ILLINOIS SOIL CLASSIFIERS ASSOCIATION

Winter 1993 Newsletter

JOHN D. ALEXANDER NOMINATED FOR HONORARY LIFE MEMBERSHIP

John D. Alexander has been nominated by the ISCA Council for Honorary Life Membership in ISCA. The nomination was made by Dr. Robert Darmody and passed the Council unanimously. The membership will be asked to approve the nomination at the Annual meeting.

John David Alexander was born and raised on a grain and livestock farm near Wilmington, Illinois, in 1921. He attended high school in Joliet, Illinois. He entered the College of Agriculture at the University of Illinois in February, 1940.

His studies were interrupted by three years of service in the Armed Forces during WW II from March, 1943, to February, 1946. One year was in the Army Air Corps and two years were in the Chemical Warfare Service. He served in the European Theater of Operations for about 6 months until the end of the war in that part of the world. After WW II, he returned to the University of Illinois in 1946 to continue study for a B.S. and graduated in 1947. He received his M.S. in Soil Science in 1951.

John began field mapping in Henderson County, Illinois, in 1946. He continued mapping soils until 1967 in Henderson, Will, Williamson, LaSalle and Champaign Counties. He taught the Soil Management and Conservation Course (Soils 304) at the University of Illinois for eleven years.

Among his other accomplishments, he has published in numerous research publications and bulletins throughout nearly forty years on the faculty of the Agronomy Department at the University of Illinois. He was active in Collegiate Soil Judging for more than thirty years with many successful teams at the National level. In 1968, he developed a small hand-held color chart for estimating the surface soil organic matter content in cultivated soils which has been used as an aid in adequate and safe application of soil applied herbicides. Over 300,000 organic matter charts were printed and distributed from the University of Illinois since 1968. In 1970, he had an assignment in India involving the use of Soil Productivity Indexes in agriculture soil management and planning.

Concerning John's involvement in the Illinois Soil Classifiers Association,

John was a charter member of ISCA in 1975.

Served as ISCA Secretary-Treasurer for six years from 1975 to 1981.

Served as chair or committee member on several standing committees in ISCA since 1975.
Served as President of ISCA in 1989.
Served one term on the Certification Board for Soil Classifiers.
He was in the first group of Certified Soil Classifiers of the Illinois Soil Classifiers Association.

In 1985, John retired from the faculty of the Agronomy Department at the University of Illinois after nearly forty years of service in pedology. He has lived in Champaign throughout his working career and plans to continue living there in the foreseeable future.

Soil Judging News

The regional soil judging contest was held on October 24, 1992 in McLean Co., Illinois. Dr. Wilbur Chrudimsky at Illinois State University was the host. Assisting with the official judging and representing the ISCA were Bob McLeese, Roger Windhorn, Jim Hornickel and Bill Teater. The University of Wisconsin took the first three places. Madison was first, River Falls second, and Platteville was third. UW Stevens Point was fifth. Ohio State was fourth, Purdue was sixth followed by the University of Illinois and Illinois State. ISCA members Dr. Wilbur Chrudimsky coached the ISU team and Dr. Robert Darmody coached the U of I team. Jason Anderson of the University of Illinois was third high individual, the highest placing individual from the state of Illinois and will be recognized at the March ISCA meeting. The region will be represented at the national contest in the spring by River Falls, Platteville, and Ohio State.

ISCA ELECTIONS

The candidates for the 1993 ISCA elections are:

President Elect:

Larry Gramm Larry has a BS in Soil Science from the University of Illinois. At the University he was on the soil judging team and served as the secretary of the Field and Furrow Club. He also served as secretary of Section 9 of the FFA. He currently works as a soil scientist for the Lake County Health Department and is chairman of the ISCA program committee and has been certified by the ISCA. If elected he will address the following issues: encouragement of positive attitudes and strong ideals within the membership; attention to the environmental challenges of the 90's relative to the ISCA; encouragement of growth within the profession by providing a forum for education, communication, and understanding.

Steve Zwicker Steve grew up on a grain and livestock farm in western Illinois. He received a BS from Iowa State University in 1969. After graduating he joined the SCS as a soil scientist and loves it so much that he's still with them. He helped found the ISCA and has served the association as chair of the certification board, on many committees, and in elected positions including president, vice-president, and most recently as treasurer.

Vice President:

Gloria Westphal Gloria is from Illinois and went to SIU at Carbondale where she received a BS in plant and soil science in 1984. After graduation she worked on the soil survey for De Witt and Mc Lean Counties. In 1986 she joined the Lake County Health Department as a soil scientist. Her responsibilities there include soil evaluation for on-site sewage disposal and preliminary soil review for proposed subdivisions. She is a ISCA certified soil classifier.

Tom D'Avello Tom is from Ohio and received a BS in agronomy from Ohio State University. He began his career with SCS in eastern Ohio in 1981. He has also mapped in Florida and Montana for FSA. In 1988 he received an MS in forest soils from Michigan Tech. After that, he was survey leader in Ross County Ohio. His experience with GIS during his MS studies is what brought him to Illinois in 1988 to serve as the Resource Inventory Specialist on the State Soils Staff. He is in charge of National Resources Inventory and GIS activities.

Treasurer:

Emil Kubalek Emil is an alumnus of the University of Illinois. He received his BS in Vocational Agriculture in 1955 and his MS in Soil Science in 1990. His thesis topic was "Saturated Hydraulic Conductivity of a Biosequence and Hydrosequence of Soils in Illinois." He retired in 1988 from a 33 year career with the SCS, 13 of which were as a soil scientist, to begin work for the Rock Island County Public Health Department. In 1990 he began his own consulting business. He is certified by ISCA and has been a member since 1977.

Charles Frazee Chuck received his Ph.D. from the University of Illinois in 1969. He was an assistant professor at South Dakota State University from 1969 to 1975. After SDSU, Chuck has farmed and done soils consulting work. He is a charter member of the ISCA and was treasurer of the first certification board. He is certified by the ISCA and is a member of ASA, SSSA, and SWCS.

1993 ISCA BALLOT

PRESIDENT ELECT

_____ Larry Gramm

_____ Steve Zwicker

VICE PRESIDENT

_____ Tom D'Avello

_____ Gloria Westphal

TREASURER

_____ Charles Frazee

_____ Emil Kubalek

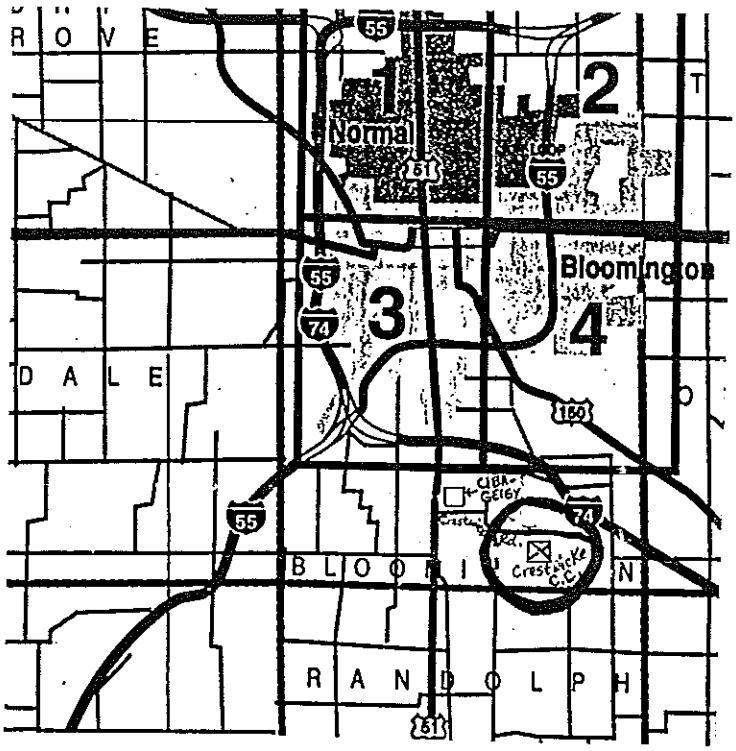
If you can not attend the ISCA Annual Meeting return ballot prior to the meeting to:

Ken Gotsch
RR #3 Box 246
Shelbyville,IL 62565

Voting priveleges are extnded only to Full, Honorary Full, and Associate Members.

ISCA ANNUAL MEETING IN BEAUTIFUL BLOOMINGTON

The 1993 ISCA Annual Meeting will be held Friday March 19, 1993 at Crestwicke Country Club near Bloomington (See Map). John Thornhill, an Illinois Registered Land Surveyor, from Geneva, Illinois will speak on the topic "Simple Methods for Floodplain Determination". John has many years experience in land survey in northeastern Illinois and is actively involved in the profession.



Agenda

11:00a.m. (sharp)	Council Meeting
11:30-12:00p.m.	Registration; Voting for 1993 Officers
12:00-1:00p.m.	Barbecue Pork Loin Luncheon
1:00-1:45p.m.	Business Meeting; Officer Election Results
1:45-2:30p.m.	Keynote Address Simple Methods for Floodplain Determination John Thornhill, Registered Surveyor, Donahue & Thornhill, Inc.
2:30p.m.	Adjourn

ANNUAL MEETING PRE-REGISTRATION

Fee: $12.95 per person (includes luncheon)
Please make checks payable to ISCA

Name: _____

Address: _____

Phone: _____

Number Attending: _____

Fee Enclosed: _____

Please mail to: Steve Zwicker, 772 Mayfair Dr., R.R. #6, Princeton, Illinois 61356

Registration Deadline: March 8, 1993

ASCS AERIAL PHOTOGRAPHY INFORMATION

The ASCS, Aerial Photography Field Office in Salt Lake City, UT (APFO) has changed their telephone number. The new number for the Sales Office is 801-975-3503. APFO has developed software that will allow frequent users to electronically place orders for aerial photo reproductions via modem. ASCS will be contacting and sending the software to frequent SCS users. If you have any questions, please contact Linda McDonald at the APFO on 801-975-3503.

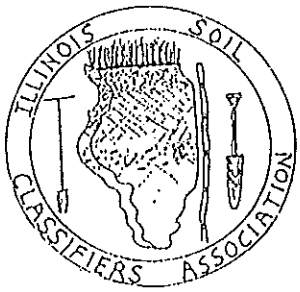
POSITION ANNOUNCEMENT

Soil Consultants, Inc. is interested in hiring a soil scientist with a minimum of two years experience. We have a new position open for an individual to provide soil classification and determination of permeability for individual residential sewer system designs for St. Charles, Warren, and Lincoln Counties of Missouri. Initially, it is expected that classification duties will likely only consume about one-third of the individual's time with the remaining two-thirds being dedicated to other types of soil classification and testing associated with geotechnical engineering. The position offers a starting salary of $23-25,000 per year. If interested, please forward your resume to: Soil Consultants, Inc., 333 Mid Rivers Mall Drive, St. Peters, MO 63376.

VOTE FOR ISCA LOGO AT ANNUAL MEETING

Ballots will be available at the ISCA Annual Meeting in Bloomington to select a logo for ISCA. This process was started a number of years ago and will be brought to closure by a secret ballot. Ballots will be available at the registration table. The nominees are .....

1



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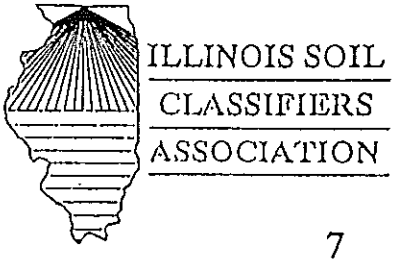

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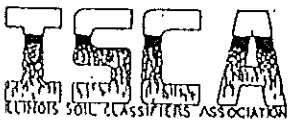

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SPONSORS AND EXHIBITORS

MAJOR SPONSORS:

Case Power & Equipment

Modern Waste Treatment

Tuf-Tite Inc.

SPONSORS:

Milwaukee Rubber Products, Inc.

Grove Concrete & Supply, Inc.

Springfield Plastics

N.C.L. Equipment Specialties Inc.

Clearstream Waste Water Systems

Badger Northland, Inc.

Waste Control Corp. I.M.E.

Liquid Waste Systems, Inc.

Scienco/Fast

EXHIBITORS:

Moore Marketing	Midwest Laser Supply, Co.
Lee Jenson Sales	Welch Brothers Inc.
Diller Tile Company, Inc.	Waste Water Systems, Inc.
OR-Tec, Inc.	Jays's, Inc.
S. J. Electro Systems	Mobile Tele
Thoesen Equipment	Metropolitan Pump
Advanced Drainage Systems	Payline West, Inc.
Wheeler, Inc.	Ben Thrall Excavating & Jet Inc.

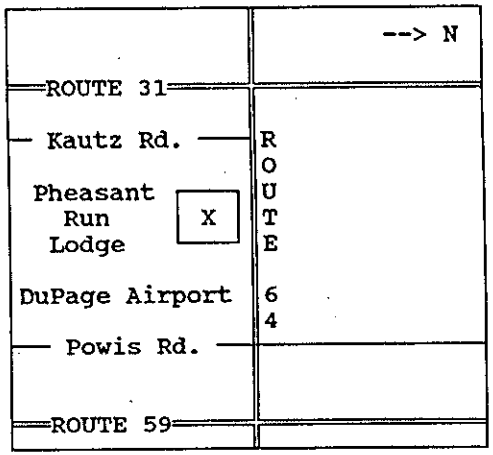
Northern Illinois Contractors and Wastehaulers Association

NOTE: The list above are those exhibitors and sponsors who had committed by press time. More are expected.

NORTHERN ILLINOIS SEPTIC CONTRACTOR'S WORKSHOP

March 3 - 4, 1993

PHEASANT RUN LODGE
4051 E. Main Street
St. Charles, IL 60174
Phone (708) 584 - 6300



ACCOMODATIONS:

A block of rooms will be set aside for this meeting. The rate is $69.00 per night. Please ask for a group reservation under "Septic Contractors Workshop." The special price is good for reservations made prior to February 15.

For additional information contact:

Paul Chase, R.S., Chairman
IEHA Onsite Waste Committee
1-708-682-7979 Extension 7396

ISCA Co-Sponsors Northern Illinois Septic Contractors Workshop

PROGRAM

Wednesday - March 3, 1993

8:00AM - 9:00AM	Registration
9:00AM - 9:15AM	Welcome, Opening Remarks - Bruce Sims
9:15AM - 10:00AM	Keynote Address - Reverend Hageman
10:00AM - 10:30AM	Break - Exhibits Open
10:30AM - 11:15AM	Septic Tank Additives - Garry Bird & Kolby Riggle
11:15AM - NOON	Tree Root Infilitration - Pat Kelsey
NOON - 1:30PM	Lunch in the Atrium
1:30PM - 2:15PM	New D.O.T. Requirements - Speaker TBA
2:15PM - 3:00PM	New O.S.H.A. Requirements - Donald Schaller
3:00PM - 3:30PM	Break - Exhibits Open
3:30PM - 4:30PM	Mortgage Survey Forum - Paul Chase, Moderator
4:30PM	Closing Remarks - Bruce Sims
5:00PM - 7:00PM	Hospitality Room

Thursday - March 4, 1993

8:00AM - 9:00AM	Registration

MORNING CONCURRENT SESSIONS:

PRIVATE SEWAGE INSTALLERS SECTION:

9:00AM - 9:15AM	Welcome, Opening Remarks - Doug Ebelherr
9:15AM - 10:00AM	Hydraulic Conductivity - Bill Simmons
10:00AM - 10:30AM	Break - Exhibits Open
10:30AM - 11:15AM	BOD as a Factor in SDS Design - Kurt Bihler
11:15AM - NOON	Experimental Use Permits - Doug Ebelherr

SEPTIC PUMPERS SECTION:

9:00AM - 9:15AM	Welcome, Opening Remarks - Bruce Sims
9:15AM - 10:00AM	Sludge Treatment - John Juric
10:00AM - 10:30AM	Break - Exhibits Open
10:30AM - 11:15AM	Sludge Regulations - Al Keller
11:15AM - NOON	Aerobic Treatment Plant Pumping - Rick Hafer

AFTERNOON COMBINED SESSIONS:

NOON - 1:15PM	Lunch in the Atrium
1:30PM - 2:30PM	Panel Discussion - Bob Drake, Doug Ebelherr, Susan Grandone, Chuck Hackl, Phyllis Holbrook, Kevin Koppelman, Pat McNulty, Gene Shostrum, Tony Smithson, Kathie Worden
2:30PM - 3:00PM	Raffle
3:00PM	Closing Remarks, Adjournment

SPEAKERS

1. Kurt Bihler, President, Liquid Waste Systems, Inc.
2. Garry Bird, Director of Environmental Health, Champaign-Urbana Public Health District
3. Paul Chase, DuPage County Health Department
4. Bob Drake, Director of Environmental Health, DeKalb County Health Department
5. Doug Ebelherr, Program Manager, Private Sewage Program Illinois Department of Public Health
6. Susan Grandone, Will County Health Department
7. Rick Hafer, Illinois Department of Public Health
8. Keynote Speaker - Reverend Everett Hageman, President, Macoupin County Board of Health
9. Phyliss Holbrook, Kendall County
10. John Juric, Sales Representative, Lakeside Equipment Corporation
11. Al Keller, Illinois Environmental Protection Agency
12. Pat Kelsey, Illinois Soil Classifiers Association
13. Kevin Koppelman, DuPage County Health Department
14. Pat McNulty, McHenry County Health Department
15. Kolby Riggle, Director of Environmental Health, Vermillion County Health Department
16. Donald Schaller, Occupational Safety and Health Administration
17. Gene Shostrum, Grundy County
18. Dr. Bill Simmons, PhD., Associate Professor, University of Illinois
19. Master of Ceremonies - Bruce Sims, President, Northern Illinois Contractors and Waste Haulers Association
20. Tony Smithson, Lake County Health Department
22. Kathie Worden, Kane County Health Department
23. Representative Speaker - Illinois Department of Transportation

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At 3:30PM on March 3, 1993, there will be a special forum on the subject of septic inspections and reports for mortgage surveys. This will be an open, casual forum - sort of a brain storming session for contractors and regulators involved with these inspections. Those involved know the problems of dealing with the mortgage industry and government bodies which guarantee mortgage loans. The organizing committee attempted to get someone from the mortgage industry to address these problems at the workshop, but they all refused. It is our hope that this forum will be the beginning of a process aimed at resolving these issues through a cooperative effort by those in the Northern Illinois area who do these inspections. Come to the forum prepared to share your ideas.

A NEW BEGINNING . . .

After 19 years of organizing the Northern Illinois Septic Contractors Workshop, Bill Mellen and Bob Leonard have passed the baton to a new organizing committee. Bill and Bob are certainly a tough act to follow, so the committee decided to start early, take the best of what Bill and Bob put together and add some new wrinkles.

The planning committee itself broadened its membership to include more private sector people. Input from contractors and designers, as well as regulatory people has resulted in a program that we feel is something special.

For the first time, the workshop is being held at Pheasant Run Lodge in St. Charles. While many of us have fond memories of the Blue Moon and, more recently, Crystal Lake, this is a much needed change. Aside from being more conveniently located for many who attended in the past, the facilities are much superior to anything we have had for the workshop. We think everyone will be pleasantly surprised.

The committee has taken great pains to come up with an educational program that everyone will enjoy and learn from. For the first time, we will offer concurrent sessions on the morning of March 4, so contractors and other attendees can choose between presentations on septage pumping and installation topics.

Finally, thanks to the Northern Illinois Waste Haulers and Contractors Association, the exhibits this year will be even better than ever. There will be many familiar faces and a few new ones as well. The exhibit space we have arranged is the best yet.

All in all, we feel we have done our part to make this the best workshop ever. The rest is up to you. Please join us March 3 and 4, 1993 for what will be an entertaining, educational, and otherwise worthwhile experience for all.

