

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc. Client: COCORP

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
6/13/79		G. Catcamp		W. Krol		6834		W. Krol		3	1 of 88					
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER							
MINNESOTA		Bertha 7 1/2'		Minnesota	Todd	133 N	34W		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
+										1346.0	R			492.095	1,808.315	scaled
	1505		352°38.2'-180°	+7.4°	+0.6	-		+0.6	1346.6		BS	-1505.4	-1.2			4-Way Intersect
	1505				+8.1	TH	-7.5	+0.6			BS					
1	2640		352°8'	+7.4°	5.2	89°30'	+23.0	+17.8		1.364.4		+2640	-22	493.234	1,808,290	dirt road
2	2310		" "		8.0	89°30'	+20.2	+12.2		1.358.8		+2310	-19	492,904	1,808,293	↓
3	1980		" "		8.1	TH	+9.9	+1.8		1.348.4		+1980	-16	492,574	1,808,296	
4	1650		" "		0.6	-		-0.6		1,346.0		+1650	-13	492,244	1,808,299	
+	1505		352°38.2'	+7.4°	0.6	-		-0.6		1,346.0		+1505	+3	492,095	1,808,315	4-Way Intersect 1346' elev.
5	1320		352°8'	+7.4°	1.3	-		-1.3		1,345.3		+1320	-11	491,914	1,808,301	
6	990		" "		1.8	-		-1.8		1,344.8		+990	-8	491,584	1,808,304	
7	660		" "		2.9	-		-2.9		1,343.7		+660	-5	491,254	1,808,307	
8	330		" "		3.9	-		-3.9		1,342.7		+330	-3	490,924	1,808,309	
9	0		" "		5.4	-		-5.4		1,341.2	X	0	0	490,594	1,808,312	
10	330		172°51.3'	+7.4°	6.1	-		-6.1		1,340.5		-330	-1	490,264	1,808,311	
11	660		" "		5.5	-		-5.5		1,341.1		-660	-3	489,934	1,808,309	
12	990		" "		8.7	89°-	+17.3	+8.6		1,355.2		-990	-4	489,604	1,808,308	
+	1140		172°0.2'	+7.4°	7.6	89°-	+19.9	+12.3		1,358.9		-1140	+12	489,454	1,808,324	489,775+1,808,325(s) 4-Way Intersect elev 1360
13	1320		172°51.3'	+7.4°	7.2	89°-	+23.0	+15.8		1,362.4		-1320	-6	489,274	1,808,306	
14	1650		" "		3.8	89°-	+28.8	+25.0		1,371.6		-1650	-7	488,944	1,808,305	
15	1980		" "		4.0	88°50'	+40.3	+36.3		1,382.9		-1980	-9	488,614	1,808,303	
16	2310		" "		5.3	88°50'	+47.0	+41.7		1,388.3		-2310	-10	488,284	1,808,302	

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6/13/79		G. Cotcamp		W. Krol		6834		W. Krol		3	2					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Bertha 7 1/2'		Minnesota	Todd		133 N.	34W		L.O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
									1.346.6							
17	2640		172° 51.3'	+7.4°	8.6	88° 50'	+53.8	+45.2		1.391.8	TP	-2640	-12.2	487.958	1.808.298	
17	2640				5.4	88° 54'	+50.7	+45.3			TP					
	2640		353° 3.6' -180°	+7.4°	+14.5	89° 08'	-39.9	-25.4	1.366.4		BS	-2640	-21.2			
	2640				+13.1	89° 10'	-38.4	-25.3			BS					
18	2310		353° 3.6'	+7.4°	9.8	89° 10'	-33.6	-23.8		1.342.6		+2310	+19	487.632	1.808.294	
19	1980		" "		10.0	89° 10'	-28.8	-18.8		1.347.6		+1980	+16	487.302	1.808.291	
20	1650		" "		7.1	89° 20'	-19.2	-12.1		1.354.3		+1650	+13	486.972	1.808.288	
21	1320		" "		4.5	89° 30'	-11.5	-7.0		1.359.4		+1320	+11	486.642	1.808.286	
22	990		" "		3.1	TH	-5.0	-1.9		1.364.5		+990	+8	486.312	1.808.283	
23	660		" "		1.5	-		-1.5		1.364.9		+660	+5	485.982	1.808.280	
24	330		" "		3.7	-		-3.7		1.362.7		+330	+3	485.652	1.808.278	
25	0		" "		5.4	-		-5.4		1.361.0	TP	0	0	485.322	1.808.275	
26	330		172° 31.3'	+7.4°	7.2	-		-7.2		1.359.2		-330	±0	484.992	1.808.275	
27	660		" "		8.3	-		-8.3		1.358.1		-660	+1	484.662	1.808.276	
28	990		" "		9.9	-		-9.9		1.356.5		-990	+1	484.332	1.808.276	
±L ±R	1150		172° 42.7'	+7.4°	10.1	-		-10.1		1.356.3		-1150	-2	484.172	1.808.273	4-Way Intersct. elev. 1356
29	1320		172° 31.3'	+7.4°	11.2	-		-11.2		1.355.2		-1320	+2	484.002	1.808.277	
30	1650		" "		11.0	-		-11.0		1.355.4		-1650	+2	483.672	1.808.277	
31	1980		" "		9.5	-		-9.5		1.356.9		-1980	+3	483.342	1.808.278	
32	2310		" "		8.3	-		-8.3		1.358.1		-2310	+3	483.012	1.808.278	

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6/13/79		G. Cotcamp		W. Krol		5834		W. Krol		3	3				
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER				
Minnesota		Bertha 7 1/2'		Minnesota		Todd		133N	34W		L.O. Davis				
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1366.4						
33	2640		172°31.3'	+7.4°	7.0	-		-7.0		1.359.4	TF	-2640.4	+4	482.686	1.808.279
33	2640				14.7	89°50'	+7.7	-7.0			TF				
	2970		351°54.2'-180°	+7.4°	14.9	-		+14.9	1.374.3		BS	-2970.4	+36		
	2970				13.2	90°2'	+1.7	+14.9			BS				
34	2640		351°54.2'	+7.4°	12.6	-		-12.6		1.361.7		+2640	-32	482.360	1.808.283
35	2310		" "		11.2	-		-11.2		1.363.1		+2310	-28	482.030	1.808.287
36	1980		" "		11.1	-		-11.1		1.363.2		+1980	-24	481.700	1.808.291
37	1650		" "		12.0	-		-12.0		1.362.3		+1650	-20	481.370	1.808.295
38	1320		" "		12.2	-		-12.2		1.362.1		+1320	-16	481.040	1.808.299
39	990		" "		12.2	-		-12.2		1.362.1		+990	-12	480.710	1.808.303
40	660		" "		11.3	-		-11.3		1.363.0		+660	-8	480.380	1.808.307
41	330		" "		9.7	-		-9.7		1.364.6		+330	-4	480.050	1.808.311
42	0				5.4	-		-5.4		1.368.9	X	0	0	479.720	1.808.315
43	330		172°20.6'	+7.4°	1.8	-		-1.8		1.372.5		-330	+1	479.390	1.808.316
44	660		" "		1.7	-		-1.7		1.372.6		-660	+3	479.060	1.808.318
IF	842		171°37.9'	+7.4°	2.5	-		-2.5		1.371.8		-842	+14	478.878	1.808.329 T-rd (east) elev. 1371'
45	990		172°20.6'	+7.4°	3.7	-		-3.7		1.370.6		-990	+4	478.730	1.808.319
46	1320		" "		5.2	-		-5.2		1.369.1		-1320	+6	478.400	1.808.321
47	1650		" "		6.1	-		-6.1		1.368.2		-1650	+7	478.070	1.808.322
48	1980		" "		7.7	-		-7.7		1.366.6		-1980	+9	477.740	1.808.324

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6/13/79		G. Cotcamp		W. Krol		6834		W. Krol		3	4						
AREA		TOPO MAP	STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER									
Minnesota		Bertha 7 1/2'	Minnesota	Todd	133N	34W		L.O. Davis									
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.374.3								
49	2310		172° 20.6'	+7.4'	8.1	-		-8.1		1.366.2		-2310	+10	477.410	1.808.325		
50	2640		172° 20.6'	+7.4°	8.1	-		-8.1	-8.2	1.366.1	TP	-2640	+12 -2	477.080	1.808.325		
50	2640				14.5	89° 52'	+6.2	-8.3			TP						
	1980		352° 24.3' -180°	+7.4°	+4.6	-		+4.6	1.370.7		BS	-1980	+7 -2				
	1980				+14.5	TH	9.9	+4.6			BS						
51	1650		352° 24.3'	+7.4°	4.6	-		-4.6		1.366.1		+1650	-6	476.750	1.808.324		
52	1320		" "	"	6.1	-		-6.1		1.364.6		+1320	-4	476.420	1.808.326		
53	990		" "	"	6.0	-		-6.0		1.364.7		+990	-3	476.090	1.808.327		
54	660		" "	"	6.2	-		-6.2		1.364.5		+660	-2	475.760	1.808.328		
55	330		" "	"	6.0	-		-6.0		1.364.7		+330	-1	475.430	1.808.329		
56	0				5.4	-		-5.4		1.365.3	TP	0	0	475.100	1.808.330		
57	330		172° 28.3'	+7.4°	2.9	-		-2.9		1.367.8		-330	+1	474.770	1.808.331		
58	660		" "	"	0.5	TH	+3.3	+2.8		1.373.5		-660	+1	474.440	1.808.331		
59	990		" "	"	8.3	89° -	+17.3	+9.0		1.379.7		-990	+2	474.110	1.808.332	horiz. correct. y=+20' x=-10'	
60	1320		" "	"	11.1	89° -	+23.0	+11.9		1.382.6		-1320	+3	473.780	1.808.333	473.590 + 1.808.345(5)	
60	1510		172° 2.5'	+7.4°	14.0	89° -	+26.3	+12.3		1.383.0	W	-1510	+15	473.590	1.808.345	473.590 + 1.808.345(5) + 1.808.345(5) elev. 1384	
61	1650		172° 22.3'	+7.4°	13.1	89° 15'	+24.0	+10.9			TP	-1650	+4	473.450	1.808.334	grass trail	
61	1650				10.1	89° 16'	+21.1	+11.0		1.381.7	TP						
	1320		351° 41.7' -180°	+7.4°	+9.9	89° 14'	-17.7	-7.8			BS	-1320-3	+21				
	1320				+13.8	89° 4'	-21.5	-7.7	1.374.0		BS						

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6/14/79		G. Cotcamp		W. Krol		6834		W. Krol		3	5						
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		Bertha		Minnesota	Todd		133N	34W		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.374.0								
62	990		351°41.7'	+7.4°	5.0	89°20'	+11.5	+6.5		1.380.5		+990	-16	473,117	1.808,339	narrow trail	
63	660		" "	"	4.1	89°20'	+7.7	+3.6		1.377.6		+660	-10	472,787	1.808,345		
64	330		" "	"	3.3	89°20'	+3.8	+0.5		1.374.5		+330	-5	472,457	1.808,350		
65	0		" "	"	5.4	-		-5.4		1.368.6	π	0	0	472,127	1.808,355		
66	330		171°59'	+7.4°	7.8	-		-7.8		1.366.2		-330	+4	471,797	1.808,359		
67	660		" "	"	5.5	90°20'	-3.8	-9.3		1.364.7		-660	+7	471,467	1.808,362	↓	
68	990		" "	"	3.2	90°20'	-5.8	-9.0		1.365.0		-990	+11	471,137	1.808,366	last sta on trail	
TP	1150		171°43'	+7.4°	7.7	-		-7.7		1.366.3	TP	-1150.2	+18	470,975	1.808,373		
TP	1150				13.5	TH	5.8	-7.7			TP						
	838		35°46.1'+180°	+7.4°	8.6	91°	+14.6	+23.2	1.389.5		BS	-611.3	-573				
	838				+14.9	90°34'	+8.3	+23.2			BS						
69	660		35°21'	+7.4°	13.0	BH	+3.3	-16.3		1.373.2		+538	+382	470,899	1.808,182	in field	
70	330		" "	"	12.2	-		-12.2		1.377.3		+269	+191	470,630	1.807,991		
71	0		" "	"	5.4	-		-5.4		1.384.1	π	0	0	470,361	1.807,800		
72	330		217°37'	+7.4°	1.3	TH	+1.7	+0.4		1.389.9		-233	-233	470,128	1.807,567		
73	660		" "	"	1.8	89°20'	+7.7	+5.9		1.395.4		-467	-467	469,894	1.807,333		
74	990		" "	"	1.6	89°20'	+11.5	+9.9		1.399.4		-700	-700	469,661	1.807,100	↓	
75	1320		217°37'	+7.4°	7.5	89°20'	+19.2	+11.7		1.401.2	TP	-933.2	-934	469,426	1.806,866		
75	1320		" "	"	11.3	89°-	+23.0	+11.7			TP						

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6/14/79		G. Catescamp		W. Krol		6824		W. Krol			3	6		
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER		
Minnesota		Bertha		Minnesota		Todd		133N/132N		35W/34W		L.O. Davis		
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
75										1,401.2				
	1435		33°25.2' +180°	+7.4°	78.2	89°-	-25.0	-16.8	1,384.4		BS	-1086.3	-938	in field
	1435				+14.9	88°44'	-31.7	-16.8			BS			
76	1105		32°9.5'	+7.4°	91	89°-	+19.3	+10.2		1,394.6		+852	+704	469,180 1,806,632
77	778		29°50'	+7.4°	28	89°40'	+4.5	+1.7		1,386.1		+619	+471	468,956 1,806,399
78	450		24°2'	+7.4°	45	-		-4.5		1,379.9		+384	+235	468,721 1,806,163
79	154		353°12'	+7.4°	8.2	-		-8.2		1,376.2		+154	+2	468,491 1,805,930 last sta (cross-country)
π	0				54	-		-5.4		1,379.0	π	0	0	468,337 1,805,928 860' offset west
π	860		262°49'	+7.4°	1.9	88°30'	+22.5	+20.6		1,405.0	TP	+3-3	-860	468,337 1,805,060 T-intersect.
π	860				5.3	88°16'	+26.0	+20.7			TP			
	506		353°6.1' -180°	+7.4°	+6.5	-		+6.5	1,411.5		BS	-506-2	-4	
	506				9.0	TH	-2.5	+6.5			BS			468,370+1,809,466 (notes) Tri-station Giv Elev 1938 A elev. 1412
Δ	820		306 1.6'	+7.4°	6.7	89°30'	+7.2	+0.5		1,412.0		+564	-596	468,393 1,804,468
80	330		353°6.1'		5.9	-		-5.9		1,405.6		+330	+3	468,159 1,805,067
81	0				54	-		-5.4		1,406.1	π	0	0	467,829 1,805,064
82	330		172°57.6'	+7.6°	9.9	-		-9.9		1,401.6		-330	-3	467,499 1,805,061 pavement
83	660		" "	"	13.7	BH	-3.3	-17.0		1,394.5		-660	-6	467,169 1,805,058
84	990		" "	"	12.8	BH	-5.0	-17.8		1,393.7		-990	-10	466,839 1,805,054
85	1320		172°57.6'	+7.6°	9.5	BH	-6.6	-16.1		1,395.4	TP	-1320-3	-13	466,506 1,805,051
85	1320				14.6	90°4'	-1.5	-16.1			TP			

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6/14/79		G. Cotcamp		W. Krol		6834		W. Krol		3		7			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Bertha		Minnesota		Todd		132 N		35W/34W				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
85										1.395.4					
	2640		352°45'-180°	+7.6°	+119	TH	-13.2	-1.3			BS	-2640-2	-16		
	2640				+139	89°40'	-15.4	-1.5	1.393.9		BS				
86	2310		352°45'	+7.6°	114	TH	+11.6	+0.2		1.394.1		+2310	+14	466.174	1.805.049
87	1980		" "	"	2.2	-		-2.2		1.391.7		+1980	+12	465.844	1.805.047
88	1650		" "	"	3.6	-		-3.6		1.390.3		+1650	+10	465.514	1.805.045
89	1320		" "	"	4.2	-		-4.2		1.389.7		+1320	+8	465.184	1.805.043
90	990		" "	"	4.3	-		-4.3		1.389.7		+990	+6	464.854	1.805.041
91	660		" "	"	4.7	-		-4.7		1.389.2		+660	+4	464.524	1.805.039
92	330		" "	"	5.1	-		-5.1		1.388.8		+330	+2	464.194	1.805.037
93	0				5.4	-		-5.4		1.388.5		0	0	463.864	1.805.035
94	330		172°29.3'	+7.6°	4.7	-		-4.7		1.389.2		330	0	463.534	1.805.035
95	660		" "	"	4.1	-		-4.1		1.389.8		-660	0	463.204	1.805.035
95	960		172° -	+7.6°	3.7	-		-3.7		1.390.2		-960	+7	462.904	1.805.042
96	990		172°29.3'	+7.6°	3.9	-		-3.9		1.390.0		-990	0	462.874	1.805.035
97	1320		" "	"	0.6	-		-0.6		1.393.3		-1320	0	462.544	1.805.035
98	1650		" "	"	8.0	TH	+8.3	+0.3		1.394.2		-1650	0	462.214	1.805.035
99	1980		" "	"	8.9	TH	+9.9	+1.0		1.394.9		-1980	0	461.884	1.805.035
100	2310		" "	"	9.9	TH	+11.6	+1.7		1.395.6		-2310	0	461.554	1.805.035
101	2640		172°29.3'	+7.6°	10.3	TH	+13.2	+2.9			TP	-2640	0	461.224	1.805.035
101	2640				14.2	89°38'	+16.9	+2.7		1.396.6	TP				

462.895 + 1.805.035(5),
4-Way Intersect elev. 1389

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
6/14/79		S. Cotcamp		W. Krol		6834		W. Krol		3	8					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Bertha/Eagle Bend 7 1/2		Minnesota	Todd		132 N	35W / 34W		L.O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
101										1.396.6						
	990		352°11.7'-180°	+7.6°	+3.3	91°-	+17.3	+20.6	1.417.2		BS	-990-2	+7			
	990				+9.1	90°40'	+11.5	+20.6			BS					
102	660		352°11.7'	+7.6°	11.8	BH	-3.3	-15.1		1.402.1		+660	-2	460,892	1.805.037	
103	330		" "	"	7.3	-		-7.3		1.409.9		+330	-1	460,562	1.805.038	
104	0				5.4	-		-5.4		1.411.8	X	0	0	460,232	1.805.039	
105	330		172°25.9'	+7.8°	8.2	-		-8.2		1.409.0		-330	-1	459,902	1.805.038	
106	660		" "	"	13.8	-		-13.8		1.403.4		-660	-3	459,572	1.805.036	
107	990		" "	"	14.2	BH	-5.0	-19.2		1.398.0		-990	-4	459,242	1.805.035	
108	1320		172°25.9'	+7.8°	11.4	90°30'	-11.5	-22.9		1.394.3	TP	-1320	-5	458,912	1.805.034	
108	1320				14.3	90°22'	-8.4	-22.7			TP					
	2970		352°30.6'-180°	+7.8°	+2.5	-		+2.5	1.396.8		BS	-2970	-16			
	2970				+14.7	89°45'	-12.1	+2.6			BS					
109	2640		352°30.6'	+7.8°	3.9	-		-3.9		1.392.9		+2640	+14	458,582	1.805.032	
110	2310		" "	"	4.9	-		-4.9		1.391.9		+2310	+12	458,252	1.805.030	
111	1980		" "	"	5.0	-		-5.0		1.391.8		+1980	+11	457,922	1.805.029	
FF	1665		353°15.4'	+7.8°	5.0	-		-5.0		1.391.8		+1665	+31	457,607	1.805.049	457,630(+), 805,040(+), 4-Way Intersect elev. 1390.2
112	1650		352°30.6'	+7.8°	5.2	-		-5.2		1.391.6		+1650	+9	457,592	1.805.027	Line #2 (+) Line 2 p.15
113	1320		" "	"	5.2	-		-5.2		1.391.6		+1320	+7	457,262	1.805.025	↑
114	990		" "	"	5.4	-		-5.4		1.391.4		+990	+5	456,932	1.805.023	Bertha Quad
115	660		" "	"	5.3	-		-5.3		1.391.3		+660	+4	456,602	1.805.022	Eagle Bend ↓

