Highly Erodible Soil Map Unit List - **Cass County, MN**
C = .12
R = 100
This data is only to be used for HEL determinations. This is the "frozen data" based on 1/01/1990 information. Values other than 'HELC" should only be used for PHEL.

areasym	musym	muname	HELC	T	K	I	slope_%	slope_l	LS
MN021	7A	Hubbard loamy sand, 0 to 3 percent slopes	NHEL	5	0.15	134	1	150	0.15
MN021	7B	Hubbard loamy sand, 3 to 8 percent slopes	NHEL	5	0.15	134	5	125	0.6
MN021	48	Hiwood loamy fine sand	NHEL	5	0.17	134	1	150	0.15
MN021	82B	Redeye loamy sand, 1 to 6 percent slopes	NHEL	5	0.17	134	3	125	0.3
MN021	82C	Redeye loamy sand, 6 to 12 percent slopes	NHEL	5	0.17	134	9	125	1.35
MN021	119B	Pomroy loamy sand, 3 to 8 percent slopes	NHEL	4	0.15	134	5	125	0.6
MN021	119C	Pomroy loamy sand, 8 to 15 percent slopes	PHEL	4	0.15	134	11	125	1.8
MN021	126B	Graycalm loamy sand, 1 to 8 percent slopes	NHEL	5	0.17	134	4	125	0.43
MN021	126C	Graycalm loamy sand, 8 to 15 percent slopes	PHEL	5	0.17	134	11	125	1.8
MN021	139B	Huntersville loamy fine sand, 1 to 6 percent slopes	NHEL	4	0.17	134	3	125	0.3
MN021	142	Nokay loam	NHEL	4	0.32	86	1	150	0.15
MN021	144B	Flak sandy loam, 3 to 8 percent slopes	PHEL	4	0.28	86	5	200	0.76
MN021	144C	Flak sandy loam, 8 to 15 percent slopes	HEL	4	0.28	86	12	200	2.6
MN021	146B	Wabedo sandy loam, 1 to 6 percent slopes	NHEL	4	0.28	86	3	200	0.35
MN021	147	Spooner very fine sandy loam	NHEL	5	0.37	86	1	150	0.15
MN021	158B	Zimmerman fine sand, 1 to 8 percent slopes	NHEL	5	0.17	220	4	125	0.44
MN021	167B	Baudette silt loam, 1 to 6 percent slopes	NHEL	5	0.37	48	3	125	0.3
MN021	202	Meehan loamy sand	NHEL	5	0.17	134	1	150	0.15
MN021	204B	Cushing loam, 2 to 8 percent slopes	NHEL	5	0.32	56	5	125	0.6
MN021	204C	Cushing loam, 8 to 15 percent slopes	PHEL	5	0.32	56	11	125	1.8
MN021	204E	Cushing loam, 15 to 30 percent slopes	HEL	5	0.32	56	22	100	5
MN021	217	Nokasippi loamy fine sand	NHEL	4	0.17	134	1	150	0.15
MN021	218	Watab loamy sand	NHEL	4	0.17	134	1	150	0.15
MN021	240A	Warba very fine sandy loam, 1 to 3 percent slopes moderately wet	NHEL	5	0.2	86	2	150	0.23
MN021	240B	Warba very fine sandy loam, 3 to 8 percent slopes	NHEL	5	0.2	86	5	125	0.6
MN021	240C	Warba very fine sandy loam, 8 to 15 percent slopes	PHEL	5	0.2	86	11	125	1.8
MN021	243	Stuntz very fine sandy loam	NHEL	5	0.28	86	1	150	0.15
MN021	268B	Cromwell sandy loam, 1 to 8 percent slopes	NHEL	3	0.2	86	5	125	0.6
MN021	268C	Cromwell sandy loam, 8 to 15 percent slopes	PHEL	3	0.2	86	11	125	1.8
MN021	292	Alstad fine sandy loam	NHEL	5	0.24	86	1	150	0.15
MN021	453B	DeMontreville loamy sand, 2 to 8 percent slopes	NHEL	5	0.17	134	5	125	0.6
MN021	453C	DeMontreville loamy sand, 8 to 15 percent slopes	PHEL	5	0.17	134	11	125	1.8
MN021	453E	DeMontreville loamy sand, 15 to 40 percent slopes	HEL	5	0.17	134	28	100	7