The Planning Committee

Bob Andersen
Bob's Septic
Pumping Service

Tom Casey
Will County
Health Department

Paul Chase
DuPage County
Health Department

Doug Ebelherr
Illinois Department
of Public Health

Chuck Hackl
Cook County
Health Department

Pat Kelsey
Illinois Soil
Classifiers Association

Kevin Koppelman
DuPage County
Health Department

Bob Leonard
Kane County Health
Department

Dennis Luehring
Illinois Environmental
Health Association

Bill Mellen
Wadsworth, Illinois

Ted Meyer
Tuf-tite, Inc.

Peter Finnburg
P.A.F. & Associates

Bruce Sims
Northern Illinois Waste
Haulers & Contractors
Association

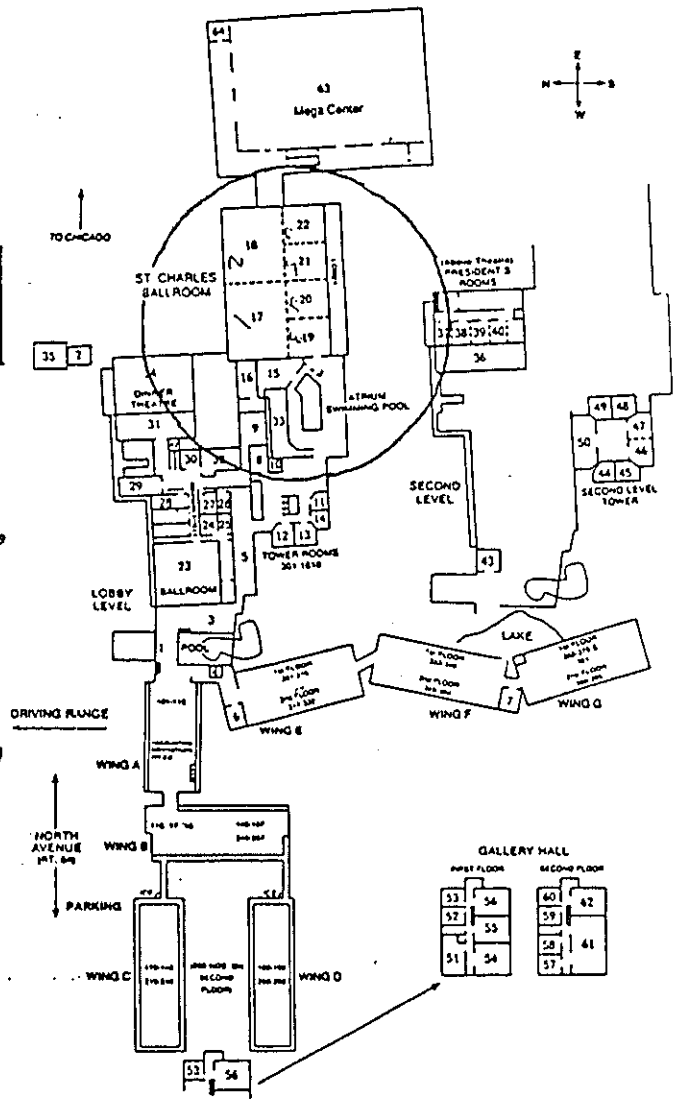
Kathy Thrall
Ben Thrall Excavating

Kathie Worden
Kane County
Health Department

RESORT SITE PLAN

Pheasant Run
RESORT & CONVENTION CENTER

1 - Lobby
2 - Reservation Office
3 - Poolside Solarium
4 - Card Room - Lobby
5 - Card Room - Tower
6 - Kids Klub
7- King Edward
8 - Food & Beverage Office
9 - Marsalis I
10 - Clubhouse Lounge
11 - The Professional Athlete
12 - Arnold Palmer Suite
13 - Jack Nicklaus Suite
14 - Ben Hogan Suite
15- Fitness Center/Health Club
16 - Marsalis II & III
17 - Chamber I
18 - Chamber II
19 - Chamber III
20 - Chamber IV
21 - Chamber V
22- Chamber VI
(17-22: ST. CHARLES BALLROOM)
23 - New Orleans Ballroom
24 - Pete Fountain
25 - Louis Armstrong
26 - Duke Ellington
27 - Lucky Pierre's
28 - Marian's Boutique
29 - Thieve's Market
30 - Bourbon Street Deli
31 - The Baker's Wife Restaurant & Lounge
32 - Lillys Lounge
33 - Garden Terrace Restaurant
34 - Dinner/Theatre
35 - Dinner/Theatre Box Office
36 - Zanies Comedy Club
37 - Washington
38 - Lincoln
39 - Jefferson
40 - Eisenhower
(37-40: COMPLETE PRESIDENT'S ROOMS)
42 - Zanies Box Office
43 - Sales & Catering Offices (above lobby)
44 - Sapphire
45- Topaz
46 - Turquoise A
47 - Turquoise B
48 - Coral
49 - Jade
(45-49: COMPLETE GEM ROOMS)
50- Ruby
51 - Robert Wood
52 - Picasso
53 - Chagall
54 - Utrillo
55 - Vermeer
56 - Gauguin
57 - Matisse
58 - Corot
59- Van Gogh
60 - Cezanne
61 - Rembrandt
62- Renoir
(51-62: COMPLETE GALLERY HALL)
63 - Mega Center
64 - Mega Center Box Office



REGISTRATION FORM

20th ANNUAL NORTHERN ILLINOIS SEPTIC CONTRACTORS WORKSHOP

********** STAPLE CHECK HERE **********

NAME: _____

PROFESSION (e.g., Contractor, Sanitarian): _____

COMPANY/AGENCY: _____

ADDRESS: _____

CITY, STATE, ZIPCODE: _____

****

Advance Registration Includes:

March 3 - Workshop sessions and exhibits, morning and afternoon breaks, lunch, hospitality suite.
March 4 - Workshop sessions and exhibits, morning break and lunch, raffle ticket.

CHECK ONE:

BOTH DAYS: _____ $55.00 MARCH 3 ONLY: _____ $35.00 MARCH 4 ONLY: _____ $35.00

NOTE: Registration at the door will be $40.00 per day ($65.00 for both days).

Make check payable to: **Illinois Environmental Health Association**

Registration must be postmarked no later than by February 24, 1993. Mail check and form to:

Paul Chase
DuPage County Health Department
111 N. County Farm Road
Wheaton, Illinois 60187

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PANEL DISCUSSION QUESTIONAIRE

The last session of the workshop will be a panel discussion in which officials from IDPH and a number of local county health departments will address questions from workshop attendees (see the program for a list of panel members). No questions will be taken from the floor, rather a moderator will present questions submitted with advance registrations. Please use the space provided below to write down one or more questions you may have for the panel. Specify which panelist(s) you would like to address the question:

PANEL MEMBER(S): _____

QUESTION(S): _____

_____

_____

_____

_____

ILLINOIS SOIL CLASSIFIERS ASSOCIATION

Spring 1993 Newsletter

REPORT FROM THE PRESIDENT

This is my second go-around as President of the Illinois Soil Classifiers Association. The first few weeks in office have been hectic. Our Annual Meeting was held March 19th. The highlights of the meeting were: the presentation of an Honorary Life Membership to John Alexander (Congratulations John!); the selection of a new logo for the association; and a keynote address by John Thornhill, a registered surveyor.

Things were quiet for about 3 days into the administration, when I received a phone call from Bob Darmody informing me that Senate Bill 966 was being considered by the Illinois General Assembly. The bill would amend the "Professional Engineering Act of 1989", and would include soil classification as a "professional engineering practice". The hearing for the amendment was scheduled for March 24 at the State Capital. We had two days to come up with a group to sit in on the hearings. Many phone calls and faxes later we came up with 11 ISCA members. As it turned out, the amendment was amended and our attendance was just a formality (But the story isn't over yet. More later on in my report.) I would like to thank Jerry Berning, Charles Love, Chuck Frazee, Mary Kluz, Bill Kreznor, Steve Suhl, Sue Aszman, Bob McLeese, Don Fehrenbacher, and Mark Bramstedt for taking the time and making the effort to support our profession.

After our day at the Capital it became obvious that we needed to become more aware of legislation that would affect our profession. It was decided informally that we need to set up a Legislative Committee to keep us abreast of pending legislation or changes in the laws that pertain to soil classification. In response to the suggestion the council created an ad hoc Legislative Committee, until a permanent committee could be set up. Charles Love has agreed to get the committee rolling with the help of Mary Kluz.

On April 30, I received a phone call from Bill Kreznor. Bill had been contacted by a member of the Illinois Society of Professional Engineers, and the individual informed Kreznor that another amendment had been proposed to the "Professional Engineering Act of 1989". I am writing this report on May 2, and at this point in time it is my understanding that this amendment would include soil classification, geology, and hydrogeology as professional engineering practices. We will keep you informed as the story unfolds.

All of these events make two points very clear. The first one is - do we want to be more involved politically? The second question is - do we want to be an organization which includes individuals from other disciplines (engineering, sanitarians, environmental scientists etc.) or do we want to exclude individuals from other professions?

To try and answer these questions, the summer meeting will center on the future focus of our organization. We will have an open discussion on the political and professional direction of ISCA. I encourage everyone to attend.

I hope this report makes everyone aware of the challenges we face in the upcoming year. Other projects being pursued are the State Soil, and a joint meeting early next year with the Missouri Association of Professional Soil Scientists. If you have any questions or suggestions please contact a council member or a committee chair.

Please take an active part in ISCA. If you are asked to serve on a committee, please serve. If you are asked to contact your state representative, please call. The ISCA will only succeed with your participation.

ISCA ESTABLISHES LEGISLATIVE COMMITTEE--RESPONSE TO ENGINEERS ATTEMPT TO ADD SOIL CLASSIFICATION TO ENGINEERING PRACTICE ACT

At the ISCA council meeting held on April 12, 1993, the members agreed to establish a Legislative Committee (ad hoc committee). This committee will try to keep up with legislative issues concerning ISCA. The committee encourages ISCA members to contact their Legislative District Representative, and ask to be placed on that district newsletter mail list (see Legislative Districts of Illinois Map and Roster). Also, the "Handbook of Illinois Government" is good to have for a reference material. For a copy, you may write to 474 Howlett Building, Springfield, IL. 62756 or phone 217-782-5763. If you are interested in joining this committee, contact Charles Love.

STATE SENATORS

Legislative Dist.	Name	Party	Legislative Dist.	Name	Party
30	Barkhausen, David N.	R	21	Lauzen, Chris	R
9	Berman, Arthur L.	D	46	Luft, Richard	D
35	Burzynski, Brad	R	45	Madigan, Robert A.	R
28	Butler, Marty	R	19	Mahar, William F.	R
8	Carroll, Howard W.	D	44	Maitland, John W.	R
4	Collins, Earlean	D	41	McCracken, Thomas	R
39	Cronin, Dan	R	12	Molaro, Robert	D
6	Cullerton, John J.	D	54	O'Daniel, William L.	D
40	DeAngelis, Aldo A.	R	18	O'Malley, Patrick	R
10	DeLeo, James	D	13	Palmer, Alice	D
2	del Valle, Miguel	D	26	Peterson, William E.	R
49	Demuzio, Vince T.	D	42	Petka, Edward	R

Legislative Dist	Name	Party	Legislative Dist.	Name	Party
48	Donahue, Laura Kent	R	23	Philip, James "Pate"	R
7	Dudycz, Walter W.	R	24	Raica, Robert M.	R
58	Dunn, Ralph	R	33	Rauschenberger, Steven	R
43	Dunn, Thomas A.	D	59	Rea, James R.	D
17	Farley, Bruce A.	D	51	Severns, Penny	D
20	Fawell, Beverly	R	15	Shaw, William "Bill"	D
27	Fitzgerald, Peter	R	37	Sieben, Todd	R
1	Garcia, Jesus G.	D	3	Smith, Margaret	D
31	Geo-Karis, Adeline J.	R	29	Stern, Grace Mary	D
57	Hall, Kenneth	D	34	Syverson, Dave	R
50	Hasara, Karen	R	22	Topinka, Judy Baar	R
47	Hawkinson, Carl	R	16	Trotter, Donne R.	D
5	Hendon, Rickey R.	D	56	Vadalabene, Sam M.	D
36	Jacobs, Denny	D	55	Watson, Frank C.	R
14	Jones, Emil, Jr.	D	52	Weaver, Stanley B.	R
25	Karpiel, Doris C.	R	38	Welch, Patrick D.	D
32	Klemm, Dick	R	53	Woodyard, Harry "Babe"	R
11	LaPaille, Gary	D			

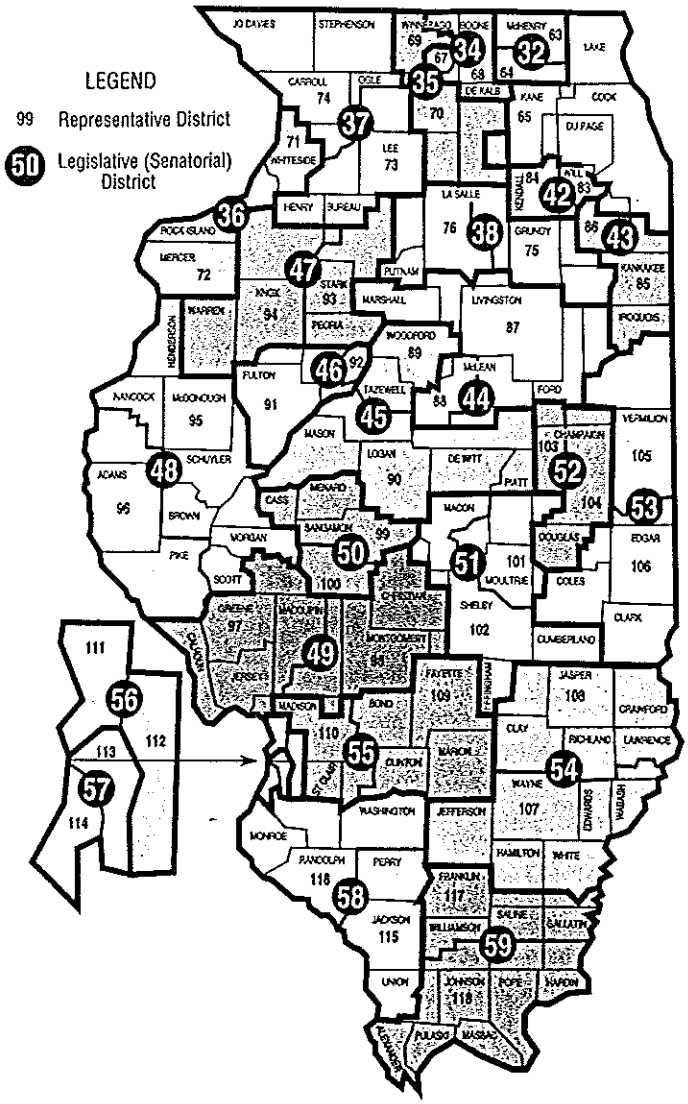
STATE REPRESENTATIVES

Representative Dist.	Name	Party	Dist.	Name	Party
89	Ackerman, Jay	R	78	Biggins, Robert	R
32	Balanoff, Clem	D	105	Black, William B.	R
79	Balthis, Bill	R	33	Blagojevich, Rod	D
81	Biggert, Judy	R	88	Brady, William E.	R
72	Brunsvold, Joel	D	76	Mautino, Frank	D
19	Bugielski, Robert	D	47	McAfee, David	D
23	Burke, Daniel	D	14	McAuliffe, Roger P.	R
13	Capparelli, Ralph	D	86	McGuire, John C.	D
62	Churchill, Robert W.	R	111	McPike, Jim	D
51	Clayton, Verna	R	82	Meyer, James H.	R
41	Cowlishaw, Mary Lou	R	94	Moffitt, Donald L.	R
84	Cross, Tom	R	61	Moore, Andrea	R
100	Curran, Michael	D	7	Moore, Eugene	D
25	Currie, Barbara Flynn	D	26	Morrow, Charles III	D
46	Daniels, Lee A.	R	99	Moseley, Vickie	D
28	Dart, Thomas	D	55	Mulligan, Rosemary	R
27	Davis, Monique D.	D	30	Murphy, Harold	D
116	Deering, Terry	D	36	Murphy, Maureen	R
71	DeJaegher, M. "Bob"	D	102	Noland, N. Duane	R

Representative Dist.	Name	Party	Dist.	Name	Party
42	Deuchler, Suzanne L.	R	85	Novak, J. Philip	D
101	Dunn, John F.	D	90	Olson, Robert F.	R
95	Edley, William	D	80	Ostenburg, John A.	D
11	Erwin, Judy	D	49	Pankau, Carole	R
113	Flinn, Monroe L.	D	57	Parcells, Margaret R.	R
21	Flowers, Mary E.	D	53	Parke, Terry	R
59	Frederick, Virginia F.	R	54	Pedersen Bernard E.	R
1	Frias, Rafael "Ray"	D	39	Persico, Vincent	R
60	Gash, Lauren Beth	D	24	Phelan, James W.	D
29	Giglio, Frank	D	118	Phelps, David D.	D
68	Giolitto, Barbara	D	103	Prussing, Laurel Lunt	D
67	Giorgi, E.J. "Zeke"	D	10	Pugh, Coy	D
109	Granberg, Kurt M.	D	17	Ronen, Carol	D
98	Hannig, Gary	D	40	Roskam, Peter	R
108	Hartke, Charles A.	D	69	Rotello, Michael	D
83	Hassert, Brent	R	87	Rutherford, Dan	R
115	Hawkins, Gerald	D	97	Ryder, Tom	R
107	Hicks, Larry W.	D	92	Saltsman, Donald L.	D
66	Hoeft, Douglas	R	52	Salvi, Al	R
112	Hoffman, Jay	D	3	Santiago, Miguel	D
91	Homer, Thomas J.	D	77	Saviano, Angelo "Skip"	R
63	Hughes, Ann	R	18	Schakowsky, Janice	D
50	Johnson, Thomas	R	58	Schoenberg, Jeffrey	D
104	Johnson, Timothy V.	R	37	Sheehy, John	D
5	Jones, Lovana S. "Lou"	D	64	Skinner, Cal, Jr.	R
6	Jones, Shirley M.	D	35	Steczo, Terry A.	D
34	Kaszak, Nancy	D	110	Stephens, Ron	R
20	Kotlarz, Joseph	D	31	Stroger, Todd	D
56	Krause, Carolyn	R	96	Tenhouse, Art	R
43	Kubik, Jack L.	R	9	Turner, Arthur L.	D
16	Lang, Louis I.	D	44	Walsh, Thomas J.	R
15	Laurino, William	D	106	Weaver, Michael	R
74	Lawfer, I. Ron	R	75	Weller, Gerald C.	R
8	LeFlore, Robert, Jr.	D	38	Wennlund, Larry	R
93	Leitch, David R.	R	73	Wessels, Pennie	D
12	Levin, Ellis B.	D	70	Wirsing, David	R
65	Lindner, Patricia Reid	R	45	Wojcik, Kathleen L.	R
4	Lopez, Edgar	D	117	Woolard, Larry	D
22	Madigan, Michael J.	D	114	Younge, Wyvetter H.	D
2	Martinez, Benjamin	D	48	Zickus, Anne	R

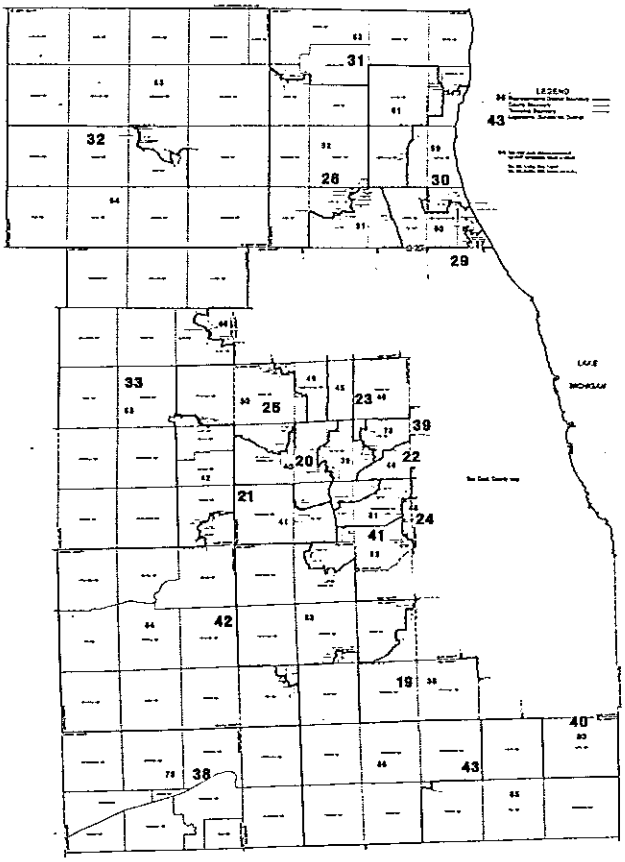
Legislative Districts of Illinois

1991 Reapportionment



Legislative Districts of Northeastern Illinois

Issued by
State Board
of Elections
1991 Reapportionment



HOW ISCA CAN STRENGTHEN THE ROLE OF SOIL SCIENTISTS IN THE PROFESSIONAL COMMUNITY ?