SURVEY NOTES-HIGH RESOLUTION DATA
GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE			
6/14/79		G. Cotcamp		W. Krof		6834		W. Krof		3	9			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER		
Minnesota		Eagle Bend		Minnesota		Todd		132 N		35W/34W		L.O. Davis		
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1.396.8					
116	330		352°30.6'	+7.8°	5.2	-		-5.2		1.391.6		+330	+2	456.272 1.805.020
117	0				5.4	-		-5.4		1.391.4	TP	0	0	455.942 1.805.018
118	330		172°26.1'	+7.8°	5.2	-		-5.2		1.391.6		-330	-1	455.612 1.805.017
119	660		"	"	5.1	-		-5.1		1.391.7		-660	-3	455.282 1.805.015
120	990		"	"	5.6	-		-5.6		1.391.2		-990	-4	454.952 1.805.014
121	1320		"	"	5.5	-		-5.5		1.391.3		-1320	-5	454.622 1.805.013
122	1650		"	"	5.1	-		-5.1		1.391.7		-1650	-7	454.292 1.805.011
123	1980		"	"	4.7	-		-4.7		1.392.1		-1980	-8	453.962 1.805.010
124	2310		"	"	2.8	-		-2.8		1.394.0		-2310	-9	453.632 1.805.009
125	2640		"	"	0.6	-		-0.6		1.396.2		-2640	-11	453.302 1.805.007
126	2970		172°26.1'	+7.8°	10.4	TH	+14.9	+4.5			TP	-2970-3	-12	452.969 1.805.006
126	2970				14.8	89°38'	+19.0	+4.2		1.401.0	TP			
	330		352 3.6'-180°	+7.8°	+10.2	-		+10.2	1.411.2		BS	-330-3	+1	
	330				+11.9	TH	-1.7	+10.2			BS			
27	0				5.4	-		-5.4		1.405.8	TP	0	0	452.636 1.805.007
128	330		172°50.3'	+7.8°	1.3	TH	+1.7	+0.4		1.411.6		-330	-4	452.306 1.805.003
128	332		170°31.2'	+7.8°	1.0	TH	+1.7	+0.7		1.411.9		-332	+10	452.304 1.805.017
129	660		172°50.3'	+8.0°	6.1	89°-	+11.5	+5.4		1.416.6	TP	-660	-10	451.976 1.804.997
129	660				4.2	89°10'	+9.6	+5.4			TP			

452,300+ 1,805,015(s)
4-Way Intersect. elev. 1410
 horiz. curve $\gamma = -35$
 $x = 0$

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.	PAGE		
6-15-79		W. Krol		R. Turner		6834		W. Reel			3	10		
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER			
Minnesota		Eagle Bend		Minnesota		Todd		132 N	35 W/34 W		L.O. Davis			
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
129										1.416.6				
	2640		352° 38' - 180	+8.0°	+1.1	-		+1.1	1.417.7		BS	-2640	-29	
	2640				+5.1	89° 55'	-3.8	+1.3			BS			
130	2310		352° 38'	+8.0°	0.5	-		-0.5		1.417.2		+2310	+26	451,646 1,804,994
131	1980		"	"	2.0	-		-2.0		1.415.7		+1980	+22	451,316 1,804,990
132	1650		"	"	3.8	-		-3.8		1.413.9		+1650	+18	450,986 1,804,986
133	1320		"	"	5.7	-		-5.7		1.412.0		+1320	+15	450,656 1,804,983
134	990		"	"	6.0	-		-6.0		1.411.7		+990	+11	450,326 1,804,979
135	660		"	"	6.0	-		-6.0		1.411.7		+660	+7	449,996 1,804,975
136	330		"	"	5.4	-		-5.4		1.412.3		+330	+4	449,666 1,804,972
137	- 0 -				5.4	-		-5.4		1.412.3	X	0	0	449,336 1,804,968
138	330		172° 35.9'	+8.0°	3.8	-		-3.8		1.413.9		-330	-3	449,006 1,804,965
139	660		" "	"	2.7	-		-2.7		1.415.0		-660	-7	448,676 1,804,961
140	990		" "	"	3.0	-		-3.0		1.414.7		-990	-10	448,346 1,804,958
141	1320		" "	"	4.0	-		-4.0		1.413.7		-1320	-14	448,016 1,804,954
142	1650		" "	"	4.1	-		-4.1		1.413.6		-1650	-17	447,686 1,804,951
143	1980		" "	"	5.2	-		-5.2		1.412.5		-1980	-21	447,356 1,804,947
144	2310		" "	"	5.8	-		-5.8		1.411.9		-2310	-24	447,026 1,804,944
--H--	2340		172° 20.6'	+8.0°	5.6	-		-5.6		1.412.1		-2340	-14	446,996 1,804,954 fence elev. 1409
145	2640				-5.5	-		-5.5		1.412.2	TP	-2640	-28	446,696 1,804,940
145	2640		172° 35.9'	+8.0°	-3.9	90° 2'	-1.5	-5.4			TP			

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
4-15-79		W. Krol		R. Turner		6834		W. Krol		3	11						
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Eagle Bend		Minnesota	Todd	132 N	35W/34W		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
145										1.412.2							
	1320		352°33.7'-180	+8.0°	11.6	-		+11.6	1.423.8		BS	-1320	-13				
	1320				+10.9	90°2'	+0.8	+11.7			BS						
146	990		352°33.7'	+8.0°	11.0	-		-11.0	1.412.8			+990	+10	446,366	1,809,937		
147	660		"	"	10.1			-10.1	1.413.7			+660	+6	446,036	1,809,933		
148	330		"	"	7.7			-7.7	1.416.1			+330	+3	445,706	1,809,930		
149	-0-				5.4			-5.4	1.418.4		X	0	0	445,376	1,809,927		
150	330		172°28.3'	"	2.0			-2.0	1.421.8			-330	-3	445,046	1,809,924		
151	660		"	"	0.2			-0.2	1.423.6			-660	-5	444,716	1,809,922		
152	990		172°28.3'	+8.0°	1.5	89°50'	+2.9	+1.4	1.425.2			-990	-8	444,386	1,809,919	444,330+1,809,920(s)	
IF	1034		171°52.3'	+8.0°	1.0	89°50'	+3.0	+2.0	1.425.8		TP	-1034	+2	444,342	1,809,929	Int. elev. 1423'	
	590		264°05'-180°	+8.0°	+11.4	-		+11.4	1.437.2		BS	-21+3	+590				
	590		264°05'		+11.1	90°2'	0.3	+11.4			BS					5361 (stada) off-	
	0				5.4	-		-5.4	1.431.8		X	0	0	444,324	1,805,519	Int east (sta 152-153)	
TP	1161				8.8	91°	-20.3	-29.1	1.408.1		TP	-20+3	+1161	444,307	1,806,680		
TP	1161		82°58.2'	+8.0°	8.1	91°2'	-20.9	-29.0			TP						
	2070		262°33.7'-180°	+8.0°	+10.0	90°2'	+1.2	+11.2	1.419.3		BS	-20+3	+2070				
	2070				+11.2	-		+11.2			BS						
	-0-				5.4	-		-5.4	1.413.9		X	0	0	444,290	1,808,750		
IF	1540				9.6	90°40'	-17.9	-27.5			TP	-3	+1540	444,287	1,810,290		
IF	1540		82°56'	+8.0°	10.5	90°38'	-17.0	-27.5	1.391.8		TP					444,300+1,810,285(s) Int. elev. 1392	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE							
6-15-79		W. Krol		R. Turner		6834		W. Krol		3	12							
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Eagle Bend, Clarissa		Minnesota	Todd		132 N	35 W / 34 W		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS
												LAT.	DEP.	Y	X			
										1.391.8								
	1274		354° 10.3' - 180	+8.0°	+5.1	-		+5.1	1.396.9		BS	-1273.7	-48					
	1274				+4.4	90° 2'	+0.7	+5.1			BS							
153	990		353° 52'	+8.0°	4.0	-		-4.0		1.392.9		+990	+38	444,007	1,810,280			
154	660		" "	"	10.8			-10.8		1.386.1		+660	+25	443,677	1,810,267			
155	330		" "	"	7.8			-7.8		1.389.1		+330	+13	443,347	1,810,255			
156	-0-				5.4			-5.4		1.391.5	X	0	0	443,017	1,810,242			
157	330		173° 42.7'	+8.0°	6.6			-6.6		1.390.3		-330	-10	442,687	1,810,232			
158	660		" "	"	14.5	BH	-3.3	-17.8		1.379.1		-660	-20	442,357	1,810,222			
159	990		" "	"	10.5	91°	-17.3	-27.8		1.369.1		-990	-30	442,027	1,810,212			
160	1320		" "	"	11.0	91°	-23.0	-34.0			TP	-1319.3	-39	441,701	1,810,203			
160	1320		173° 42.7'	+8.0°	10.4	91° 2'	-23.8	-34.2		1.362.7	TP							
	1980		353° 53.5' - 180	+8.0°	+0.5	91°	+34.6	+35.1	1.397.8		BS	-1979.3	-65					
	1980				+3.0	90° 56'	+32.3	+35.3			BS							
161	1904		354° 2.5'	+8.0°	1.5	91°	-33.2	-34.7		1.363.1		+1903	+68	441,628	1,810,206		441,650 + 1,810,205 (S) Geosource elev. 1362	
161	1650		353° 53.5'	+8.0°	4.9	91°	-28.8	-33.7		1.364.1		+1649	+54	441,374	1,810,192			
162	1320		" "	"	5.1			-5.1		1.392.7		+1319	+44	441,044	1,810,182			
163	990		" "	"	2.0			-2.0		1.395.8		+989	+33	440,714	1,810,171			
164	660		" "	"	14.8	BH	-3.3	-18.1		1.379.7		+660	+22	440,385	1,810,160			
165	330		" "	"	9.2			-9.2		1.388.6		+330	+11	440,055	1,810,149			
166	-0-				5.4			-5.4		1.392.4	X	0	0	439,725	1,810,138			

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6-15-79		W. Kral		R. Turner		6834		W. Kral		3	13						
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Eagle Bend, Clarissa		Minnesota	Todd	132 N/131 N	34W		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.397.8								
167	330				4.2	-		-4.2		1.393.6		-330	-10	439,395	1,810,128		
168	660				5.2	-		-5.2		1.392.6		-660	-20	439,065	1,810,118		
169	990				5.5	-		-5.5		1.392.3		-989	-30	438,736	1,810,108		
170	1320				5.8	-		-5.8		1.392.0		-1319	-39	438,406	1,810,099		
171	1650				8.0	-		-8.0			TP	-1649	-49	438,079	1,810,089		
171	1650		173°54.6'	+7.8	7.2	90°2'	-1.0	-8.2		1.389.6	TP						
	1980		353°47.3'-180°	+7.8	+1.1	-		+1.1	1.390.7		BS	-1979	-55				
	1980				+3.6	89°56'	-2.3	+1.3			BS						
172	1650		353°47.3'	+7.8	3.8			-3.8		1.386.9		+1650	+46	437,750	1,810,080		
173	1320		"		5.2			-5.2		1.385.5		+1320	+37	437,420	1,810,071		
174	990		"		6.3			-6.3		1.384.4		+990	+27	437,090	1,810,061		
175	660		"		6.4			-6.4		1.384.3		+660	+18	436,760	1,810,052		
176	330		"		4.0			-4.0		1.386.7		+330	+9	436,430	1,810,043		
176	249		353°11.7'	+7.8	1.8			-1.8		1.388.9		+249	+4	436,349	1,810,038	436,335+1,810,035(6) 4-way int elev, 1386	
177	0				5.4			-5.4		1.385.3	TP	0	0	436,100	1,810,034		
178	330				6.3			-6.3		1.384.4		-330	+4	435,770	1,810,038		
179	660				5.8			-5.8		1.384.9		-660	+7	435,440	1,810,041		
180	990				5.0			-5.0		1.385.7		-990	+11	435,110	1,810,045		
181	1320				1.6			-1.6		1.389.1		-1320	+15	434,780	1,810,049		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN			ROD MAN			PARTY NUMBER		NOTES CHECKED BY			LINE NO.	PAGE	
6-15-79		W. Keol			R. Turner			6834		W. Keol			5	14	
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		Castle Bend, Clarissa		Minnesota	Todd		131N	34W		J.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1390.7						
182	1650		351°36.6'	+7.8°	3.8	TH	+8.3	+4.5		1.395.2		-1650	+18	434.450	1.810.052
183	1980		"	"	7.2	89°30'	+17.3	+10.1		1.400.8	TP	-1980	+22	434.125	1.810.056
183	1980		171°34'	+7.8°	8.3	89°28'	+18.4	+10.1			TP				
	1320		351°36.6'-180°	+7.8°	+12.0	BH	+6.6	+18.6	1.419.4		BS	-1320	+14		
	1320				+10.9	90°20'	+7.7	+18.6			BS				
184	990		351°36.6'	+7.8°	12.8	BH	-5.0	-17.8		1.401.6		+990	-10	433.800	1.810.060
185	660		"	"	9.8			-9.8		1.409.6		+660	-7	433.470	1.810.063
186	330		"	"	7.1			-7.1		1.412.3		+330	-3	433.140	1.810.067
187	-0-				5.4			-5.4		1.414.0	TP	0	0	432.810	1.810.070
188	330		171°29.7'	+7.8°	9.0			-9.0		1.410.4		-330	+4	432.480	1.810.074
189	660		"	"	13.1	BH	-3.3	-16.4		1.403.0		-660	+8	432.150	1.810.078
190	990		"	"	4.2	91°	-17.3	-21.5		1.397.9		-990	+12	431.820	1.810.082
191	1320		"	"	12.6	90°30'	-11.5	-24.1		1.395.3		-1320	+16	431.490	1.810.086
192	1650		"	"	11.5	90°30'	-14.4	-25.9		1.393.5		-1650	+20	431.160	1.810.090
192	1880		171°12.1'	+7.8°	10.1	90°30'	-16.4	-26.5		1.392.9	TP	-1880	+33	430.930	1.810.103
193	1980				10.4	90°30'	-17.3	-27.7			TP	-1980	+24	430.830	1.810.094
193	1980		171°29.7'	+7.8°	11.3	90°28'	-16.1	-27.4	(-27.6)	1.391.8	TP				
	2310		353°0.1'-180°	+7.8°	+2.0	-		+2.0	1.393.8		BS	-2310	-32		
	2310				+13.6	TH	-11.6	+2.0			BS				
194	1980		353°0.1'		+1.8	-		-1.8		1.392.0		+1980	+28	430.500	1.810.090

430,930 + 1,810,105 (3)
 Int. elev. 1393'
 horiz. correct. y = +3'
 x = 0'

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
6/17/79		G. Cotcamp		R. Turner		6237		7/1/79		7		15			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Eagle Bend/Clarissa		Minnesota		Todd		131N		34W				L. J. F. ...	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1.393.8						
195	1650		353°0.1'	+7.8°	1.6	-		-1.6		1.392.2		+1650	+23	430.170	1.810.085
196	1320		" "	"	1.8	-		-1.8		1.392.0		+1320	+18	429.840	1.810.080
197	990		" "	"	3.0	-		-3.0		1.390.8		+990	+14	429.510	1.810.076
198	660		" "	"	3.9	-		-3.9		1.389.9		+660	+9	429.180	1.810.071
199	330		" "	"	4.6	-		-4.6		1.389.2		+330	+5	428.850	1.810.067
200	0				5.4	-		-5.4		1.388.4	TP	0	0	428.520	1.810.062
201	330		173°23.1'	+7.8°	4.9	-		-4.9		1.388.9		-330	-5	428.190	1.810.057
202	660		" "	"	3.5	-		-3.5		1.390.3		-660	-10	427.860	1.810.052
203	990		" "	"	4.0	TH	+5.0	+1.0		1.394.8		-990	-16	427.530	1.810.046
204	1320		" "	"	8.1	89°20'	+15.4	+7.3		1.401.1		-1320	-21	427.200	1.810.041
205	1650		" "	"	9.0	89°25'	+19.2	+10.2		1.404.0		-1650	-26	426.870	1.810.036
206	1980		" "	"	11.1	89°20'	+23.0	+11.9		1.405.7		-1980	-31	426.540	1.810.031
207	2310		173°4.1'	+7.8°	8.8	89°30'	+20.2	+11.4			TP	-2310	-36	426.210	1.810.026
207	2310		" "	"	6.2	89°29'	+17.5	+11.3			TP				
	2310		253°59.3' 170°	+7.8°	14.1	89°20'	-25.5	-11.4	1.393.7		BS	-2309	-69		
	2310		" "	"	12.8	89°29'	-24.2	-11.4			BS				
208	2700		354°54.7'	+7.8°	1.5	89°30'	+17.3	+9.8		1.403.5		+1979	+59	425.880	1.810.016
209	1725		354°15.5'	+7.8°	4.1	89°35'	+15.1	+8.5		1.402.2		+1724	+62	425.625	1.810.019
210	1320		353°44.5'	+7.8°	7.0	89°30'	+14.4	+7.4		1.401.1		+1649	+49	425.550	1.810.006
211	1320		" "	"	5.6	89°30'	+11.5	+6.0		1.399.7		+1319	+39	425.220	1.809.996

