

The Pike River

Once Threatened,
Now in Transition

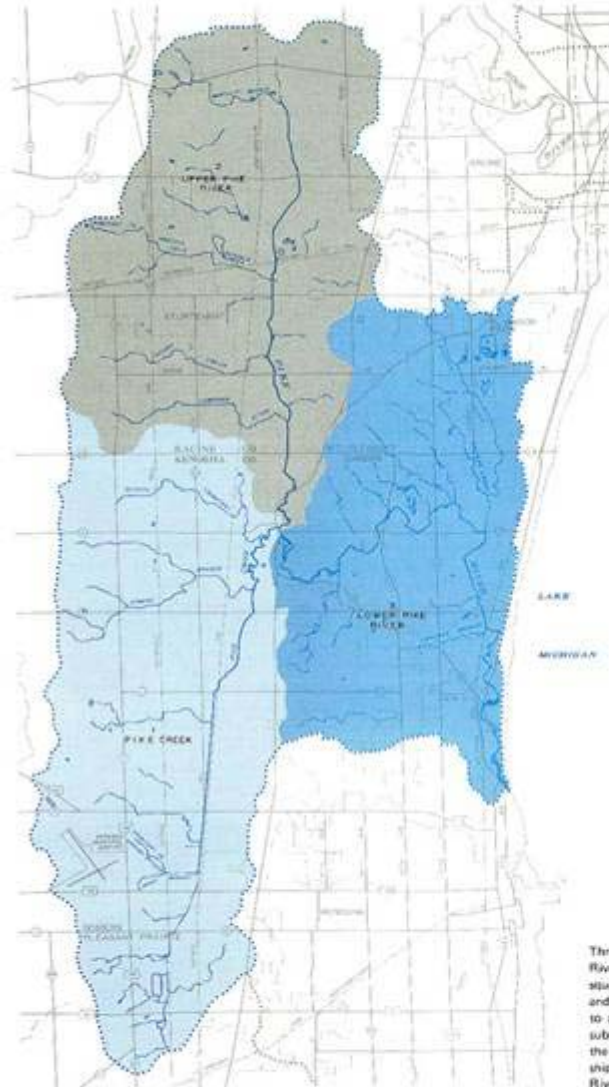
Crispell-Snyder, Inc.

- Established in 1979 to provide engineering solutions for Wisconsin Communities
- 3 Wisconsin Offices and a total of 90 employees
 - Lake Geneva
 - Racine
 - Germantown
- Full service consulting engineer and land surveying firm

Overview and History

- Pike River system
- Kenosha and Racine County
- Discharges into Lake Michigan
- Upper Pike = 17.30 square miles
- Lower Pike = 15.00 square miles
- Pike Creek = 19.20 square miles

SUBWATERSHEDS OF THE PIKE RIVER WATERSHED



Source: SEWRPC.

Three subwatersheds were delineated within the Pike River watershed with areas of 17.34, 15.00, and 19.20 square miles for the Upper Pike River, Lower Pike River, and Pike Creek subwatersheds, respectively. In addition to providing rational units for hydrologic analysis, the subwatersheds serve as geographic units that enable the watershed resident to readily identify the relationship of his or her local drainage area to the large Pike River watershed.

Historic Impacts

- 1800's - series of wetlands connected by a stream
- River channel created by farm drainage operations
- Early 1900's the river was redredged



Urbanization Impacts

- 1900's - Predominately agricultural
- 1975 - Approximately 28% of the watershed was converted to urban landscape
- 2004 - Approximately 50% of the watershed is now urban



6/12/2001

Past Planning and Engineering

- 1983 SEWRPC “A Comprehensive Plan for the Pike River Watershed”
 - Problem identifications
 - Recommended solutions

Comprehensive Plan Recommendations

- Land use and open space planning
- Flood land management
- Water quality measures
- Implementation procedures

MAP 84

RECOMMENDED STRUCTURAL
FLOODLAND MANAGEMENT
MEASURES ALONG THE
UPPER PIKE RIVER



LEGEND

-  100-YEAR REQUIREMENT INTERNAL FLOODLANDS - PLANNED LAND USE AND PLANNED CHANNEL CONDITIONS
-  100-YEAR REQUIREMENT INTERNAL FLOODLANDS UNDER PLANNED LAND USE AND EXISTING CHANNEL CONDITIONS THAT WOULD BE ELIMINATED UNDER PLANNED CHANNEL CONDITIONS
-  EXISTING CHANNEL
-  PROPOSED CHANNEL, ENLARGEMENT
-  PROPOSED MAJOR CHANNELIZATION
-  PROPOSED BRIDGE OR CULVERT MODIFICATION OR REPLACEMENT
-  PROPOSED BRIDGE REMOVAL