A Position Paper by Don Fehrenbachher and Mark Bramstedt, Area 2, SCS

On March 24th, 11 ISCA members attended the Senate Committee hearing for revisions to the Illinois Engineering Practice Code. All of these members attended on personal time. The engineers had proposed the addition of "soil classification" to their many responsibilities. This proposed change could ultimately have ended or controlled the private practice of soil classifiers. Although a compromise was reached, it was painfully obvious that ISCA had no political clout and little or no recognition. We left Springfield with a strong desire to work for change in ISCA.

Mark Bramstedt and I (Don Fehrenbacher) discussed how best to strengthen ISCA and the credibility of our profession. Our conclusion was that a new radical direction was in order. I proposed a new direction at the following council meeting. I thought we needed a "soil classifier technician" standard for soil description writing for on-site sewage disposal. This standard would require less than 15 semester hours of soils courses (probably 3-10 hours), involve considerably less training and experience, require an intensive written and field examination, or some other new, more attainable standard.

This new standard would bring many new individuals into soil classification. This would hopefully broaden our influence by including other professionals interested in soil classification, such as sanitarians. We agreed to write a letter explaining this idea as a catalyst for discussion at the summer meeting. We also agreed to ask another classifier to express another viewpoint. As we prepared to write the letter, we questioned our viewpoint and re-evaluated the problem.

We see the real "problem" with ISCA as a threefold handicap.

1. There are too few soil classifiers and future classifiers for state-wide programs.

2. It is too difficult to obtain 15 semester hours of soils courses unless you are a full-time sophomore student enrolled in one of five state universities.

3. Soil classifiers are not motivated enough to make themselves known to the public, other professionals and politicians.

We believe there are more options to correct these "problems" than the Fehrenbacher-Bramstedt proposal.

The word needs to get out that there are future careers in soil science. ISCA should meet with the University and College professors to outline a 15 semester hour soils curriculum that is not only for degree requirements or full-time students. Many potential candidates for soil classifier have degrees in biology, geography and the life sciences.

ISCA could provide legislative training to our members (a legislative committee was formed) and develop a plan to contact and educate politicians and professional groups.

We may need to change our course or even our direction, but we must truly support our profession. This support must come from SCS, the private consultants, the Universities and Colleges and all ISCA members. We cannot honestly say that we have always promoted ISCA and our profession to the fullest. Can you?

WETLAND DELINEATOR CERTIFICATION PROGRAM

The purpose of this notice is to announce the availability of training materials developed in conjunction with the Army Corps of Engineers Wetland Delineator Certification Program (WDCP). The WDCP is being developed in accordance with Section 307(e) of the Water Resources Development Act of 1990 (WRDA 90), as previously announced in the Federal Register December 30, 1992, (57 FR 62312). A working draft of the training materials will be available this spring. This package has been developed for those who intend to provide wetland delineation training. The Corps intends to provide a list of potential sources for this training to individuals who wish to receive wetland delineation training for the WDCP. This list will be provided to Corps districts nationwide for dissemination to the public.

To request a copy of the draft training materials, and/or to be included on the list of trainers of this material, contact the Waterways Experiment Station (WES), Wetlands Research and Technology Center, 3909 Halls Ferry Road, Vicksburg, Mississippi 39180-6199, (601) 634-4217, FAX: (601) 634-3664. For information on the WDCP, contact Ms. Karen Kochenbach, Office of the Chief of Engineers, Attn: CECW-OR, 20 Massachusetts Avenue NW, Washington, DC 20314-1000, (202) 272-0199.

Section 307(e) of WRDA 90 authorizes the Secretary of the Army to establish a program for the training and certification of individuals as wetland delineators, and to carry out demonstration projects in districts of the Corps. The WDCP demonstration projects began March 1, 1993, in the States of Washington, Maryland, and Florida, administered by the Seattle, Baltimore, and Jacksonville Districts, respectively. For information on the demonstration project in the State of Washington, contact the U.S. Army Corps of Engineers, Seattle District, ATTN: CENPS-EN-PL-ER, P.O. Box 3755, Seattle, WA 98124-2255, or call Ms. Kathy Kunz, (206) 764-3624. In Maryland, contact the U.S. Army Corps of Engineers, Baltimore District, ATTN: CENAB-OP-RX, P.O. Box 1715, Baltimore, MD 21203-1715, or call Mrs. Deborah Nizer, (410) 962-1843. In Florida, contact the U.S. Army Corps of Engineers, Jacksonville District, ATTN: CESAJ-RD, P.O. Box 4970, Jacksonville, FL 32232-0019, or call Mr. Ron Silver, (904) 232-2502. Nationwide implementation of the final WDCP is anticipated to begin in March of 1994, at which time the demonstration projects will end. The Corps intends to issue a proposed rule on the WDCP prior to nationwide implementation.

Corps certification of wetland delineators indicates that an individual has successfully demonstrated the capability to perform satisfactory wetland delineations, consistent with the 1987 Corps of Engineers Wetland Delineation Manual (Waterways Experiment Station Technical Report Y-87-1, January, 1987) (1987 Manual) and supplemental guidance. Certification, however, does not guarantee that future delineations submitted to the Corps by certified delineators will take less time for the Corps to verify. The Corps districts will exercise final

decision-making authority regarding acceptance of wetland delineations performed by certified delineators.

Copies of the 1987 Manual are available from the National Technical Information Service, 5285 Port Royal Road, Attn: Order Department, Springfield, Virginia 22171, Document #ADA 176 734. Copies of the supplemental guidance issued by the Corps concerning use of the 1987 Manual, which includes the October 7, 1991, Questions and Answers, and the March 6, 1992, Clarification and Interpretation memoranda, may be obtained by contacting the Regulatory Branch of your local Corps district or the Office of the Chief of Engineers, (202) 272-0199.

Training in the 1987 Manual will be a prerequisite for all WDCP applicants (i.e., individuals who apply to districts to be certified) after the demonstration projects (i.e., March 1994). The prerequisite training, as well as the requirement that all training be conducted with a certified delineator present, is waived during the demonstration phase of the WDCP. Although participation in the demonstration projects is open to all, it is unlikely that individuals lacking training and experience in the 1987 Manual will be able to demonstrate that they meet the minimum standards to be provisionally certified during the demonstration projects.

In order to meet the prerequisite for training in the future, individuals may prepare during the demonstration program by one of the following means:

(1) Acquisition of a provisional certification from the Baltimore, Seattle or Jacksonville Districts; or

(2) Obtaining training in Corps 1987 Wetland Delineation Manual based on the Corps training materials. A certification of successful completion of this training will be issued by the training source and required by the Corps.

If you feel you have had appropriate training, it is recommended that you take advantage of the waiver during the demonstration projects and successfully complete WDCP provisional certification. Once the WDCP is implemented nationwide, no exceptions or equivalencies to the training prerequisites, nor requests of that nature, will be accepted.

CHANGES IN SOIL TAXONOMY AND SOIL CLASSIFICATION

Louis Boeckman, Assistant State Soil Scientist-Correlations, Des Moines, Iowa.

As many of you know, we have experienced major changes during the last couple of years in soil taxonomy and classification. The rules in which soil survey operate are no longer exempt from these events.

About a year ago, we were instructed that our pedons are to be described to a depth of 80 inches (200 cm), due to results of Amendment No. 14 of **Soil Taxonomy.** During the year we have experienced some surprises when observations were made to this new defined depth. Other observations verified what we already knew below the depth of 60 inches (150 cm). This establishes new criteria for series control section which is now at a depth of 80 inches. This means a lot of our official series descriptions need to be extended to the new defined depths of 80 inches. This will be phased in over time during the update activities in Iowa.

Recently, redoximorphic features have been introduced to soil survey operations. These features affect the interpretation of mottles, oxides, concentrated nodules, and accumulation. Most soils in Iowa will be using (1) redox concentrations, which generally are accumulations, with color values of 4 or more and chromas greater than 2, (2) redox depletions that have color values of 4 or more and chromas of 2 or less, and (3) redox matrix which are generally soils that have Fe in a reduced state and change from a gleyed color when exposed to air.

To get a better understanding of the definition of these terms, Amendment No. 16 of **Soil Taxonomy,** Technical Bulletin 310 and the latest **Keys to Soil Taxonomy** are the references to use.

There also is the issue of saturation in Amendment No. 16 of **Soil Taxonomy.** This primarily affects soils that are poorly or very poorly drained. The decision centers around whether soil meets criteria for epi- or endosaturation.

Episaturation indicates a perched water table which is affected by permeability changes and/or changes in parent materials. Some horizons below the perched water to a depth of 40 inches (100 cm) may have a drier zone but would not exclude total saturation in this case. However, there is some question on this matter. The Soil Survey Quality Assurance Staff (SSQA) at the MNTC is to provide more detailed direction. Endosaturation describes an apparent water table at depths above 80 inches (200 cm).

How does this affect soils in Iowa and surrounding states? This mostly affects three (3) great groups of classifications of **Soil Taxonomy:** Aquolls, Aqualfs, and Aquents. As yet, we do not have a final number of series that are affected in Iowa; however, the series will be updated as staff and time become available.

Another change that has come about through Amendment No. 16 of **Soil Taxonomy** is the issue of Vertic subgroups. The definition of vertic has been defined as:

1. Cracks within 49 inches (125 cm) of the mineral soil surface that are 1/4 inch (5 mm) or more wide through a thickness of 12 inches (30 cm) or more for some time in most years, and slickensides or wedge-shaped aggregates in a layer 7 inches (15 cm) or more thick that have an upper boundary within 49 inches (125 cm) of the mineral soil surface; or

2. A linear extensibility of 2.4 inches (6 cm) or more between the mineral soil surface and either a depth of 40 inches (100 cm) or lithic or paralithic contact (whichever is shallower).

How does this affect soils in Iowa? It makes it easier to classify soils into the vertic subgroups. Generally, all soils that classify into the fine and very fine families and montmorillonitic mineralogy can be affected.

In recent weeks, we have been on the phone with SSQA in Lincoln. We have verified that these changes will affect the soil survey operations in present active status of update. In other words, soil surveys that do not have signed correlation documents are affected as of February 1993. Soil Surveys prior to this date are not affected.

DEATH OF DR. ROBERT V. RUHE

Dr. Tom Fenton, Professor, Iowa State University, Ames, Iowa.

We have received word that Dr. Robert V. Ruhe died on February 10, 1993, in Bloomington, Indiana. Dr. Ruhe was 74 years old.

Dr. Ruhe received a B.A. in Geology from Carleton College in 1942. He served in the U.S. Marine Corps from 1942 to 1946 as a naval aviator and was an Instructor of Geology at Iowa State University from 1946 to 1949. From 1947 to 1951, he was also a Pleistocene Geologist with the Iowa Geological Survey. Dr. Ruhe received an M.S. in Geology from the Iowa State University in 1948 and his Ph.D. in Geology from the University of Iowa in 1950. His Ph.D. dissertation was entitled "Reclassification and correlation of the glacial drifts of Northwestern Iowa and adjacent areas". He was an Assistant Professor of Geology at Iowa State University for one year. He did geomorphic research in the Belgian Congo from 1951 to 1952. In 1953, Dr. Ruhe was hired as a research geologist by Soil Survey Investigations, USDA-SCS, to initiate soil-geomorphic studies as a part of a research program to support the soil survey program. The first study areas were in Pottawattomie, Cass, and Adair Counties in southwestern Iowa where the stratigraphy and soils along a railroad line were investigated. Dr. Ruhe developed several additional projects that covered four contrasting geographical regions within the U.S. The soil-geomorphic models developed under the leadership of Dr. Ruhe have been used extensively in the soil survey program in many states. Dr. Ruhe was an Adjunct Professor of Agronomy at Iowa State University from 1963 to 1970.

In 1970, Dr. Ruhe resigned his position as director of Soil-Geomorphic Investigations with USDA-SCS. He accepted a position as a Professor of Geology at the University of Indiana at

Bloomington. He continued his geomorphic studies at that institution until his retirement in 1985. At the time of his retirement, Dr. Ruhe donated his library to the Agronomy Department at Iowa State University. The gift consisted of 571 books, handbooks and guides, 134 volumes of scholarly journals and over 4600 reprint items totaling 108,312 pages.

Dr. Ruhe was the author of two text books and authored or co-authored numerous publications and reports. He was a Fellow of the Geological Society of America and The American Association for Advancement of Science. He served on many editorial boards and received several awards during his career. In 1960, he received the Certificate of Merit from the Soil Conservation Service for unusual skill in directing research in geomorphology. In 1968, he received the Author Award from Iowa State University Press for the most outstanding book manuscript "Quaternary Landscapes in Iowa". In 1974, he was honored by the Geological Society of America with the Kirk Bryan Award for distinguished contribution to geomorphology. In 1975, he received the Centennial Citation from the Iowa Academy of Science for highly significant contributions to Pleistocene geology of Iowa, for professional consultation with national and international groups, and for contribution to future scientific inquiry through directing research of many graduate students.

Dr. Ruhe was elected an Honorary Member of Professional Soil Classifiers of Iowa in 1985. In 1985, he was also presented a framed certificate from Iowa State University acknowledging his contributions to a better understanding of soils in Iowa and the underlying geology. Those of us in Soil and Earth Sciences owe a great debt to Dr. Ruhe for his many contributions. The best way to pay that debt is by continuing the tradition for excellence he established in his life.

ILLINOIS' COOPERATIVE SOIL SURVEY ANNUAL PLANNING CONFERENCE SEPTEMBER 9, 1993 SPRINGFIELD, IL

A soil survey conference is convened each year by the SCS State Conservationist to address the coordination of efforts, priorities, and schedules of the cooperating agencies in Illinois' cooperative soil survey.

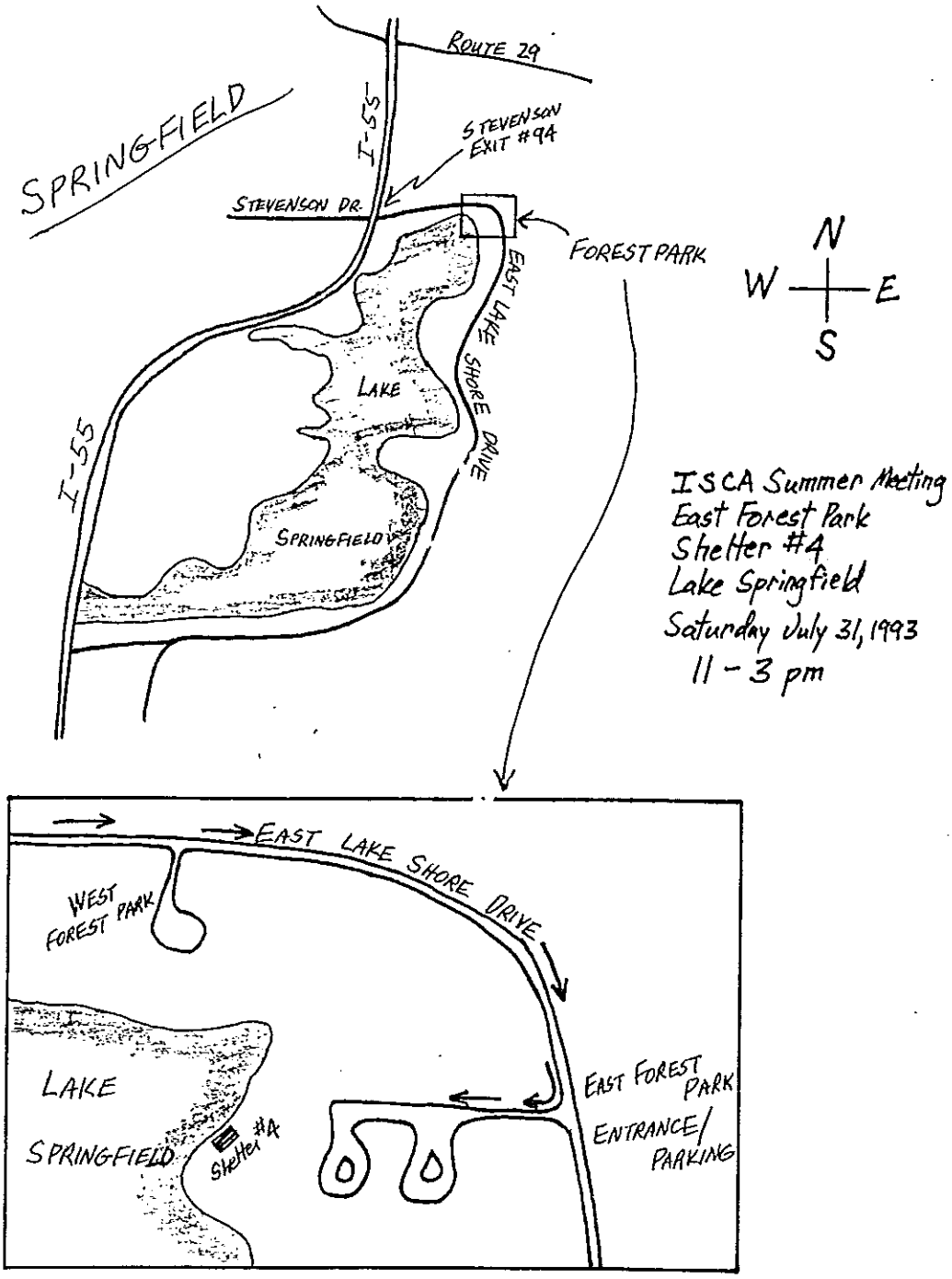
The conference also provides a vehicle for determining and incorporating the views of individuals and organizations in Illinois' soil survey program.

Typically, 20 to 30 representatives from cooperating agencies and interested users participate in the conference. The public is also invited to participate.

This year's conference will be hosted by the Illinois Department of Transportation and is scheduled for September 9, 1993 in Springfield. Details will be available in July. All ISCA members will receive notification of the conference.

ISCA SUMMER MEETING AND PICNIC

The ISCA Summer Meeting will be held in Springfield's Forest Park alongside scenic Lake Springfield. This year's summer meeting will focus on the future of ISCA in light of recent legislative developments. The certification program, training new soil scientists and developing relationships with other professional societies will be the focus of discussion. The summer meeting will be held July 31, 1993 at 11AM. Contact Doug Gaines (618) 656-1452 for additional information.