MN021	454B	Mahtomedi loamy sand, 1 to 8 percent slopes	NHEL	5	0.15	134	5	125	0.6
MN021	454C	Mahtomedi loamy sand, 8 to 15 percent slopes	PHEL	5	0.15	134	11	125	1.8
MN021	454E	Mahtomedi loamy sand, 15 to 40 percent slopes	PHEL	5	0.15	134	28	100	7
MN021	458A	Menahga loamy sand, 0 to 3 percent slopes	NHEL	5	0.15	134	2	150	0.23
MN021	458B	Menahga loamy sand, 3 to 8 percent slopes	NHEL	5	0.15	134	5	125	0.6
MN021	458C	Menahga loamy sand, 8 to 15 percent slopes	PHEL	5	0.15	134	11	125	1.8
MN021	458E	Menahga loamy sand, 15 to 40 percent slopes	PHEL	5	0.15	134	28	100	7
MN021	540	Seelyeville muck	NHEL	5		134	1	150	0.15
MN021	541	Rifle mucky peat	NHEL	5		134	1	150	0.15
MN021	543	Markey muck	NHEL	4		134	1	150	0.15
MN021	544	Cathro muck	NHEL	5		134	1	150	0.15
MN021	549	Greenwood peat	NHEL	5		38	1	150	0.15
MN021	564	Friendship loamy sand	NHEL	5	0.17	134	2	150	0.23
MN021	620B	Cutaway loamy sand, 1 to 10 percent slopes	NHEL	5	0.17	134	5	125	0.6
MN021	620D	Cutaway loamy sand, 10 to 25 percent slopes	PHEL	5	0.17	134	18	100	3.5
MN021	625	Sandwick loamy sand	NHEL	5	0.17	134	1	150	0.15
MN021	665B	Menahga loamy sand, moraine, 3 to 8 percent slopes	NHEL	5	0.15	134	5	125	0.6

MN021	665C	Menahga loamy sand, moraine, 8 to 15 percent slopes	PHEL	5	0.15	134	11	125	1.8
MN021	665E	Menahga loamy sand, moraine, 15 to 40 percent slopes	PHEL	5	0.15	134	28	100	7
MN021	679B	Menahga loamy sand, loamy substratum, 2 to 8 percent slopes	NHEL	5	0.17	134	5	125	0.6
MN021	679C	Menahga loamy sand, loamy substratum, 8 to 15 percent slopes	PHEL	5	0.17	134	11	125	1.8
MN021	684	Bergkeller sandy loam, moderately wet	NHEL	4	0.2	86	1	150	0.15
MN021	701	Runeberg mucky loam, depressional	NHEL	5	0.28	86	1	150	0.15
MN021	703	Paddock loam	NHEL	5	0.32	-	1	150	0.15
MN021	720B	Blowers sandy loam, 1 to 5 percent slopes	NHEL	4	0.24	86	3	125	0.3
MN021	730A	Sanburn sandy loam, 1 to 3 percent slopes	NHEL	4	0.2	86	2	150	0.23
MN021	730B	Sanburn sandy loam, 3 to 8 percent slopes	NHEL	4	0.2	86	5	125	0.6
MN021	730C	Sanburn sandy loam, 8 to 15 percent slopes	PHEL	4	0.2	86	11	125	1.8
MN021	731A	Sanburn loamy sand, 0 to 3 percent slopes	NHEL	4	0.17	134	2	150	0.23
MN021	731B	Sanburn loamy sand, 3 to 8 percent slopes	NHEL	4	0.17	134	5	125	0.6
MN021	731C	Sanburn loamy sand, 8 to 15 percent slopes	PHEL	4	0.17	134	11	125	1.8
MN021	732	Bushville loamy sand, 1 to 3 percent slopes	NHEL	4	0.17	134	2	150	0.23
MN021	739B	Wabedo sandy loam, 1 to 6 percent slopes, very stony	NHEL	4	0.28	-	3	200	0.35
MN021	742B	Flak sandy loam, 3 to 8 percent slopes, very stony	PHEL	4	0.28	-	5	200	0.76
MN021	742C	Flak sandy loam, 8 to 15 percent slopes, very stony	HEL	4	0.28	-	12	200	2.6
MN021	750B	Pomroy loamy sand, 3 to 8 percent slopes, very stony	NHEL	4	0.15	-	5	150	0.66