Goals and Objectives

- Eliminate structural flooding
- Restore the environmental corridor
- Restore the water quality
- Improve aquatic habitat
- Provide recreational opportunities

Partnerships and Project Approach

- In 1992 the Town of Mount Pleasant requested regulatory permits to construct the project based upon the SEWRPC report.

Permit Denial

- Lack of habitat restoration
- Predominately a flood control project
- Not an environmentally comprehensive project
- Major dredging of streambed

Partnerships Formed

- WDNR Staff
- U. of W. – Milwaukee Biology Department
- SEWRPC Staff
- Crispell-Snyder Staff
- G.A.S. Staff
- CH2M Hill Staff
- Mount Pleasant Staff
- Environmental Legal Counsel
- Zigmon, Joseph, Skeen

Project Development Plan

- Approximately 5 ½ miles of stream corridor
- Wetland restoration
- Flood storage areas
- Multi-use trails and public open space
- Aquatic habitat restoration
- Environmental corridor preservation
- Native vegetation restoration
- \$17 million dollars phased approach



C. J. ELLIOTT & SONS, INC.
 CONSULTING ENGINEERS

PIKE RIVER IMPROVEMENTS-16th STREET EXTENDED TO 5TH "11"

PIKE RIVER PRELIMINARY DESIGN

LEGEND

- MEANDERING STREAM
- STANDARD WIDTH
- BANKER
- EXISTING WETLANDS
- NEW WETLANDS
- EXISTING FLOODPLAIN
- NEW FLOODPLAIN
- EXISTING TOP OF BANK
- NEW TOP OF BANK
- ALTERNATE FLOODPLAIN
- POTENTIAL FLOODPLAIN
- REGULATORY CORRIDOR

1" = 300'

JUNE 2002

Regulatory Permit Approved in 1997

- WDNR Chapter 30 Permit
 - 10 year permit
 - 50%, 90% and 100% plan approval process
 - Required 55 conditions to be met in each project phase
- USCOE – Section 404 Permit
- Racine County – conditional use permit

1997 to 2001

- Drainage district conversion to utility district
- New commission orientation
- Archeological surveys
- Economic feasibility study
- Peer review
- Plan preparation
- Funding applications

Phase I Construction

- 1 ½ mile corridor
- \$1.3 million
- Construction began in Fall of 2002
- Completed in the Spring of 2003
- Additional wetland planting in summer of 2003

REVISION/PILOT DATE

008-03-22-11-

NEW CENTERLINE MAINDER LENGTH = 1612' +/- ± .05%

3'-26" - 42"± 29" CMPA
TEMPORARY CROSSING

BL = 810-400

NOTE:
CONNECTION TO THE
EXIST CHANNEL NOT
IN PW 1A CONTRACT

STORM WATER
DIVERSION LINE
SE = 872.0
(SEE BYPASS DETAIL
ON SHT 24)

LOG AND STONE
STOCK PILE AREA
(FIELD VERIFY
LOCATIONS)