425,520 + 1,810,000(s)
 1.810,000 elev. 1402

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN			ROD MAN			PARTY NUMBER		NOTES CHECKED BY			LINE NO.		PAGE		
7/17/09		S. Johnson			L. Johnson			531		R. Turner			5		15		
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER			
75000000		Eagle Ford/Clausasa		Minnesota		Todd		131N		34W				L.O. Davis			
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.3937								
211	790		353° 54.3'	+7.8°	2.7	89° 30'	+8.6	+5.9		1,399.6		+990	+29	424,891	1,809,986		
212	660		"	"	1.8	89° 30'	+5.8	+4.0		1,397.7		+660	+20	424,561	1,809,977		
213	330		"	"	0.7	89° 30'	+2.9	+2.2		1,395.9		+330	+10	424,231	1,809,967		
214	0		"	"	5.9	-	-	-5.4		1,388.3		0	0	423,901	1,809,957		
215	830		174° 3.3'	+7.8°	11.7	91° -	-5.8	-17.5		1,376.2		-330	-11	423,571	1,809,946		
216	660		"	"	9.5	92° -	-23.0	-32.5		1,361.2		-660	-21	423,241	1,809,936		
217	790		"	"	3.9	92° -	-34.5	-38.4		1,355.3		-989	-32	422,912	1,809,925		
218	1900		"	"	10.8	91° 30'	-26.9	-39.7		1,354.0		-1319	-43	422,582	1,809,914		
219	1650		"	"	6.8	91° 30'	-33.6	-40.4		1,353.3		-1649	-53	422,252	1,809,904		
220	1320		"	"	5.9	91° -	-34.6	-40.5		1,353.2		-1979	-64	421,921	1,809,893		
#	2215		173° 52.2'	+7.8°	2.9	91° -	-38.7	-41.6		1,352.1		-2214	-65	421,687	1,809,892	4-way Intersect @ 1352	
#	2300		173° 52.6'	+7.8°	3.3	91° -	-40.1	-43.4		1,350.3		-2299	-67	421,602	1,809,890		
221	2310		174° 3.3'	+7.8°	14.2	90° 44'	-29.6	-43.8			TP	-2309	-75	421,542	1,809,882		
221	2310				3.4	91° -	-40.3	-43.7		1,350.0							
	2310		353° 58.2'-180°	+7.8°	+1.1	91° -	+40.3	+41.4			BS	-2309	-71				
	2310				+14.6	90° 40'	+26.9	+41.5	1.3915		BS						
222	1980		353° 58.2'	+7.8°	10.0	91° -	-34.6	-44.6		1,346.9		+1979	+61	421,262	1,809,872		
223	1650		"	"	12.9	91° 10'	-33.6	-46.0		1,345.5		+1649	+51	420,932	1,809,862		
224	1320		"	"	14.0	91° 10'	-26.9	-40.9		1,350.6		+1319	+41	420,602	1,809,852		
#	1083		354° 14'	+7.8°	7.5	91° -	-18.9	-26.4		1,365.1		+1082	+38	420,365	1,809,849	420,350 + 1,809,840(s) 4-way Intersect. (R1# 71)	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
6/17/79		G. Cotkamp		R. Turner		5874		R. Turner		5	17				
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		Eagle Bend/Clarissa		Minnesota	Todd.		131N	34W		L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1391.5						
225	990		353° 58.2'	+78°	8.9	91°	-17.3	-26.2		1,365.3		+990	+31	420,273	1,809,842
226	660		"	"	13.2	91° 0'	-13.4	-26.6		1,364.9		+660	+20	419,943	1,809,831
227	330		"	"	9.1	-		-9.1		1,382.4		+330	+10	419,613	1,809,821
228	0		"	"	5.4	-		-5.4		1,386.1	π	0	0	419,283	1,809,811
229	330		173° 42.3'	+78°	6.8	-		-6.8		1,384.7		-330	-9	418,953	1,809,802
230	660		"	"	10.2	-		-10.2		1,381.3		-660	-17	418,623	1,809,794
231	990		"	"	9.8	-		-9.8		1,381.7		-990	-26	418,293	1,809,785
232	1320		"	"	11.8	-		-11.8		1,379.7		-1319	-35	417,964	1,809,776
233	1650		"	"	12.7	-		-12.7		1,378.8		-1649	-43	417,634	1,809,768
234	1980		"	"	8.2	-		-8.2		1,383.3		-1979	-52	417,304	1,809,759
235	2310		173° 42.3'	+78°	4.8	-		-4.8	(-4.9)	1,386.6	TP	-2309	-61	416,974	1,809,750
235	2310		"	"	14.4	89° 46'	+9.4	-5.0			TP				
	1650		353° 46.7'-160°	+78°	+13.6	90° 26'	+12.5	+26.1	1,412.7		BS	-1649	-45		
	1650		"	"	+14.6	90° 24'	+11.5	+26.1			BS				
236	1320		353° 46.7'	+78°	14.1	90° 20'	-7.7	-21.8		1,390.9		+1319	+36	416,644	1,809,741
BM	1080		355° 56.5'	+78°	11.9	90° 30'	-9.4	-21.3		1,391.4		+1078	+70	416,403	1,809,775
IF	1035		354° 8.3'	+78°	12.2	8H	-5.2	-17.4		1,395.3		+1034	+35	416,359	1,809,740
237	990		353° 46.7'	+78°	12.0	8H	-5.0	-17.0		1,395.7		+990	+27	416,315	1,809,732
238	660		"	"	11.5	-		-11.5		1,401.2		+660	+18	415,985	1,809,723
239	330		"	"	7.5	-		-7.5		1,405.2		+330	+9	415,655	1,809,714

USGS BM
101 DRL 1965 elev. 1391.4
416,345 + 1,809,740(s)
T-rd (east)

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
6/17/79		G. Cotcamp		R. Turner		6834		R. Turner		3	18				
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		Eagle Bend/Clarissa		Minnesota	Todd		131N	34W		L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1.412.7						
240	0				5.4	-		-5.4		1407.3	TP	0	0	415.325	1.809.705
241	330		173°51.8'	+7.8°	7.3	-		-7.3		1405.4		-330	-10	414.995	1.809.695
242	660		"	"	13.9	-		-13.9		1398.8		-660	-19	414.665	1.809.686
243	990		"	"	12.4	BH	-5.0	-17.4		1395.3		-990	-29	414.335	1.809.676
244	1320		"	"	13.1	BH	-6.6	-19.7		1393.0		-1319	-38	414.006	1.809.667
245	1650		173°51.8'	+7.8°	11.3	BH	-8.3	-19.6		1,393.1	TP	-1699	-48	413.676	1.809.657
245	1650				14.7	90°10'	-4.8	-19.5			TP				
	660		353°28.7'-180°	+7.8°	+5.3	-		+5.3	1.398.4		BS	-660	-15		
	660				+8.6	TH	-3.3	+5.3			BS				
246	330		353°28.7'	+7.8°	3.9	-		-3.9		1,394.5		+330	+7	413.346	1.809.649
247	0				5.4	-		-5.4		1,393.0	TP	0	0	413.016	1.809.642
248	330		174°3.5'	+7.8°	10.3	-		-10.3		1,388.1		-330	-11	412.686	1.809.631
<u>TL</u>	630		173°23.6'	+7.8°	12.7	-		-12.7		1,385.7	TP	-630	-13	412.386	1.809.629
<u>TL</u>	630				9.5	BH	-3.2	-12.7			TP				
	1330		82°58.6'+180°	+7.8°	+5.5	-		+5.5			BS	+18	-1330		2635' offset west
	1330				+12.1	TH	-6.7	+5.4	1.391.1		BS				
TP	0				5.4	-		-5.4		1,385.7	TP	0	0	412.404	1.808.299
TP	1305		262°21.4'	+7.8°	8.7	88°30'	+34.2	+25.5		1.416.6	TP	+4	-1305	412.408	1.806.994
TP	1305				12.4	88°20'	+37.9	+25.5			TP				

412,395 + 1,809,630(s)
T-intersect. elev. 1385

412,415 + 1,809,000(s)
T-intersect.

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
6/17/79		G. Cotcamp		R. Turner		6834		R. Turner		3	19					
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		Eagle Bend/Clotho		Minnesota	Todd	131N	34W		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
TP										1.416.6					Intersect.	
	1350		353°16'180"	+7.8°	+14.0	89°4'	-22.0	-8.0	1.408.6		BS	-1350	-25			
	1350				+12.5	89°8'	-20.4	-7.9			BS					
Δ	1380		353°34'	+7.8°	11.9	89°14'	+18.5	+6.6		1,415.2		+1380	+21	412,438	1,806,990	ET3 WES 1965 BM. elev. 1415'
249	1320		352°53'	+7.8°	6.3	89°20'	+15.4	+9.1		1,417.7		+1320	+16	412,378	1,806,985	
250	990		" "	"	1.9	89°20'	+11.5	+9.6		1,418.2		+990	+12	412,048	1,806,981	
251	660		" "	"	2.2	89°20'	+7.7	+5.5		1,414.1		+660	+8	411,718	1,806,977	
252	330		" "	"	1.7	TH	+1.7	±0.0		1,408.6		+330	+4	411,388	1,806,973	Eagle Bend
253	0		" "	"	5.4	-		-5.4		1,403.2	TP	0	0	411,058	1,806,969	Clotho Quad.
254	330		172°52.9'	+7.8°	8.2	-		-8.2		1,400.4		-330	-4	410,728	1,806,965	
255	660		" "	"	9.0	-		-9.0		1,399.6		-660	-8	410,398	1,806,961	
256	990		" "	"	7.3	-		-7.3		1,401.3		-990	-12	410,068	1,806,957	
257	1320		" "	"	3.2	-		-3.2		1,405.4		-1320	-16	409,738	1,806,953	
258	1650		172°52.8'	+7.8°	0.8	-		-0.8		1.407.8	TP	-1650	-20	409,408	1,806,949	
258	1650		" "	"	9.1	TH	+8.3	-0.8			TP					
	1980		352°31' -180	+7.8°	+7.9	89°30'	-17.3	-9.4	1.398.4		BS	-1980	-11			
	1980		" "	"	+9.1	89°26'	-18.4	-9.3				BS				
259	1650		352°31'	+7.8°	5.1	89°30'	+14.4	+9.3		1.407.7		+1650	+9	409,078	1,806,947	
260	1320		" "	"	5.0	89°30'	+11.5	+6.5		1.404.9		+1320	+7	408,748	1,806,945	
261	990		" "	"	5.9	89°30'	+8.6	+2.7		1.401.1		+990	+5	408,418	1,806,943	
262	660		" "	"	6.6	89°30'	+5.8	-0.8		1.397.6		+660	+4	408,088	1,806,942	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE					
6-18-79		W. Krol		R. Turner		6834		R. Turner		3		20					
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER			
Minnesota		Clotho		Minnesota		Todd		13N/130N		34W				2.0. Davis			
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH - LAT.	EAST + WEST - DEP.	COORDINATES		REMARKS	
														Y	X		
									1.398.4								
263	330		352°31'	+7.8°	6.2	89°30'	+2.9	-3.3		1.395.1		+330	+2	407,758	1,806,990		
264	-0-				5.4	-		-5.4		1.393.0	X	0	0	407,428	1,806,938		
265	330		172°12.3'	+7.8°	7.8	89°30'	+2.9	-4.9		1.393.5		-330	0	407,098	1,806,938		
266	660		" "	"	9.1	89°30'	+5.8	-3.3		1.395.1		-660	0	406,768	1,806,938		
267	990		" "	"	9.0	89°30'	+8.6	-0.4		1.398.0		-990	0	406,438	1,806,938		
268	1320		" "	"	6.8	89°30'	+11.5	+4.7		1.403.1		-1320	0	406,108	1,806,938		
269	1650		" "	"	8.5	89°30'	+14.4	+5.9	(+5.8)	1.404.2	TP	-1650	0	405,778	1,806,938		
269	1650		172°12.3'	+7.8°	7.7	89°32'	+13.4	+5.7			TP						
	660		352°10.28'±180	+7.8°	+0.6	TH	-3.3	-2.7	1.401.5		BS	-660	±0				
	660				+3.1	89°30'	-5.8	-2.7			BS						
270	330		352°10.28	+7.8°	4.5	89°36'	+2.9	-1.6		1.399.9		+330	0	405,448	1,806,938		
271	-0-				5.4	-		-5.4		1.396.1	X	0	0	405,118	1,806,938		
272	330		172°0.5'	+7.8°	5.8	-		-5.8		1.395.7		-330	+1	404,788	1,806,939		
273	660		172°0.5'	+7.8°	5.1	-		-5.1		1.396.4		-660	+2	404,458	1,806,940		
IF	668				5.0	-		-5.0		1.396.5	TP	-668	+11	404,450	1,806,999		404,445+1,806,975(s) road
IF	668		171°13.7'	+7.8°	4.6	90°2'	-0.4	-5.0			TP						Note:
	1610		82°2.9'±180	+7.8°	+9.0	-		+9.0	1.405.5		BS	-4	-1610-3				2,518'(stada) offset
	1610				+8.1	90°2'	+0.9	+9.0			BS						west between 273-74.
	-0-				5.4			-5.4		1.400.1	X	0	0	404,446	1,805,336		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE								
6-18-79		W. Krof		R. Turner		6834		R. Turner		3	21								
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER									
Minnesota		Clotho		Minnesota	Todd		131N/130N	35W/34W		J.O. Davis									
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
									1.405.5										
TP	908		263°37.3'	+7.8°	14.6	89°2'	+15.3	+0.7		1.406.2	TP	+23	-908.3	409,469	1,804,425			409,465 + 1,804,420 (s) (int. 1405' elev.)	
TP	908				14.0	89°4'	+14.8	+0.8			TP								
	2610		353°11.95'-180	+7.8°	+8.4	TH	-13.1	-4.7	1.401.5		BS	-2610	-46-1						
	2610				+3.0	89°50'	-7.6	-4.6			BS								
274	2310		353°5.5'	+7.8°	±0.0	-		±0		1.401.5		+2310	+36	404,169	1,804,414				
275	1980		" "	"	2.5	-		-2.5		1.399.0		+1980	+31	403,839	1,804,409				
276	1650		" "	"	4.8	-		-4.8		1.396.7		+1650	+26	403,509	1,804,404				
277	1320		" "	"	5.1	-		-5.1		1.396.4		+1320	+21	403,179	1,804,399				
278	990		" "	"	5.2	-		-5.2		1.396.3		+990	+15	402,849	1,804,393				
279	660		" "	"	5.4	-		-5.4		1.396.1		+660	+10	402,519	1,804,388				
280	330		" "	"	5.1	-		-5.1		1.396.4		+330	+5	402,189	1,804,383				
281	-0-		" "	"	5.4	-		-5.4		1.396.1	X	0	0	401,859	1,804,378				
282	330		173°4.3'	+7.8°	4.0	-		-4.0		1.397.5		-330	-5	401,529	1,804,373				
283	660		" "	"	3.0	-		-3.0		1.398.5		-660	-10	401,199	1,804,368				
284	990		" "	"	5.1	-		-5.1		1.396.4		-990	-15	400,869	1,804,363				
285	1320		" "	"	7.5	-		-7.5		1.394.0		-1320	-20	400,539	1,804,358				
286	1650		" "	"	8.0	-		-8.0		1.393.5		-1650	-25	400,209	1,804,353				
287	1980		" "	"	10.8	-		-10.8		1.390.7		-1980	-30	399,879	1,804,348				
288	2310		" "	"	11.2	-		-11.2		1.390.3		-2310	-35	399,549	1,804,343				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
6-18-79		W. Krol		R. Turner		6834		R. Turner		3	22				
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER				
Minnesota		Clotho		Minnesota		Todd		130 N	35 W / 34 W		D. D. Davis				
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1.401.5						
289	2640				9.6	-		-9.6		1.391.9	TP	-2640	-40.	399,219	1,804,338
289	2640		173° 4.3'	+7.8°	12.7	89° 56'	+3.1	-9.6			TP				
	1650		353° 10.9' - 180°	+7.8°	+3.4	-		+3.4	(+3.5)		BS	-1650	-28.		
	1650		"		+2.6	90° 2'	+1.0	+3.6	1.395.4		BS				
-11-	1622		353° 26.3'	+7.8°	2.6	-		-2.6		1.392.8		+1622	+35	399,191	1,804,341 fence line - elev. 1392
290	1320		353° 10.9'	+7.8°	1.8	-		-1.8		1.393.6		+1320	+23	398,889	1,804,333
291	990		"	"	2.0	-		-2.0		1.393.4		+990	+17	398,559	1,804,327
292	660		"	"	2.0	-		-2.0		1.393.4		+660	+11	398,229	1,804,321
293	330		353° 10.9'	+7.8°	3.6	-		-3.6		1.391.8		+330	+6	397,899	1,804,316
294	-0-				5.4	-		-5.4		1.390.0	π	0	0	397,569	1,804,310
295	330		173° 7.6'	+7.8°	6.0	-		-6.0		1.389.4		-330	-5	397,239	1,804,305
296	660		"	"	6.6	-		-6.6		1.388.8		-660	-11	396,909	1,804,299
297	990		"	"	5.3	-		-5.3		1.390.1		-990	-16	396,579	1,804,294
298	1320		"	"	1.0	-		-1.0		1.394.4		-1320	-21	396,249	1,804,289
299	1650		"	"	5.2	TH	+8.3	+3.1		1.398.5		-1650	-27	395,919	1,804,283
300	1980		"	"	4.2	TH	+9.9	+5.7			TP				
300	1980		173° 7.6'	+7.8°	5.9	89° 40'	+11.5	+5.6		1.401.0	TP	-1980-2	-32	395,587	1,804,278
	1980		352° 57.9' - 180°	+7.8°	+1.9	TH	-9.9	-8.0	(-8.1)		BS	-1980-2	-26.		
	1980				+9.1	89° 30'	-17.3	-8.2		1.392.9	BS				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6-18-79		W. Krol		R. Turner		6834		R. Turner			23						
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Clotho		Minnesota		Todd		130N	35W/34W		d O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.392.9								
301	1650		352°57.9'	+7.8°	6.5	89°30'	+14.4	+7.9		1.400.8		+1650	+22	395,255	1.804,274		
302	1320		"	"	7.8	89°30'	+11.5	+3.7		1.396.6		+1320	+18	394,925	1.804,270		
303	990		"	"	9.5	89°30'	+8.6	-0.9		1.392.0		+990	+13	394,595	1.804,265		
304	660		"	"	3.3	-		-3.3		1.389.6		+660	+9	394,265	1.804,261		
305	330		352°57.9'	+7.8°	3.1	-		-3.1		1.389.8		+330	+4	393,935	1.804,256		
306	290		354°22.6'	+7.8°	2.5	-		-2.5		1.390.4		+290	+11	393,895	1.804,263	y=393,890 + 1,804,250(S) 4-way int.	
307	-0-				5.4	-		5.4		1.387.5	TP	0	0	393,605	1.804,252		
308	330		172°27.9'	7.8°	5.3	-		5.3		1.387.6		-330	-2	393,275	1.804,250		
309	660		"	"	5.3	-		5.3		1.387.6		-660	-3	329,945	1.804,249		
310	990		"	"	5.2	-		5.2		1.387.7		-990	-5	392,615	1.804,247		
311	1320		"	"	4.4	-		4.4		1.388.5		-1320	-6	392,285	1.804,246		
312	1650		"	"	3.0	-		3.0		1.389.9		-1650	-8	391,955	1.804,244		
313	1980		"	"	7.2	TH	+9.9	+2.7		1.395.6		-1980	-9	391,625	1.804,243		
313	2310		"	"	8.7	89°30'	+20.2	+11.5		1.404.4	TP	-2310-3	-11	391,292	1.804,241		
313	2310		172°27.9'	+7.8°	4.7	89°36'	+16.1	+11.4			TP						
	1980				+7.9	89°22'	-21.9	-14.0	1.390.2		BS	-1980-3	-22				
	1980		352°50.2'-180°	+7.8°	+8.7	89°20'	-23.0	-14.3	(-14.2)		BS						
314	1650		"	"	0.8	89°24'	+17.3	+16.5		1.406.7		+1650	+18	390,959	1.804,237		
315	1320		"	"	5.2	89°24'	+13.8	+8.6		1.398.8		+1320	+15	390,629	1.804,234		
316	990		352°50.2'	7.8°	2.1	TH	+5.0	+2.9		1.393.1		+990	+11	390,299	1.804,230		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
6-18-79		W. Kic. l		R. TURNER		6834		R. Turner		3	24				
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER				
Minnesota		CLOTHO		Minnesota		Todd		130 N.	35 W 34 W		L.O. DAVIS				
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1,390.2						
317	660		352°50.2'	7.8°	0.4	-		-0.4		1389.8		+660	+7	389,969	1,804,226
318	330		352°50.2'	7.8°	3.8	-		-3.8		1386.4		+330	+4	389,639	1,804,223
319	-0-	1			5.4	-		-5.4		1384.8	X	0	0	389,309	1,804,219
320	330		173°01'	8.0°	5.5	-		-5.5		1384.7		-330	-6	388,979	1,804,213
321	660		173°01'	8.0°	5.8	-		-5.8		1384.4		-660	-12	388,649	1,804,207
FF	742		172°19.6'	+7.8°	4.6	-		-4.6		1,385.6		-742	-2	388,567	1,804,217
322	990		173°10'	8.0°	5.8	-		-5.8		1384.4		-990	-18	388,319	1,804,201
323	1320		"	"	5.7	-		-5.7		1384.5		-1320	-23	387,989	1,804,196
324	1650		"	"	4.2	-		-4.2		1386.0		-1650	-29	387,659	1,804,190
325	1980		"	"	2.6	-		-2.6		1,387.6	TP	-1980-2	-35	387,327	1,804,184
325	1980		173°01'	+8.0°	8.4	89°50'	5.8	-2.6			TP				
	1980		352°53.3'-180°	+8.0°	+6.8	-		+6.8	1,394.4		BS	-1980-2	-29		
	1980				+5.7	90°2'	+1.1	+6.8			BS				
326	1650		352°53.3'	+8.0°	5.8	-		-5.8		1388.6		+1650	+26	386,995	1,804,181
327	1320		"	"	9.7	-		-9.7		1384.7		+1320	+20	386,665	1,804,175
328	990		"	"	12.9	-		-12.9		1381.5		+990	+15	386,335	1,804,170
329	660		"	"	12.3	-		-12.3		1382.1		+660	+10	386,005	1,804,165
330	330		352°53.3'	+8.0°	8.7	-		-8.7		1385.7		+330	+5	385,675	1,804,160
331	-0-				5.4	-		-5.4		1389.0	X	0	0	385,345	1,804,155

