UNIVERSITY OF MINNESOTA

32nd Annual Water Resources Conference

Program

Monday, October 25

8:00 a.m. **Welcome**
Wayne Sicora, Chair, Planning Committee

8:15 **Sustainable Storm Water Management and Integration of Engineering Art and Ecology**
James M. Patchett, Conservation Design Forum, Inc., Naperville, Illinois

9:30 **Sustainable Agriculture and Biodiversity**
Donald L. Wyse, College of Agricultural, Food, and Environmental Sciences, University of Minnesota

10:00 **Refreshment Break**

10:30 **Sustainability Criteria for Water Resources Systems: ASCE's Task Committee on Sustainability Criteria, Water Resources Planning, and Management Division, American Society of Civil Engineers (ASCE)**
Speaker to be announced

11:00 **Sustainability and Minnesota Water Resources**
Steve Morse, Deputy Commissioner, Minnesota Department of Natural Resources

11:30 **New Strategies for America's Watersheds**
Clifton J. Aichinger, Ramsey-Washington Metro Watershed District

12:15 **Luncheon**

Luncheon Talk:
Soil Engineering in Germany and Switzerland
Sonia Maassel Jacobsen, Natural Resources Conservation Service

Presentation of 1999 Water Quality Award

Concurrent Sessions

Session A – Sustainability

1:30 p.m. **Red River Mediation Implementation**
James A. Solstad and *Charles Anderson*, Minnesota Department of Natural Resources

Watershed management within the Red River basin has been hindered by conflicts between flood control and environmental advocates. Cooperative technical evaluation has helped break down preconceptions and identify a comprehensive approach to achieve water resource and related natural resource objectives.

2:00 **Urban Density Open Space Preservation: Is This an Oxymoron?**
Jeff Smyser, AICP, City Planner, Lino Lakes
John Powell, P.E., TKDA and City Engineer, Lino Lakes

The concept of the conservation subdivision - preserving open space that includes valued natural features - has been used as an example of sustainable development. Can it work in an urban environment? Can you get the density needed to support the cost of utilities and roads and still preserve large areas of open space? The City of Lino Lakes' Preservation Development Program is intended to do just that. The presentation will include an example of an approved project and what the staff learned from it.

2:30 **Seven Keys to Sustainable Education Programming**
Louise Watson, Ramsey-Washington Metro Watershed District

When others do your job with enthusiasm, you have a sustainable education program! This is not lazy - it is long-term partnering to reduce dead-end tasks and enhance program evolution opportunity. Learn how seven program design features can lead to self-perpetuating programs and allow program evaluation to become simplified and measurable.

3:00 **Refreshment Break**

3:30 **Characterization of Rainfall-Runoff Response in a Large Agricultural Watershed, Southwestern Minnesota**
Perry M. Jones and *Thomas Winterstein*, U.S. Geological Survey

A calibrated watershed model was used to characterize the rainfall-runoff response and examine the effects of wetland restoration on the rainfall-runoff response within the Heron Lake Basin. Results indicate that wetland restoration would begin to reduce peak flow values if more than 10 percent of the croplands were converted to wetlands.

4:00 **Vermillion River Watershed Hydrologic Study**
Ann Banitt, P.E. and *Daniel Reinartz*, P.E., U.S. Army Corps of Engineers

The Vermillion River Watershed has been experiencing urbanization in the upstream portions of the watershed. The Corps developed a calibrated hydrologic model using HED-1 for existing and potential future development. This session will describe study strategies, including multilinear regression analysis, urbanization, and the use of GIS technology.

4:30 **Upper Kings Run Channel Diversion/Stream Restoration, City of Rochester**
Reid Wronski, Infrastructure Manager, City of Rochester
Ismael Martinez, Bonestroo and Associates

Kings Run is an intermittent stream in Rochester that has been severely altered due to railroad and roadway construction and farming ditching. In addition, natural runoff flows have been increased due to land use changes. The City of Rochester evaluated building a straight channel with riprap protection against high velocities versus constructing a meandering stable stream with a "natural" configuration. The city chose the natural configuration. This session will address the level of detail provided by the construction documents, lessons learned during construction, and the stability of the stream two years after construction.

5:00 **Reception**

6:00 **Minnesota Chapter ASCE dinner and meeting**
(Information on registration and payment for this event will be sent with conference registration confirmation.)