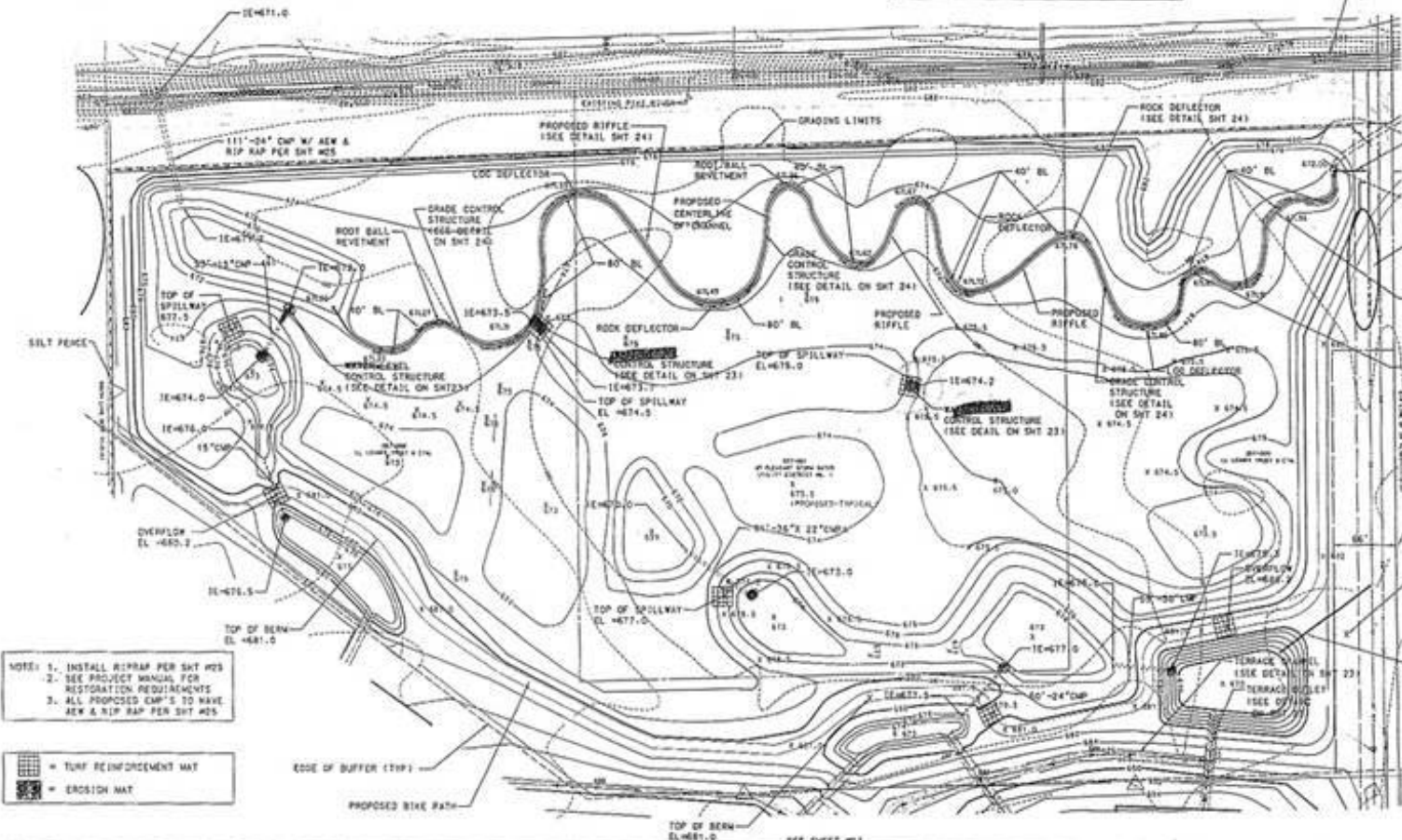
LOG DEFLECTOR
(SEE DETAIL SHT 25)

ROOT BALL
MOVEMENT
(SEE DETAIL SHT 25)

RESERVED FOR
FUTURE 66' R-O-W

TOP OF BERM
EL=680.0

STORM WATER
DIVERSION LINE
OUTLET INVERT
= 871.5
(SEE DETAIL ON
SHEET 24)



NOTE: 1. INSTALL RIP-RAP PER SHT #28
2. SEE PROJECT MANUAL FOR
RESTORATION REQUIREMENTS
3. ALL PROPOSED CMP'S TO HAVE
ASB & RIP-RAP PER SHT #28

= TURF REINFORCEMENT MAT
 = EROSION MAT

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TOWN OF MOUNT PLEASANT

STORM WATER UTILITY DISTRICT

**PIKE
RIVER**

RESTORATION PROJECT

SUSTAINING THE PAST, PRESENT AND FUTURE
OF OUR COMMUNITY.

- CONTROL FLOODING • IMPROVE WATER QUALITY • ENHANCE AQUATIC HABITAT
CREATE ENVIRONMENTAL CORRIDOR • INCORPORATE WALKING/BIKE TRAILS

PIKE RIVER PARTNERS

MOUNT PLEASANT-PARKS AND PLANNING DEPARTMENT
WISCONSIN DEPARTMENT OF NATURAL RESOURCES • WISCONSIN DEPARTMENT OF TRANSPORTATION
VILLAGE OF STURTEVANT • UNIVERSITY OF WISCONSIN-MILWAUKEE, DEPARTMENT OF BIOLOGY
RACINE CO. PLANNING & DEVELOPMENT • SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION
WISCONSIN COASTAL MANAGEMENT PROGRAM • ROOT-PIKE WATERSHED INITIATIVE NETWORK

Contractor : C.W. PURPERO, INC. Engineers : CRISPELL-SNYDER, INC.





