MN021	750C	Pomroy loamy sand, 8 to 15 percent slopes, very stony	PHEL	4	0.15	-	11	150	2
MN021	773B	Warba-Cromwell complex, 1 to 8 percent slopes	PHEL	3	0.2	86	5	125	6
MN021	773E	Warba-Cromwell complex, 8 to 25 percent slopes	HEL	3	0.2	86	18	100	3.5
MN021	788	Cathro-Seelyeville complex	NHEL	5		134	1	150	0.15
MN021	797	Mooselake and Lupton soils	NHEL	5		56	1	150	0.15
MN021	799	Bowstring-Seelyeville complex, frequently flooded	NHEL	5		-	1	150	0.15
MN021	870B	Itasca-Goodland complex, 1 to 8 percent slopes	PHEL	4	0.37	56	4	125	0.43
MN021	870C	Itasca-Goodland complex, 8 to 15 percent slopes	HEL	4	0.37	56	11	125	1.8
MN021	928B	DeMontreville-Mahtomedi-Cushing complex, 2 to 8 percent slopes	NHEL	5	0.24	-	5	125	0.6
MN021	928C	DeMontreville-Mahtomedi-Cushing complex, 8 to 15 percent slopes	PHEL	5	0.24	-	11	125	1.8
MN021	928E	DeMontreville-Mahtomedi-Cushing complex, 15 to 40 percent slopes	HEL	5	0.24	-	28	100	1.8
MN021	1002	Fluvaquents, frequently flooded	NHEL	-	-	-	-	-	-
MN021	1141	Runeberg loam, acid substratum, depressional	NHEL	5	0.28	86	1	150	0.15
MN021	1151B	Blowers sandy loam, acid substratum, 1 to 5 percent slopes	NHEL	4	0.24	86	3	125	0.3
MN021	1153B	Huntersville loamy sand, acid substratum, 1 to 6 percent slopes	NHEL	4	0.17	134	3	125	0.3
MN021	1155	Staples loamy sand, acid substratum	NHEL	5	0.14	134	1	150	0.15
MN021	1157	Paddock loam, acid substratum	NHEL	5	0.32	56	1	150	0.15
MN021	1160B	Redeye loamy sand, acid substratum, 1 to 6 percent slopes	NHEL	5	0.17	134	3	125	0.3
MN021	1160C	Redeye loamy sand, acid substratum, 6 to 12 percent slopes	NHEL	5	0.17	134	9	125	1.35
MN021	1943	Roscommon loamy sand	NHEL	5	0.17	134	1	150	0.15
MN021	1956	Staples loamy sand	NHEL	5	0.17	134	1	150	0.15
MN021	1957B	Friendship loamy sand, loamy substratum, 1 to 6 percent slopes	NHEL	5	0.17	134	3	125	0.3
MN021	1970B	Menahga loamy sand, till substratum, 2 to 8 percent slopes	NHEL	5	0.17	134	5	125	0.6
MN021	1970C	Menahga loamy sand, till substratum, 8 to 15 percent slopes	PHEL	5	0.17	134	11	125	1.8
MN021	1978	Nokay loam, very stony	NHEL	4	0.32	-	1	150	0.15
MN021	1995B	Bergkeller sandy loam, 1 to 6 percent slopes	NHEL	4	0.2	86	3	125	0.3
MN021	1996	Cromwell sandy loam, moderately wet	NHEL	3	0.24	86	1	150	0.15
MN021	A10	Glossaqualfs	NHEL	5	0.32	56	0.5	150	0.1
MN021	A12	Warba-Aquic Eutroboralfs, loamy-Aeric Glossaqualfs, loamy, association, nearly level to gently rolling	NHEL	5	0.17	134	1	150	0.15
MN021	A13	Warba-Aquic Eutroboralfs, loamy-Aeric Glossaqualfs, loamy, association, nearly level to hilly	PHEL	5	0.2	86	11	125	1.8
MN021	A15	Typic Udipsamments-Arenic Eutroboralfs-Alfic Udispamments association, nearly level to gently rolling	NHEL	5	0.17	220	4	125	0.44
MN021	A16	Warba-Dystric Eutrochrepts-Typic Udispamments association, nearly level to gently rolling	NHEL	5	0.2	86	5	125	0.6