THE USE OF VARIABILITY DIAGRAMS TO IMPROVE THE INTERPRETATION OF DIGITAL SOIL MAPS IN A GIS

Ann L. Maclean, School of Forestry and Wood Products, Michigan Technological University, Houghton, MI 49931; Thomas P. D'Avello, USDA Soil Conservation Service, 1902 Fox Drive, Champaign, IL 61820; Stephen G. Shetron, School of Forestry and Wood Products, Michigan Technological University, Houghton MI 49931

Abstract

A critical layer in geographic information systems (GIS), particularly when utilized in land management decisions, is soil survey information. The spatial component of this information is generally input from digitized survey maps, usually in the form of polygons representing different soil map units. It is a fact that the homogeneity of soils within soil map units varies. Conveying this variability to users is essential to ensure proper use of soil survey information. Using the transect method, four forested soil map units were examined to assess their homogeneity with respect to the variability of field determined soil taxonomy and physiography and the interpretive variability of selected soil properties for forest land management. The degree of interpretive variability was determined using Shannon's measure of entropy. Variability diagrams and interpretive maps were generated within a GIS. These diagrams and maps, coupled with the digitized soil maps inform users of the degree of soil map unit variability and the variability of limiting soil properties.

TREASURER'S REPORT FROM ANNUAL MEETING

March 19, 1993

Treasurer's Report - Annual Meeting

Balance in account on January 12, 1993 $7508.30

Income:

Application fee	15.00	
Interest	66.20	
Dues	2045.00	
Annual Mtg	414.40	
	2540.60	2540.60
Subtotal	10048.90	

Expenses:

Postage	9.50	
Short Course	125.00	
Annual Mtg Deposit	80.00	
	214.50	214.50
Balance in account	$9834.40	

1/ Expenses include office supplies, copying, postage, and phone.

OUTSTANDING BILLS:

Approx. $500.00

Submitted by: Steven E. Zwicker, CPSC, Treasurer

STATE SOIL FACT SHEET FOR FUTURE FARMERS OF AMERICA (FFA) CONFERENCE

The following information was prepared by Bob McLeese to be used at the 1993 FFA Annual Conference in Champaign. At that conference, FFA members will receive information about and vote for an Illinois State Soil. Later this summer 4-H conventioneers will also have an opportunity to vote. The winning soil will then be prepared for submission to the Illinois General Assembly as a joint venture among FFA, 4-H, and ISCA. If you can help Bob with this endeavor, please give him a call at (217) 398-5286.

Q. White oak, violet, big blue stem, monarch butterfly, white-tail deer, cardinal, and blue gill. Do you know what these things have in common??

A. They are all official state symbols of Illinois and they all depend on soil for their existence! Yet, we have no official state soil!!

FACT: Our natural resources are indispensable to the support and growth of a strong and prosperous state, and indeed, are the things that make Illinois a special place.

FACT: Illinoisan's are very dependent on soils. They produce our food, fiber, and paper; they serve as foundations for our houses, highways, airports, and schools; and they support our plants. BUT, for many, the soil is a common place feature of nature not well understood or appreciated.

Q: Why a state soil??

A: An official state soil will provide educators and organizations with a symbol to help in efforts to inform the public of the vast importance of the soil resources of Illinois.

Q: Which soil should be the official state soil of Illinois??

A: There are over 400 soil series that have been identified and mapped in Illinois, each with unique properties and characteristics, and with its own argument for consideration as state soil. In 1986, the Illinois Soil Classifiers Association identified seven soils that they felt would best represent the soil resources of Illinois. They are CISNE silt loam, DRUMMER silty clay loam, FLANAGAN silt loam, HOYLETON silt loam, SABLE silty clay loam, IPAVA silt loam, and SAYBROOK silt loam.

Q: Do other states have an official soil?

A: Yes, Florida, Kansas, Kentucky, Massachusetts, Michigan, Nebraska, Oklahoma, South Dakota, Vermont and Wisconsin all have state soils. Fourteen other states are considering legislation for a state soil.

NOTE: The best hope for the long term conservation of our natural resources is to develop an awareness and strong conservation ethic in our young people. A state soil will serve as a catalyst toward that goal. Soil has made our state great in terms of its agricultural heritage. Maybe that should have been the state symbol we started with.

Q: Which soil should I vote for?

A: Take a look at the candidates - then you decide!

CISNE silt loam

Poorly drained gray prairie soil
Corn yield 115 bu/ac
730,000 acres in south central Illinois

DRUMMER silty clay loam

Poorly drained prairie soil
Corn yield 154 bu/ac
1,500,000 acres in northern and central Illinois

FLANAGAN silt loam

Somewhat poorly drained prairie soil
Corn yield 162 bu/ac
840,000 acres in south central Illinois

HOYLETON silt loam

Somewhat poorly drained prairie soil
Corn yield 116 bu/ac
480,000 acres in south central Illinois

IPAVA silt loam

Somewhat poorly drained prairie soil
Corn yield 163 bu/ac
720,000 acres in central and western Illinois

SABLE silty clay loam

Poorly drained prairie soil
Corn yield 156 bu/ac
930,000 acres in northwestern and west central Illinois

SAYBROOK silt loam

Moderately well to well drained prairie soil
Corn yield 139 bu/ac
290,000 acres in northern Illinois

STATE SOIL NOMINATION SPONSORED BY:

Illinois Association FFA
Illinois 4-H Youth Conference
Illinois Association of Vocational Agricultural Teachers
Illinois Soil Classifiers Association
Illinois Chapter Soil and Water Conservation Society

SUPPORT THE STATE SOIL SELECTION - VOLUNTEER TO HELP
CALL BOB MCLEESE AT (217) 398-5286

1993 CERTIFICATION BOARD

The following individuals comprise the Certification Board for 1993. Doug Gaines and Pat Kelsey were appointed by ISCA President Sam Indorante. Officers were elected at a Board meeting which followed the 1993 ISCA Annual Meeting.

Robert L. McLeese, Chairman, 1996
RR 1, Box 238
Monticello, IL 61856

Gary W. Lenz, Vice Chairman, 1994
RR 3, Box 510
Centralia, IL 62801

Tonie J. Endres, Secretary/Treasurer, 1995
908 Jefferson, P.O. Box 686
Lawrenceville, IL 62439

Douglas B. Gaines, 1996
250 Coventry Pl.
Edwardsville, IL 62025

Patrick D. Kelsey, 1996
711 Wilder Street
Aurora, IL 60506

Emil E. Kubalek, 1994
3408 56th Street Place
Moline, IL 61265

1993 STANDING COMMITTEES

Membership

Mike Walker, Chair
Steve Suhl
Bruce Houghtby
Charles Love

Public Relations and Education

Don Fehrenbacher, Chair
Mark Bramstedt
Bruce Putman

Finance Committee 1993

Gloria Westphal
Scott Sterling

Constitution and By-Laws

Bill Kreznor, Chair
Rick Hootman

Legislative Committee

Charles Love, Chair
Sue Azman
Jerry Berning
Mark Bramstedt
Chuck Frazee
Mary Kluz
Bill Kreznor
Bob McLeese
Steve Suhl

Newsletter

Pat Kelsey, Chair and Editor
Rick Hootman
Matt McCauley

Program Committee

Doug Gaines, Chair

LETTER TO STATE LEGISLATOR CONCERNING SENATE BILL 944

Dear Sir,

I appreciate this opportunity to present my views regarding the expansion of the Professional Engineers area of expertise.

My name is Donald L. Wallace and I reside at 643 N. Kansas Street in Edwardsville, Illinois. I have retired after 34 years of working in the field of Soil Science. My views are based on this experience and the formal education, in soil science, at Michigan State University.

To most soil is something to manipulate as we walk on it, dig in it, cultivate it, install septic drainage fields in it, and build homes on it among other things. Its there and very little is known about its various properties for various uses. Engineers as a whole have handled soil with little regard for its many properties. In their formal education most have had a very elementary course in soils as a building and foundation material.

It is because of this and the many mistakes that have been made in the past that I oppose expansion of the areas of expertise that should be included in the Registered Professional Engineers license. There is one exception to this and that is: If the engineer applying for license has taken sufficient courses in soil mechanics to qualify as an expert in the field of soil mechanic I think that the individual would be qualified as a professional engineer with a specialty in soil mechanics.

I have worked with several engineers with soil related problems. With the combination of our education and experience, solutions to problems were made. To think that engineers know all the various properties of soil and their behavior when used for many purposes is to think that they can solve all problems in the environment. You know that engineers have specialties and recognize some of them, such as structural engineering. Why should the present description of civil engineering be expanded to include interpretation of soil properties when professional and certified soil scientists are available to do this task? Are most engineers capable of interpreting these properties and would it be in the best interest of the people of Illinois for them to do so with their limited education and training in this field?

I do not believe it would be in the interest of the people of Illinois to expand areas of work for the regular professional civil engineer. It would be far better to recognize that they do not have the working knowledge of soil, as do the Certified soil scientists represented by the Illinois Soil Classifiers Association or the Certified Professional Soil Scientist listed in the registry of the American Society of Agronomy and Soil Science Society of America, than to include it within their area of expertise.

Thank you for your indulgence and consideration in this matter.

Sincerely,

Donald L. Wallace
643 N. Kansas St.
Edwardsville, IL 62025-1138

NEW ISCA LOGO

You will begin to see the new ISCA logo on letterhead, the newsletter, and other ISCA organization documents. There are plans to have patches made and make camera ready artwork available. More about the logo in the next newsletter . Stay tuned .....

ISCA
ILLINOIS
SOIL
CLASSIFIERS
ASSOCIATION

ILLINOIS SOIL CLASSIFIERS ASSOCIATION

Summer 1993 Newsletter

REPORT FROM THE PRESIDENT

We've just completed our summer meeting a few days ago. Special thanks to Doug Gaines for organizing the outing. There were 19 attendees, and after a picnic lunch, we had a soil texturing contest (Congratulations to Gloria Westphal for winning the contest! Wiley Scott came in second and Mike Walker was third). This was followed by an open discussion on the future focus of ISCA.

Discussion went for over an hour, and was summarized into 7 action items that will be brought to the Council at the next meeting in a few weeks.

1. Through cooperation with the National Cooperative Soil Survey, ISCA needs to offer 3 or 4 workshops a year on pertinent subjects (i.e. wetlands, septic systems, soils and tax assessment etc.). We need to include and to invite other disciplines (i.e. sanitarians, engineers, tax assessors) to participate in these workshops. The workshops would be held in various locations across the state. The workshops would help build bridges between ISCA and other professions. This may also help us build up our membership numbers.

2. Formalize the ad hoc Legislative Committee and outline the responsibilities of the committee.

3. Have representatives of ISCA meet with other professional organizations (i.e. Illinois Society of Professional Engineers, Illinois Chapter of American Society of Civil Engineers, Association of Illinois Soil and Water Conservation Districts, Illinois Department of Agriculture).

4. Increase participation in ISCA activities by our membership.

5. Beat the bushes for membership. Refer to item #1.

6. Make membership responsible for contact with State Representatives. Come up with an information packet that we could present to each State Representative and other interested groups.

7. Work with Illinois colleges and universities on the development and maintenance of soil science curricula. Currently only a few colleges offer enough soil courses for someone to obtain the required 15 credit hours of soils. We need to look into the greater accessibiblity of soil courses, and we need to encourage the participation of ISCA in the teaching of these courses.

I am sure that there are many more ideas out there, and I want to encourage everyone to send in there comments. Gathering ideas is just the first step. We need everyone's input and participation. Please help ISCA move forward!

LETTERS CONCERNING ENGINEERING REGISTRATION

Emil E. Kubalek
Soil Classifier Services
3408 56th Street Place
Moline, IL 62706

Dear Emil:

Thank you for bringing the issue of soil classification by engineers in Illinois to my attention. In that I have researched this issue extensively for debate with both engineers and geologists, I would like to offer you my opinion and my recommendation.

Like you, I am a consulting soil scientist with similar credentials in Pennsylvania. I am a Registered Professional Soil Scientist (RPSS), certified by the National Society of Consulting Soil Scientists (NSCSS). I am also certified by and registered with the American Registry of Certified Professionals in Agronomy, Crops, and Soils (ARCPACS) as a Certified Professional Soil Scientist (CPSS) and as a Certified Professional Soil Classifier (CPSC). I served as the national president of the NSCSS in 1992. I am the owner and president of two Pennsylvania businesses, Soil Services Company, Inc. which provides consultation in soil science and The Soil Lab, which provides geotechnical investigation and testing.

My dual background in soil science and soil mechanics has introduced me to the two worlds of soil classification: that of the soil scientist, and that of the engineer. It is my recommendation to you that your quest to retain your soil science classification "turf" will be better fought by educating the engineers in your state about your type of taxonomic and pedological soil classification, while also recognizing their "turf" in the engineering classification of soils.

You will win no points in the engineering kingdom by insulting engineers who rely on soil mechanics and ASTM and AASHTO testing for the design of structures. You are correct that the soil mechanics approach to site evaluation has little to do with understanding site conditions such as the aerial extent of the sampled soil, or such properties as drainage,

erched water tables, hydraulic conductivity, infiltration, morphology, genesis, or geomorphology. However, we, as soil scientists, would be out of line to make recommendations on the design of footers or bridge abutments without appropriate soil mechanics testing and classification. Likewise, geotechnical engineers, who are not trained in soil science, are generally not qualified to interpret any in-situ soil and site conditions which may affect their projects. Examples of this would be whether the soils are alluvial (floodplains), hydric soils (wetlands), montmorillonitic soils (high shrink-swell), etc.

I strongly recommend that you communicate with the engineering organizations such as the American Council of Engineering Consultants (ACEC). Tell them you will support the bill if the wording in the proposed bill is amended to read "with the exception of soil classification as per the standards of the National Cooperative Soil Survey, which shall be performed by qualified soil scientists who have RPSS and CPSS certifications." This will enable the engineers to write Burmeister logs in soil borings, to analyze ASTM soil tests, etc. This will also identify for the engineers where to turn for obtaining soil profile descriptions, soil taxonomic classifications, evaluations of landforms, interpretations on site drainage, interpretations of soil limiting zones for sewage disposal and land applications, classifications for Agricultural Land Capability Classes, expert testimony on hydric soils, etc.

This is a topic which I am always willing to discuss. Should you wish to use my letter to assist in your efforts, please do. If I can help in any other way, please contact me. You can expect the support of the NSCSS.

Sincerely,

Laurel F. Mueller, CPSS/SC, RPSS
President

Senator Denny Jacobs
State House
Room M103C
Springfield, IL 62706

Dear Senator Jacobs,

I appreciate this opportunity to present my views regarding recent proposals for the expansion of the Professional Engineers area of expertise. I am especially concerned about proposals that are being put forth in Senate Bill 944; 966 and others that would amend the "Professional Engineering Act of 1989" to include soil classification as a "professional engineering practice".

My name is Emil E. Kubalek and I have been practicing soil classification in the field of Soil Science since 1953. My views are based on this experience and the formal education, in soil

science, at the University of Illinois, Urbana/Champaign. I hold a Bachelor of Science and a Master of Science degree from that institution.

To a professional engineer, soil is something to manipulate as we walk on it, dig in it, build on it, or install structures in it. It is there, and very little is known about it's natural pedological properties and how they might affect these various uses. In my experience, engineers as a whole, have handled soil with little regard for these natural properties. In their formal education most have at best had a very elementary course in soils with emphasis mainly as a building and foundation material. Likewise, the systems they use for rating soils are designed specifically for this purpose.

It is because of this and of the many problems that have resulted when inappropriate use of soils is made, that I oppose the expansion of the areas of expertise that should be included in the Registered Professional Engineers license. The one exception to this would be is if the engineer applying for license has taken sufficient courses in soil mechanics to qualify as an expert in the field of soil mechanics. That individual would be qualified as a professional engineer with a specialty in soil mechanics.

I have worked with several engineers with soil related problems. With the combination of our education and experience, solutions to problems were made. To think that engineers know all the various properties of soil and their behavior when used for many purposes is to think that they can solve all problems in the environment. You know that engineers have specialties and recognize some of them, such as structural engineering. Why should the present description of civil engineering be expanded to include interpretation of soil properties when professional and certified soil scientists are available to do this task? Are most engineers capable of interpreting these properties and would it be in the best interest of the people of Illinois for them to do so with their limited education and training in the field?

I do not believe it would be in the interest of the people of Illinois to expand areas of work for the regular professional civil engineer. It would be far better to recognize that they do not have the working knowledge of soil, as do the Certified Professional Soil Scientist as represented by the Illinois Soil Classifiers Association, Certified Professional Soil Scientist listed in the registry of the American Society of Agronomy and Soil Science Society of America or The Registered Professional Soil Scientist listed in the registry of the National Society of Consulting Soil Scientists, than do include it within the area of expertise of a civil engineer. The professional soil scientist by legislative edit does not seek to become a civil engineer. So should the engineer not seek to become a soil scientist.

Thank you for your indulgence and consideration in this matter. I hope you will agree with me and not support the amendments to include soil classification in the proposed legislation.

Sincerely,

Emil E. Kubalek, CPSC, RPSS
Consultant

CORRELATOR'S LAMENT

A man there was, Guy Smith by name,
Inventor of a guessing game
To put all other such to shame.

This game, though based upon the soil,
Consisteth chiefly of turmoil
And is a cause for endless toil.

This brainstorm hardly had begun --
Out popped Approximation I --
And we thought that the job was done!

But 'are the ink had time to dry,
Our hero made another try
His second draft bloomed but to die.

Then came Approximation 3;
Our weary eyes began to see
The 4th would not the last one be.

The 5th Approximation found
Us on the ropes and giving ground
From going round and round and round.

The 6th was just a stepping stone,
To make us swear and sweat and groan --
To make us want to be alone.

In padded cells, from which to cry,
At every sane man passing by
And sense his sympathetic sigh.

Herr Smith now thought the time was ripe
For high-brow nomenclature tripe,
While we were all too beat to gripe.

Now we engage in hide-and-seek
With Sanskrit, Latin, Smith and Greek;
The future never looked so bleak.

A. H. Paschall 12-64

PRESS RELEASE:

LOOK WHO'S ARRIVED

Nathaniel Robert Miller

On July 18, 1993
At 12:46 PM
7 lbs. 8 oz.
21 inches

Joining Amanda in Our Family
Mary Kluz and Doug Miller

MEETINGS! MEETINGS! MEETINGS!

Dear ISCA Member:

Illinois' Cooperative Soil Survey Annual Planning Conference will be held on Thursday, September 9, 1993 in Springfield. As you know, the purpose of the conference is to bring our cooperators and other soil survey supporters up-to-date on soil survey activities in the state.

The Illinois Department of Transportation, will be hosting the conference this year in Springfield. We will convene at 9:00 a.m. in the 2nd floor conference room of the Bureau of Materials and Physical Resources Building, 126 East Ash Street (parking is in the rear of the building). A tentative agenda is attached.

We will be looking for input from the group on soil survey related issues that need to be addressed this next year.