Y=388,560+1,804,220(5)
4-way int. elev. 1385

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
6-18-79		W. Krol		R. Turner		6834		R. Turner		3		25			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
MINNESOTA		CLOTHO		Minnesota		TODD		130 N.		35 W 34 W				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1,394.4						
332	330		172°48.6'	+8.0°	6.3	-	-	-6.3		1,388.1		-330	-5	385,015	1,804,150
333	660		"	"	9.6	-	-	-9.6		1,384.8		-660	-9	384,685	1,804,146
334	990		"	"	9.4	BH	-5.0	-14.4		1,380.0		-990	-14	384,355	1,804,141
335	1320		"	"	11.5	BH	-6.6	-18.1		1,376.3		-1320	-19	384,025	1,804,136
336	1650		"	"	10.2	BH	-8.3	-18.5		1,375.9		-1650	-23	383,695	1,804,132
337	1980		"	"	9.6	BH	-9.9	-19.5		1,374.9		-1980	-28	383,365	1,804,127
337	2065		172°34'	+8.0°	12.2	90°12'	-7.2	-19.4		1,375.0		-2065	-20	383,280	1,804,135
338	2310		"	"	8.6	BH	-11.6	-20.2	(-20.1)	1,374.3	TP	-2310	-33	383,035	1,804,122
338	2310		172°48.6'	+8.0°	7.9	70°18'	-12.1	-20.0			TP				Horizontal Correction
	2640		"	"	+13.6	89°46'	-10.7	+2.9	1,377.2		BS	-2640	-22		y = -14 x = -7
	2640		352°29' - 180°	+8.0°	+10.5	89°50'	-7.7	+2.8			BS				
339	2310		352°29'	+8.0°	2.7	-	-	-2.7		1,374.5		+2310	+19	382,705	1,804,119
340	1980		"	"	2.2	-	-	-2.2		1,375.0		+1980	+17	382,375	1,804,117
341	1650		"	"	2.6	-	-	-2.6		1,374.6		+1650	+14	382,045	1,804,114
342	1320		"	"	2.3	-	-	-2.3		1,374.9		+1320	+11	381,715	1,804,111
343	990		"	"	1.0	-	-	-1.0		1,376.2		+990	+8	381,385	1,804,108
344	660		"	"	0.7	-	-	-0.7		1,376.5		+660	+6	381,055	1,804,106
345	330		"	"	2.1	-	-	-2.1		1,375.1		+330	+3	380,725	1,804,103
346	0		"	"	5.4	-	-	-5.4		1,371.8	X	0	0	380,395	1,804,100
347	330		172°22.8'	"	9.8	-	-	-9.8		1,367.4		-330	-3	380,065	1,804,097

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6/22/79		G. Cotcamp		R. Turner		6834		R. Turner		3	26						
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER					
Minnesota		Clotho		Minnesota		Todd		130 N.		35 W / 34 W		L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1.377.2								
348	660		172° 27.8'	+8.0°	12.9	-		-12.9		1.364.3		-660	-5	379.735	1.804.095		
349	990		" "		9.8	-		-9.8		1.367.4		-990	-8	379.405	1.804.092		
350	1320		" "		12.8	-		-12.8		1.364.4		-1320	-11	379.075	1.804.089		
351	1650		" "		11.9	-		-11.9		1.363.3		-1650	-13	378.745	1.804.087		
352	1980		" "		2.0	-		-2.0		1.375.2		-1980	-16	378.415	1.804.084		
353	2310		" "		4.5	89° 50'	+6.7	+2.2		1.379.4		-2310	-19	378.085	1.804.081	y = 378,000 + 1.804,080(x)	
---/---	2400		172° 20.5'	+8.0°	4.8	89° 50'	+7.0	+2.2		1.379.4		-2400	-14	377.995	1.804.086	E-W fence line el +0.882'	
354	2640		172° 27.8'	+8.2°	7.1	89° 50'	+7.7	+0.6		1.377.8	TP	-2640	-31	377.755	1.804.069		
354	2640				5.7	89° 52'	+6.2	+0.5			TP						
	1320		352° 37.6' - 180°	+8.2°	5.9	TH	-6.6	-0.7	1.377.1		BS	-1320	-19				
	1320				6.2	89° 42'	-6.9	-0.7			BS						
355	990		352° 37.6'	+8.2°	3.3	-		-3.3		1.373.8		+990	+14	377.425	1.804.064		
356	660		" "		5.1	-		-5.1		1.372.0		+660	+10	377.095	1.804.060		
357	330		" "		6.9	-		-6.9		1.370.2		+330	+5	376.765	1.804.055		
358	0				5.4	-		-5.4		1.371.7	X	0	0	376.435	1.804.050		
359	330		172° 46'	+8.2°	10.7	91° -	-5.8	-16.5		1.360.6		-330	-6	376.105	1.804.044		
360	660		" "		12.4	91° -	-11.5	-23.9		1.353.2		-660	-11	375.775	1.804.039		
361	990		" "		12.0	91° -	-17.3	-29.3		1.347.8		-990	-17	375.445	1.804.033		
362	1320		172° 46'	+8.2°	10.3	91° -	-23.0	-33.3		1.343.8	TP	-1320	-22	375.115	1.804.028		
362	1320				5.7	91° 12'	-27.6	-33.3			TP						

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE								
6/22/79		G. Cotcamp		R. Turner		6834		R. Turner		3	27								
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER										
Minnesota		Clotho		Minnesota	Todd	130N/129W	35W/134W		L.O. Davis										
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
362										1.343.8									
	1320		352°38.5'-180°	+82°	+4.6	89°-	-23.0	-18.4	1.325.4		BS	-1320	-19						
	1320				+0.8	89°10'	-19.2	-18.4			BS								
363	990		352°38.5'	+82°	1.9	TH	+5.0	+3.1		1.328.5		+990	+15	375.785	1.804.024			= 374,800 + 1.804,040 (s)	
	990		353°26'	+82°	1.5	TH	+5.0	+3.5		1.328.9		+990	+28	374.785	1.804.037			Todd (cont) elev. 1331'	
364	660		352°38.5'	+82°	0.5	-		-0.5		1.324.9		+660	+10	374.455	1.804.119				
365	330		" "		3.3	-		-3.3		1.322.1		+330	+5	374.125	1.804.014			last sta. on road	
366	0				5.4	-		-5.4		1.320.0	TP	0	0	373.795	1.804.009			in field	
367	330		172°29'	+82°	11.9	-		-11.9		1.313.5		-330	-4	373.465	1.804.005				
368	660		" "		12.4	-		-12.4		1.313.0		-660	-8	373.135	1.804.001			swamp	
369	990		" "		12.6	-		-12.6		1.312.8		-990	-12	372.805	1.803.997			north edge of river	
370	1310		170°38.6'	+82°	10.5	-		-10.5		1.314.9	TP	-1310	+26	372.487	1.804.035			swamp	
370	1310				14.4	89°30'	+3.8	-10.6			TP								
	2310		353°56.8'-160°	+82°	+14.4	90°52'	+34.9	+49.3	1.364.2		BS	-2308.3	-86						
	2310				+13.0	90°54'	+36.3	+49.3			BS								
371	1980		354°6'	+82°	11.6	91°-	-34.6	-46.2		1.318.0		+1978	+80	372.160	1.804.029			in field	
372	1650		353°12'	+82°	11.7	91°-	-28.8	-40.5		1.323.7		+1650	+40	371.832	1.803.989				
373	1320		" "		11.4	91°20'	-30.7	-42.1		1.322.1		+1320	+32	371.502	1.803.981				
374	990		" "		12.3	91°30'	-25.9	-38.2		1.326.0		+990	+24	371.172	1.803.973				
375	660		" "		14.4	91°30'	-17.3	-31.7		1.332.5		+660	+16	370.842	1.803.965				
376	330		" "		14.8	91°30'	-8.6	-23.4		1.340.8		+330	+8	370.512	1.803.957			↓	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE								
6/22/79		G. Cutcamp		R. Turner		6837		R. Turner		3	28								
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER									
Minnesota		Clothier Lake		Minnesota	Todd		129 N	35W/34W		L.O. Davis									
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
									1.364.2										
377	0				54	-		-5.4		1.358.8	TP	0	0	370,182	1803,949	y=370,190+1803,935(s)			
TP	12		189°10'	+8.2°	4.8	-		-4.8		1.359.4		-11	-4	370,171	1803,945	T-intersect			
378	330		170°51'	+8.2°	2.3	89°20'	+3.8	+1.5		1.365.7		-330	+5	369,852	1803,954	dirt road			
379	660		"		9.2	89°20'	+7.7	-1.5		1.362.7		-660	+11	369,522	1803,960	unable to locate BM			
380	990		170°51'	+8.2°	13.9	89°19'	+13.3	-0.6		1.363.6	TP	-990+3	+16	369,195	1803,965				
380	990				14.9	89°12'	+13.8	-0.5			TP							W	
	2310		353°1.8' -180°	+8.2°	+13.9	-		+13.9			BS	-2309+3	-50+2						
	2310				+2.4	84	+11.6	+14.0	1.377.6		BS								
381	1980		353°1.8'	+8.2°	12.1	-		-12.1		1.365.5		+1980	+43	368,869	1803,960				
382	1650		"		10.8	-		-10.8		1.366.8		+1650	+35	368,539	1803,952				
383	1320		"		12.9	-		-12.9		1.364.7		+1320	+28	368,209	1803,945				
384	990		"		10.1	84	+5.0	-15.1		1.362.5		+990	+21	367,879	1803,938				
385	660		"		9.3	-		-9.3		1.368.3		+660	+14	367,549	1803,931	y=367,440+1803,935(s)			
--- ---	508		353°44'	+8.2°	5.6	-		-5.6		1.372.0		+508	+17	367,397	1803,934	fence line . elev. 1373'			
386	330		353°1.8'	+8.2°	4.8	-		-4.8		1.372.8		+330	+7	367,219	1803,924				
387	0				54	-		-5.4		1.372.2	TP	0	0	366,889	1803,917				
388	330				8.6	-		-8.6		1.369.0		-330	-10	366,559	1803,907				
389	660				5.2	-		-5.2		1.372.4		-660	-20	366,229	1803,897				
390	990				7.8	-		-7.8		1.369.8		-990	-30	365,899	1803,887				
391	1320		173°33.6'	+8.2°	10.4	-		-10.4		1.367.2		-1319	-41	365,570	1803,876				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE			
6/22/79		G. Cotcamp		R. Turner		6834		R. Turner		3	29			
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER				
Minnesota		Lake Osakis East		Minnesota	Todd		129N	350/34W		L.O. Davis				
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1,377.6					
392	1650		173°33.6'	+8.2°	9.1	-		-9.1		1,368.5		-1649	-51	365,240 1,803,866
393	1980		" "		7.8	-		-7.8		1,369.8		-1979	-61	364,910 1,803,856
394	2310		173°33.6'	+8.2°	6.2	-		-6.2		1,371.3	TP	-2309	-71+2	364,580 1,803,848
394	2310				14.5	89°48'	+8.1	-6.4			TP			
	1650		352°8.3'-180°	+8.2°	+11.3	-		+11.3			BS	-1650	-10+2	
	1650				+3.1	8H	+8.3	+11.4	1,382.7		BS			
395	1320		352°8.3'	+8.2°	7.9	-		-8.9		1,373.8		+1320	+8	364,250 1,803,848
396	990		" "		8.0	-		-8.0		1,374.7		+990	+6	363,920 1,803,846
397	660		" "		7.2	-		-7.2		1,375.5		+660	+4	363,590 1,803,844
71	515		352°57.6'	+8.2°	6.0	-		-6.0		1,376.7		+515	+10	363,445 1,803,850 T-rd (west) dr. 1378
398	330		352°8.3'		4.3	-		-4.3		1,378.4		+330	+2	363,260 1,803,842 Horizontal correction
399	0				54	-		-5.4		1,377.3	TP	0	0	362,930 1,803,840 y=+11 x=+6
400	330		172°26'	+8.2°	6.8			-6.8		1,375.9		-330	-4	362,600 1,803,836
401	660		" "		3.4			-3.4		1,379.3		-660	-7	362,270 1,803,833
402	990		" "		9.2			-9.2		1,373.5		-990	-11	361,940 1,803,829
403	1320		172°26'	+8.0°	13.7	90°4'	-1.5	-15.2		1,367.5	TP	-1320+2	-10	361,612 1,803,830
403	1320				12.9	90°6'	-2.3	-15.2			TP			
	2310		352°31.3'-180°	+8.0°	+9.7	-		+9.7	1,377.2		BS	-2310+2	-21	
	2310				+8.5	90°2'	+1.3	+9.8			BS			

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE							
6-24-79		W. Kiol		D. Turner		6834		R. Turner		3		30							
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER					
Minnesota		Lake Osakis East		Minnesota		Todd		129N		35W/34W				L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
									1.3772										
404	1980		252°31.3'	+80°	9.8	-		-9.8		1.3674		+1980	+18	361.284	1.803.827				
405	1650		" "	"	10.1	-		-10.1		1.367.1		+1650	+15	360.954	1.803.824				
406	1320		" "	"	10.0	-		-10.0		1.367.2		+1320	+12	360.624	1.803.821				
407	990		" "	"	5.7	-		-5.7		1.371.5		+990	+9	360.294	1.803.818				
408	660		" "	"	5.0	-		-5.0		1.372.2		+660	+6	359.964	1.803.815				
409	330		352°31.3'	+80°	5.8	-		-5.8		1.371.4		+330	+3	359.634	1.803.812				
410	0-				5.4	-		-5.4		1.371.8	TP	0	0	359.304	1.803.809				
411	330		172°46.3'	+80°	7.8	-		-7.8		1.369.4		-330	-4	358.974	1.803.805				
412	660		" "	"	11.7	-		-11.7		1.365.5		-660	-9	358.644	1.803.800				
413	990		" "	"	13.3	-		-13.3		1.363.9		-990	-13	358.314	1.803.796				
414	1320		" "	"	13.6	-		-13.6		1.363.6		-1320	-18	357.984	1.803.791				
415	1650		" "	"	6.0	BH	-8.3	-14.3		1.362.9		-1650	-22	357.654	1.803.787				
416	1980		" "	"	4.7	BH	-9.9	-14.6		1.362.6		-1980	-27	357.324	1.803.782				
417	2310		172°46.3'	+80°	13.8	-		-13.8		1.363.4	TP	-2310+2	-31	356.996	1.803.778				
417	2310				-12.5	90°2'	-13	-13.8			TP								
	2970		352°50'-180°	+78°	+11.9	89°50'	-8.6	+3.3	1.366.7		BS	-2970+2	-33						
	2970				+13.7	89°48'	-10.4	+3.3			BS								
418	2775		353°3.6'	+78°	0.3	-		-0.3		1.366.4		+2774	+42	356.802	1.803.787				356.790 + 1.803.790(s) 4-way int. elev. 1364
418	2640		352°50'	+78°	1.8	-		-1.8		1.364.9		+2640	+29	356.668	1.803.774				
419	2310		" "	"	2.0	-		-2.0		1.364.7		+2310	+26	356.338	1.803.771				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
6-24-79		W. Kro		D. Turney		6834		R. Turney		3	31				
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER				
Minnesota		Lake Osakis East		Minnesota		Todd		129 N	35 W / 34 W		L.O. Davis				
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1.366.7						
420	1980		352°50'	+7.8°	5.0	-		-5.0		1.361.7		+1980	+22	356,008	1.803,767
421	1650		" "	"	6.1	-		-6.1		1.360.6		+1650	+18	355,678	1.803,763
422	1320		" "	"	9.0	-		-9.0		1.357.7		+1320	+15	355,348	1.803,760
423	990		" "	"	10.1	-		-10.1		1.356.6		+990	+11	355,018	1.803,756
424	660		" "	"	11.8	-		-11.8		1.354.9		+660	+7	354,688	1.803,752
425	330		352°50'	+7.8°	11.4	-		-11.4		1.355.3		+330	+4	354,358	1.803,749
426	-0-				5.4	-		-5.4		1.361.3	X	0	0	354,028	1.803,745
427	330		172°28.1'	+7.6°	6.3	-		-6.3		1.360.4		-330	0	353,698	1.803,745
428	660		" "	"	7.2	-		-7.2		1.359.5		-660	-1	353,368	1.803,744
429	990		" "	"	7.8	-		-7.8		1.358.9		-990	-1	353,038	1.803,744
430	1320		" "	"	5.1	-		-5.1		1.361.6		-1320	-2	352,708	1.803,743
431	1650		" "	"	6.0	-		-6.0		1.360.7		-1650	-2	352,378	1.803,743
432	1980		" "	"	6.0	-		-6.0		1.360.7		-1980	-2	352,048	1.803,743
433	2310		172°28.1'	+7.6°	2.9	-		-2.9		1.363.8		-2310	-3	351,718	1.803,742
433	2648		172°16.6'		3.5	-		3.5		1.363.2					
434	2640		172°28.1'	+7.6°	3.8	-		-3.8		1.362.9		-2640	-3	351,388	1.803,742
435	2970		" "		5.2	-		-5.2			TP	-2970	-4	351,058	1.803,741
435	2970		172°28.1'	+7.6°	10.5	89°54'	+5.2	-5.3		1.361.4	TP				
	2640		352°50'-180°	+7.6°	+7.6	-		+7.6	(+7.7)		BS	-2640	-20		
	2640				+10.9	89°56'	-3.1	+7.8		1.369.1	BS				