MN021	A17	Menahga-Cutaway-Glossic Eutroboralfs association, rolling and hilly	HEL	4	0.37	56	11	125	1.8
MN021	A18	Arenic Eutroboralfs, nearly level to gently rolling	NHEL	5	0.17	134	5	125	0.6
MN021	A19	Menahga loamy coarse sand, moraine, rolling and hilly	PHEL	5	0.15	134	11	125	1.8
MN021	A20	Typic Udipsamments, gravelly, rolling to very hilly	PHEL	5	0.15	134	28	100	7
MN021	E57	Zimmerman loamy fine sand, nearly level and undulating	NHEL	5	0.17	220	4	125	0.44

MN021	E58	Graycalm-Typic Udipsamments association, nearly level and undulating	NHEL	5	0.15	134	5	125	0.6
MN021	E59	Warba-Stuntz-Arenic Eutroboralfs association, nearly level and undulating	NHEL	5	0.2	86	5	125	0.6
MN021	E60	Warba-Stuntz association, nearly level and undulating	NHEL	5	0.2	86	5	125	0.6
MN021	E61	Glossic Eutroboralfs, loamy, rolling and hilly	HEL	4	0.37	56	11	125	1.8
MN021	E62	Warba-Histosols association, nearly level to gently rolling							
MN021	E63	Aquic Eutroboralfs, clayey subsoil, nearly level and undulating	PHEL	5	0.24	134	11	125	1.8
MN021	E65	Aeric Glossaqualf, loamy	NHEL	5	0.28	86	1	150	0.15
MN021	F76	Warba very fine sandy loam, nearly level and undulating							
MN021	F77	Warba very fine sandy loam, rolling and hilly	HEL	5	0.37	86	18	100	3.4
MN021	K22	Alfic Udipsamments, nearly level and undulating							
MN021	K25	Eutroboralfs-Typic Ochraqualfs association, nearly level and undulating							
MN021	K27	Aquic Eutroboralfs, loamy, nearly level and undulating							
MN021	K28	Aquic Eutroboralfs, silty, nearly level and undulating							
MN021	K30	Typic Ochraqualfs, clayey							
MN021	K31	Suomi-Aeric Glossaqualfs, loamy, association, nearly level and undulating							
MN021	K35	Typic Ochraqualfs, ponded							
MN021	M-W	Water, miscellaneous							
MN021	N77	Udipsamments, nearly level and undulating	NHEL	5	0.15	134	3	150	0.35
MN021	N78	Psammentic eutroboralfs, sandy, nearly level and undulating	NHEL	5	0.15	134	3	150	0.35
MN021	N79	Psammentic eutroboralfs, sandy, rolling and hilly	NHEL	5	0.15	134	8	101	0.99
MN021	N80	Cutaway-hiwood association, nearly level and undulating							
MN021	O92	Hiwood-Zimmerman association, nearly level to hilly							
MN021	O93	Eutroboralfs, nearly level and undulating							
MN021	O94	Redby fine sand							
MN021	O95	Humaquepts							
MN021	O96	Mollic Fluvaquents, frequently flooded							
MN021	O97	Humaquepts, sandy	NHEL	4		134	1	150	0.15
MN021	W	Water							
MN021	X01	Histosols, depressional	NHEL	5		134	1	150	0.15
MN021	X02	Typic borohemists, acid	NHEL	5		38	1	150	0.15
MN021	X03	Typic borohemists, nonacid-typic borosaprists association	NHEL	5		134	1	150	0.15
MN021	X04	Typic borosaprist-bowstring association	NHEL	5		-	1	150	0.15
MN021	X05	Typic borohemists, nonacid	NHEL	5		134	1	150	0.15
MN021	XW1	Aqualfs	NHEL	5	0.15	134	0.5	150	0.1