RAINWATER HARVESTING SYSTEM AT VALLEY FAIR MALL

land use entitlements
land planning
land development
public works
civil engineering
landscape architecture
land surveying
stormwater compliance
arboriculture

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EXISTING SITE PLAN

• LOCATED IN BOTH THE CITY OF SAN JOSE AND CITY OF SANTA CLARA

• MOST PROFITABLE WESTFIELD MALL ON THE WEST COAST
PROPOSED SITE PLAN
SITE DESIGN CHALLENGES

• BIOCELL
  • EXPANSION PHASE WOULD HAVE REQUIRED 26,000 SF OF BIOTREATMENT AREA
  • THIS WOULD HAVE REDUCED PRIME RETAIL & VALET PARKING AREA

• INFILTRATION
  • FIRST SUITABLE SOIL FOR INFILTRATION IS 30’ BELOW FINISHED GRADE
  • GROUND WATER 40’ BELOW FINISHED GRADE
THE CONCEPT
TREATMENT SYSTEM PARAMETERS

• AVERAGE YEARLY RAINFALL
  • 820,000 GALLONS

• AVERAGE YEARLY COOLING TOWER DEMAND
  • 7.9 MILLION GALLONS

• RAINWATER QUALITY STORM
  • 220,000 GALLONS

NOTE: COOLING TOWER EVAPORATION PROVIDED BY PROJECT MEP, GLUMAC
TREATMENT SYSTEM PARAMETERS

• PRETREATMENT
  • DUAL VORTEX SEPARATOR

• CISTERN
  • 29,400 CU FT CONCRETE VAULT

• DUAL PUMPS IN SEPARATE WET WELL
C3 CHALLENGES

- LARGEST RAINWATER HARVESTING SYSTEM OF ITS KIND IN CITY OF SAN JOSE
  - INFORMATIONAL MEETING WITH PUBLIC WORKS DEPARTMENT ON SYSTEM PRIOR TO 1ST SUBMITTAL
  - EDUCATED CITY STAFF ON DESIGN DETAILS

- INTERFACE BETWEEN PLUMBING AND CIVIL

- DUAL WATER SYSTEMS FOR COOLING TOWER
LESSONS LEARNED

• SANITATION OF STORM WATER IS NOT REQUIRED BEFORE USE IN COOLING TOWER

• CITY REVIEW
  • PUBLIC WORKS
    • C3 CALCULATIONS
    • DESIGN CONCEPT
    • DUAL VORTEX SEPARATOR
  • BUILDING DEPARTMENT
    • STRUCTURAL DESIGN OF CISTERN
    • PUMP & WET WELL DESIGN
QUESTIONS?