Concurrent Sessions

Session B – Wetlands

1:30 p.m. **Implications of Sustainability of Water Resources**
Michael Eastling, Director of Public Works, City of Richfield
Pete Willenbring, P.E., WSB & Associates, Inc.

The Woodlake Nature Center in Richfield provides habitat for a wide variety of plant and animal species. Its naturalists educate thousands of individuals each year on the functions and values of wetlands, and the basin provides retention and treatment for storm water runoff from over one-half of the City of Richfield. In order for these functions to be provided in perpetuity, active management of the basin is necessary, sometimes in direct conflict with local/state/federal watershed/wetland laws. This session will discuss the issues and road blocks associated with sustaining this valuable urban resource.

2:00 **Wetland Inventory, South Washington Watershed District**
Dan Edgerton and *Renee Rawn*, Bonestroo Rosene Anderlik & Associates

Wetland inventories provide valuable information that will allow resource managers to make stormwater planning decisions. Placing inventories into a Geographic Information System (GIS) database allows managers to view spatial relationships among the data. The speakers will discuss how GIS was used to develop and enhance implementation of the South Washington Watershed District Wetland Plan.

2:30 **Constructing Impoundments in the Red River Valley, Lessons Learned**
Robert J. Beduhn, P.E., HDR Engineering, Inc., Minneapolis
Nate Dalager, P.E., HDR Engineering, Thief River Falls

This session will compare and contrast Red Lake Watershed District Projects 81 and 121, Parnell Impoundment and the Louisville/Parnell Impoundment and Wetland Bank. Project operation, multiple purposes vs. single purpose design, construction, and public acceptance will be discussed.

3:00 **Refreshment Break**

3:30 **Status of Wetland Management in Minnesota**
John Jaschke, Minnesota Board of Water and Soil Resources

Changes to wetland management laws, rules, policies, and programs in Minnesota continue, even though our laws are among the most comprehensive in the nation. Much of the recent effort has focused on improving the interaction of federal, state, and local regulatory programs. Also being refined are wetland banking, conservation, restoration, and taxation programs. This presentation will highlight key recent and ongoing initiatives, as well as relationships to elements of the State Wetland Plan.

4:00 **Restoring Indian Lake - The Story of a Wetland Mitigation Banking Project, Blue Earth County, Minnesota**
Alan Forsberg, Director of Public Works, Blue Earth County
David Filipiak, SRF Consulting Group, Inc.

Proposed construction of the Mankato South Route (CSAH 90) around the City of Mankato required mitigation of resulting wetlands impacts. Blue Earth County chose to create a banking site which resulted in a 120-acre regional park consisting of a 50-acre restored lake basin and 70 acres of forested valley uplands surrounding the lake. Public involvement and agency coordination were key to the success of the project.

4:30 **Flooding and Wetland Restoration: A Case Study**
Sonia Maassel Jacobsen and *Peter D. Cooper*, Natural Resources Conservation Service

The hydrologic modeling of the Judicial Ditch 31 watershed in the Redwood River Basin, a subbasin of the Minnesota River, examined the hydrologic impacts of wetland restoration and conservation practices on flooding. Eight alternatives were examined and are described with the results of the computer simulation.

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Concurrent Sessions

Session C – Drainage Issues

1:30 p.m. **Minnesota Agricultural Drainage in the 21st Century**
Kurt Deter, Rinke Noonan Attorneys at Law, St. Cloud

Agricultural drainage in Minnesota faces numerous legal and environmental issues. Drainage systems have expanded capacity during the last decade. Along with this expansion has come increased concern about downstream impacts and maintenance responsibilities. This presentation will give an overview of existing drainage law and what changes are needed to preserve agricultural drainage in the next century.

2:00 **Effects of Wetland Drainage and Land Use Change on Peak Flow in a Tributary Watershed of the Minnesota River Basin**
Ryan C. Miller, Graduate Research Assistant, University of Arizona
Kenneth N. Brooks, Department of Forest Resources, University of Minnesota
Donald Hey, The Wetlands Initiative, Chicago, Illinois

The Minnesota River Basin's hydrologic regime has changed since European settlement in the 1850s. This study examines the effect of land use conversion, wetland loss, drainage, expansion of the watershed contributing area, and stream channelization on flooding in the Little Cobb River Watershed, a tributary to the LeSueur Watershed.