Phase II

- Approximately 1/2 mile
- Retrofit ponds for water quality
- Redirect storm sewer systems
- Connect old channel to new
- New bridge crossing
- \$1.2 million
- Completion early summer 2004









Phase III

- Design Stage – 1/2 mile length
- Currently acquiring land
- Channel widening in narrow, urbanized area
- Construction anticipated in late 2004

008-04-22-14-

NOTE:
 REMOVE ALL TREES BETWEEN NEW WEST AND NEW EAST TOP OF BANK.
 REMOVE ALL BRUSH BETWEEN WEST AND EAST ACQUISITION LINES.

PROTECT ALL TREES BETWEEN NEW TOP OF BANK AND ACQUISITION LINE UNLESS REQUIRED TO BE REMOVED FOR CONSTRUCTION ACCESS, MARKED FOR REMOVAL ON PLAN, OR DIRECTED TO BE REMOVED BY THE ENGINEER.

CATCH BASIN# 2 (60" DIA)
 RIM = 679.0
 CONSTRUCT OVER EXIST STORM.

REMOVE & REPLACE EXISTING
 27" APRON ENDWALL
 194+98.15' LT
 IE= 670.26
 REMOVE 8"-27" PIPE
 INSTALL APRON ENDWALL (TIE)
 W/ TRASH RACK AND 15' DIA
 ENERGY DISSIPATION POOL

RELOCATE EXISTING LIGHT POLE TO PROPOSED ISLAND PER DETAIL(TYP). ISLAND TO BE LOCATED PER DIRECTION OF THE ENGINEER

REMOVE ALL PAVEMENT AND CRUSHED STONE BASE. PROVIDE 8" TOPSOIL MINIMUM WITHIN ACQUISITION AREA.

NEW LIGHT POLE ISLAND (SEE DETAIL SHEET 15)

GRADE 20' X 50' SETTLING POOL

REMOVE 350'-567' CHAIN LINK FENCE 190+00 TO 193+75

REMOVE SHED (Relocate?)

INSTALL NEW 260'-4 FT CHAIN LINK FENCE

NOTE:
 REMOVE EXISTING 400'- CHAIN LINK FENCE 191+00 - 193+50.RT

NOTE:
 INSTALL EROSION CONTROL MAT FOR ALL SLOPES GREATER THAN 3:1 FROM 180+00 TO 201+00

REMOVE 12"-3" CMP. INSTALL APRON ENDWALL FLUSH WITH NEW SLOPE. PROVIDE TRM 6' X 10' TO STREAMBANK

THE LOCATION OF UNDERGROUND STRUCTURES OR FACILITIES SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORDS AT THE TIME OF PREPARATION AND ARE NOT GUARANTEED TO BE COMPLETELY CORRECT. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL UTILITIES TO AVOID PIERCE TO CONSTRUCTION TO DETERMINE THE EXACT LOCATION OF ALL UTILITIES AND TO PROVIDE ADEQUATE PROTECTION DURING THE COURSE OF THE WORK.

PIKE RIVER

SEE SHEET #5

SEE SHEET #3

NO.	REVISIONS	BY	DATE	VERIFY SCALER	DRAWN BY	DESIGNED BY
1	REVISED TO CONFORM TO CONSTRUCTION RECORDS					
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CS CRISPELL-SNYDER, INC.
 CONSULTING ENGINEERS
 Lela Geneva, WI 12621348-5500
 Racine, WI 12621554-5530 Germantown, WI 12621250-6000

PIKE RIVER DESIGN - PHASE 3A
 GRADING PLAN
 VILLAGE OF MOUNT PLEASANT
 RACINE COUNTY, WISCONSIN

PROJECT NO. 00182
 SHEET NO. 4 OF 15
 FILE NO.