Unable to locate E-W fence line elev. 1363

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6-24-79		W. Krol		R. Turner		6834		Benson Turner		3	33						
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Lake Osakis East		Minnesota	Todd	128N/129N	35W/34W		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,363.5								
451	2310		351° 58'	+7.3°	10.7	-		-10.7		1352.8		+2310	-30	345,784	1,803,706		
452	1980		" "	"	8.2	-		-8.2		1355.3		+1980	-25	345,454	1,803,711		
453	1650		" "	"	6.2	-		-6.2		1357.3		+1650	-21	345,124	1,803,715		
454	1320		" "	"	8.1	-		-8.1		1355.4		+1320	-17	344,794	1,803,719		
455	990		" "	"	6.3	-		-6.3		1357.2		+990	-13	344,464	1,803,723		
456	660		" "	"	5.0	-		-5.0		1358.5		+660	-8	344,134	1,803,728		
457	330		" "	"	4.8	-		-4.8		1358.7		+330	-4	343,804	1,803,732		
458	-0-				5.4	-		-5.4		1358.1	X	0	0	343,474	1,803,736		
459	330		172° 3.1'	+7.3°	6.1	-		-6.1		1357.4		-330	+4	343,144	1,803,740		
460	660		" "	"	7.2	-		-7.2		1356.3		-660	+7	342,814	1,803,743		
461	990		" "	"	6.1	-		-6.1		1357.4		-990	+11	342,484	1,803,747		
462	1320		" "	"	6.3	-		-6.3		1357.2		-1320	+15	342,154	1,803,751		
463	1650		" "	"	8.2	-		-8.2		1355.3		-1650	+19	341,824	1,803,755		
464	1980		" "	"	11.6	-		-11.6		1351.9		-1980	+22	341,494	1,803,758		
465	2310		172° 3.1'	+7.3°	14.4	-		-14.4		1349.1		-2310	+26	341,164	1,803,762		
TP	2592				14.1	-		-14.1	(-14.2)	1,349.3	TP	-2592.3	+36	340,885	1,803,772	340,885 + 1,803,780(s) T-intersect.	
TP	2592		171° 54.2'	+7.3°	12.8	90° 2'	-1.5	-14.3			TP						
	357		83° 50.6' + 18°	+7.3°	+3.5	-		+3.5	1,352.8		BS	+7 +3	-357			887' offset west.	
	357				+3.3	90° 2'	+0.2	+3.5			BS						
	-0-										X			340,895	1,803,415		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
6-24-79		W. Keal		R. Turner		6834		RANSOM TURNER		3	34						
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Lake Osakis East		Minnesota	Todd	128N	35W		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,352.8								340,895 + 1,802,885(s)
TP	520		262° 35.3'	+7.7°	5.1	-		- 5.1		1,347.7	TP	+3 +1	-520	340,899	1,802,895		' int. elev. 1341
TP	520				4.2	90° 6'	- 0.9	- 5.1			TP						horiz. correct.
	1698		354° 259' -180°	+8.5°	+6.2	-		+6.2	1353.9		BS	-1696	-87				y = +21'
	1698				+14.7	TH	-8.5	+6.2			BS						x = 0'
466	1650		354° 12.3'	+8.5°	7.3	-		-7.3		1346.6		+1698	+78	340,851	1,802,886		
467	1320		" "	"	8.0	-		-8.0		1345.9		+1319	+62	340,522	1,802,870		
468	990		" "	"	7.6	-		-7.6		1346.3		+989	+47	340,192	1,802,855		
469	660		" "	"	8.7	-		-8.7		1345.2		+659	+31	339,862	1,802,839		
470	330		" "	"	7.1	-		-7.1		1346.8		+330	+16	339,533	1,802,824		
471	0				5.4	-		-5.4		1348.5	X	0	0	339,203	1,802,808		
472	330		174° 24'	+8.5°	4.9	-		-4.9		1349.0		-330	-17	338,873	1,802,791		
473	660		" "	"	10.9	-		-10.9		1343.0		-659	-33	338,544	1,802,775		
474	990		" "	"	11.3	-		-11.3		1342.6		-989	-50	338,214	1,802,758		
475	1320		" "	"	8.3	-		-8.3		1345.6		-1318	-67	337,885	1,802,741		
476	1650		174° 24'	+8.5°	3.9	-		-3.9		1350.0	TP	-1648	-83	337,555	1,802,725		
476	1650				12.2	TH	+8.3	-3.9			TP						
	1320		354° 30' -180°	+8.5°	+4.2	89° 30'	-11.5	-7.3	1342.7		BS	-1318	-69				
	1320				+5.8	89° 26'	-13.1	-7.3			BS						
477	990		354° 30'	+8.5°	3.2	TH	+5.0	+1.8		1344.5		+989	+52	337,226	1,802,708		
478	660		" "	"	1.5	TH	+3.3	+1.8		1344.5		+659	+35	336,896	1,802,691		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
7/7/79		G. Catcamp		R. Turner		6834		Ransom Turner		3		35			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Lake Osakis East		Minnesota		Todd		128N		35W				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1342.7						
479	330		354° 30'	+8.5°	1.6	-	-1.6		1341.1			+330	+17	336,567	802,673
480	0				5.4	-	-5.4		1337.3	TP		0	0	336,237	802,656
IF	151		173° 17.5'	+8.5°	5.7	-	-5.7		1337.0			-151	-5	336,086	802,651
481	330		173° 55'	+8.5°	6.8	-	-6.8		1335.9			-330	-14	335,907	802,642
482	660		" "	"	7.9	-	-7.9		1334.8			-659	-28	335,578	802,628
483	990		" "	"	3.9	-	-3.9		1338.8			-989	-42	335,248	802,614
484	1320		" "	"	4.0	-	-4.0		1338.7			-1319	-56	334,918	802,600
TP	1449		173° 48.7'	+8.5°	4.2	-	4.2		1338.5	TP		-1448	-58	334,789	802,598
TP	1449				11.5	TH	+7.2				TP				90° bend (west)
	1685		86° 48.2' +180°	+7.9°	+3.6		+3.6		1,342.1		BS	+138	-1679		
	1685				+12.1	TH	-8.4				BS				
TP	0				5.4	-	-5.4		1,336.7	TP		0	0	334,927	800,919
TP	745		266° 16.5'	+7.9°	6.9	TH	+3.7	-3.2		1,338.9	TP	+54	-743	334,981	800,176
TP	745				5.4	89° 50'	+2.2	-3.2			TP				west
	215		88° 23.5' +180°	+7.9°	+6.2	89° -	-3.8	+2.4		1,341.3		+23	-214		
	215				+5.0	89° 20'	-2.5	+2.5			BS				
TP	0				5.4	-	-5.4		1,335.9	TP		0	0	335,004	799,962
485	201		172° 53.3'	+7.9°	6.3	89° -	+3.5	-2.8		1,338.5	TP	-201	-3	334,803	799,959
485	201				3.7	TH	+1.0	-2.7			TP				in woods

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/14/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY Ransom Turner	LINE NO. 3	PAGE 36 of 88
AREA MINNESOTA	TOPO MAP Lake Osakis East	STATE Minnesota	COUNTY Todd	TWP 128N	RANGE 35W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS TP	NORTH + SOUTH - LAT.	EAST + WEST - DEP.	COORDINATES		REMARKS	
														Y	X		
485									1341.3								
	330		355°18'-180°	+7.9°	+2.3	-		+2.3	1340.8		BS	-329	-18				
	330				+4.0	7H	-1.7	+2.3			BS						
486	0				54	-		-5.4		1335.4	TP	0	0	334,474	1,799,941		
487	330		173°31'	+7.9°	5.1	-		-5.1		1,335.7		-330	-8	334,144	1,799,933		
≡	500		172°36'	+7.9°	4.8	-		-4.8		1,336.0		-500	-5	333,974	1,799,936	90° bend elev. 1335'	
488	660		173°31'	+7.9°	5.1	-		-5.1		1,335.7		-660	-16	333,814	1,799,925		
489	990				4.9	-		-4.9		1,335.9		-990	-24	333,484	1,799,917		
490	1320				5.4	-		-5.4		1,335.4		-1317	-33	333,155	1,799,908		
491	1650				3.9	-		-3.9		1,336.9		-1649	-41	332,825	1,799,900		
492	1980				3.2	-		-3.2		1,337.6		-1977	-49	332,495	1,799,892		
≡	2121		173°11'	+7.9°	3.9	-		-3.9		1,336.9	TP	-2121	-40	332,353	1,799,901	332,335+1,799,900(s)	
≡	2121				2.6	90°2'	-1.2	-3.8			TP						
	1118		83°36'+180°	+8.1°	+7.6	-		+7.6	1344.5		BS	+33	-1118				
	1118				+2.0	BH	+5.6	+7.6			BS					2658'(stadia) offset	
∩	0				54	-		-5.4		1,339.1	TP	0	0	332,386	1,798,783	west	
∩	1540		263°18.3'	+8.1°	4.9	-		-4.9		1,339.6	TP	+38	-1540	332,424	1,797,243	90° bend (south) 1338'	
∩	1540				12.6	7H	+7.7	-4.9			TP						
	849		354°9.3'-180°	+8.1°	+4.5	7H	-4.2	+0.3	1,339.9		BS	-848	-33				
	849				+5.2	89°40'	-4.9	+0.3			BS						
493	660		353°3'	+8.1°	3.2	-		-3.2		1,336.7		+660	+13	332,236	1,797,223		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/14/79	INSTRUMENT MAN G. Catlin	ROD MAN K. Turner	PARTY NUMBER 6834	NOTES CHECKED BY Ransom Turner	LINE NO. 3	PAGE 379 83
AREA MINNESOTA	TOPO MAP 1:25000	STATE MN	COUNTY Dodge	TWP 128N	RANGE 35W	PARTY MANAGER R. Turner

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
									1339.9										
494	330		353°3'	+8.1°	4.6	-		-4.6		1,335.3		+330	+7	331,906	1,797,217				
495	0				5.4	-		-5.4		1,334.5	X	0	0	331,576	1,797,210				
496	320		175°45'	+8.1°	5.8	-		-5.8		1,334.1		-329	-23	331,247	1,797,187				
497	511		173°14.2'	+8.1°	8.2	-		-8.2		1,331.7	TP	-511	-12	331,065	1,797,198				
498	511				10.7	TH	+2.6	-8.1			TP								
	1170		82°40.6' + 180°	+8.1°	+6.9	-		+6.9			BS	+16	-1170						
	1170				12.7	TH	-5.9	+6.8	1,338.5		BS							2,360' radial offset	
499	0				5.4	=		-5.4		1,333.1	X	0	0	331,081	1,796,028				
500	1490		262°26.5'	+8.1°	9.2	TH	+7.5	-1.7 (1.8)		1,336.7	TP	+14	-1490	331,095	1,794,538			90° bend (south)	
501	1490				8.8	89°44'	+6.9	-1.9			TP								
	2957		252°51.6' + 120°	+8.1°	+7.6	91°	+42.9	+50.5 (50.6)			BS	-2459	-41						
	2959				14.7	70°50'	+35.8	+50.7	1,387.3		BS								
497	2312		353°6.3'	+8.1°	10.6	91°	-40.3	-50.9		1,336.4		+2309	+49	330,945	1,794,546				
498	1980		350°41.5'	+8.1°	6.1	71°20'	-46.1	-52.1		1,335.2		+1980	+29	330,616	1,794,526				
499	1650		"	"	10.1	91°20'	-38.4	-48.5		1,338.8		+1650	+24	330,286	1,794,521				
500	1580		353°8'	+8.1°	9.7	91°20'	-36.8	-46.6		1,340.7		+1580	+34	330,216	1,794,531			330,215 + 1,794,525 (s) (old west)	
501	1320		352°44.5'	+8.1°	7.1	91°20'	-30.7	-39.8		1,347.5		+1320	+19	329,956	1,794,516				
502	990		"	"	11.1	91°20'	-23.0	-34.9		1,352.4		+990	+15	329,626	1,794,512				
503	660		"	"	11.7	91°20'	-15.4	-27.1		1,360.2		+660	+10	329,296	1,794,507				
504	330		"	"	13.3	91°	-5.8	-19.1		1,368.2		+330	+5	328,966	1,794,502				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE								
7/4/79		S. Eaton		L. Turner		3321		Ransom Turner		3	28								
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER									
Minnesota		Lake Oahe East		Minnesota	Lake		128N	35W		L. Turner									
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
									1387.3										
504	0				5.7	-		-5.4		1,381.9	X	0	0	328,636	1,794,497				
505	330		173° 11'	+8.1°	7.5	-		-7.5		1,379.8		-330	-7	328,306	1,794,490				
506	660		"	"	5.7	-		-5.7		1,381.6		-660	-15	327,976	1,794,482				
507	990		173° 11'	+8.1°	5.8	-		-5.8		1,381.5	P	-990	-22	327,646	1,794,475				
507	990				10.8	TH	+5.0	-5.8			P								
	2640		353° 18' - 180°	+8.1°	+10.6	89° -	-46.1	-35.5	1,346.0		BS	-2639	-64						
	2640				4.4	89° 8'	-39.9	-35.5			RC								
508	2310		353° 18'	+8.1°	9.2	89° -	+40.3	+31.1		1,377.1		+2309	+56	327,316	1,794,467				
509	1980		"	"	14.2	89° -	+34.6	+20.4		1,366.4		+1979	+48	326,986	1,794,459				
510	1650		"	"	0.7	TH	+8.3	+7.6		1,353.6		+1650	+90	326,657	1,794,451				
511	1320		"	"	0.2	TH	+6.6	+6.4		1,352.4		+1320	+32	326,327	1,794,443				
512	990		"	"	2.2	TH	+5.0	+2.8		1,348.8		+990	+24	325,997	1,794,435				
512	785		359° 0'	+8.1°	0.9	TH	+3.9	+3.0		1,349.0		+784	+29	325,791	1,794,440				325,785 + 1,794,415 (6) 4-Way Intersection 1348
513	660		353° 18'	+8.1°	0.2	-		-0.2		1,345.8		+660	+16	325,667	1,794,427				
514	330		"	"	3.7	-		-3.7		1,342.3		+330	+8	325,337	1,794,419				
515	0				5.4	-		-5.4		1,340.6	X	0	0	325,007	1,794,411				
516	330		174° 6'	+8.1°	6.3	-		-6.3		1,339.7		-330	-13	324,677	1,794,398				
517	660		"	"	0.6	-		-0.6		1,345.4		-660	-25	324,347	1,794,386				
518	990		"	"	2.7	TH	+5.0	+2.3		1,348.3		-989	-38	324,018	1,794,373				
519	1320		"	"	6.8	TH	+6.6	-0.2		1,345.8		-1319	-51	323,688	1,794,360				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
1/15/77		S. Co. Camp		R. Turner		6834		Ransom Turner		3	39						
AREA		TOPO MAP	STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER									
Minnesota		West Union/ Lake Osakis East	Minnesota	Todd	128N	35W		L.O. Davis									
STATION NO.	SLOPE DISTANCE	PLOTting DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,346.0								
520	1650		174° 6'	+8.1°	10.7	74	+8.3	-2.4		1,343.5	TP	-1699	-63	323,358	1,794,398		
520	1650				10.3	89° 44'	+7.8	-2.5			TP						
	2690		353° 37' - 180°	+8.1°	+2.1	-		+2.1			BS	-2639	-79				
	2690				+14.5	89° 44'	-12.3	+2.2	1,345.6		BS						
521	2310		353° 37'	+8.1°	3.7	-		-3.7		1,341.9		+2309	+69	323,028	1,794,338		
522	1980		"	"	6.5	-		-6.5		1,339.1		+1979	+59	322,698	1,794,328		
523	1650		"	"	7.9	-		-7.9		1,337.7		+1649	+49	322,368	1,794,318		
524	1320		"	"	9.1	-		-9.1		1,336.5		+1319	+40	322,038	1,794,309		
525	990		"	"	8.3	-		-8.3		1,337.3		+990	+30	321,709	1,794,299		
526	660		"	"	5.4	-		-5.4		1,340.2		+660	+20	321,379	1,794,289		
527	330		"	"	4.1	-		-4.1		1,341.5		+330	+10	321,049	1,794,279		
528	0				5.4	-		-5.4		1,340.2	X	0	0	320,719	1,794,269	320,500 + 1,794,265 (S)	
7	234		172° 31'	+8.1°	5.5	-		-5.5		1,340.1		-234	-3	320,485	1,794,266	4-Way Intersect elev 1339	
529	330		173° 38'	+7.8°	6.8	-		-6.8		1,338.8		-330	-8	320,389	1,794,261	Lake Osakis East	
530	660		"	"	9.5	-		-9.5		1,336.1		-660	-17	320,059	1,794,252	West Union	
531	990		"	"	11.0	-		-11.0		1,334.6		-990	-25	319,729	1,794,244	↓	
532	1320		"	"	13.3	-		-13.3		1,332.3		-1320	-33	319,399	1,794,236		
533	1650		"	"	13.3	-		-13.3		1,332.3		-1649	-41	319,070	1,794,228		
53A	1980		"	"	13.0	-		-13.0		1,332.6		-1979	-50	318,740	1,794,219		
535	2310		"	"	13.2	-		-13.2		1,332.4		-2309	-58	318,410	1,794,211		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445




Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
10/17		R. Turner		R. Turner		6834		Ransom Turner		3	70						
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		West Union		Minnesota	Todd		128N	35W		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1345.6								
536	2640		173°38'	+78°	13.1	-		-13.1		1,332.4	TP	-2639	-66	318,080	1,799,203		
536	2640				14.7	89°58'	+1.5	-13.2			TP						
	1980		353°26'-180°	+78°	+14.7	89°34'	-15.0	-0.3			BS	-1979	-43				
	1980				+13.6	89°36'	-13.8	-0.2	1332.1		BS						
537	1650		353°26'	+78°	11.8	89°30'	+14.4	+2.6		1,334.7		+1650	+36	317,751	1,799,196		
538	1320		" "	"	4.5	89°30'	+11.5	+7.0		1,339.1		+1320	+28	317,421	1,799,188		
539	990		" "	"	3.3	89°30'	+8.6	+5.3		1,337.4		+990	+21	317,091	1,799,181		
540	660		" "	"	2.2	TH	+3.3	+1.1		1,333.2		+660	+14	316,761	1,799,174		
541	330		" "	"	2.9	-		-2.9		1,329.2		+330	+7	316,431	1,799,167		
542	0				5.4	-		-5.4		1,326.7	X	0	0	316,101	1,799,160		
543	330		173°44.7'	+78°	5.8	-		-5.8		1,326.3		-330	-9	315,771	1,799,151		
544	660		" "	"	5.5	-		-5.5		1,326.6		-660	-18	315,441	1,799,142		
TL	930		174°1'	+78°	2.8	-		-2.8		1,329.3		-929	-29	315,172	1,799,131	315,160 + 1,799,140 (S) 4-Way Intersect elev 1327	
545	990		173°44.7'	+76°	3.5	-		-3.5		1,328.6		-990	-23	315,111	1,799,137		
546	1320		" "	"	2.2	-		-2.2		1,329.9		-1320	-31	314,781	1,799,129		
547	1650		" "	"	7.9	TH	+8.3	+0.4		1,332.5		-1650	-39	314,451	1,799,121		
548	1980		" "	"	5.8	TH	+9.9	+4.1		1,336.2		-1979	-46	314,122	1,799,114		
549	2310		" "	"	4.2	TH	+11.6	+7.4		1,339.5		-2309	-54	313,792	1,799,106		
550	2640		173°44.7'	+76°	3.9	TH	+13.2	+9.3		1,341.4	TP	-2639	-62	313,462	1,799,098		
550	2640				4.4	89°42'	+13.8	+9.4			TP						