2:30 **Distributive Hydrologic Modeling to Assess Land Use Impacts**
Greg Eggers, U.S. Army Corps of Engineers

The speaker will discuss the application of the WMS Watershed Modeling System to the Redwood River Basin in Minnesota. Discussion will focus on WMS capabilities, model inputs, and model output.

3:00 **Refreshment Break**

3:30 **Natural Waterway Management: The Dalen Coulee Example**
Mark R. Deutschman, Houston Engineering, Inc.
Jerry Bennett, Wild Rice Watershed District, Ada, Minnesota

The Dalen Coulee Watershed is located in northwestern Minnesota. Approximately 21 square miles of predominantly agricultural land comprise the drainage area of the coulee. Landowners expressed concern about the frequency of crop loss adjacent to the coulee and requested assistance from the Wild Rice Watershed District. An Interagency Work Team evaluated eight potential alternatives to address water management and natural resource issues. The speakers will discuss the alternative recommended by the IWT and the process of resolving the complex regulatory and water management issues.

4:00 **Water Quality and Drainage Performance of an Agricultural Tile Drainage System**
Bruce Montgomery and *Paul Wotzka*, Minnesota Department of Agriculture

Concerns about hypoxia in the Gulf of Mexico have directed considerable attention toward Midwestern agriculture. To address some of these concerns, tile drain flow and water quality parameters have been monitored continuously at the Red Top Farm Demonstration Site in Nicollet County. The first two years of data collection indicate that nitrogen leaching losses can be reduced 40-50 percent through the implementation of changes in the timing and rate of fertilizer application without yield reductions. An overview of the pesticide, nutrient, and drainage loss characteristics will be presented.

4:30 **Phosphorus Sources and Upper Mississippi River Water Quality**
Michael L. Meyer, Metropolitan Council Environmental Services

The Metropolitan Council Environmental Services (MCES) River Monitoring Program monitors the water quality of the Mississippi, Minnesota, and St. Croix Rivers in the Twin Cities Metropolitan Area. For the period 1987-1996, total phosphorus, soluble reactive phosphorus, total suspended solids, and chlorophyll-*a* were examined at three key locations. This session addresses the results of the monitoring program.

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1999 Water Resources Planning Committee

John Boynton	Minnesota Department of Transportation
Kenneth N. Brooks	Department of Forest Resources, University of Minnesota
James Fallon	U.S. Geological Survey
Pat Foley	U.S. Army Corps of Engineers
David Ford	Minnesota Department of Natural Resources
John Gulliver	Department of Civil Engineering, University of Minnesota
Rocky J. Keen	SEH, Inc.
Nels Nelson	Barr Engineering
Shelly Pederson	City of Bloomington
Wayne Sicora	RLK Kuusisto, Ltd.
Gene Soderbeck	Minnesota Pollution Control Agency
Rick Voigt	St. Anthony Falls Laboratory, University of Minnesota
Paul Wotzka	Minnesota Department of Agriculture
Keith Yapp	Bonestroo, Rosene, Anderlik & Associates, St. Cloud

Registration and Fees

The early registration fee (postmarked by October 15) is $110, which includes lunch, refreshment breaks, and materials. The fee after October 15 is $125.
A refund, minus a $15 cancellation fee, will be made if registration is cancelled in writing by October 20, 1999.

Location

The conference will be held at the Earle Brown Continuing Education Center on the St. Paul campus of the University of Minnesota. A map and directions will be sent with registration confirmation. Parking is available adjacent to the center for $3.50 per day.

Disability accommodations will be provided upon request. Please call 612-625-6689.

Lodging

Convenient lodging for out-of-town participants is available at the Holiday Inn Express, 1010 Bandana Boulevard West, St. Paul 55108, telephone 651-647-1637. Be sure to tell them you are attending a University of Minnesota conference to receive a special rate of $69 single or double.

Continuing Education Units (CEUs)

Conference attendees will be awarded 0.6 CEUs.

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

This publication is available in alternative formats upon request. Please call 612-625-6689.

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Registration

32nd Annual Water Resources Conference

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☐ I agree to be listed on the conference registrant list for distribution to participants.

Fees:

☐ **01** $110 registration fee postmarked by October 15

☐ **02** $125 registration fee postmarked after October 15

Please circle which concurrent sessions you plan to attend.

1:30-3:00 p.m.			3:30-5:00 p.m.		
A	B	C	A	B	C

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