Sincerely,

Charles Whitmore
State Conservationist

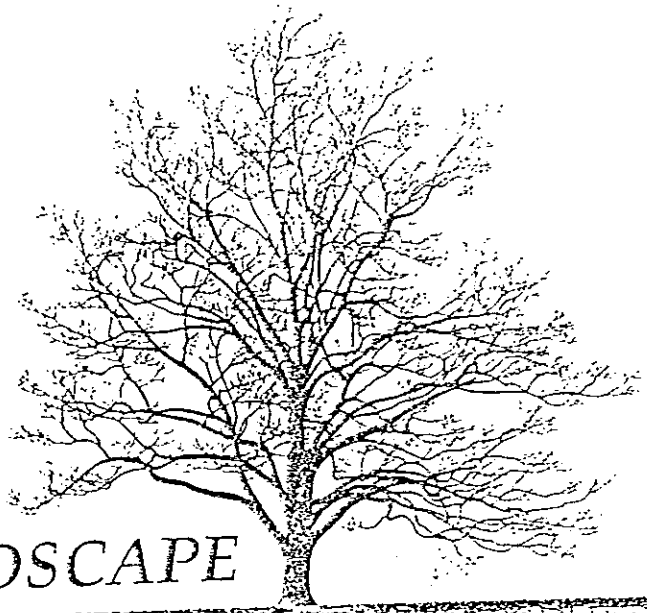
Attachment

ILLINOIS' COOPERATIVE SOIL SURVEY
Annual Planning Conference
September 9, 1993

Illinois Department of Transportation
Bureau of Materials and Physical
Resources Building
126 E. Ash Street
Springfield, Illinois

AGENDA

9:00 a.m.	CONVENE
	WELCOME/OPENING REMARKS
	STATUS REPORTS BY COOPERATORS SCS UI AGRICULTURAL EXPERIMENT STATION IDOA, DNR ISGS IDOT CES AISWCD USFS ISCA
	FY 93 PLAN OF OPERATIONS
	COMMENTS FROM OTHER ORGANIZATIONS
12:00 p.m.	LUNCH (on your own)
1:30 p.m.	OPEN HOUSE AT MLRA SOIL SURVEY OFFICE FARMERS UNION BUILDING 40 ADLOFF LANE SPRINGFIELD, ILLINOIS



THE LANDSCAPE BELOW GROUND

AN INTERNATIONAL WORKSHOP ON TREE ROOT DEVELOPMENT IN URBAN SOILS

Speakers

Philip A. Barker, USDA Forest Service
Laurence R. Costello, University of California
Els Couenberg, OMEGAM, Netherlands
Phillip J. Craul, State University of New York
Edward F. Gilman, University of Florida
J. Roger Harris, Cornell University
Simon Hodge, Forestry Commission, England
Patrick Kelsey, The Morton Arboretum
Jitze Kopinga, Institute for Forestry and Nature Research, Netherlands
Daniel C. Milbocker, Virginia Tech
James C. Patterson, Center for Urban Ecology
Thomas O. Perry, Natural Systems Associates
Kaj Rolf, Swedish University of Agricultural Science, Sweden
E. Thomas Smiley, Bartlett Tree Experts
Daniel K. Struve, Ohio State University
Pavel Svihra, University of California
Gary Watson, The Morton Arboretum

The final program may include additional speakers.

SEPTEMBER 30 AND OCTOBER 1, 1993
THE MORTON ARBORETUM, LISLE, ILLINOIS 60532

For complete program and registration information, contact Beth Wicus, Registrar, 708-719-2468, Fax 708-719-2433.

14th ANNUAL CENTRAL STATES FOREST SOILS WORKSHOP

** October 12-14, 1993. Jefferson City, Missouri.**
Ramada Inn Conference Center, Highway 54 West

Experience the soils and woodlands of the Missouri River Hills Area. Missouri invites you to attend this year's workshop and enjoy stops at:

* Painted Rock State Forest (Old growth hardwoods-residuum)
* University of Missouri Schnabel Woods (Old growth hardwoods-deep loess)
* Columbia City Wetland Waste Water Treatment Project
* Lincoln University Busby Research Farm (Giant sycamores-alluvium)
* Mark Twain National Forest (Oak management-glacial till)

Registration Fee $40
CFE credits from Society of American Foresters
Reply by September 15, 1993

Registration Fee includes lunch on Wednesday, banquet on Wednesday evening and transportation to field stops. For registration information return to Ken Christgen at the Missouri Forest Products Association, 611 E. Capitol Avenue, Jefferson City, Missouri 65101. (314) 634-3252.

COURSE OFFERING

Dr. Kenneth Olson, University of Illinois, will be teaching a course this fall in Malta. Soils 304, **Soil Conservation and Management**, will be offered on Wednesdays beginning Sept. 1 and ending December 15.

For further information contact:

Division of Extramural Programs
Office of Continuing Education and Public Services
Suite 1406, 302 East John Street
Champaign, IL 61820

217-333-3060
217-244-8481 **fax**

STATE SOIL VOTES

SOIL	FFA CLASSROOM FALL 1992	FFA STATE CONVENTION JUNE 1993	4H YOUTH CONFERENCE JUNE 1993	TOTAL VOTES	
CISNE	3	27	11	41	(3%)
DRUMMER	293	65	111	469	(37%)
FLANAGAN	69	22	44	135	(11%)
HOYLETON	0	18	18	36	(3%)
IPAVA	110	83	90	283	(22%)
SABLE	138	23	28	189	(15%)
SAYBROOK	1	18	56	75	(6%)
WRITE-IN	Fayette 10	New Boston Sand 2 Chauncey 1 Ava 1 Thin w/ Bedrock 1	Tama 4 Wynoose 1 Black Soil 1 Sand 3 Sand w/ Rocks 1 Dirt 6 Manure 4	35	(3%)

NEW SSSA SOILS DIVISION -- WETLAND SOILS

W. H. Patrick Jr., Boyd Professor of the Wetland Biogeochemistry Institute at Louisiana State University, has been appointed 1993 Chair of the new SSSA Division S-10 (Wetland Soils).

The new division's objectives include (i) provide a common forum where soil scientists can discuss major research issues and future directions, (ii) communicate effectively with other professional societies on the role of soil science in wetlands, (iii) attract new members from other disciplines to the Society, (iv) provide a common base for publication of wetland-related papers, and (v) provide national and international leadership in this area.

In support of the new division, the *Soil Science Society of America Journal* (SSSAJ) and the *Journal of Environmental Quality* (JEQ) have established sections on wetlands.

Three half-day symposia are planned for the 1993 SSSA annual meeting in Cincinnati. The topics are hydric soils, forested wetland soils, and phosphorus biogeochemistry in wetlands. Each will consist of invited papers followed by volunteered oral or poster sessions. Presenters will be encouraged to submit papers to either SSSAJ or JEQ. For information, contact Dr. Patrick at the institute, LSU, Baton Rouge LA 70803; 504/388-8810.

NATIONAL SOIL SURVEY CENTER
SOIL TECHNICAL NOTE

May 10, 1993 No. 4

USE OF REACTION (pH) IN SOIL TAXONOMY

-Prepared by SSQA and SSL Staffs

This note provides rationale for the various methods used to measure pH in Soil Taxonomy. It explains some relationships with pH and the common methods used to measure pH. Tools that are available for the field soil scientist in measuring pH are discussed.

Seasonal Variability of Soil pH

Seasonal changes in soil moisture, temperature, microbial activity, and plant growth result in seasonal variation of pH. The effect of the interaction of these factors on pH is not entirely understood. Salt concentration fluctuates as the soil wets and dries. As the soil dries, salt concentration increases, soluble cations replace exchangeable hydronium (i.e. H_3O^+) or aluminum ions and the solution becomes more acid. Seasonal changes in temperature affect the solubility of carbon dioxide (CO_2) in water and the solution acidity. Carbon dioxide is more soluble at cool temperatures and makes the soil more acid, (carbonic acid). Conversely, CO_2 is less soluble in warm seasons, but microbial respiration produces more CO_2, so the net effect on pH is variable. Seasonal differences in the amount of carbonate and bicarbonate ions in solution result in variable pH.

Measuring Soil pH in Soil Taxonomy

The Soil Survey Laboratory Methods Manual, Soil Survey Investigations Report No. 42, describes several methods used by the laboratory at the National Soil Survey Center to measure soil pH. Those methods that relate to criteria in Soil Taxonomy are discussed in the following section.

1. 1:1 H_2O and 1:2 0.01 molar (M) $CaCl_2$

1:1 H_2O is a mixture, by weight, of one part soil to one part H_2O. It is the method most commonly used in the field because distilled water is readily available. However, seasonal variation of soil pH is registered in 1:1 H_2O. This variability limits its use as the standard for family reaction criteria in Soil Taxonomy.

1:2 0.01M $CaCl_2$ is a mixture, by weight, of one part soil to two parts 0.01M $CaCl_2$ solution. It provides Ca^{2+} ions to displace the hydronium and aluminum ions from the colloid surfaces, and thus dampens the seasonal variation in soil pH. The result is a measurement that remains constant regardless of when the measurement is made. $CaCl_2$ pH is the standard in Soil Taxonomy to differentiate acid and nonacid family reaction classes of mineral soils and euic and dysic family classes in organic soils.

1:2 0.01M $CaCl_2$ is not commonly used in the field simply because the salt solution is not as available as water. Of the methods presented in this note, it is thought to be the most representative of the natural soil environment.

The difference in pH between 1:1 H_2O and 1:2 0.01M $CaCl_2$ may be positive or negative. A drop in pH using 1:2 0.01M $CaCl_2$ of about 0.5 pH unit is common for most soils that have a net negative charge and are low in salt content. This lower pH is produced by release of hydronium or aluminum ions from the exchange sites in the soil when Ca^{2+} ions are added to the soil:water suspension. At 1:1 H_2O pH below 5.5, a further drop in pH with $CaCl_2$ is mainly due to hydrolysis of aluminum hydroxides or exchangeable aluminum displaced by the Ca^{2+} ions. An increase in pH from 1:1 H_2O to 1:2 0.01M $CaCl_2$ in non-saline soils may indicate low cation exchange capacity with significant anion exchange.

Regardless of the method used, dilution effects will raise the pH. The more dilute the soil:water ratio, the higher the measures pH. For example, a 1:1 H_2O pH is generally lower than 1:10 H_2O pH.

2. 1:1 1 normal (N) KCl

1:1 1N KCl is used for the same reasons as 1:2 0.01M $CaCl_2$. This higher concentrated salt solution displaces hydronium and aluminum ions completely, whereas 0.01M $CaCl_2$ does not always. 1:1 1N KCl generally gives the most consistent results and correlates better with base saturation than other methods. 1:1 1N KCl pH is not realistic in terms of assessment of the natural soil environment. It is used in measuring pH of highly acid soils that are high in exchangeable aluminum. 1:1 1N KCl pH generally is about 1 pH unit lower than 1:1 H_2O.

Highly weathered Oxisols have a net positive charge (anion exchange capacity) due to dominance of the exchange complex by hydrous iron oxides. The 1:1 1N KCl pH may not be lower than in 1:1 H_2O in these soils, and in fact be higher. The rise in pH is due to displacement of OH^- ions by Cl^- ions. This relationship is used as to differentiate in the Anionic subgroups of the Acric great groups of Oxisols, where the delta pH (KCl pH minus 1:1 H_2O pH) is 0 or positive.

3. Oxidation pH

Sulfide minerals and/or elemental sulfur in reduced sulfidic sediments will oxidize when exposed to air through drainage or earth moving operations. Acid sulfate soil formation ensues. A sulfuric horizon is indicated if acid sulfate formation gives an end product pH of 3.5 or less.

Oxidation pH is used to test for sulfidic materials and to predict sulfuric horizons. The lab procedure accelerates natural microbial acid sulfate formation. Microbial oxidation of sulfidic material is controlled by incubating a saturated soil sample in a closed container at room temperature. The sample is periodically stirred to incorporate O_2 needed for the oxidation process and the pH is measured. The sample is given ample time to fully oxidize; up to eight weeks. When the change is less than 0.03 pH units, the oxidized pH is recorded.

4. 1 normal (N) NaF pH

1N NaF pH no longer applies to any criteria in Soil Taxonomy. However, it remains a significant local correlation tool to indicate the presence of noncrystalline (amorphous) soil material. Amorphous material is usually an early product of weathering of pyroclastic materials in a humid climate. The action of 1N NaF upon amorphous material releases hydroxide ions (OH^-) to the soil solution and increases the pH. The dominance of amorphous material controls the release of OH^- ions and the subsequent increase in pH. A 1N NaF pH greater than 9.4 is a strong indicator that amorphous material dominates the soil exchange complex.

Measuring Soil pH in the Field

Pocket pH meters, standard dyes, and paper pH indicator strips are most commonly used when measuring pH in the field. Pocket pH meters can be used in 1:1 H_2O or any soil:salt solution. Pocket meters must by well maintained to be reliable. They are sensitive and have the potential to become faulty. Clean them as specified and keep them well calibrated.

Standard dyes are generally more dependable than pH meters, and they are quite accurate. Studies indicate that soil pH, measured with pH meters in a laboratory setting and then measured with dyes, differs by not more than 0.3 pH unit when used carefully. Temperature extremes and prolonged exposure to sunlight can affect the reliability and longevity of dyes. There are several kits in use. Some of them include a neutral salt. As a result the pH measured from different kits may vary. The same indicator dyes that are applied to 1:1 H_2O can be applied to 1:2 0.01M $CaCl_2$ and 1:1 1N KCl soil:water suspensions.

Paper pH indicator strips are bonded with dyes. They can be used in 1:1 H_2O or any soil:salt solution. They are as accurate as standard liquid dyes and are not as sensitive to temperature and sunlight. Unlike pocket pH meters, there is no chance of breakage or need to calibrate and maintain. Indicator colors are easily distinguished.

NATIONAL SOIL SURVEY CENTER
SOIL TECHNICAL NOTE

June 4, 1993 No.5

DESCRIBING REDOXIMORPHIC FEATURES IN SOILS

-Prepared by SC and SSQA Staffs

BACKGROUND

National Soil Taxonomy Handbook Issue No. 16 introduced the concepts of aquic conditions and redoximorphic features in soils. Since that time there have been many questions directed to the National Soil Survey Center requesting guidance on how to implement these changes. This technical note is intended to provide guidelines and examples for describing redoximorphic features in soils.

INTRODUCTION

The introduction of aquic conditions and redoximorphic features in Soil Taxonomy is the result of work done by the International Committee on Aquic Moisture Regime (ICOMAQ). These concepts represent an improved understanding of the processes of reduction and oxidation resulting from saturation in the soil. Careful observation and description of morphological properties related to soil wetness are important for improved understanding and interpretation of wet soils.

A discussion of the processes involved in reduction and oxidation as a result of soil wetness is beyond the scope of this technical note. The publication Redoximorphic Features for Identifying Aquic Conditions, (North Carolina Agricultural Research Service, Technical Bulletin 301, 1992) was recently sent to all soil survey offices and provides an excellent review of the subject. This technical note addresses the format to be used in writing typical pedon descriptions and official series descriptions. In addition, guidance is provided for preparing non-technical soil descriptions to be included in map unit descriptions for use by the layman.

GENERAL GUIDELINES

Redoximorphic features are described in the field as accurately as possible and included in pedon descriptions. Descriptions may include kind, color, rupture resistance (hardness), size shape, amount, contrast, boundary, and location. Not all of these have to be described in all cases, but as a minimum, kind, color, amount, and location should be described. Except for cases where the redoximorphic feature encompasses the majority of the soil matrix (for example a Btg horizon), they will be described as either accumulations or depletions in the

portion of the horizon description where "additional features" are described (preceding "reaction"). Where the majority of the soil matrix is a redoximorphic feature, such as in a gleyed horizon, the matrix color will be described as usual after soil depth and the subscript 'g' will be used with the horizon nomenclature. Any other redoximorphic features such as iron masses or manganese concretions will be described as "additional features."

For all soils having redoximorphic features related to present soil wetness conditions, the zone where aquic soil conditions occurs should be identified along with all other diagnostic horizons and features present in the pedon. On official series descriptions this is listed under the heading "Diagnostic horizons and features recognized in this pedon." This information is not generally listed in typical pedon descriptions, but it should be recorded on the original field descriptions.

DISCUSSION AND EXAMPLES

In this section, examples are provided for describing soil pedons under four scenarios: 1) Wet soils having redoximorphic features; 2) Color patterns not related to soil wetness; 3) Relict redoximorphic features; and 4) Non-technical soil descriptions intended for use by the layman.

WET SOILS HAVING REDOXIMORPHIC FEATURES

1) For a soil where there is a matrix color which is not considered redoximorphic along with what formerly were described as mottles and other types of concentrations, the matrix color will be described as usual after horizon depths and before texture. All of the redoximorphic features will be described in the position where "additional features" have traditionally been.

Example:

Bt1 -- 14 to 22 inches; yellowish brown (10YR 5/4) sandy loam; weak medium subangular blocky structure; friable; common fine roots; many fine pores; few distinct reddish brown (5YR 5/4) and light brownish gray (10YR 6/2) clay films on faces of peds; **few fine distinct light gray (10YR 6/1) irregularly shaped iron depletions with clear boundaries in the matrix; few medium distinct light gray (10YR 6/1) clay depletions on surfaces of peds; common fine reddish yellow (7.5YR 6/8) masses of iron accumulation with sharp boundaries lining pores; many fine black (N 2/0) strongly cemented manganese concretions throughout;** about 5 percent quartz pebbles; strongly acid; clear smooth boundary.

2) Another common situation is one where the matrix color is itself a redoximorphic depletion. This is described as simply a matrix color as we have always done (after depths and before texture). It should be understood that if the subscript 'g' is used in the horizon designation that the matrix is a redoximorphic depletion or a reduced matrix.

Example:

BCg -- 48 to 60 inches; gray (10YR 5/1) silt loam; weak coarse subangular blocky structure; very firm; **common coarse prominent strong brown (7.5YR 5/6) irregularly shaped masses of iron accumulation with diffuse boundaries throughout;** slightly acid.

3) Soils with reduced matrices will have colors described for the "moist" state and for "on exposure to air." Keep in mind that reduced matrices are not recognized for all saturated horizons with low chroma. This diagnostic feature is unique to horizons which are wet for prolonged periods and which contain sufficient iron to change color when exposed to the air and oxidized.

Example:

Cg1 -- 6 to 18 inches; **gray (10YR 5/1) moist silty clay, light brownish gray (10YR 6/4) upon exposure to air;** massive; sticky; moderately fluid; neutral; gradual smooth boundary.

4) B/E horizons present a special problem. The E material may have chroma of 2 or less but may or may not be indicative of wetness (redoximorphic). The two parts (B and E) of the horizon should be described separately with volume estimates for each part. The form that the E portion takes (tongues, interfingers, pockets, etc.) should be noted in the description. In addition, if the E material is a clay depletion, it should be recorded as such along with all other diagnostic horizons and features for the soil. For example it may be indicated as both "albic material" and a zone with "aquic conditions" as appropriate. Keep in mind that although E material may have undergone a process of clay depletion, Soil Taxonomy employs a narrower definition of "clay depletions" as a diagnostic feature. E material meets this definition only if it is the result of clay removal coupled with the process of reduction in the soil.

Example:

Bt/E -- 8 to 14 inches; 70 percent yellowish brown (10YR 5/4) sandy loam (Bt); weak medium subangular blocky structure; friable; common fine roots; many fine pores; few distinct reddish brown (5YR 5/4) clay films on faces of peds; **common fine reddish yellow (7.5YR 6/8) masses of iron accumulation with sharp boundaries lining pores; many fine black (N 2/0) weakly cemented manganese concretions throughout; 30 percent light gray (10YR 6/1) sandy loam (E); the E portion of this horizon consists of tongues 15 to 25 mm wide between peds and is a clay depletion resulting from aquic conditions;** about 5 percent quartz pebbles; strongly acid; clear smooth boundary.

5) In some situations the soil may be a combination of colors representing redoximorphic accumulations and depletions with no dominant matrix color. These will be described as colors with percentages and a note to indicate which are redoximorphic.

Example:

Bw -- 12 to 22 inches; 35 percent yellowish brown (10YR 5/4), 35 percent reddish yellow (7.5YR 6/6) and 30 percent gray (10YR 6/1) silt loam; weak fine subangular blocky structure; friable; few fine roots; common fine pores; **few fine moderately cemented iron-manganese nodules throughout; the areas with reddish yellow color are iron accumulations and the areas of gray colors are iron depletions;** strongly acid; clear smooth boundary.