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/17/79		INSTRUMENT MAN G. Cotcamp		ROD MAN R. Turner		PARTY NUMBER 6834		NOTES CHECKED BY RANSOM TURNER			LINE NO. 3	PAGE 41				
AREA Minnesota		TOPO MAP West Union		STATE Minnesota		COUNTY Todd		TWP 128N/127N		RANGE 35W	PPM	PARTY MANAGER L.D. Davis				
STATION NO.	 SLOPE DISTANCE	 PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	 VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH - LAT.	EAST + WEST - DEP.	COORDINATES Y X		REMARKS
550										1341.4						
	2140		352°52'-180°	+7.6°	+13.5	TH	-13.2	+0.3)	1341.7		BS	-2640	-22			
	2640				+0.3	-		+0.3)			BS					
551	2310		352°52'	+7.6°	1.7	-		-1.7		1,340.0		+2310	+19	313,132	1,794,095	
552	1980		"	"	4.5	-		-4.5		1,337.2		+1980	+16	312,802	1,794,092	
553	1650		"	"	2.8	-		-2.8		1,338.9		+1650	+13	312,472	1,794,089	
554	1320		"	"	8.8	-		-8.8		1,332.9		+1320	+11	312,142	1,794,087	
555	990		"	"	9.1	-		-9.1		1,332.6		+990	+8	311,812	1,794,084	
556	660		"	"	4.6	-		-4.6		1,337.1		+660	+5	311,482	1,794,081	
557	330		"	"	2.8	-		-2.8		1,338.9		+330	+3	311,152	1,794,079	
558	0		"	"	5.4	-		-5.4		1,336.3	TP	0	0	310,822	1,794,076	
559	330		172°37.7'	+7.6°	4.2	-		-4.2		1,337.5		-330	-1	310,492	1,794,075	
560	660		"	"	10.1	-		-10.1		1,331.6		-660	-3	310,162	1,794,073	309,860+1,794,075(5)
JL TP	950		172°17.4'	+7.6°	13.0	-		-13.0		1,328.7		-950	+2	309,872	1,794,078	4-way Intersect elev 1327
561	990		172°37.7'	+7.6°	13.8	-		-13.8		1,327.9		-990	-4	309,832	1,794,072	
562	1320		"	"	14.2	-		-14.2		1,327.5		-1320	-5	309,502	1,794,071	
563	1650		"	"	14.2	-		-14.2		1,327.5		-1650	-7	309,172	1,794,069	
564	1980		"	"	11.8	-		-11.8		1,329.9		-1980	-8	308,842	1,794,068	
565	2310		172°37.7'	+7.6°	9.8	-		-9.8 (9.9)		1,331.8	TP	-2310	-9-3	308,512	1,794,064	
565	2310				14.0	89°54'	+4.0	-10.0			TP					

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
7/17/79		G. Cotcamp		R. Turner		6834		Ransom Turner		3	42						
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		West Union		Minnesota	Todd		127N	35W		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
565										1331.8							
	1320		352° 8' - 180°	+7.6°	-2.3	TH	-6.6	-4.3	1327.5		BS	-1320	+6-2				
	1320				+7.2	89° 30'	-11.5	-4.3			BS						
566	990		352° 8'	+7.6°	1.6	-		-1.6		1325.9		+990	-5	308,182	1,794,063		
567	660		" "	"	5.4	-		-5.4		1322.1		+660	-3	307,852	1,794,065		
568	330		" "	"	4.6	-		-4.6		1322.9		+330	-2	307,522	1,794,066		
569	0				5.4	-		-5.4		1322.1	TP	0	0	307,192	1,794,068		
570	330		172° 8'	+7.6°	9.7	-		-9.7		1317.8		-330	+2	306,862	1,794,070		
571	660		" "	"	13.5	GH	-3.3	-16.8		1310.7		-660	+3	306,532	1,794,071		
572	990		172° 8'	+7.6°	7.5	90° 30'	-8.6	-16.1		1311.4	TP	-990	+5-3	306,202	1,794,070		
572	990				4.7	90° 40'	-11.5	-16.2			TP						
	1320	1319	352° 16' - 180°	+7.6°	+8.1	88°	-46.0	-37.9			BS	-1319	+3				
	1320				+4.2	88° 10'	-42.2	-38.0	1273.4		BS						
573	990		352° 16'	+7.6°	3.3	88° 30'	+25.9	+22.6		1296.0		+990	-2	305,873	1,794,071	305,720 + 1,794,070(s)	
IF	890		352° 21'	+7.6°	8.4	88° 30'	+22.0	+13.6		1287.0		+890	-1	305,723	1,794,072	T-rod (east)	
574	660		352° 16'	+7.6°	7.1	89°	+11.5	+4.4		1277.8		+660	-2	305,543	1,794,071		
575	330		" "	"	1.8	-		-1.8		1271.6		+330	-1	305,213	1,794,072		
576	0				5.4	-		-5.4		1268.0	TP	0	0	304,883	1,794,073		
577	330		172° 40'	+7.6°	5.3	-		-5.3		1268.1		-330	-2	304,553	1,794,071		
578	660		" "	"	5.9	-		-5.9		1267.5		-660	-3	304,223	1,794,070		
579	990		" "	"	3.3	-		-3.3		1270.1		-990	-5	303,893	1,794,068		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
1/17/79		G Cotcamp		L Turner		6834		RANSOM TURNER		3	43				
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		West Union		Minnesota	Todd		12711	35W		L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1273.4						
580	1320		172°40.6'	+7.6°	12.2	89°-	+23.1	+10.9		1284.3		-1320	-6	303,563	1,794,067
581	1650		172°40.6'	+7.6°	4.3	88°56'	+33.6	+29.3		1302.7	TP	-1650	-8	303,233	1,794,065
581	1650				24	88°54'	+31.7	+29.3			TP				
	990		352°76'-180°	+7.6°	+14.3	BH	+5.0	+19.3	1322.0		BS	-990	+5		
	990				+4.9	90°50'	+14.4	+19.3			BS				
77	843		353°3'	+7.6°	12.3	BH	-4.2	-16.5		1305.5		+843	+10	303,086	1,794,080 303,090 + 1,794,080(s) 4 Way Intersect. 1303.
582	660		352°7.6'	+7.6°	7.3	91°-	-11.5	-18.8		1303.2		+660	-3	302,903	1,794,067
583	330		"	"	9.0	91°-	-5.8	-14.8		1307.2		+330	-2	302,573	1,794,068
584	0				5.4	-		-5.4		1316.6	π	0	0	302,243	1,794,070
585	330		172°45.5'	+7.6°	6.9	-		-6.9		1315.1		-330	-2	301,913	1,794,068
586	660		"	"	14.0	BH	-3.3	-17.3		1304.7		-660	-4	301,583	1,794,066
587	990		"	"	14.7	BH	-5.0	-19.7		1302.3		-990	-6	301,253	1,794,064
588	1320		172°45.5'	+7.6°	12.3	BH	-6.6	-18.9		1303.1	TP	-1320	-8 -2	300,923	1,794,060
588	1320				14.3	90°12'	-4.6	-18.9			TP				
	1320		352°30'-180°	+7.6°	+12.3	90°30'	+11.5	+23.8	1326.9		BS	-1320	-2 -2		
	1320				+14.7	90°24'	+9.2	+23.9			BS				
589	990		352°30'	+7.6°	12.3	-		-12.3		1314.6		+990	+2	300,593	1,794,058
590	660		"	"	10.0	-		-10.0		1316.9		+660	+1	300,263	1,794,057
591	330		"	"	9.2	-		-9.2		1317.7		+330	+1	299,933	1,794,057
592	0				5.4	-		-5.4		1321.5	π	0	0	299,603	1,794,056

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
7/17/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3	44						
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		West Union		Minnesota	Todd		127N	35W		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,326.9								
593	330		172°36'	+7.6°	7.9	-		-7.9		1,319.9		-330	-1	299,273	1,794,055		
594	660		" "	"	13.3	90°30'	-5.8	-19.1		1,307.8		-660	-2	298,943	1,794,054		
595	990		172°36'	+7.6°	13.1	BH	-5.0	-18.1		1,308.8	TP	-990	-3	298,613	1,794,053		
595	990				12.9	90°18'	-5.2	-18.1			TP						
	844		4°55.3' +180°	+7.6°	+5.1	91°-	+14.7	+19.8	1,328.6		BS	-824	-183				
	844				+15.0	90°20'	+4.9	+19.9			BS						
596	515		7°16'	+7.6°	12.8	BH	-2.6	-15.4		1,313.2		+498	+132	298,287	1,794,002		
597	188		4°7'	+7.6°	7.3	-		-7.3		1,321.3		+184	+38	297,973	1,793,908		
TP	0				5.4	-		-5.4		1,323.2	TP	0	0	297,789	1,793,870	297,790 + 1,793,870(s) T=rd(west) elev. 1323'	
TP	1010		262°1.8'	+7.6°	8.2	88°30'	+26.4	+18.2		1,346.8	TP	-7	-1010	297,782	1,792,860		
TP	1010				2.4	88°50'	+20.6	+18.2			TP					5,080' offset west	
	1600		82°29.4' +180°	+7.6°	+9.1	-		+9.1	1,355.9		BS	+3	-1600				
	1600				+4.7	89°48'	-5.6	+9.1			BS						
TP	0				5.4	-		-5.4		1,350.5	TP	0	0	297,785	1,791,260	297,770 + 1,788,790(s)	
IF	2470		262°2'	+7.6°	11.5	BH	-12.4	-23.9		1,332.0	TP	-16	-2470	297,769	1,788,790	T=intersect. elev. 1331'	
IF	2470				13.8	90°14'	-10.1	-23.9			TP					horiz. correct. y=0'	
	2452		352°39' -180°	+7.8°	+8.9	BH	+12.3	+21.2	1,353.2		BS	-2452	-16			x=-12'	
	2452				+14.1	90°10'	+7.1	+21.2			BS						
598	2310		352°19'	+7.8°	10.2	BH	-11.6	-21.8		1,331.4		+2310	+5	297,627	1,788,779		
599	1980		" "	"	12.0	BH	-9.9	-21.9		1,331.3		+1980	+4	297,297	1,788,778		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
7/18/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3	45				
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		West Union		Minnesota	Todd		127N	35W		L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1353.2						
600	1650		352°19'	+7.8°	12.8	BH	8.3	-21.1		1,332.1		+1650	+3	296,967	1,788,777
601	1320		" "	"	10.0	90°30'	71.5	-21.5		1,331.7		+1320	+3	296,637	1,788,777
602	990		" "	"	12.8	90°30'	78.6	-21.4		1,331.8		+990	+2	296,307	1,788,776
603	660		" "	"	12.2	90°30'	5.8	-18.0		1,335.2		+660	+1	295,977	1,788,775
604	330		" "	"	11.1	-		-11.1		1,342.1		+330	+1	295,647	1,788,775
605	0				5.4	-		-5.4		1,347.8	π	0	0	295,317	1,788,774
606	330		172°51'	+7.8°	6.9	-		-6.9		1,346.3		-330	-4	294,987	1,788,770
607	660		" "	"	11.8	-		-11.8		1,341.4		-660	-7	294,657	1,788,767
608	990		174°42.5'	+7.8°	12.1	-		-12.1		1,341.1	TP	-989	-43	294,328	1,788,731
608	990				7.1	BH	-5.0	-12.1			TP				
	650		34°32'+180°	+7.8°	+4.6	-		+4.6			BS	-480	-438		curve
	650				+7.8	TH	-3.3	+4.5	1,345.6		BS				
609	330		42°49'	+7.8°	3.9	-		-3.9		1,341.7		+209	+255	294,057	1,788,548
610	0				5.4	-		-5.4		1,340.2	π	0	0	293,848	1,788,293
611	330		224°45.4'	+7.8°	3.8	-		-3.8		1,341.8		-201	-262	293,647	1,788,031
612	660		224°45.4'	+7.8°	3.4	-		-3.4		1,342.2	TP	-401	-524	293,447	1,787,769
612	660				6.7	TH	3.3	-3.4			TP				
	395		26°14'+180°	+7.8°	+3.0	TH	-2.0	+1.0	1,343.2		BS	-327	-221		
	395				+2.8	89°44'	-1.8	+1.0			BS				
#	188		19°47'	+7.8°	3.5	-		-3.5		1,339.7		+167	+87	293,287	1,787,635 railroad elev. 1338'

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN			ROD MAN			PARTY NUMBER		NOTES CHECKED BY			LINE NO.	PAGE			
7/18/79		G. Cotcamp			R Turner			6834		RANSOM TURNER			3	46			
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		West Union		Minnesota	Todd		127N	35W		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1,343.2								Town of West Union
613	74		359° 11'	+7.8°	6.1	-		-6.1		1,337.1		+73	+9	293,193	1,787,557		
π	0				5.4	-		-5.4		1,337.8	π	0	0	293,120	1,787,548		
614	256		223° 25'	+7.8°	4.5	-		-4.5		1,338.7		-160	-200	292,960	1,787,348		
π	371		220° 1.3'	+7.8°	3.4	-		-3.4		1,339.8	TP	-249	-275	292,871	1,787,273	292,885 + 1,787,265 (s) T-intersect.	
π	371				5.3	TH	+1.9	-3.4			TP						
	182		319° 29.4' - 180°	+7.8°	+5.0	-		+5.0	1,344.8		BS	-153	+98				
	182				+5.9	TH	-0.9	+5.0			BS						
615	0				5.4	-		-5.4		1,339.4	π	0	0	292,718	1,787,371		
616	326		166° 6.1'	+7.8°	6.8	-		-6.8		1,338.0	TP	-324	+35	292,394	1,787,406	curve	
616	326				8.4	TH	+1.6	-6.8			TP						
	1650		352° 39.5' - 180°	+7.8°	+12.6	90° 24'	+11.5	+24.1			BS	-1650	-13				
	1650				+14.4	90° 20'	+9.6	+24.0	1,362.0		BS						
617	1320		352° 39.5'	+7.8°	10.9	90° 30'	-11.5	-22.4		1,339.6		+1320	+11	292,064	1,787,404		
618	990		" "	"	13.1	90° 30'	-8.6	-21.7		1,340.3		+990	+8	291,734	1,787,401		
619	660		" "	"	10.3	90° 30'	-5.8	-16.1		1,345.9		+660	+5	291,404	1,787,398		
620	330		" "	"	7.8	-		-7.8		1,354.2		+330	+3	291,074	1,787,396		
621	0				5.4	-		-5.4		1,356.6	π	0	0	290,744	1,787,393		
622	330		172° 22'	+7.8°	10.1	-		-10.1		1,351.9		-330	-1	290,414	1,787,392	290,390 + 1,787,405 (s)	
π	342		170° 26.6'	+7.8°	10.2	-		-10.2		1,351.8		-342	+10	290,402	1,787,403	T-rd (west) elev. 1351'	
623	660		172° 22'	+7.8°	14.1	BH	-3.3	-17.4		1,344.6		-660	-2	290,084	1,787,391		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE				
7/18/79		G. Colcamp		R. Turner		6834		RANSOM TURNER		3		47				
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER		
Minnesota		West Union		Minnesota		Todd		127N		35W				L.O. Davis		
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH - LAT.	EAST + WEST - DEP.	COORDINATES		REMARKS
														Y	X	
									1362.0							
624	990		172° 22'	+7.8°	6.3	91° -	17.3	-23.6		1338.4		-990	-3	289,754	1,787,390	
625	1320		"	"	13.3	84°	-6.6	-19.9		1342.1		-1320	-4	289,424	1,787,389	west ramp T-94
626	1650		172° 22'	+7.8°	13.6	-		-13.6		1348.4	TP	-1650	-5	289,094	1,787,388	T-94 over pass
626	1650				5.3	84°	-8.3	-13.6			TP					
	2640		351° 51' - 180°	+7.8°	+14.8	89° 6'	-41.5	-26.7	1321.7		BS	-2640	+16			
	2640				+11.7	89° 10'	-38.4	-26.7			BS					
627	2310		351° 51'	+7.8°	7.0	89° 10'	+33.6	+26.6		1348.3		+2310	-14	288,764	1,787,390	
628	1980		"	"	7.6	89° 10'	+28.8	+21.2		1342.9		+1980	-12	288,434	1,787,392	
629	1840		352° 14'	+7.8°	13.3	89° -	+32.1	+18.8		1340.5		+1840	+1	288,294	1,787,405	Y-intersect (frontage road)
629	1650		351° 51'	+7.8°	13.1	89° -	+28.8	+15.7		1337.4		+1650	-10	288,104	1,787,394	
630	1320		"	"	1.6	89° 30'	+11.5	+9.9		1331.6		+1320	-8	287,774	1,787,396	
631	990		"	"	6.0	89° 30'	+8.6	+2.6		1324.3		+990	-6	287,444	1,787,398	
632	660		"	"	4.3	-		-9.3		1317.4		+660	-4	287,114	1,787,400	
633	330		"	"	4.2	-		-4.2		1317.5		+330	-2	286,784	1,787,402	
634	0		"	"	5.4	-		-5.4		1316.3	TP	0	0	286,454	1,787,404	
635	330		171° 31A'	+7.8°	7.8	-		-7.8		1313.9		-330	+4	286,124	1,787,408	
636	660		"	"	8.6	-		-8.6		1313.1		-660	+8	285,794	1,787,412	
637	990		"	"	9.0	-		-9.0		1312.7		-990	+12	285,464	1,787,416	
638	1320		"	"	8.9	-		-8.9		1312.8		-1320	+16	285,134	1,787,420	
639	1650		"	"	6.6	-		-6.6		1315.1		-1650	+18	284,804	1,787,423	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/18/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 3	PAGE 48
AREA Minnesota	TOPO MAP West Union	STATE Minnesota	COUNTY Todd/Stearns	TWP 127N	RANGE 35W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS
												LAT.	DEP.	Y	X	
									1,321.7							
640	1980		171°31.4'	+7.8°	4.0	-		-4.0		1,317.7		-1980	+23	284,474	1,787,427	
641	2310		"		1.4	-		-1.4		1,320.3		-2310	+27	284,144	1,787,431	
642	2640		171°31.4'	+7.8°	7.9	TH	+13.2	+5.3		1,327.0	TP	-2640	+31	283,814	1,787,435	
642	2640				148	89°34'	+20.0	+5.2			TP					
	330		352°33'-180°	+7.8°	+13.7	-		+13.7	1,340.7		BS	-330	-2			
	330				12.1	BH	+1.7	+13.8			BS					
643	0				5.4	-		-5.4		1,335.3	TP	0	0	283,484	1,787,433	Todd Co.
<u>TL</u>	224		169°37.7'	+7.8°	0.9	TH	+1.1	+0.2		1,340.9	TP	-224	+10	283,260	1,787,443	283,260 + 1,787,450(s) T-intersect.
<u>TL</u>	224				0.8	89°44'	+1.0	+0.2			TP					
	1320		82°16'+180°	+7.6°	+7.5	TH	-6.6	+0.9	1,341.8		BS	-3	-1320			1320' offset west
	1320				+14.7	89°24'	-13.8	+0.9			BS					
<u>TL</u>	0				5.4	-		-5.4		1,336.4	TP	0	0	283,257	1,786,123	283,240 + 1,786,125(s) T-intersect. elev. 1334'
644	106		173°7'	+7.6°	7.3	-		-7.3		1,334.5		-106	-1	283,151	1,786,122	Stearns County
645	436		"	"	8.5	-		-8.5		1,333.3		-436	-5	282,821	1,786,118	↓
646	766		"	"	12.3	-		-12.3		1,329.5		-766	-10	282,491	1,786,113	
647	1096		"	"	10.7	BH	-5.5	-16.2		1,325.6		-1096	-14	282,161	1,786,109	
648	1426		173°7'	+7.6°	13.6	BH	-7.1	-20.7		1,321.1	TP	-1426	-18	281,831	1,786,105	
648	1426				14.1	90°16'	-6.6	-20.7			TP					