Phases 4-9

- Phase 4, 5 and 6 – COE Section 206 program
- Projected to be constructed in 2006
- Phases 7 through 9 – 2007 through 2010

Outside Funding Mechanisms

- State and Federal grants
 - Coastal Zone Management
 - Knowles-Nelson Stewardship Grants
 - Non-point source pollution grant
 - DNR flood control grant
 - WisDOT wetland cooperative agreement
 - Racine County Bridge Aides
- Private organizations
 - Root-Pike Watershed Initiative Network (WIN)
 - Wisconsin Waterfowl Association
- Nearly \$1.6 million to date

Public Uses

- Multi-use trails
- Public open space
- Corridor owned by Mount Pleasant Water Utility District
- Fishery rehabilitation

Academic and Educational Uses

- Water quality education
- Wetland restoration monitoring and research
- Water quality monitoring and research
- Community education and involvement

What is a watershed?

According to the United States Environmental Protection Agency (EPA), a watershed is "the area of land that catches rain and snow and drains or seeps into a marsh, stream, river, lake or groundwater." These features within a watershed filter sediment and other pollutants out of storm water.

You're sitting in a watershed right now.

Homes, farms, ranches, forests, small towns, big cities and more can make up watersheds. Watersheds come in all shapes and sizes. Some are millions of square miles, while others are just a few acres. Just as creeks drain into rivers, watersheds are nearly always part of a larger watershed system.

For more information about water resources, visit the EPA's Watershed Information Network site at <http://www.epa.gov/win/>.

The Pike River is the main lifeline for the Pike Watershed, shown below:



The project will be constructed over the next several years with the first phase near County Highway "C" starting as early as 2002.

Pike River Present and Future Goals

Improvements to the North Branch of the Pike River in the Town of Mt. Pleasant, extend between County Trunk Highways C (Spring Street) and KR. Improvements include:

- restore natural stream features and wetlands.
- enhance aquatic habitat.
- reduce/eliminate flood damage and change the floodplain boundaries.
- provide adequate storm water drainage.
- improve storm water runoff and water quality.
- facilitate urban development consistent with adopted land use plans, recreation plans and parkway corridor plans.

Channel: The current streambanks will be widened with gentler side slopes. This will reduce flood water elevations, control erosion and shrink the size of the floodplain. As a result, nearly 100 existing structures will no longer be in the floodplain.

Wetland / Floodwater Storage Basins: Each basin is designed to include a new meandering stream channel, riparian wetlands and several ponds to treat stormwater runoff. The restored sections will increase flood water retention, improve water quality and enhance stream habitat.

Buffer Strip: A native prairie grass buffer strip will be planted along the banks to filter storm water runoff for improved water quality.

Educational Research: UWM's Department of Biology will conduct educational research to find plantings that are best applied in river restorations.

Bike Trail: The plan incorporates a walking / bike trail for recreation. The trail is part of Mount Pleasant's park and open space plan and enhances recreational facilities for our community.

Pike River Improvements and the Watershed

The Pike River watershed drains approximately 52 square miles in the communities within Racine and Kenosha counties. The "Comprehensive Pike River Watershed Plan" by SEWRPC required cooperative efforts between area communities. These cooperative efforts are a significant contribution in watershed system management.

The plan follows a wholistic approach to integrate concerns in the watershed which include economic, environmental, recreational, educational and regulatory factors. Improvements are part of the regional planning efforts for a sustainable watershed and water resource for the future of our community.

PROJECT AREA:



PIKE RIVER PARTNERS

- Town of Mount Pleasant (Project Sponsor)
- Town of Mount Pleasant Storm Water Utility District
- Town of Mount Pleasant Parks Department
- UW-Milwaukee, Department of Biology
- Wisconsin Department of Natural Resources
- Wisconsin Department of Transportation
- Southeastern Wisconsin Regional Planning Commission
- Crispell-Snyder, Inc.

BROCHURE SPONSOR



Funding for this brochure was made possible by a grant from the Root-Pike Watershed Initiative Network (WIN).

WIN's MISSION: *To protect, restore, and sustain the ecosystem in the watersheds through the funding and facilitation of a regional network of locally-initiated projects.*

HELPING HANDS WELCOME

Interested in learning more about the Pike River or finding ways to volunteer to help? Please contact Matt Fineour, Stormwater Technician, at 262-554-8750.

Brochure designed by Crispell-Snyder, Inc.

Monitoring Reports

- Wetland restoration monitoring program
- Stream Habitat and aquatic biotic integrity