6) In some cases soils with aquic conditions may not have the accompanying morphology of redoximorphic features. For these soils alpha, aplha-dipyridyl is used to detect the presence of reduced iron. A positive reaction to alpha, alpha-dipyridyl is considered a redoximorphic feature. For soils with a positive reaction to alpha, alpha-dipyridyl a statement is included just before reaction in the description. In some cases it may also be useful to include information about horizons which show a negative reaction to this test if it aids in understanding the processes in a sequence of horizons.

Example (upper horizon has negative reaction while horizon below has positive reaction):

A -- 0 to 6 inches; dark reddish brown (5YR 3/2) moist loam, reddish brown (5YR 5/3) dry; strong fine granular structure; friable; many fine and medium and few coarse roots; many fine pores; **negative reaction to alpha, alpha-dipyridyl;** neutral; clear wavy boundary.

Bw -- 6 to 12 inches; red (2.5YR 5/6) loam; weak fine subangular blocky structure; friable; few fine roots; many fine pores; **positive reaction to alpha, alpha-dipyridyl;** slightly acid; gradual smooth boundary.

7) In some soils, redoximorphic depletions may be recognized even though the chroma is more than 2. They may have chroma of 3, or in certain high chroma soils, a chroma of 4. The important point is that the depletions have chromas less than the matrix. These features are described as depletions, but they are not diagnostic for aquic suborders or subgroups (although the soil may meet the criteria for oxyaquic subgroups).

Example:

Bw -- 10 to 18 inches; red (2.5YR 5/6) clay loam; moderate medium subangular blocky structure; firm; common medium and fine roots; many fine pores; **few prominent reddish brown (5YR 5/3) iron depletions lining pores;** slightly acid; clear smooth boundary.

COLOR PATTERNS NOT RELATED TO SOIL WETNESS

The term "mottles" may be used for soils with color patterns which are not believed to be the result of processes of reduction and/or oxidation in wet soils.

Example 1: A soil formed from shale with gray colors believed to be lithochromic.

BC -- 54 to 60 inches; yellowish brown (10YR 5/4) silty clay loam; **common medium distinct grayish brown (10YR 5/2) mottles;** weak coarse subangular blocky structure; firm; moderately plastic; moderately sticky; few fine roots; common fine pores; few fine soft fragments of gray (10YR 5/1) shale; moderately alkaline; gradual smooth boundary.

Example 2: A soil with a dominant matrix color and spot of brighter color not believed to be the result of iron accumulation and oxidation.

Bt2 -- 23 to 30 inches; brown (7.5YR 5/4) sandy clay loam; **few medium distinct strong brown (7.5YR 5/8) mottles;** moderate medium prismatic structure; firm; slightly sticky; moderately plastic; common fine and medium roots; few fine pores; common dark brown (7.5YR 4/4) clay films on faces of peds; very strongly acid; clear smooth boundary.

Example 3: A soil with no clear matrix color, but instead has 3 roughly coequal colors.

Bw -- 12 to 22 inches; **35 percent yellowish brown (10YR 5/4), 35 percent reddish yellow (7.5YR 6/6) and 30 percent brownish yellow (10YR 6/6)** silt loam; weak fine subangular blocky structure; friable; few fine roots; common fine pores; strongly acid; clear smooth boundary.

RELICT REDOXIMORPHIC FEATURES

Some soils may have redoximorphic features which formed under a previous condition of soil wetness. This morphology is not indicative of present day conditions. From a soil genesis standpoint, these are still redoximorphic features and should be described as such. The situation is somewhat analogous to an argillic horizon in an Aridisol which formed under a wetter climate. The argillic horizon is still a diagnostic horizon, even though it is a relict feature. The redoximorphic features should be described and a note added to indicate that they are relict features. Since the soil does not now have aquic conditions, and is not artificially drained, it will not classify in an aquic suborder or subgroup.

Example:

Bg -- 15 to 25 inches; **light brownish gray (10YR 6/1)** sandy loam; moderate medium subangular blocky structure; friable many fine and medium roots; many fine pores; **common medium prominent reddish yellow (7.5YR 6/6) masses of iron accumulation with sharp boundaries in the matrix; the matrix color and iron accumulations are relict redoximorphic features;** slightly acid; clear smooth boundary.

Care and judgement are required in describing relict redoximorphic features. As a general rule, they should be recognized when they have been essentially preserved in place and with little subsequent change in the soil. If they have been significantly altered it is better to describe them as mottles.

For example, some well drained soils on the coastal plain contain color patterns which probably reflect previous aquic conditions, but considerable change has occurred in the soil since formation of the redoximorphic features. These soils now contain plinthite and many of the reddish mottles are brittle.

Another less common example would be a situation where redoximorphic features form in a soil which is later transported and deposited as the parent material for a new soil. Some of the features may still be evident in the new soil, but since they formed elsewhere they are not considered redoximorphic features. They would be described as either concretions, nodules, or mottles.

NON-TECHNICAL DESCRIPTIONS INTENDED FOR USE BY THE LAYMAN

Since the map unit description is intended for use by the layman, technical terms from Soil Taxonomy generally are avoided. The procedure for describing soils in map unit descriptions will therefore not be affected. Redoximorphic features in the various horizons will still be described using the term "mottles" or "mottled", as will soils with color patterns not related to wetness or those containing relict redoximorphic features. The degree of wetness will continue to be expressed to the reader through information such as the drainage class of the soil and depth and duration of the seasonally high water table.

MAP SCALE IN THE SOIL SURVEY

by Berman Hudson
Supervisory Soil Scientist Quality Assurance Staff
National Soil Survey Center, Lincoln, NE

Ed. note: this is an abridgement of a position paper written by Dr. Hudson in June of 1992. Adapted from Soil Tech, The technical newsletter of the Missouri Cooperative Soil Survey. April 1993, volume 1, number 3: 1-3.

It is widely believed that the amount of detail that will be mapped in a soil survey is highly correlated with scale. Assume that an individual mapped the soils in an area at a scale of 1:24,000. Then assume that another individual came in and mapped the same area at a scale of 1:12,000. The conventional thinking is that he/she would prepare a recognizably more detailed soil map. This scenario is based on the assumption that the amount of detail that will be shown on a soils map is highly correlated with scale. For example, since a 1:12,000 map is four times larger than a 1:24,000 map, it is assumed that four times the detail will be mapped.

However, examining almost any published soil survey will show that this is not true. At a given scale, some parts of a soil survey will have many small delineations - "a lot of detail." However, other locations in the same survey area will have a relatively few large delineations. Just because one can cartographically delineate smaller areas on a soils map,

he/she does not necessarily do so. The amount of detail on a soil's map is mostly determined by the natural soil-landscape relationships in the survey area. One is not able to delineate increasingly smaller, heretofore undelineated but mappable soil-landform units actually exist--and can be identified on the photograph.

The smallest delineation that can be shown on a soil map is about 1/4 inch by 1/4 inch. On a 1:12,000 map this is 1.5 acres; at 1:24,000 it is about 5.5 acres. This tells us which soil-landform units can be delineated at a scale of 1:12,000, but which cannot be delineated at 1:24,000. These are soil areas which are larger than 1.5 acres (the 1:12,000 limit), but smaller than about 5.5 acres (the 1:24,000 limit.) Therefore, going from a scale of 1:24,000 to a scale of 1:12,000 will affect only those mappable soil-landform units between 1.5 and 5.5 acres in size. Soil-landform units larger than 5.5 acres can be delineated at either scale. Most naturally occurring soil delineations mapped in the National Cooperative Soil Survey are larger than 5.5 acres. Therefore, whether one maps at 1:12,000 or 1:24,000, most of the delineations will be the same.

In mapping soils, the relative ability to delineate small alluvial and colluvial areas is always an important issue. Assume that the widest delineation that can be shown on a soil map is 1/4 inch. The minimum width of linear soil delineations that can be shown on a soil map at a scale of 1:12,000 is 250 feet; at 1:24,000 it is 500 feet. Therefore, going from a scale of 1:12,000 to 1:24,000 will affect only those linear soil-landform units narrower than 500 feet (the 1:24,000 limit) but wider than 250 feet (the 1:12,000 limit). Soil-landform units wider than 500 feet can be delineated at either scale.

Recommendations

Considering the foregoing discussion, there are at least two viable options for dealing with scale in the soil survey. One option is, depending upon local need or preference, to map both at 1:12,000 and 1:24,000 in the same MLRA. Most map units will not be affected. However, some smaller (1.5 to 5.5 acre) soil-landform units will be delineated at 1:12,000 and not at 1:24,000. For example, a 1:24,000 scale survey might map alluvium and colluvium in the same unit as a complex. A 1:12,000 survey with the same landform might separate them. Such situations will cause some correlation and joining problems. However, only a small proportion of map units will be affected. Reasonable correlation and joining could be achieved. Another option is to designate 1:12,000 as the mapping scale for the next generation of soil surveys. This would involve a phase-in program so that, at the end of, for example, five years, all soil surveys would be mapped and compiled at a scale of 1:12,000. There are several advantages to this. First, 1:12,000 allows one to show small areas of contrasting soils. Although units between 1.5 and 5.5 acres in size are relatively few in number, they can be very important. For example, small alluvial areas often are either wetland or prime farmland. In soil survey areas with strong relief, most soil use and management occurs on either ridges or alluvial/colluvial areas less than 500 feet wide. It is important to use a scale that allows one to show these small areas cartographically. Going to a universal 1:12,000 scale for the next generation of soil surveys has the following advantages:

1. One common scale will expedite joining and correlation among areas.
2. Much of the cartographic limitations to delineating small but important soil areas will be eliminated. This will permit us to provide a better product by delineating small, contrasting areas where needed.
3. Most delineations (those larger than about 5.5 acres) will not be affected. Therefore, mapping rates will not decrease significantly, nor will there be a large increase in compilation time and cost.

SLIDES TO DOCUMENT USE OF SOIL SURVEY INFORMATION

The National Survey Center is undertaking a project to document how soil survey information is being used. We would like for you, in your respective areas, to assist in this effort. Please provide us with slides and a written document explaining the use.

We will compile the information in our library (giving you credit for your contribution). Possible uses for this information include the following:

1. Illustrative materials available for training,
2. Classroom training in universities,
3. Recruitment, and
4. Marketing.

The uses of soil survey information may range from assessment of sites for urban development to location of areas where there may be high exposure to asbestos during digging for underground utilities. We are also interested in ways or practices to overcome soil limitations. Feel free to solicit information from our cooperators.

Please send slides and documentation to:

M. Dewayne Mays
Soil Conservation Service
National Soil Survey Center
Federal Building, Room 152
100 Centennial Mall North
Lincoln, NE 68508-3866

INTERPRETATIONS DRAINED VS. UNDRAINED PHASES TO BE OR NOT TO BE?

The enclosed letter offers guidance and minimal rationale for establishing drained and undrained phases of poorly drained soils. Note that the last sentence states that the information "will be incorporated into the National Soils Handbook." This new policy (guidance) has major implications for us.

When new SIRs are created, the SOT6 files for all survey areas need to be checked and adjusted as appropriate. If adjusted, then a new set of MUIR data logically should be obtained and SSSD should be updated.

If water table depth statements need to be confined to taxonomic limits, then many of our poorly drained and somewhat poorly drained soils will need to have water table depths adjusted. Most of our poorly drained soils have water table depths that extend to 2 feet. The lower part of this range is clearly outside the zone considered for aquic conditions at the suborder level of taxonomy. Also, most of our somewhat poorly drained soils have an upper water table depth of 1 foot. This depth is clearly within the zone of aquic conditions of Aquolls, Aqualfs, and Aquents. Are we going to make blanket changes in water table depths?

As for the naming of mapping units, I see no real conflict with our current policy or that proposed for the MLRA legends. The name could get quite cumbersome in some cases, e.g. Darwin silty clay, undrained, ponded, frequently flooded, long duration, overwash, sandy substratum phase.

Let me know what your thoughts are. We will undoubtedly be discussing this at the MLRA work session later this month. I think there are some valid issues which need to be addressed. I do, however, feel a little negative about the policy because it seems to be driven by a program (wetland conservation) and not by scientific reason.

Robert L. McLeese
State Soil Scientist

Enclosure

In recent months, the concern of how to address drained vs. undrained soils in our official series descriptions and interpretation records has gained attention. This has, in part, been the result of concerns over hydric soils and wetland determinations and also when addressing the recent amendments to Soil Taxonomy.

The Soil Survey Quality Assurance and Soil Survey Interpretations Staffs have discussed this issue and offer the following guidance:

1. When describing water table depths in the DRAINAGE AND PERMEABILITY section of official series descriptions, and when posting these depths on the Soil Interpretation Records (SIRs), the range required by the taxonomic class must be addressed. For example, to qualify for Aquolls, Mollisols must have aquic conditions between 40 to 50 centimeters from the mineral soil surface (or be artificially drained). Therefore, in the undrained condition the water table depth must be between 16 to 20 inches (40 to 50 cm.) at some time in most years. The water table could be described as: "In the undrained condition these soils have a water table within 0.5 to 1.5 feet at some time in most years. Where drained, the water table can be maintained at a depth of 2.0 to 4.0 feet during most years." Difference in duration could also be discussed. The drainage class assigned is to refer to the "natural" condition.

2. Separate SIRs will be prepared, one for the undrained condition and one for the drained condition. If additional SIRs have been developed for other reasons, they also may need to be split. Differences in water table depths and months of occurrence, capability classification, and other interpretations should be recorded.

3. We will need to add drained or undrained phase terms to map unit names, of at least one of the conditions, where both conditions are mapped as separate map units in the same survey area. Another option is to record the two conditions as separate components within the same map unit on the SOIL-6 file. Drainage that has taken place and the resulting differences in soil properties and interpretations will need to be discussed in the map unit description.

We believe that the above considerations are needed in our hydric soil determinations, to address dissimilar components in soil map units and NASIS and to be more credible in our classification and interpretation of soils. This information will be incorporated into the National Soils Handbook.

C. Steven Holzhey
Assistant Director
Soil Survey Division, SCS

ILLINOIS SOIL CLASSIFIERS ASSOCIATION

Fall 1993 Newsletter

SOIL SURVEY BY MLRA: POSITIONING THE NCSS FOR THE 21ST CENTURY

A Report to the 1993 NCSS Conference

By

K. McSweeney, University of Wisconsin
J. Bell, University of Minnesota
R. McLeese, SCS, Illinois
S. Indorante, SCS, Illinois
C. Love, SCS, Illinois

The following charges were addressed by the committee:

Charge 1: Recommend how user of soil survey information can be most effectively informed about and involved in survey by MLRA.

Charge 2: Define the goals for making soil survey independent of political boundaries.

Charge 3: Provide guidance on how these soil survey projects should be organized and who should organize them.

Charge 4: Recommend how the information gathered in these projects should be presented.

Charge 5: Recommend how these projects can be conducted efficiently.

Charge 6: Evaluate the merit and feasibility of adopting new field procedures and technological aids for soil surveys by MLRA.

Top Ten (10) Recommendations

In each breakout session, the recommendations were reviewed and discussed. The list was added to and cut. Through a nominal group voting process the top ten (10) recommendations were identified. They are as follows:

1. REORGANIZE SOIL SURVEY TO BEST SUPPORT MLRA CONCEPT - ESTABLISH MLRA OFFICES (44 pts/10 votes)

2. FUNDING *Users should be expected to share in cost
*MLRA's should be prioritized nationally and funded accordingly
*Local/state/private funds dedicated to soil survey should be matched by federal dollars (27/11)

3. MLRA PROJECT LEADER MANAGES ACTIVITIES IN MLRA AND SUPERVISES "SUBSET" PROJECT LEADERS (23/6)

4. VIEW UPDATE PROCESS AS OPPORTUNITY TO UPDATE SOIL SURVEY TECHNIQUES GIS - Geostatistical and multivariate statistical modeling etc. (21/7)

5. INITIAL WORK DIRECTED TOWARDS LEGEND DEVELOPMENT INVESTIGATION, DATA GATHERING (20/4)

6. COMPLETE EVALUATION FOR EACH SURVEY AREA TO DOCUMENT NEED FOR UPDATE AND TO ESTIMATE WORKLOAD (19/6)

7. OBJECTIVE/GOALS (18/6)

8. EMPOWER STEERING COMMITTEES AND TECHNICAL SUBCOMMITTEES "TO GET THE JOB DONE" (15/5)

9. NCSS COORDINATORS CONDUCT MEETINGS EARLY ON IN THE PLANNING PROCESS TO IDENTIFY AND SEEK USER INPUT AND TO INFORM USER OF CONCEPT/PHILOSOPHY (14/4)

10. USERS SHOULD BE CONSULTED ABOUT PREFERENCE FOR SOIL INFORMATION DELIVERY (10/3)

Final Recommendations

The following final recommendations (by functional area) were offered to the entire conference for consideration:

LEADERSHIP

1. Develop a model organizational structure for MLRA soil survey.

2. Adopt and promote TQM philosophy.

3. Refine OBJECTIVE/GOAL statements for MLRA soil survey and disseminate as soon as possible.

MARKETING

4. Develop soil survey marketing plan to include strategy for marketing or promoting MLRA concept.

5. Soil survey by MLRA concept needs to remain flexible enough to allow for soil survey by other geographic area (physiographic area, watershed, soil region).

FUNDING

6. Develop soil survey funding strategy that identifies new partners and funding sources, establishes criteria to prioritize MLRA's and proposes a new funding formula.

TECHNOLOGY

7. Establish an NCSS committee to provide recommendations about the use of GIS and allied technologies in soil survey update activities.

8. Establish an NCSS committee to explore the opportunities to develop research initiatives in support of soil survey.

DATA COLLECTION

9. Finalize work on the "Soil Survey be Geographic Area" guidebook and disseminate ASAP. Address tactical, operational and project functions and activities.

PROPOSAL TO REVISE ALFISOL TAXONOMY

During the past few months we have been testing the 1992 Keys to Soil Taxonomy on soils in Iowa. It would appear that the new keys do not address the properties of the epipedon of some suborders in the system. While the control section of the series is important, in Iowa, as in most of the Midwest region of the United States, it is equally important to recognize the epipedon in properly classifying soils. The epipedon supports the concepts

of a biosequence catena of soils on which many series have been established. This concept should not be lost in the new keys.

There are five proposals which we are asking to be considered in the **Alfisols** order. Three of these are in the **Aqualfs** suborder and two in the **Udalfs** suborder.

We have included several documents of reference pertaining to this subject. These are:

1. Copy of Keys to Soil Taxonomy
2. Official Series Descriptions (OSD)
3. Soil Interpretation Records (SIR)
4. Summary of Lab Data (Referenced from Corliss Ph.d. thesis, ISU, 1958)

We are proposing the following changes in the **Aqualfs** suborder:

1. A Chromic subgroup modifier to the Vertic Albaqualfs. This requires both an EAGI and IAGB sections to be placed after Section IAGA on page 80 in the Keys to Soil Taxonomy (attachment 1). The Chromic subgroup is needed to address the presence of an ochric epipedon and separate soils which have formed under mixed grass-tree from the soils formed under tree vegetation. Rushville Series is an example of a Chromic Vertic Albaqualfs. This pedon meets criteria for the Chromic and Vertic subgroups. Rubio Series is an example of a Vertic Albaqualfs. This pedon meets criteria of the Vertic subgroup. We have included the OSD, SIR, and lab data in attachments 2, 3, 4, 5, and 6. The lab data shows the relationship of the percent clay content within the biosequence. There is a total of 4,052 acres of the Rubio Series. It has been mapped in 7 counties in Iowa. Rushville Series has a total acreage of 27,313, which has been used in 3 counties in Iowa and 15 counties in Illinois.