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
7/19/79		G. Cotcamp		R. Turner		6834		Ransom Turner		3	49					
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER				
Minnesota		West Union		Minnesota		Stearns		127N/126N		35w.		L.O. Davis				
STATION NO.	SLOPE DISTANCE	PLOT DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH +	EAST +	COORDINATES		REMARKS
												SOUTH -	WEST -	Y	X	
												LAT.	DEP.			
648										1321.1						
	1980		352°42.2'-180°	+7.6°	+4.7	-		+4.7			BS	-1980	-10			
	1980				+14.6	TH	-9.9	+4.7	1325.8		BS					
649	1650		352°42.2'	+7.6°	7.8	-		-7.8		1318.0		+1650	+9	281,501	1,786,104	
650	1320		"	"	9.0	-		-9.0		1316.8		+1320	+7	281,171	1,786,102	
651	990		"	"	8.4	-		-8.4		1317.4		+990	+5	280,841	1,786,100	
652	660		"	"	6.1	-		-6.1		1319.7		+660	+3	280,511	1,786,098	
653	330		"	"	3.7	-		-3.7		1322.1		+330	+2	280,181	1,786,097	
654	0				5.4	-		-5.4		1320.4	X	0	0	279,851	1,786,095	
655	330		172°40.7'	+7.6°	10.5	-		-10.5		1315.3		-330	-2	279,521	1,786,093	
656	660		"	"	11.5	BH	-3.3	-14.8		1311.0		-660	-3	279,191	1,786,092	
657	990		"	"	13.3	BH	-5.0	-18.3		1307.5		-990	-5	278,861	1,786,090	
658	1320		"	"	12.2	BH	-6.6	-18.8		1307.0		-1320	-6	278,531	1,786,089	
659	1650		"	"	9.7	BH	-8.3	-18.0		1307.8		-1650	-8	278,201	1,786,087	
7F	1870		172°22'	+7.6°	8.8	BH	-9.4	-18.2		1307.6		-1870	+1	277,981	1,786,096	277,995 + 1,786,095(S) 4-way Intersect elev 1306
660	1980		172°40.7'	+7.6°	9.3	BH	-9.9	-19.2		1306.6	TP	-1980	-10	277,871	1,786,085	
660	1980				14.5	90°8'	-4.6	-19.1			TP					
	2640		352°30'-180°	+7.6°	+5.0	-		+5.0	1311.6		BS	-2640	-5			
	2640				+14.2	89°48'	-9.2	+5.0			BS					
661	2310		352°30'	+7.6°	5.7	-		-5.7		1305.9		+2310	+4	277,541	1,786,084	
662	1980		"	"	5.2	-		-5.2		1306.4		+1980	+3	277,211	1,786,083	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
7/19/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3		50			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		West Union/Raymond		Minnesota		Stearns		126 N.		35 W.				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1,311.6						
663	1650		352°30'	+7.6°	6.1'	-		-6.1		1,305.5		+1650	+3	276,881	1,786,083
664	1320		" "	"	5.5	-		-5.5		1,306.1		+1320	+2	276,551	1,786,082
665	990		" "	"	5.9	-		-5.9		1,305.7		+990	+2	276,221	1,786,082
666	660		" "	"	5.5	-		-5.5		1,306.1		+660	+1	275,891	1,786,081
667	330		" "	"	5.3	-		-5.3		1,306.3		+330	+1	275,561	1,786,081
668	0				5.4	-		-5.4		1,306.2	TP	0	0	275,231	1,786,080
669	330		172°11.8'	+7.6°	4.7	-		-4.7		1,306.9		-330	+1	274,901	1,786,081
670	660		" "	"	4.7	-		-4.7		1,306.9		-660	+2	274,571	1,786,082
671	990		" "	"	4.5	-		-4.5		1,307.1		-990	+4	274,241	1,786,084
672	1320		" "	"	4.7	-		-4.7		1,306.9		-1320	+5	273,911	1,786,085
673	1650		" "	"	5.5	-		-5.5		1,306.1		-1650	+6	273,581	1,786,086
674	1980		" "	"	6.3	-		-6.3		1,305.3		-1980	+7	273,251	1,786,087
675	2310		" "	"	5.6	-		-5.6		1,306.0		-2310	+8	272,921	1,786,088
675	2505		172°4.3'	+7.6°	3.8	-		-3.8		1,307.8		-2505	+14	272,726	1,786,094
676	2640		172°11.8'	+7.6°	4.2	-		-4.2			TP	-2640	+9	272,591	1,786,089
676	2640				15.0	89°46'	+10.7	-4.3		1,307.3	TP				
	2640		353°6'-180°	+7.6°	9.8	-		+9.8	(9.9)		BS	-2640	-32		
	2640				+14.6	89°54'	-4.6	+10.0	1,317.2		BS				
677	2310		353°6'	+7.6°	7.2	-		-7.2		1,310.0		+2310	+28	272,261	1,786,085
678	1980		" "	"	4.2	-		-4.2		1,313.0		+1980	+24	271,931	1,786,081

272,715+1,786,100(S)
4-Way Intersect elev 1304

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

DATE 7/19/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 3	PAGE 51
AREA Minnesota	TOPO MAP Raymond Lake	STATE Minnesota	COUNTY Stearns	TWP 126 N	RANGE 35 W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1317.2					
679	1650		353°6'	+7.6°	6.3	-		-6.3		1310.9		+1650	+20	271,601 1,786,077
680	1320		" "	"	5.8	-		-5.8		1311.4		+1320	+16	271,271 1,786,073
681	990		" "	"	6.5	-		-6.5		1310.7		+990	+12	270,941 1,786,069
682	660		" "	"	6.3	-		-6.3		1310.9		+660	+8	270,611 1,786,065
683	330		" "	"	5.9	-		-5.9		1311.3		+330	+4	270,281 1,786,061
684	0				5.4	-		-5.4		1311.8	X	0	0	269,951 1,786,057
685	330		172°26.2'	+7.6°	4.9	-		-4.9		1312.3		-330	0	269,621 1,786,057
686	660		" "	"	4.3	-		-4.3		1312.9		-660	0	269,291 1,786,057
687	990		" "	"	4.5	-		-4.5		1312.7		-990	-1	268,961 1,786,056
688	1320		" "	"	4.5	-		-4.5		1312.7		-1320	-1	268,631 1,786,056
689	1650		" "	"	4.9	-		-4.9		1312.3		-1650	-1	268,301 1,786,056
690	1980		" "	"	4.7	-		-4.7		1312.5		-1980	-1	267,971 1,786,056
691	2310		" "	"	5.0	-		-5.0		1312.2		-2310	-1	267,641 1,786,056
IF	2520		172°15.7'	+7.6°	4.5	-		-4.5		1312.7		-2520	+6	267,431 1,786,063 267,430 + 1,786,056(S) T-rod (east)
692	2640		172°26.2'	+7.8°	5.1	-		-5.1		1312.1	TP	-2640.3	-11.2	267,308 1,786,048
692	2640			"	14.2	89°48'	+9.2	-5.0			TP			
	1320		352°3.8'-180°	"	+7.5	-		+7.5			BS	-1320.5	+3+3	
	1320			"	+14.1	TH	-6.6	+7.5	1319.6		BS			
693	990		352°3.8'	"	6.7	-		-6.7		1312.9		+990	-2	266,973 1,786,052
694	660		" "	"	6.0	-		-6.0		1313.6		+660	-2	266,643 1,786,052

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

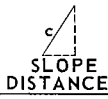

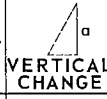
DATE 7/21/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY Ransom Turner	LINE NO. 3	PAGE 52
AREA Minnesota	TOPO MAP Raymond Lake	STATE Minnesota	COUNTY Stearns	TWP 126 N	RANGE 35 W	PPM
					PARTY MANAGER L.O. Davis	

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1319.6						
695	330		352° 38'	+7.8	5.9	-		-5.9		1313.7		+330	-1	266,313	1,786,053
696	0			"	5.4	-		-5.4		1,314.2	X	0	0	265,983	1,786,054
697	330		172° 18'	"	3.5	-		-3.5		1,316.1		-330	-1	265,653	1,786,053
698	660		"	"	2.3	-		-2.3		1,317.3		-660	-1	265,323	1,786,053
699	990		"	"	4.5	TH	+5.0	+0.5		1320.1		-990	-2	264,993	1,786,052
┌	1214		171° 44.2'	"	10.3	89° 30'	+10.6	+0.3		1,319.9	P	-7214-5	+10-2	264,764	1,786,066 90° bend west elev. 1321'
┌	1214			"	6.8	89° 40'	+7.1	+0.3			P				
	1168		83° 15.9' +180°	"	+3.8	-		+3.8	1,323.7		BS	+18-5	-1168		2,668' offset west
	1168			"	+9.6	TH	-5.8	+3.8			BS				
X	0			"	5.4	-		-5.4		1,318.3	X	0	0	264,777	1,784,898
F	1500		262° 44.7'	"	4.3	-		-4.3		1,319.4	P	+9-5	-1500	264,781	1,783,398 90° bend south
F	1500			"	11.8	TH	+7.5	-4.3			TP				
	2706		352° 56.6' -180°	7.6°	+13.0	BH	+13.5	+26.5	1,345.9		BS	-2706-5	-26+2		
	2706			"	+13.9	90° 16'	+12.6	+26.5			BS				
700	2640		353° 0.8'	"	12.8	BH	-13.2	-26.0		1,319.9		+2640	+28	264,710	1,783,402
701	2310		"	"	14.2	BH	-11.6	-25.8		1,320.1		+2310	+25	264,380	1,783,399
702	1980		"	"	8.1	BH	-9.9	-18.0		1,327.9		+1980	+21	264,050	1,783,395
703	1650		"	"	12.8	BH	-8.3	-21.1		1,324.8		+1650	+18	263,720	1,783,392
704	1320		"	"	11.2	BH	-6.6	-17.8		1,328.1		+1320	+14	263,390	1,783,388
705	990		"	"	13.0	-	-5.0	-18.0		1,327.9		+990	+11	263,060	1,783,385

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
7/21/79		G. Cotcamp		R. Turner		6834		Raymond Turner			53						
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		Raymond Lake		Minnesota	Stearns		126 N	35 W		L.O. Davis							
STATION NO.	 SLOPE DISTANCE	 PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	 VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH - LAT.	EAST + WEST - DEP.	COORDINATES Y X		REMARKS	
									1345.9								
706	660		353° 08'	+7.6	12.1	-		-12.1		1333.8		+660	+7	262,730	1,783,381		
707	330		" "	"	10.9	-		-10.9		1335.0		+330	+4	262,400	1,783,378		
$\frac{1}{2}$ $\frac{1}{2}$	82		358° 21'	"	2.4	-		-2.4		1343.5		+82	+9	262,152	1,783,383	262,135 + 1,783,380 (4-Way Intersect. elev. 1342)	
708	0			"	5.4	-		-5.4		1340.5	X	0	0	262,070	1,783,374		
709	330		172° 36.5'	"	7.4	-		-7.4		1338.5		-330	-1	261,740	1,783,373		
710	660		" "	"	4.9	-		-4.9		1341.0		-660	-2	261,410	1,783,372		
711	990		" "	"	1.0	-		-1.0		1344.9		-990	-4	261,080	1,783,370		
712	1320		" "	"	3.9	TH	+6.6	+2.7		1348.6		-1320	-5	260,750	1,783,369		
713	1650		" "	"	2.0	TH	+8.3	+6.3		1352.2		-1650	-6	260,420	1,783,368		
714	1980		" "	"	0.8	TH	+9.9	+9.1		1355.0		-1980	-7	260,090	1,783,367		
715	2310		" "	"	8.6	89°30'	+20.2	+11.6		1357.5		-2310	-8	259,760	1,783,366		
716	2640		172° 36.5'	+7.4°	9.1	89°30'	+23.0	+13.9	14.0	1359.9	TP	-2640	-0.2	259,430	1,783,376		
716	2640				13.5	89°24'	+27.6	+14.1			TP						
	1980		353° 25.4' - 180°	+7.4°	15.8	OH	+9.9	+15.7			BS	-1980	-28.2				
	1980				14.5	90°2'	+1.1	+15.6	1375.5		BS						
717	1650		353° 25.4'	+7.4°	12.9	-		-12.9		1362.6		+1650	+24	259,100	1,783,374		
718	1320		" "	"	10.0	-		-10.0		1365.5		+1320	+19	258,770	1,783,369		
719	990		" "	"	7.3	-		-7.3		1368.2		+990	+14	258,440	1,783,364		
720	660		" "	"	6.0	-		-6.0		1369.5		+660	+9	258,110	1,783,358		
721	330		" "	"	6.5	-		-6.5		1369.0		+330	+5	257,780	1,783,355		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/21/77	INSTRUMENT MAN G. Catcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 3	PAGE 59
AREA Minnesota	TOPO MAP	STATE Minnesota	COUNTY Stearns	TWP 126 N	RANGE 35 W	PPM
				PARTY MANAGER L O Davis		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1375.5					
722	0			+7.4	5.4	-		-5.4		1370.1	π	0	0	257,450 1,783,350
723	330		173°47.6'	"	1.4	-		-1.4		1374.1		-330	-7	257,120 1,783,343
JL TF	565		172°34'	"	0.9	-		-0.9		1374.6		-565	0	256,885 1,783,350
724	660		173°47.6'	"	1.2	-		-1.2		1374.3		-660	-14	256,790 1,783,336
725	990		"	"	1.7	TH	+5.0	+3.3		1378.8		-990	-21	256,460 1,783,329
726	1320		"	"	2.0	TH	+6.6	+4.6		1380.1		-1320	-27	256,130 1,783,323
727	1650		"	"	4.0	TH	+8.3	+4.3		1379.8		-1650	-34	255,800 1,783,316
728	1980		173°47.6'	+7.2	13.5	89°36'	+13.8	+0.3		1375.8	TP	-1980	-34+2	255,470 1,783,318
728	1980		"	"	14.7	89°39'	+15.0	+0.3			TP			
	1980		353° 1.2' -180°	"	+3.9	TH	-9.9	-6.0	1369.8		BS	-1980	-8+2	
	1980		"	"	+5.6	89°40'	-11.5	-5.9			BS			
729	1650		353° 1.2'	"	6.0	TH	+8.3	+2.3		1372.1		+1650	+6	255,140 1,783,318
730	1320		"	"	0.7	-		-0.7		1369.1		+1320	+5	254,810 1,783,317
731	990		"	"	2.8	-		-2.8		1367.0		+990	+4	254,480 1,783,316
732	660		"	"	3.7	-		-3.7		1366.1		+660	+3	254,150 1,783,315
733	330		"	"	4.6	-		-4.6		1365.2		+330	+1	253,820 1,783,313
734	0		"	"	5.4	-		-5.4		1364.4	π	0	0	253,490 1,783,312
735	330		173°35.6'	"	4.2	-		-4.2		1365.6		-330	-5	253,160 1,783,307
736	660		"	"	4.2	-		-4.2		1365.6		-660	-9	252,830 1,783,303
737	990		"	"	4.1	-		-4.1		1365.7		-990	-14	252,500 1,783,298

256,880+1,783,345(s)
4-Way Intersect elev. 1373

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/21/79	INSTRUMENT MAN S. Cotcamp		ROD MAN R. Turner		PARTY NUMBER 6839	NOTES CHECKED BY Ransom Turner		LINE NO. 3	PAGE 55
AREA Minnesota	TOPO MAP	STATE Minnesota	COUNTY Stearns	TWP 126 N.	RANGE 35 W.	PPM	PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
									1369.8							
738	1320		173°35.6'	+7.2	4.5	-		-4.5		1365.3		7320	-18	252,170	1,783,294	horiz. correct: y=-28, x=+16
739	1650		"	"	1.7	-		-1.7		1368.1		-1650	-22	251,840	1,783,290	251,580+1,783,295(5)
IF	1910		173°17.2'	"	9.2	TH	+9.6	+0.4		1370.2		-1910	-16	251,580	1,783,296	T.r.d.(east) elev. 1369
740	1980		173°35.6'	"	9.9	TH	+9.9	0.0			TP	-1980	-27.2	251,508	1,783,283	
740	1980			"	10.5	89°42'	+10.4	-0.1		1369.7	TP					
	2310		353°14.3'-180°	+7.2°	+5.5	-		+5.5	1375.2		BS	-2310	-2			
	2310				+13.7	89°48'	-8.1	+5.6			BS					
741	1980		353°14.3'	+7.2°	7.8	-		-7.8		1367.4		+1980	+15	251,176	1,783,278	
742	1650		"	"	8.4	-		-8.4		1366.8		+1650	+13	250,846	1,783,276	
743	1320		"	"	8.0	-		-8.0		1367.2		+1320	+10	250,516	1,783,273	
744	990		"	"	9.8	-		-9.8		1365.4		+990	+8	250,186	1,783,271	
745	660		"	"	8.1	-		-8.1		1367.1		+660	+5	249,856	1,783,268	
746	330		"	"	5.0	-		-5.0		1370.2		+330	+3	249,526	1,783,266	
747	0		"	"	5.4	-		-5.4		1369.8	TP	0	0	249,196	1,783,263	
748	330		173°44'	+7.2°	6.6	-		-6.6		1368.6		-330	-5	248,866	1,783,258	
749	660		"	"	8.9	-		-8.9		1366.3		-660	-11	248,536	1,783,252	
750	990		"	"	13.7	-		-13.7		1361.5		-990	-16	248,206	1,783,247	
751	1320		"	"	11.1	BH	-6.6	-17.7		1357.5		-1320	-22	247,876	1,783,241	
752	1650		"	"	9.9	BH	-8.3	-18.2		1357.0		-1650	-27	247,546	1,783,236	
753	1980		"	"	7.9	BH	-9.9	-17.9		1357.3		-1980	-32	247,216	1,783,231	

SURVEY NOTES-HIGH RESOLUTION DATA
GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE							
7/23/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3		56							
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER					
Minnesota		Raymond Lake		Minnesota		Stearns		126N/125N		35 W.				L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
									1,375.2										
754	2310		173°44'	+7.2°	3.5	BH	-11.6	-15.1		1,360.1		-2310	-38	246,886	1,783,225				
755	2640		" "	"	28	BH	-13.2	-16.0		1,359.2		-2640	-43	246,556	1,783,220				
IF	2884		173°29.5'	+7.2°	3.8	BH	-14.4	-18.2	18.0	1,357.2	TP	-2884-2	-35-2	246,310	1,783,226				246,310+1,783,230(s) 4-Way Intersect. 1356
IF	2884				14.5	90°A'	-3.3	-17.8			TP								
	1310		263°50.3'-180°	+7.2°	+8.5	TH	-6.6	+1.9	1,359.1		BS	-24-2	+1310-2						2,636' offset east
	1310				+5.8	89°50'	-3.8	+2.0			BS								
TP	0				5.4	-		-5.4		1,353.7	TP	0	0	246,284	1,784,534				246,270+1,785,855(s)
IF	1326		83°28'	+7.2°	6.1	TH	+6.6	+0.5		1,359.6	TP	-15-2	+1326-2	246,267	1,785,858				T-intersect. elev 1358'
IF	1326				4.9	89°46'	+5.4	+0.5			TP								
	2726		352°56.9'-180°	+7.5°	+13.1	TH	-13.6	-0.5	(6.4)		BS	-2726-2	-21-2						
	2726				+14.0	89°42'	-14.3	-0.3	1,359.2		BS								
756	2640		352°44'	+7.5°	13.0	TH	+13.2	+0.2		1,359.4		+2640	+11	246,179	1,785,846				
757	2310		" "	"	10.4	TH	+11.6	+1.2		1,360.4		+2310	+9	245,849	1,785,844				
758	1980		" "	"	2.0	-		-2.0		1,357.2		+1980	+8	245,519	1,785,843				
759	1650		" "	"	3.4	-		-3.4		1,355.8		+1650	+7	245,189	1,785,842				
760	1320		" "	"	3.8	-		-3.8		1,355.4		+1320	+5	244,859	1,785,840				
761	990		" "	"	4.5	-		-4.5		1,354.7		+990	+4	244,529	1,785,839				
762	660		" "	"	7.9	-		-7.9		1,351.3		+660	+3	244,199	1,785,838				
763	330		" "	"	6.8	-		-6.8		1,352.4		+330	+1	243,869	1,785,836				
764	0		" "	"	5.4	-		-5.4		1,353.8	TP	0	0	243,539	1,785,835				

SURVEY NOTES-HIGH RESOLUTION DATA

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Geosource Inc.

