



Phyto-Engineering

Use of Plants and Biological Systems to Accomplish Engineering Objectives



Phyto-Filtration

WATER TREATMENT

OVERLAND FLOW
TYPICAL OVERLAND FLOW
TREATMENT PROCESS



LENINGRAD, RUSSIA



UTICA, MS



ARSENIC SUCKING FERN

GROUNDWATER PURIFICATION

CDF EFFLUENT



CELEBRIA

PHILADELPHIA



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Phyto-Stabilization

DREDGED MATERIAL / SOIL



NEW YORK HARBOR



BLACKROCK HARBOR



VEGETATED



TENN-TOM WATERWAY



FORT DRUM



DRAKE-SUPERFUND, PA



NINE MILE RUN, PITTSBURGH, PA



UNITED KINGDOM

Phyto-Extraction

ARSENIC SUCKING FERN



WILMINGTON



PICATINNY ARSENAL



METAL HYPERACCUMULATOR



Phyto-Degradation



NEW YORK HARBOR



MILWAUKEE, WI



PEARL HARBOR



WATER TREATMENT

CONSTRUCTED WETLANDS

STORM WATER RUNOFF



ORLANDO, FL



WINERY WASTEWATER



SONOMA, CA

MUNICIPAL WASTEWATER



ORLANDO, FL



SACRAMENTO, CA

AGRICULTURAL DRAINAGE / NCSU



VINTONDALE, PA

VINTONDALE, PA

VINTONDALE, PA

VINTONDALE, PA

VINTONDALE, PA

VINTONDALE, PA

VINTONDALE, PA

ACID MINE DRAINAGE

HAYWARD, CA