2. An Udollic subgroup in the Endoaqualfs. We support the Indiana proposal dated May 1993. This requires both IAJE and IAJD sections to be placed after Section IAJC on page 83 of the Keys to Soil Taxonomy (attachment 1). Atterberry Series is an example of the Udollic Endoaqualfs. This pedon meets the criteria of the Mollic and Aeric subgroups. The Stronghurst Series is an example of an Aeric Endoaqualfs. The OSD, SIR, and lab data is included in attachments 7, 8, 9, 10, and 4. There is total of 170,619 acres of the Atterberry Series. It has been mapped in 19 counties in Iowa, 6 counties in Wisconsin, and 18 counties in Illinois. The Stronghurst Series has a total of 92,229 acres which has been mapped in 6 counties in Iowa, 7 counties in Wisconsin, and 12 counties in Illinois.

3. An Aeric Chromic (chromic) subgroup modifier to the Vertic Epiqualfs. The Aeric Chromic subgroup requires the EAGI, IAIG and IAIA sections to be placed ahead of Section IAIA on page 84 of the Keys to Soil Taxonomy (attachment 1). The Aeric Chromic subgroup is needed in order to address the presence of an Ochric epipedon and to separate soils formed under mixed

grass-tree from those formed under tree vegetation. Ashgrove Series is an example of the Aeric Chromic Vertic Epiaqualfs. Rinda Series is an example of a Vertic Epiaqualfs. The OSD's and SIR's are in attachments 11, 12, 13, and 14. The Ashgrove Series has a total of 26,965 acres which has only been mapped in 11 counties in Iowa. There is a total of 78,433 acres of the Rinda Series. It has been mapped in 3 counties in Missouri and 11 counties in Iowa.

In the **Udalfs** suborder, the following are our proposals:

4. A **Chromic** subgroup modifier to the **Aquertic Hapludalfs**. This requires both the EAGI and IEKC sections to be placed after Section IEKB on page 105 of the Keys to Soil Taxonomy (attachment 1). The Chromic subgroup is needed in order to address the presence for an Ochric epipedon and separate soils formed under mixed grass-tree from the soils formed under tree vegetation. The Keswick Series is an example of a Aquertic Hapludalfs. The OSD's and SIR's are included in attachments 15, 16, 17, and 18. The Keswick Series has a total of 904,852 acres which has been mapped in 20 counties in Missouri and 24 counties in Iowa. There is a total of 1,077,825 acres for the Armstrong Series. It has been mapped in 20 counties in Missouri and 21 counties in Iowa.

5. A **Chromic** subgroup modifier to the **Vertic Hapludalfs.** This requires both EAGI and IEKD sections to be placed after Section IEKC on page 106 in the Keys to Soil Taxonomy (attachment 1). The Chromic subgroup is needed to address the presence of an Ochric epipedon and to separate soils formed under mixed grass-tree from the soils formed under tree vegetation. The Clinton Series is an example of the Chromic Vertic Hapludalfs. Ladoga Series is an example of the Vertic Hapludalfs. The OSD's, SIR's, and lab data are included in attachments 19, 20, 21, 22, and 4. There is a total of 556,783 acres of the Clinton Series. It has been mapped in 23 counties in Iowa, 1 county in Missouri, and 5 counties in Illinois. There is a total of 614,791 acres of the Ladoga Series. It has been mapped in 16 counties in Missouri, 3 counties in Kansas, and 30 counties in Iowa.

There are two proposals to be considered in the **Mollisol** order. In the **Aquolls** suborder, the following is our proposal:

6. A **Cumulic** subgroup modifier to the **Vertic Endoaquolls**. This requires both HBGG and HBGB sections to be placed after the HBGA section on page 342 of the Keys to Soil Taxonomy (attachment 1). The Cumulic subgroup is needed to address the over thickened mollic epipedon. The Wabash Series is an example of the Cumulic Vertic Endoaquolls. Carlow Series is an example of the Vertic Endoaquolls. The OSD's and SIR's are included in attachments 23, 24, 25, and 26. There is a total of 307,343 acres of the Wabash Series. It is mapped in 11 counties in Nebraska, 12 counties in Kansas, 9 counties in Illinois, 19 counties in Missouri, 21 counties in Iowa, and 2 counties in Ohio. The Carlow Series has a total of 92,351 acres which has

been mapped in 3 counties in Iowa and 8 counties in Missouri.

In the **Udolls** suborder, the following is our proposal:

7. We support a previous request for **Aquic subgroup modifier to the Cumulic Hapludolls.** This requires both HGEH and HGEF sections, which should be placed after section HGEE on page 370 in the Keys to Soil Taxonomy (attachment 1). This subgroup will require the presence of redoximorphic features within 40 cm of the mineral soil surface or color value of 4 or more and chroma of 2 or less directly below the mollic epipedon. The Ely Series is an example of an Aquic Cumulic Hapludolls. The Judson Series is an example of a Cumulic Hapludolls. The OSD's and SIR's are included in attachments 27, 28, 29, and 30. There is a total of 234,409 acres of the Ely Series. It has been mapped in 44 counties in Iowa. The Judson Series has a total acreage of 785,864, which has been used in 40 counties in Iowa, 18 counties in Nebraska, 6 counties in Kansas, 3 counties in Missouri, 2 counties in Minnesota, and 8 counties in Wisconsin.

The acreage figures provided herein are from the Map Unit Use File (MUUF).

These requests are being made in order to finalize four county soil subset surveys in MLRA's 103, 107, and 109. In the next few months we will be conducting three final field reviews and one final correlation. Please advise me of the disposition of these proposals as soon as possible. If further assistance is needed, please contact myself, Louis Boeckman, or Tom Fenton.

Gregg W. Schellentrager
State Soil Scientist

UPDATED MARBUT SLIDE SET AVAILABLE FROM SSSA

For 25 years, the Marbut Memorial Slide Set has been widely used to illustrate various aspects of soil morphology, genesis, and classification. Since the original release of the slide set in 1968, however, many changes have been made to soil taxonomy. In order to reflect these changes, SSSA has updated the narrative to include all horizon nomenclature and soil classification changes through the fifth edition of *Keys to Soil Taxonomy*, published in 1992.

The updated set is available from SSSA Headquarters for $30. The revised narrative is available separately for $5.

COURSE OFFERING

Pat Kelsey will be teaching a course on problem soils at Northern Illinois University this spring in DeKalb. Geography 498K: Seminar in Problem Soils will be offered on Monday evenings beginning January 24, 1994.

For further information:

Patrick Kelsey
Route 53
Morton Arboretum
Lisle, IL 60532
(708) 719-2417 Days
(708) 896-2909 Evenings

LETTER TO THE EDITOR

Dear Pat:

After reading the Summer 1993 Newsletter I have a couple of questions about the "Correlator's Lament" article.

Was there an editorial reason for leaving off the second page of the material? In case you did not have a copy of it, I've enclosed a photocopy from my files that has the complete "Correlator's Lament".

Also from the statement at the bottom of page one, it is my understanding that the Lament was written by W.S. "Billy" Ligon and not A.H. Paschall. Paschall merely passed the material on after it was found in Ligon's effects, with Mrs. Ligon's permission.

Good job on the newsletter.

Editor's Response: The Correlator's Lament was incomplete because I only received one of two pages and was not familiar with the text so I took it as whole. Thanks to Emil, I can print the whole (complete?) Lament. Will taxonomy ever be more than an approximation???

CORRELATOR'S LAMENT -- W.S. LIGON

A man there was, Guy Smith by name,
Inventor of a guessing game
To put all other such to shame.

This game, though based upon the soil,
Consisteth chiefly of turmoil
And is a cause for endless toil.

This brainstorm hardly had begun --
Out popped Approximation I --
And we thought that the job was done !

But 'are the ink had time to dry,
Our hero made another try
His second draft bloomed but to die.

Then came Approximation 3;
Our weary eyes began to see
The 4th would not the last one be.

The 5th Approximation found
Us on the ropes and giving ground
From going round and round and round.

The 6th was just a stepping stone,
To make us swear and sweat and groan --
To make us want to be alone.

In padded cells, from which to cry,
At every sane man passing by
And sense his sympathetic sigh.

Herr Smith now thought the time was ripe
For high-brow nomenclature tripe,
While we were all too beat to gripe.

Now we engage in hide-and-seek
With Sanskrit, Latin, Smith and Greek;
The future never looked so bleak.

Those hellie orthic 'Argudolls
And those God-damic Haplaquolls
And ruptic, eruddic Natralbolls.

But friends, you haven't heard the half;
Try glossudalfic Fragaqualf
And Albaqualfic Typuwtalf.

And haplic eryptic Cryudents
And erthustentic Psaummustentz,
And hyperbolic Haplaquents.

And rhodochruetis Typumbrults
And typumbrultic Rodechrults
And chrodotypic Bruterhults.

We've made a lot of Pfulsistarts
And let a lot of psulphepharts
And spun the wheels upon Ourpearts.

Despite the 7th being bound
We still cannot get off the ground,
The spit and polish keeps us downed.

If one of us is still alive
In 19 hundred 65
There is no doubt that he will strive.

To get past sub-groups and to see
What he can do with family
It may be you, It won't be me.

(Praise Allah !)

FOR SALE

JMC Backsaver N-2 Handle with Special Cleaner; 2 JMC 26 Inch Rod Extensions; 2 15 Inch Small Diameter Sampling Tubes (One Wet and One Dry). Original cost $260.00, asking $145.00. For more information call or write KUBALEK Soil Classifier Services at 309-797-3208, 3408 56th Street Place, Moline, IL 61265.

Happy Holidays from the ISCA Council

SOIL SCIENTIST WORKSHOP

Purpose- To inform dates of workshop and transmit workshop information.

Expiration Date- When contents are noted.

A soil scientist workshop is scheduled for January 12, 13, and 14, 1994 in Urbana, Illinois for all soil scientists. The workshop will be held at Jumer's Castle Lodge, 109 S. Broadway Avenue, Urbana, Illinois.

A block of rooms has been reserved at Jumers. The room rate is $49.00. Please confirm your reservation by phone (217/384-8800) no later than January 5, 1994. When making your reservation please advise the clerk you are with the SCS Soil Scientist Workshop. Travel authorization will be forthcoming from Nancy Phalen.

There is a banquet scheduled for Thursday evening January 13 at Jumers. Please RSVP to Barbara Nowak by January 5, 1994. Send a check for $16.53 (payable to Bob McLeese) to Barbara by January 5 if you plan on attending. The "Bent Auger" award will be passed on at the banquet. Please send you nominations to Don Fehrenbacher by January 12, 1994.

The Agenda for the workshop is attached.

CHARLES WHITMORE
State Conservationist

AGENDA
January 12-14, 1994
Urbana, Illinois

Wednesday, January 12

1:00 p.m.	Convene, Welcome, Opening Remarks	Whitmore
1:15 p.m.	Status Reports (7 minutes each)	
	ARSS's	ARSS's
	MLRA Project Leaders (MLRA PL)	MLRA PL
	Project Leaders (PL)	PL
2:45 p.m.	Break	
3:00 p.m.	Status Reports (continued)	
	Illinois Dept. of Ag.	Donohue
	Illinois Ag. Exp. Station	Olson

	Illinois State Geologic Survey	Follmer
3:00 PM	USDA Forest Service	Dagnon
con't.	National Soil Survey Center	Ratliff
3:45 p.m.	Landforms	Doll
4:00 p.m.	Transects and Statistics	Calsyn Indorante
5:00 p.m.	Adjourn	

Thursday, January 13

8:00 a.m.	Database Development	Doll
8:30 a.m.	Soil Map Unit Inclusions and Guidelines for Naming Map Units	Ratliff
9:30 a.m.	Break	
10:00 a.m.	NASIS/FOCS	Doll
Noon	Lunch	
1:00 p.m.	GIS Activities (20 minutes each)	
	ISGS	McKay
	INHS	Luman
	SCS	D'Avello
2:00 p.m.	Map Compilation Study (prelim results)	D'Avello
2:30 p.m.	Break	
2:45 p.m.	ISWS WARM Sites	Peppler
3:45 p.m.	Budget and Staffing Soil Survey Issues/Strategies FY 94 Priorities Equipment Needs	McLeese
4:15 p.m.	1993 Flood	McLeese, Windhorn, Zwicker, Grantham
6:00 p.m.	Attitude Adjustment/Banquet	

That's not all, folks!

Friday, January 14

8:00 a.m.	The Technology Shift in Soil Survey- An Urban Perspective	Fehrenbacher
8:20 a.m.	Soil Map Units - Erosion Phases	Olson
8:40 a.m.	Loess Research Update	Follmer
9:00 a.m.	Glacial Lake Kaskaskia	McCauley
9:20 a.m.	McHenry Co. Surficial Geology	Deniger
9:40 a.m.	Break	
10:00 a.m.	Use of TM Satellite Imagery to Map Sodium Affected Soils	D'Avello
10:20 a.m.	Map Compilation Discussion	D'Avello
10:40 a.m.	Upcoming Events	
	Multi-state OSD Workshop	Doll
	Central States Forest Soils Conf.	Grantham
	1994 Farm Progress Show	McLeese
	1902-1995	McLeese

THAT'S ALL FOLKS!!!!!!!!!

FROM THE EDITOR

This newsletter contains portions of the "Proposed Amendments to the Private Sewage Disposal Code". The ISCA Council has worked hard over the past few years to provide technical input as well as political support for the proposed changes. Many thanks are due to Gerry Berning, Don Fehrenbacher, and all the others who assisted in bringing soil classification and interpretation to the forefront of the state code. The work is not done (See below). It is important that ISCA members provide written comment and/or oral testimony regarding the Private Sewage Disposal Code.

ISCA will hold a meeting to discuss the proposed revisions to the state code. The meeting will be held at the Springfield MLRA Update Office, 40 Atloff Lane (Farmers Union Bldg.), Suite 7, Springfield, IL. The meeting will begin at 10 AM. If a quorum is present, a Council meeting will also be held.

STATE PRIVATE SEWAGE CODE REVISIONS

Letter to Mr. Don Fehrenbacher

Dear Don:

Enclosed is a copy of the proposed amendments to the Private Sewage Disposal Code. These amendments will be published in the Illinois Register on December 3, 1993. Comments can be made within a period of 45 days after the date of publication. Comments should be directed to:

Ms. Gail Divito
Illinois Department of Public Health
Division of Governmental Affairs
535 W. Jefferson
Springfield, IL 62761

Also during the comment period, a public hearing will be held to accept oral or written comments on the proposed amendments. [*Ed. note: The public hearing was cancelled and will be rescheduled for late January or early February*].

I would encourage you to comment both on amendments you agree with as well as those you oppose. Otherwise, opposition comments are often the only ones we receive, and a rule which is actually favored by the majority of those reviewing the amendments may be changed because of the adverse comments.

I appreciate your input into the development of this proposal and look forward to your comments.

Sincerely,

Douglas J. Ebelherr
Program Administrator
Private Sewage Disposal Program

(iii) Rock formation, other stratum or soil condition which is so slowly permeable that it effectively limits downward passage of effluent.

"Liquid Capacity" means the volume of a tank below the invert of the outlet line.

"Local Authority" means a local unit of government which enforces a private sewage disposal ordinance which has been approved by the Department; or a local health department which has been designated an agent of the State for conduct of the Private Sewage Disposal Program.

"Non-Residential Property" means any property which is not residential property.

"NSF" means the National Sanitation Foundation, an independent testing laboratory.

"Residential Property" means single family homes or multi-family units intended for people to occupy as living quarters which are not used to conduct business.

"SCS" means the USDA Soil Conservation Service.

"Septage" means the solid and liquid wastes removed from private sewage disposal systems.

"Shall" means the stated provision is mandatory.

"Soil Boring" means an observation pit, dug by hand or backhoe, or an undisturbed soil core taken intact and undisturbed by a probe except in gravelly materials.

"Soil Classifier" means one of the following:

a) A certified soil classifier of the Illinois Soil Classifiers Association (ISCA) or a certified soil classifier with the American Registry of Certified Professionals in Agronomy, Crops and Soils (ARCPACS).

b) A person who is an associate member of either the Illinois Soil Classifiers Association (ISCA) or the American Registry of Certified Professionals in Agronomy, Crops and Soils (ARCPACS) provided that direct supervision is provided to this person by an ISCA or ARCPACS certified soil classifier who accompanies the person on at least 10 per cent of the soil investigations and reviews and signs all of that person's soil investigation reports.

c) A person who is a registered sanitarian or registered environmental health

specialist with the National Environmental Health Association (NEHA) or a registered environmental health practitioner with the Illinois Environmental Health Association (IEHA) or a registered environmental health practitoner with the Illinois Department of Professional Regulation provided this person shall be employed by a local health department and shall have been performing soil investigations for the design of private sewage disposal systems for at least two years. During any part of such two years that takes place after the effective date of this Part, the investigations shall be supervised by a soil classifier according to b) above. This person shall have successfully completed at least one day of classroom training on soil classification related to the design of private sewage disposal systems and two days of field instruction, and shall notify the Department of his experience and training. This instruction shall have been provided by an ISCA or ARCPACS certified soil classifier or by an SCS Soil Scientist. A person who meets the experience requirement and has successfully completed the training requirements is approved to evaluate soil for the design of private sewage disposal systems only in the specific county for which they work for that local health department and for which the field training occurred.

"Subsurface Seepage System" means a subsurface seepage field, seepage bed, ~~seepage pit~~, or an 8" or 10" gravelless seepage ~~bed~~ system.

"Uniformity Coefficient" means a number obtained by dividing that size of sand in millimeters of which 60 percent by weight is smaller, by that size of sand in millimeters of which 10 percent by weight is smaller.

"Wastewater Source" means any equipment, facility, or other source of any type whatsoever which discharges wastewater, directly or indirectly into the waters of the State.

"Water Table" means the upper limit of the portion of the soil which is completely saturated with water. The seasonal high water table is the highest level to which the soil is saturated, as may be indicated by mottling (soil color patterns).

Soil science terms used throughout the text of this Code are defined in the Glossary of Soil Science Terms (July 1987) unless otherwise defined.

(Source: Amended at 16 Ill. Reg. _____, effective _____)

Section 905.15 Incorporated Materials

a) The following federal and state regulations, standards, and statutes are incorporated or

box is used, it shall be installed level on unexcavated earth, and shall provide equal distribution of flow to the subsequent disposal system. Seepage field laterals connected to the distribution box shall be equal in length if not looped.

b) Connecting Pipe. The pipe connecting the septic tank to the distribution box and the pipe connecting the distribution box to the disposal system shall be watertight.

c) Construction. Distribution boxes shall be constructed of a durable watertight, non-corrosive material. They shall be designed to accommodate the necessary distribution lines.

d) Access. Distribution boxes shall be provided with an opening which will serve as a ready access for inspection, cleaning, and general maintenance.

e) There shall be no connection such as joints, splices or fittings within the area of the overdig around the distribution box.

(Source: Amended at 16 Ill. Reg. _____, effective _____)

Section 905.55 Subsurface Seepage System Design Requirements

When designing a subsurface seepage system the absorption capacity of the soil shall be determined by (a) or (b) as follows:

a) Soil Investigation

1) Soil investigations shall be conducted in the following manner:

A) Determination of soil characteristics on sites proposed for development with private sewage disposal systems shall be based on soil boring data collected by a soil classifier or an Illinois licensed professional engineer.

B) There shall be a minimum of three (3) borings per soil absorption system site. The soil borings shall be at least 50 feet apart and within the proposed system location. More soil borings may be necessary for accurate and appropriate evaluation of a site where there is some concern about the consistency of the soil materials. One of the borings shall be made at the lowest elevation of the proposed absorption field area. Borings shall extend a minimum of 60 inches below the natural ground surface.

