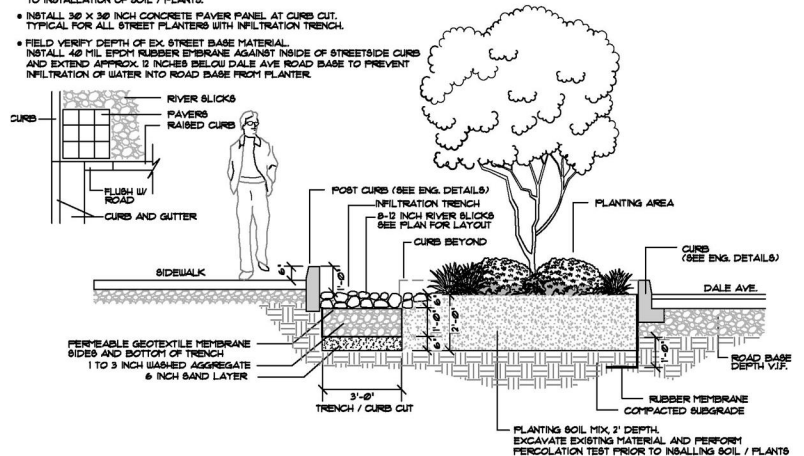


STREETScape DETAIL



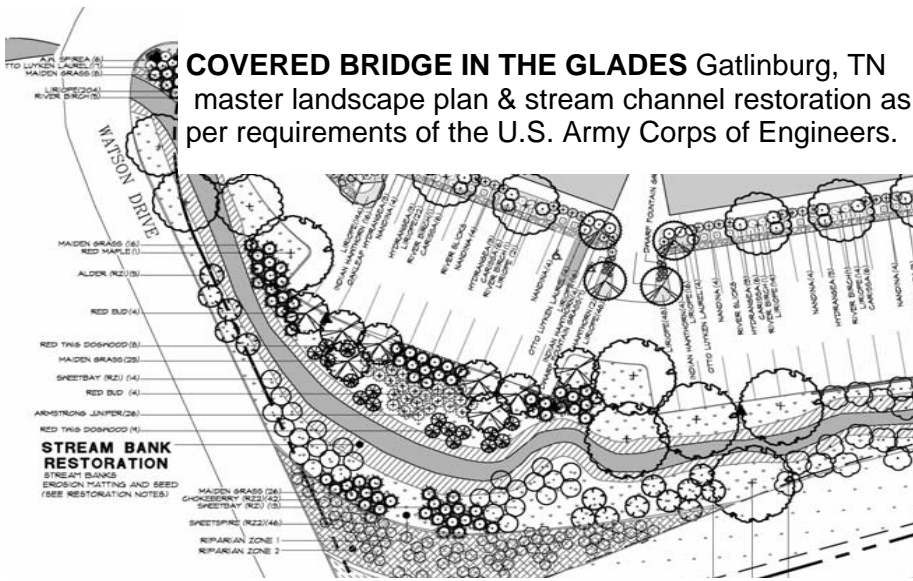
**NOTES:**

- COORDINATE WITH ENGINEERING PLANS FOR CURB LAYOUT AND CONSTRUCTION DETAILS.
- ENSURE PERCOLATION OF SUBSOIL IN PLANTING AREAS PRIOR TO INSTALLATION OF SOIL / PLANTS.
- INSTALL 30 X 30 INCH CONCRETE PAVER PANEL AT CURB CUT. TYPICAL FOR ALL STREET PLANTERS WITH INFILTRATION TRENCH.
- FIELD VERIFY DEPTH OF EX. STREET BASE MATERIAL. INSTALL 40 MIL EPDM RUBBER MEMBRANE AGAINST INSIDE OF STREETSIDE CURB AND EXTEND APPROX. 12 INCHES BELOW DALE AVE ROAD BASE TO PREVENT INFILTRATION OF WATER INTO ROAD BASE FROM PLANTER.

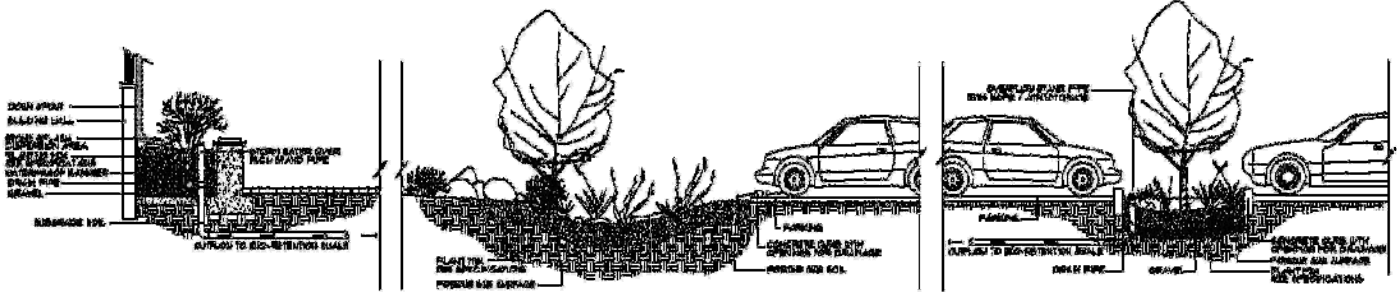


INFILTRATION TRENCH / PLANTER





**KNOXVILLE ORTHOPEDIC CLINIC** is incorporating environmentally friendly and functional “rain gardens”, “bio-detention” parking islands and perimeter swales to collect, channel, absorb and cleanse runoff water.



**RAIN COLLECTION & INFILTRATION PLANT-**

**RAIN GARDEN**

**BIO-DETENTION**

**RAIN GARDEN & BIO-DETENTION SYSTEM CONSTRUCTION DETAILS**

**“RAIN GARDENS”** ARE PLANTED DEPRESSIONS DESIGNED TO CHANNEL, COLLECT AND CAPTURE RAINWATER RUNOFF FROM BUILDINGS OR PAVED AREAS. THEY ARE ESSENTIALLY HIGHLY EFFICIENT MINI-DETENTION PONDS WHICH PROMOTE THE CLEANSING AND RAPID ABSORPTION OF WATER INTO THE GROUND THROUGH ORGANIC POROUS SOIL AND PLANT MATERIAL.



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