Operation C.L.E.A.N.

CAPACITY ENHANCEMENT
WITH
LANDSCAPE MODIFICATION
USING AN
ECOLOGICAL APPROACH
FOR
ABSORBTION
AND
NATURAL RECHARGE

LEGEND - SUB DRAINAGE CATCHMENT AREAS

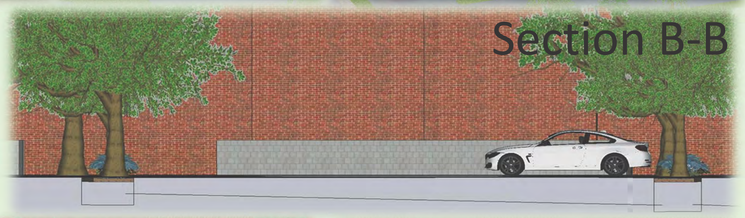
1-A PROPOSED CISTERN LOCATION USING SENSOR TECHNOLOGY TO COLLECT RUNOFF FOR IRRIGATION
1-B POROUS ASPHALT PAVING AND PERVIOUS PAVERS WITH DEPRESSED ISLANDS
2-A BIOSWALE COLLECTING DISCONNECTED DOWNSPOUT RAINWATER
2-B SMALL RAINGARDEN COLLECTING PARKING AND ROOF RUNOFF
2-C RAIN GARDEN AND OUTDOOR STUDY AREA
2-D SMALL RAIN GARDEN PARKING DIVIDERS FOR IMPERVIOUS RUNOFF
3-A OUTDOOR LAB: ROOF TOP WEATHERSTATION, CISTERN CONNECTED TO DOWNSPOUT DISCONNECTION, SMALL BIOSWALE, MINIATURE POND AND WATER QUALITY TESTING STATION CONNECTED TO SENSOR TECHNOLOGY TO ALLOW OVERFLOW RELEASED TO AREA 4.
3-B PATIO WITH PERVIOUS PAVERS DRAINING TO OUTDOOR LAB
4-A LARGE BIO-RENTION POND FOR COLLECTION OF ALL SUB-AREAS THAT ALLOWS FOR INFILTRATION, PARTICLE SETTLING AND POLLUTANT COLLECTION BEFORE RELEASE INTO COMBINED SEWER SYSTEM
4-B SITTING AREA WITH SAFETY FENCE AND RETENTION BASIN SUBGRADE FOR INFILTRATION

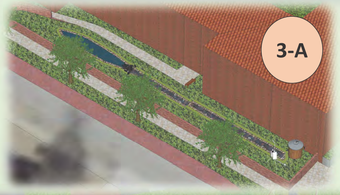
PROPOSED DESIGN REDUCES OUTDOOR WATER COSTS AND FEES BY 64% PER YEAR

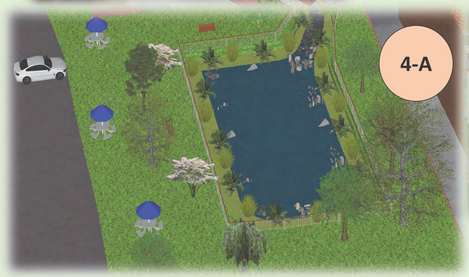
Team D41

Section A-A

Section B-B







EXISTING SITE SUMMARY

Original construction year: 2003
Current project area: 351,680 sq. ft.
Impervious area: 257,769 sq. ft.
Roof top area: 53,000 sq. Ft.

AREA 1 FOCUS
REDUCE RUNOFF
PROVIDE INFILTRATION
COLLECT RUNOFF
FILTER POLLUTANTS
IRRIGATION

AREA 2 FOCUS
INFILTRATION
NATURAL POLLUTANT REMOVAL
REDUCE RUNOFF
DECREASE FLOW VELOCITY

AREA 3 FOCUS
EDUCATION
DATA COLLECTION
INFILTRATION
NATURAL POLLUTANT REMOVAL

AREA 4
RETENTION POND
RELEASE

FLOW RATE $Q_{10YR\ STORM}$	STAY ON VOLUME	TIME OF CONCENTRATION
REDUCTION	IMPROVEMENT	INCREASED
14.4 %	27%	24%

IMPERVIOUS AREA	IRRIGATION	WATER QUALITY FEE COMBINED SEWER
REDUCTION	COST SAVINGS	REDUCTION
53%	$3,600 PER YR	53%