C) Observation and determination of soil characteristics may be also determined from a pit dug by a backhoe or other excavating equipment. The Department or local authority may require soil pits (backhoe excavation) in cases where ground is frozen, where the soil materials are considerably varied in texture, where there has been previous or current fill material, cutting of soils, or where gravelly soils are encountered. Such soil pits shall be prepared at the perimeter of the expected soil absorption area to minimize damage to natural soil structure. Soil pits shall extend a minimum of 60 inches below the natural ground surface.

D) Site characteristics to be described include zones of seasonal and permanent water saturation, U.S.D.A. soil textural changes, U.S.D.A. soil structural features, slope, compaction and depth, soil coloration, depth of limiting layer, depth of soil mottling (depth to low chroma equal to or less than 2 and a value of 4 or more - Munsell Color System), internal drainage classification, and permeability range, and other limiting soil characteristics that may reduce permeability.

2) Only those persons who meet the definition of soil classifier or a licensed professional engineer are qualified to conduct soil investigations. A list of qualified persons will be available from the Department upon request.

3) If conflicting soils investigation information is provided about a given site a Regional SCS soil scientist may be requested to mediate. The decision of the Regional soil scientist will be final.

b) Percolation Tests.

1) Performance of Percolation Tests. At least three separate percolation tests, a minimum of 50 feet apart, shall be performed at the site of each proposed subsurface seepage system.

2) Procedure for Performing Percolation Tests. Percolation tests shall be performed in accordance with the procedure outlined in Appendix A:Illustration G. Alternate procedures for performing percolation tests may be submitted to the Department for review. If determined to be as stringent as that described in Appendix A:Illustration G, the alternate procedure shall be approved.

3) If soils information, permits for private sewage disposal systems in close

proximity to the proposed site, direct observations or other information show conditions which will impact the design, construction, installation, modification or performance of the private sewage disposal system, the Department or local authority shall require a soil investigation to determine the seasonal high water table, fill, soil compaction, poor soil structure, high bulk density, dense unleached glacial till, fragipans, sodic horizons or other limiting soil characteristics that may reduce permeability or impact on design, construction or location of a subsurface seepage system.

(Source: Amended at 16 Ill. Reg. _____, effective _____)

Section 905.60 Subsurface Seepage System Construction Requirements

~~a) Evaluation of Soil Characteristics. The absorption capacity of the soil shall be determined from the results of percolation tests. The area of a subsurface seepage system shall be sized based upon percolation tests (Appendix A: Illustrations G and H). Where allowed by a local authority with an approved Private Sewage Disposal ordinance, soil classification information may be used in conjunction with or in lieu of percolation tests. Written percolation tests shall be available on the construction site.~~

~~b) Performance of Percolation Tests. At least two separate percolation tests, a minimum of 50 feet apart, shall be performed at the site of each proposed subsurface seepage system. The private sewage contractor shall be responsible for the percolation test results, and the sewage system which is designed using those results. Acceptance of percolation test results from other sources does not relieve the contractor's responsibility.~~

~~c) Procedure for Performing Percolation Tests. Percolation tests shall be performed in accordance with the procedure outlined in Appendix A: Illustration G. (Department Circular 4.005E) Alternate procedures for performing percolation tests may be submitted to the Department for review. If determined to be as stringent as that described in Appendix A; Illustration G, they shall be approved.~~

~~d) Construction. Subsurface seepage fields shall be designed and constructed in accordance with Appendix A: Illustrations H, I and J.~~

~~e) Bedding Material. The bedding material which is free of mud, silt, or clay, shall be clean gravel or clean stone with particle size ranging from 3/4 inch minimum to four inches maximum. The bedding material shall extend the full width of the trench and to a depth of at least six inches below the bottom of the distribution line. The~~

~~bedding material shall extend at least two inches above the top of the distribution line. The bedding materials shall be covered by straw, newspaper, or untreated building paper or other pervious and/or biodegradable material to support the backfill as the laying of the distribution line proceeds. Tar paper, plastic, or other impervious material shall not be used between the bedding material and the earth backfill. Eight and ten inch gravelless seepage systems may be bedded with material excavated to construct the system. The gravelless seepage system requires no straw, newspaper or untreated building paper except as provided in Section 905.60(f).~~

a) Seepage Field Requirements - Gravel and Gravelless. Subsurface seepage fields shall be designed and constructed in accordance with Appendix A: Illustrations H, I, and J and the following:

1) All subsurface seepage systems using soils information for sizing shall use the soil suitability table in Appendix A Illustration M to determine the size requirements of the subsurface seepage system. The least permeable soil profile between the top of the gravel or gravelless pipe and the limiting layer shall be used to determine the size of the subsurface seepage system.

2) The bottom of the subsurface seepage field, each trench and its distribution line shall be level. Level for this Part shall mean plus or minus 1/2 inch in any direction over the entire area of the subsurface seepage system.

3) There shall be a minimum of 6 inches and a maximum of 24 inches of earth backfill over the bedding materials or gravelless pipe.

4) There shall be a minimum of five (5) feet of undisturbed earth between the septic tank and the nearest trench.

5) If precipitation falls onto the excavation and evidence of soil washing into the excavation of the subsurface seepage system exists, that portion of the seepage system damaged shall be reconstructed to conform with Section 905.60.

6) The top of the gravel or gravelless pipe in the subsurface seepage field shall be at least one inch below the invert of the outlet pipe from the septic tank or distribution box in a gravity flow system.

7) Site Evaluation for Subsurface Seepage Systems

A) The separation below the bottom surface of the subsurface seepage system and the top of any limiting layer (i.e. water table, impermeable

strata, bedrock, etc.) shall be as follows:

i) Soils having a loading rate of .57, .8 or 1.0 gallons/square foot/day (Appendix A, Illustration M) or a percolation rate of 18-180 minutes for 6 inches of water to fall (Appendix A, Illustration H) shall have at least 3 feet of separation distance between the bottom of the subsurface seepage system and the top of the limiting layer.

ii) Soils having a loading rate of 0.2 or 0.44 gallons/square foot/day (Appendix A, Illustration M) or a percolation rate of 240-360 minutes for 6 inches of water to fall (Appendix A, Illustration H) shall have at least 2 feet of separation distance between the bottom of the subsurface seepage system and the top of the limiting layer.

B) If a percolation test is used to design the private sewage disposal system, the private sewage disposal system installation contractor or homeowner shall submit information with the plan approval application or local health authority permit application that a limiting layer does not exist within the distances provided in 905.60a)7)A) (above). Examples of acceptable information include investigation by a soil classifier or licensed professional engineer, permits of adjacent property on which a soil investigation was conducted to determine limiting layer or information included in the soil survey of the county.

8) No private sewage disposal system shall be installed on property having insufficient replacement area to support a private sewage disposal system equal to the size and type of the original system. This replacement area shall be a separate area and shall not include the area between the trenches of a subsurface seepage system. This replacement area is intended for use only in the event of system failure. It is not intended to compensate for a building addition or change in use which results in increased flow of domestic waste. In all cases where commercial or industrial properties are proposed for development, there shall be room for a full-size replacement system. This replacement area shall be kept free of development, traffic or soil modification on all properties.

9) Sizing of a seepage system in fill soil.

A) The least permeable soil profile between the top of the gravel or gravelless pipe and the limiting layer shall be used to determine the size of the subsurface seepage system.

B) The use of fill for installing subsurface seepage systems shall not be approved for lots platted after the effective date of this Part.

10) Soil criteria for use of fill for subsurface seepage systems

A) Soils to be utilized for fill shall be identified by a soil classifier and a report submitted to the Department or local authority. The report shall contain specific information on the fill soil including location, depth, permeability, and texture. Soils that can be used as fill are those which conform to the following textures:

i) Loam.

ii) Sandy Loam with at least moderate structure.

B) In addition, the following shall be met for determining acceptability of fill soil.

i) Clay content shall be greater than 10% and less than 27%.

ii) Sand content shall be less than 70%.

iii) Organic matter shall be 3% or greater.

iv) Less than 5% of the total content shall be greater than 2 mm stones.

v) No clods greater than 10% by volume or greater than 4 inches in size.

vi) In addition to the above requirements, fill soil shall not contain extraneous material such as tires, concrete, brick, reinforcing bar, demolition material etc.

C) All of the following conditions shall be met for a subsurface seepage system to be installed in fill.

i) Satisfactory original soil shall be at least three feet above bedrock.

ii) A maximum of two feet of fill soil shall be used.

iii) Fill shall not be placed on original soil with a slope greater than 10%.

iv) After the fill has been placed at the site, the fill shall be placed so that a minimum of compaction and no further settling occurs and the fill shall be allowed to settle undisturbed for a period of at least 12 months.

v) After the fill has been settled a percolation test shall be conducted in accordance with the procedure outlined in Appendix A: Illustration G and a percolation rate of not greater than 270 minutes/6 inch fall or less than 60 minutes/6 inch fall shall be achieved.

11) Site Preparation for use of fill soil.

A) Excess vegetation shall be cut and removed. The site shall be plowed with a mold board plow 7-8 in. deep with the plowing done perpendicular to the slope. It shall not be done with the furrow running up and down the slope. Chisel plowing may be used in place of mold board. Roto tilling is prohibited.

B) Once the site is plowed, all traffic must be kept off. The fill material can be deposited on the top with a backhoe or pushed on from the side, preferably the upslope side, using a track type tractor, keeping 6 in. of fill beneath the tracks. At no time shall ruts be made in the plowed area. The fill shall be placed immediately after site preparation to avoid the possibility of precipitation falling on the plowed area.

C) Traffic on the downslope side of the fill area shall be minimal to reduce compaction. All work shall be performed from the ends and upslope side. Compaction of the natural soil downslope will reduce the lateral movement of the effluent.

D) The fill shall not be placed on frozen ground or when the soil is wet. Moisture content of the soil is very important when filling. Site preparation shall not take place when the soil is too wet. To check moisture content, take a soil sample from the plow layer (7-8 in.) and roll it between the palms of the hands. If it rolls into a ribbon, it is too wet to prepare. If it crumbles, site preparation can then proceed.

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 905 Appendix A
Illustration G Instructions For Conducting Percolation Tests

Percolation Tests shall not be made in frozen ground or ground that has been filled in the preceeding twelve months. Percolation tests shall be performed in accordance with the following procedures:

~~TYPE OF TEST HOLE:~~ 1. Number and Location of Percolation Tests. Select an area where the seepage field will be located. When digging the holes, avoid animal burrows, large root channels, etc. At least three (3) separate percolation tests shall be performed at the site of each proposed disposal area. The percolation test holes shall be at least 50 feet apart. At least one hole shall be located at the lowest elevation of the proposed absorption field area. ~~Three holes should be made if channels or a variation in soil occurs;~~ Tthe two holes with the highest ~~most similar~~ results shall ~~can~~ be used to determine percolation rate.

2. Depth of Percolation Test Hole. Dig or bore the holes with horizontal dimensions approximately four to six inches in diameter to the depth of the proposed seepage field or seepage bed.

3. Preparation of Test Hole:

a) Carefully pick the bottom and sides of the hole with a knife blade or sharp pointed instrument to remove smeared or smoothed soil and to provide a natural soil interface into which water may percolate.

b) Remove all loose material from the hole.

c) Add two inches of coarse gravel to protect the bottom from scouring and sediment. A removable hardware cloth screen to line the lower part of the hole also helps prevent sloughing of the hole sides during testing.

4. Saturation and Swelling of Soil: ~~In moist soil, keep water in the hole by carefully filling the hole and keeping it full for at least four hours before conducting the test.~~ It is important to distinguish between saturation and swelling. Saturation means the void spaces between soil particles are full of water. This can be accomplished in a very short period of time. Swelling is caused by the intrusion of water into the individual soil particle. This is a slow process, especially in a clay type soil, and is the reason for requiring a prolonged soaking period.

a) On the day prior to conducting the percolation test, carefully fill the hole with water and keep it full for at least 4 hours. The percolation test shall be conducted on the day following this presoaking at least 18 hours after presoaking is completed but prior to 30 hours after presoaking is completed. Cover the hole during this 18-30 hour waiting period. In sandy soils

Section 905 Appendix A
Illustration G Instructions For Conducting Percolation Tests (continued)

with greater than 70% sand and less than 15% clay (sand and loamy sand), after the 4 hour presoak, a percolation test may be attempted without the 18 hour waiting period. If the percolation test results are greater than 45 minutes for a 6 inch drop in water, the test must be repeated after the 18 hour waiting period. If the percolation test results are 45 minutes or less, the percolation rate shall be used to size the system.

b) On the day of conducting the percolation test, carefully fill the hole with water to 12 inches above the bottom.

c) Allow the water level to drop to a point six (6) inches above the gravel. If the water does not fall from 12 inches to 6 inches in 6 hours the perc test is terminated and an alternate system is required.

d) Measure the last 6 inch drop in water level at thirty minute intervals until all the water has seeped away. ~~In moist soil, keep water in the hole by carefully filling the hole and keeping it full for at least four hours before conducting the test.~~

~~At the time of the test, adjust the water level to twelve inches above the gravel. Allow the level to drop six inches, then commence measuring the drop in water level at thirty minute intervals until all the water has seeped away.~~

Warning: Under no conditions shall measurements be taken from water filled to the top of the hole or on water twelve inches deep in the hole. Such results are completely invalid and will not be accepted. Results from the last 6 inches of drop in water are the only results which will be accepted.

5. Recording of Results: Record results of all tests as the total minutes required for the last six inches of seepage. ~~(~~If the last six inches of water has not seeped away at the end of six hours, the soil must be considered unsuitable for seepage field disposal and the appropriate statement marked on the results form.~~)~~

6. Calculating the Percolation Rate: Add the total minutes required for the last six inches of water to fall from the two holes with the highest result and divide by two. If the average is less than 60 minutes use the percolation rate of 60 minutes. If the average is greater than 60 minutes, refer to Section 905, Appendix A, Illustration H. Locate in the first column (Time (minutes) required) for last 6 inches of water to fall) where the highest two hole average fits and use the next highest result as the percolation rate for sizing and design. An example of this procedure is as follows: If three percolation tests are conducted with results of 120 minutes, 140 minutes, and 155 minutes the highest two hole average would be (140 + 155)/2 or 147.5 minutes,

Section 905 Appendix A
Illustration G Instructions For Conducting Percolation Tests (continued)

Looking at Section 905, Appendix A, Illustration H the next highest result would be 150 minutes. The 150 minute rate would be used to size and design the subsurface seepage system.

7. Distribution of Results: The results of the percolation tests shall be given to the homeowner and shall be retained by the contractor for at least five years. The percolation test data report shall be returned to the appropriate regional office or local authority.

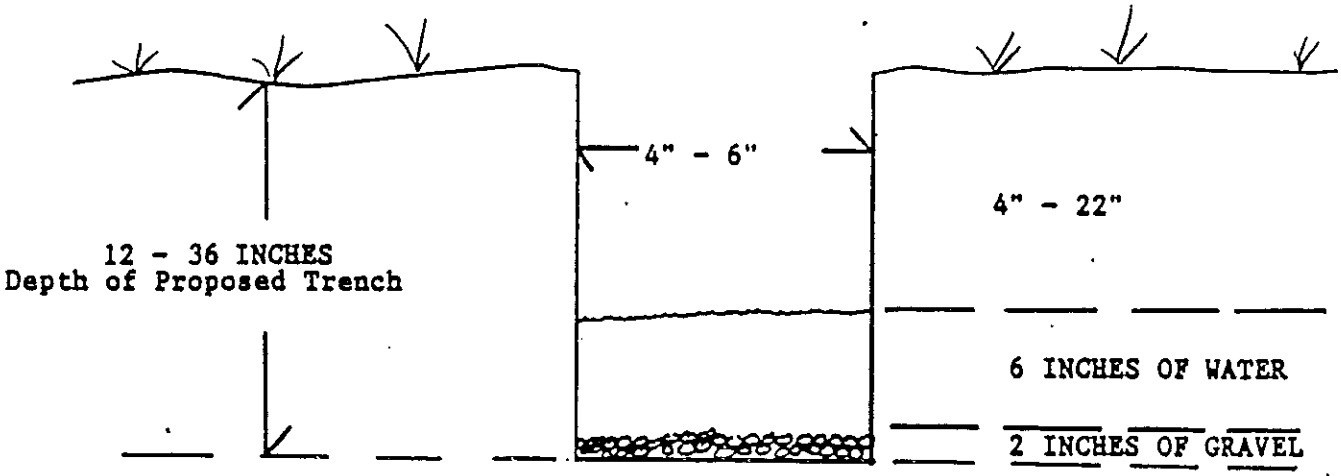
(Source: Amended at 16 Ill. Reg. _____, effective _____)

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 905 Appendix A
Illustration G Instructions For Conducting Percolation Tests (continued)

TEST HOLE:



~~AT LEAST TWO SEPARATE PERCOLATION TESTS SHALL BE PERFORMED AT THE SITE OF EACH PROPOSED DISPOSAL AREA.~~

~~Percolation tests shall not be made in frozen grounds or ground that has been filled in the preceding twelve months.~~

(Source: Amended at 16 Ill. Reg. _____, effective _____)

Section 905 Appendix A
Illustration G Instructions For Conducting Percolation Tests (continued)

	TEST HOLE #1		TEST HOLE #2		TEST HOLE #3	
READING #	TIME (in min.)	WATER LEVEL (in inches)	TIME (in min.)	WATER LEVEL (in inches)	TIME (in min.)	WATER LEVEL (in inches)
1	0		0		0	
2	30		30		30	
3	60		60		60	
4	90		90		90	
5	120		20		120	
6	150		150		150	
7	180		180		180	
8	210		210		210	
9	240		240		240	
10	270		270		270	
11	300		300		300	
12	330		330		330	
13	360		360		360	

(Source: Amended at 16 Ill. Reg. _____, effective _____)

DEPARTMENT OF PUBLIC HEALTH

NOTICE OF PROPOSED AMENDMENTS

Section 905 Appendix A
Illustration M Soil Suitability For On-Site Sewage Design

Loading Rates in Square Feet per Bedroom
and Gallons/Square Feet/Day

Soil Structure Classes

Soil Texture	Single Grain	Granular Platy*	Strong Angular Subangular Blocky Prismatic	Moderate Angular Subangular Blocky Prismatic	Weak Angular Subangular Blocky Prismatic	Fragipen Very Course Prismatic	Structureless Massive Friable Very Friable	Structureless Massive Compact Firm Very Firm
Gravel								
Coarse Sand	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Loamy Coarse Sand	200	200	N/A	N/A	200	N/A	N/A	N/A
Medium Sand	1.0	1.0			1.0			
Fine Sand	200	200	N/A	200	200	N/A	200	N/A
Loamy Sand	1.0	1.0		1.0	1.0		1.0	
Loamy Fine Sand	250	250	N/A	250	250	N/A	250	N/A
	.80	.80		.80	.80		.80	
Sandy Loam		250		250	350		350	
Course Sandy Loam	N/A		N/A			N/A		N/A
Fine Sandy Loam		.80		.80	.57		.57	
Very Fine Sandy Loam		350	350	350	450		450	
Sandy Clay Loam	N/A					N/A		N/A
Loam		.57	.57	.57	.44		.44	
Silt Loam								
Silty Clay Loam		450	450	450	1000			
Clay Loam	N/A	.44	.44	.44	.20	N/A	0	N/A
Sandy Clay								
Silty Clay	N/A	1000	1000	1000		N/A		N/A
Clay		.20	.20	.20	0		0	
Muck	N/A	N/A	N/A	N/A	N/A	0		N/A
Marl, Bedrock	N/A	N/A	N/A	N/A	N/A	N/A	0	N/A

N/A - Not Applicable
*Except where platy structure has been caused by soil compaction
Platy Structure caused by compaction has a loading rate of 0.00

(Source: Added at 16 Ill. Reg. _____, effective _____)