DATE 7/23/79	INSTRUMENT MAN G. Cotcamp	ROD MAN R Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 3	PAGE 57
AREA Minnesota	TOPO MAP Raymond Lake	STATE Minnesota	COUNTY Stearns	TWP 125 N	RANGE 35 W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOTting DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1359.2					
765	330		172°46.9'	+7.5°	5.7	-		-5.7		1,353.5		-330	-2	243,209 / 1,785,833
766	660		" "	"	8.7	-		-8.7		1,350.5		-660	-3	242,879 / 1,785,832
767	990		" "	"	7.3	-		-7.3		1,351.9		-990	-5	242,549 / 1,785,830
768	1320		" "	"	9.2	-		-9.2		1,350.0		-1320	-6	242,219 / 1,785,829
769	1650		" "	"	5.0	-		-5.0		1,354.2		-1650	-8	241,889 / 1,785,827
770	1980		" "	"	1.0	-		-1.0		1,358.2		-1980	-10	241,559 / 1,785,825
771	2310		172°46.9'	+7.5°	14.4	TH	+11.6	-2.8			TP	-2310-2	-11-2	241,227 / 1,785,822
771	2310				15.0	89°42'	+12.1	-2.9		1,356.3	TP			
	2970		353°28.3'-180°	+7.5°	+13.2	-		+13.2	1,369.5		BS	-2970-2	-50-2	
	2970				14.9	89°58'	-1.7	+13.2			BS			
JL TF	2710		353°37.8'	+7.5°	14.9	-		-14.9		1,354.6		+2709	+53	240,964 / 1,785,823 4 Way Intersect elev. 1353'
772	2640		353°28.3'	+7.5°	2.6	BH	-13.2	-15.8		1,353.7		+2640	+45	240,895 / 1,785,815
773	2310		" "	"	4.5	BH	-11.6	-16.1		1,353.4		+2310	+39	240,565 / 1,785,809 paved road
774	1980		" "	"	13.6	-		-13.6		1,355.9		+1980	+34	240,235 / 1,785,804
775	1650		" "	"	10.8	-		-10.8		1,358.7		+1650	+28	239,905 / 1,785,798
776	1320		" "	"	8.1	-		-8.1		1,361.4		+1320	+22	239,575 / 1,785,792
777	990		" "	"	6.5	-		-6.5		1,363.0		+990	+17	239,245 / 1,785,787
778	660		" "	"	5.4	-		-5.4		1,364.1		+660	+11	238,915 / 1,785,781
779	330		" "	"	5.1	-		-5.1		1,364.4		+330	+6	238,585 / 1,785,776
780	0		" "	"	5.4	-		-5.4		1,364.1	TP	0	0	238,255 / 1,785,770

SURVEY NOTES-HIGH RESOLUTION DATA
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Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
7/23/79		G. Cotcamp		R. Turner		6839		Ransom Turner		3	58				
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Raymond Lake		Minnesota	Stearns	125 N.	35 W.		L.O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1369.5						
781	330		172°59'	+7.5°	5.8	-		-5.8		1363.7		-330	-3	237,925	1,785,767
782	660		" "	"	5.2	-		-5.2		1364.3		-660	-6	237,595	1,785,764
783	990		" "	"	4.0	-		-4.0		1365.5		-990	-8	237,265	1,785,762
784	1320		" "	"	4.7	-		-4.7		1364.8		-1320	-11	236,935	1,785,759
785	1650		" "	"	6.0	-		-6.0		1363.5		-1650	-14	236,605	1,785,756
786	1980		" "	"	7.3	-		-7.3		1362.2		-1980	-17	236,275	1,785,753
787	2310		" "	"	9.0	-		-9.0		1360.5		-2310	-19	235,945	1,785,751
788	2520		172°44.3'	+7.5°	9.8	-		-9.8		1359.7		-2520	-10	235,735	1,785,760
788	2640		172°59'	+7.9°	10.4	-		-10.4		1359.1	TP	-2640	-18	235,615	1,785,752
	1650				15.0	89°54'	+4.6	-10.4			TP				
	1650		352°57.2'-180°	+7.9°	+3.7	-		+3.7			BS	-1650	-10		
	1650				+11.9	TH	-8.3	+3.6	1362.7		BS				
789	1320		352°57.2'	+7.9°	4.8	-		-4.8		1357.9		+1320	+8	235,285	1,785,450
790	990		" "	"	6.2	-		-6.2		1356.5		+990	+6	234,955	1,785,748
791	660		" "	"	6.3	-		-6.3		1356.4		+660	+4	234,625	1,785,746
792	330		" "	"	5.6	-		-5.6		1357.1		+330	+2	234,295	1,785,744
793	0		" "	"	5.4	-		-5.4		1357.3	TP	0	0	233,965	1,785,742
794	330		173° 2.6'	+7.9°	5.6	-		-5.6		1357.1		-330	-3	233,635	1,785,739
795	660		" "	"	6.0	-		-6.0		1356.7		-660	-5	233,305	1,785,737
796	990		" "	"	7.1	-		-7.1		1355.6		-990	-8	232,975	1,785,734

horiz. correct. y = -16'
x = -16'
235,735 + 1, 785,760(s)
E-W fence elev. 1358'

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.	PAGE					
7/24/79		G. Cotcamp		R. Turner		6834		Ransom Turner			3	59					
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER								
Minnesota		Raymond Lake		Minnesota	Stearns	125 N	35 W		L.O. Davis								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1362.7								
797	1320		173°26'	+7.9°	7.9	-		-7.7		1354.8		-1320	-10	232,645	1,785,732		
798	1650		"	"	8.9	-		-8.9		1353.8		-1650	-13	232,315	1,785,729		
1/E	1910		172°54.2'	+7.9°	12.1	-		-12.1		1350.6	TP	-1910	-10	232,055	1,785,732	T-intersect. elev. 1349'	
1/E	1910				8.7	90°6'	-3.3	-12.0			TP						
	1605		263°17.7'-180°	+7.9°	+8.8	-		+8.8			BS	-19+3	+1605+2			2,670' offset east	
	1605				+6.0	90°6'	+2.8	+8.8	1359.4		BS						
π	0				5.4	-		-5.4		1354.0	π	0	0	232,039	1,787,339	232,045 + 1,787,405(s)	
TF	1065		82°17'	+7.9°	3.7	-		-3.7		1355.7	TP	+6+2	+1065+3	232,047	1,788,407	T-intersect. elev. 1352'	
TF	1065				9.0	74	+5.3	-3.7			TP						
	2710		352°42.8'-180°	+7.9°	+0.1	-		+0.1	1355.8		BS	-2710+2	-5+2				
	2710				+13.6	TH	-13.6	+0.0			BS						
799	2640		352°33'	+7.9°	2.1	-		-2.1		1353.7		+2640	-2	231,980	1,788,402		
800	2310		"	"	1.3	-		-1.3		1354.5		+2310	-2	231,650	1,788,402		
801	1980		"	"	3.0	-		-3.0		1352.8		+1980	-2	231,320	1,788,402		
802	1650		"	"	3.8	-		-3.8		1352.0		+1650	-1	230,990	1,788,403		
803	1320		"	"	4.6	-		-4.6		1351.2		+1320	-1	230,660	1,788,403		
804	990		"	"	2.9	-		-2.9		1352.9		+990	-1	230,330	1,788,403		
805	660		"	"	5.3	-		-5.3		1350.5		+660	-1	230,000	1,788,403		
806	330		"	"	6.2	-		-6.2		1349.6		+330	0	229,670	1,788,404		
807	0				5.4	-		-5.4		1350.4	π	0	0	229,340	1,788,404		

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/24/79	INSTRUMENT MAN R. Citcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 3	PAGE 60
AREA Minnesota	TOPO MAP Padua 7 1/2'	STATE Minnesota	COUNTY Stearns	TWP 12.5N	RANGE 35W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1355.8					
808	330		172°42.7'	-7.2°	2.4	-		-2.4		1353.4		-330	+1	229,010 1,788,405
809	660		"	"	2.9	-		-2.9		1352.9		-660	+1	228,680 1,788,405
810	990		"	"	3.9	-		-3.9		1351.9		-990	+2	228,350 1,788,406
811	1320		"	"	6.1	-		-6.1		1349.7		-1320	+2	228,020 1,788,406
812	1650		"	"	8.6	-		-8.6		1347.2		-1650	+3	227,690 1,788,407
813	1980		172°42.7'	+7.2°	13.2	-		-13.2		1342.6	TP	-1980-2	+3+2	227,362 1,788,409
813	1980				10.9	90°4'	-2.3	-13.2			TP			
	2270		352°43.8'-180°	+7.2°	+10.0	7H	-11.4	-1.4	(1.3)		BS	-2270+3	+3	
	2270				+5.4	89°50'	-6.6	-1.2		1,341.3	BS			
814	1940		352°43.8'	+7.2°	4.1	-		-4.1		1,337.2		+1940	-2	227,036 1,788,410
815	1610		"	"	6.0	-		-6.0		1,335.3		+1610	-2	226,705 1,788,410
816	1280		"	"	5.1	-		-5.1		1,336.2		+1280	-2	226,375 1,788,410
817	950		"	"	5.4	-		-5.4		1,335.9		+950	-1	226,045 1,788,411
818	620		"	"	6.8	-		-6.8		1,334.5		+620	-1	225,715 1,788,411
819	290		"	"	8.3	-		-8.3		1,333.0		+290	0	225,385 1,788,412
<u>JL</u>	0				5.4	-		-5.4		1,335.9	π	0	0	225,095 1,788,412
TP	1655		82°55.3'	+7.0°	3.5	-		-3.5		1,337.8	TP	+2+5	+1655+2	225,102 1,790,069
TP	1655				11.7	7H	+8.3	-3.4			TP			
	1760		264°5.3'-180°	+7.0°	+12.1	BH	+8.8	+20.9			BS	-35+5	+1760+3	
	1760				+14.7	90°12'	+6.1	+20.8		1358.6	BS			

225,110 + 1,788,395 (s)
Intersect. elev. 1335'

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
7/24/79		G. Cotcamp		R. Turner		6834		Ransom Turner		3	61				
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Padua		Minnesota	Stearns	125 N	35 W		L.O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1358.6						
π	0				5.4	-		-5.4		1353.2		0	0	225,072	1,791,832
JL	1820		83°36'	+7.0°	9.6	-		-9.6		1,349.0	TP	-19.5	+1820.2	225,058	1,793,654
JL	1820				7.5	90°4'	-2.1	-9.6			TP				
	2680		353°33'-180°	+7.0°	12.8	TH	-13.4	-0.6	(0.5)		BS	-2680	-26+3		
	2680				+7.4	89°50'	-7.8	-0.4	1348.5		BS				
820	2690		353°18'	+7.0°	0.0	-		0.0		1,348.5		+2690	+25	225,018	1,793,656
821	2310		" "	"	0.9	-		-0.9		1,347.6		+2310	+22	224,688	1,793,653
822	1980		" "	"	2.3	-		-2.3		1,346.2		+1980	+19	224,358	1,793,650
823	1650		" "	"	4.1	-		-4.1		1,344.4		+1650	+16	224,028	1,793,647
824	1320		" "	"	5.0	-		-5.0		1,343.5		+1320	+13	223,698	1,793,644
825	990		" "	"	6.1	-		-6.1		1,342.4		+990	+10	223,368	1,793,641
826	660		" "	"	5.8	-		-5.8		1,342.7		+660	+6	223,038	1,793,637
827	330		" "	"	5.4	-		-5.4		1,343.1		+330	+3	222,708	1,793,634
828	0		" "	"	5.4	-		-5.4		1,343.1	π	0	0	222,378	1,793,631
829	330		173°30.3'	+7.0°	5.1	-		-5.1		1,343.4		-330	-3	222,048	1,793,628
830	660		" "	"	4.0	-		-4.0		1,344.5		-660	-6	221,718	1,793,625
831	990		" "	"	3.2	-		-3.2		1,345.3		-990	-9	221,388	1,793,622
832	1320		" "	"	3.0	-		-3.0		1,345.5		-1320	-12	221,058	1,793,619
833	1650		" "	"	2.4	-		-2.4		1,346.1		-1650	-15	220,728	1,793,616
834	1980		" "	"	2.0	-		-2.0		1,346.5		-1980	-17	220,398	1,793,614

225,060 + 1,793,640 (s)
4-Way Intersect elev. 1349'

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
7/24/79		S. G. Turner		R. Turner		624		RANSOM TURNER		3	62					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Padua		Minnesota	Padua		125N	35W		L. J. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS I TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
									1,348.5						horiz. correct. $y = +30'$ $x = +19'$	
835	2310		173° 30.3'	+7.0°	6.0	-		-6.0		1,342.5		-2310	-27	220,068	1,793,611	
836	2615		173° 14.5'	+7.0°	2.4	-		-9.6		1,338.9		-2615	-11	219,763	1,793,620	219,765 (1,793,620) elev. 1339'
836	2640		173° 30.3'	+7.0°	1.1	-		-10.4		1,338.1	IF	-2640+3	-23	219,741	1,793,608	
836	2640				136	89° 56'	+3.1	-10.5			IF					
	1650		351° 59.4' - 180°	+7.0°	+0.2	-		+0.2	1,338.3		BS	-1650+3	+29			
	1650				+8.4	TH	-8.3	+0.1			BS					
837	1320		351° 59.4'	+7.0°	1.4	-		-1.4		1,336.9		+1320	-23	219,414	1,793,614	
838	990		"	"	2.7	-		-2.7		1,335.6		+990	-17	219,084	1,793,620	
839	660		"	"	4.0	-		-4.0		1,334.3		+660	-12	218,754	1,793,625	
840	330		"	"	4.6	-		-4.6		1,333.7		+330	-6	218,424	1,793,631	
841	0				5.4	-		-5.4		1,332.9	TP	0	0	218,094	1,793,637	
842	330		171° 59.5'	+7.2°	7.8	-		-7.8		1,330.5		-330	+5	217,764	1,793,642	
843	660		"	"	9.1	-		-9.1		1,329.2		-660	+9	217,434	1,793,646	
844	990		"	"	7.4	-		-7.4		1,330.9		-990	+14	217,104	1,793,651	
845	1320		171° 59.5'	+7.2°	11.5	-		-11.5		1,326.8	TP	-1320+3	+19	216,777	1,793,656	
845	1320				4.9	BH	-6.6	-11.5			TP					
	1295		316° 55.4' - 180°	+7.2°	+4.7	-		+4.7	1,331.5		BS	-1099+3	+759-2			shooting across 45°
	1295				+11.2	TH	-6.5	+4.7			BS					bend.
846	990		312° -	+7.2°	9.9	-		-9.9		1,321.6		+799	-697	216,480	1,793,766	
847	660		"	"	9.2	-		-9.2		1,322.3		+500	-431	216,231	1,793,982	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.	PAGE			
7/25/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER			3	63			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER			
Minnesota		Padua		Minnesota		Stearns		125N/124W		35W		L.O. Davis			
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1331.5						
848	330		312° -	+7.2°	6.2	-		-6.2		1,325.3		+250	-216	215,981	1794,197
849	0				5.4	-		-5.4		1,326.1	X	0	0	215,731	1794,413
850	330		131° 57.8'	+7.2°	9.8	-		-9.8		1,321.7		-250	+216	215,481	1794,629
851	660		" "	"	11.8	-		-11.8		1,319.7		-499	+432	215,232	1794,845
852	990		" "	"	9.0	-		-9.0		1,322.5		-749	+647	214,982	1795,060
853	1320		" "	"	4.5	-		-4.5		1,327.0		-999	+863	214,732	1795,276
854	1650		131° 57.8'	-7.2°	4.5	-		-4.5		1,327.0	TP	-1298+3	+1079-2	214,486	1795,490
854	1650				12.8	TH	+8.3	-4.5			TP				
	1317		352° 40.2' - 180°	+7.2°	+5.8	-		+5.8	1,332.8		BS	-1317+3	+3-2		Shooting across 45° bend
	1317				+12.4	TH	-6.6	+5.8			BS				214,445 + 1,795,520 (-)
✓	1280		354° 28.3'	+7.2°	5.5	-		-5.5		1,327.3		+1279	+37	214,451	1795,528 Y-intersect elev. 1328'
855	990		354° 6'	+7.2°	4.8	-		-4.8		1,328.0		+990	+22	214,162	1795,513
856	660		" "	"	6.9	-		-6.9		1,325.9		+660	+15	213,832	1795,506
857	330		" "	"	7.3	-		-7.3		1,325.5		+330	+7	213,502	1795,498
858	0				5.4	-		-5.4		1,327.4	X	0	0	213,172	1795,491
859	330		174° 17.7'	+7.2°	6.3	-		-6.3		1,326.5		-300	-7	212,842	1795,482
860	660		" "	"	4.0	-		-4.0		1,328.8		-660	-17	212,512	1795,474
861	990		" "	"	3.3	-		-3.3		1,329.5		-990	-26	212,182	1795,465
862	1320		174° 17.7'	+7.2°	5.4	-		-5.4		1,327.4	TP	-1320+3	-74	211,855	1795,457
862	1320				12.0	TH	+6.6	-5.4			TP				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
7/25/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3		64			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Padua		Minnesota		Stearns		124 N		35 w				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
862										1,327.4					
	2310		354° 9.2' -180°	-7.2°	+8.0	-		+8.0	1,335.4		BS	-2310+3	-55		
	2310				+4.0	90° 6'	+4.0	+8.0			BS				
863	1980		354° 9.2'	-7.2°	5.6	BH	-9.9	-15.5		1,319.9		+1980	+47	211,528 1,795,449	
864	1650		" "	" "	10.0	BH	-8.3	-18.3		1,317.1		+1650	+39	211,198 1,795,441	
865	1320		" "	" "	10.1	BH	-6.6	-16.7		1,318.7		+1320	+31	210,868 1,795,433	
866	990		" "	" "	11.3	BH	-5.0	-16.3		1,319.1		+990	+23	210,538 1,795,425	
867	660		" "	" "	9.0	-		-9.0		1,326.4		+660	+16	210,208 1,795,418	
868	330		" "	" "	7.2	-		-7.2		1,328.2		+330	+8	209,878 1,795,410	
869	0		" "	" "	5.4	-		-5.4		1,330.0	X	0	0	209,548 1,795,402	
±F	225		172° 9'	-7.2°	8.1	-		-8.1		1,327.3		-225	+3	209,323 1,795,405	
870	330		173° 54.7'	-7.2°	11.1	-		-11.1		1,324.3		-330	-6	209,218 1,795,396	
871	660		" "	" "	13.8	-		-13.8		1,321.6		-660	-13	208,888 1,795,389	
872	990		" "	" "	11.6	BH	-5.0	-16.6		1,318.8		-990	-19	208,558 1,795,383	
873	1320		" "	" "	12.8	BH	-6.6	-19.4		1,316.0		-1320	-26	208,228 1,795,376	
874	1650		" "	" "	10.7	BH	-8.3	-19.0		1,316.4		-1650	-32	207,898 1,795,370	
875	1980		" "	" "	5.8	BH	-9.9	-15.7		1,319.7		-1980	-38	207,568 1,795,364	
876	2310		173° 54.9'	-7.2°	4.1	BH	-11.6	-15.7	(15.6)	1,319.8	TP	-2310+3	-45	207,241 1,795,357	
876	2310		" "	" "	14.2	90° 2'	-1.3	-15.5			TP				
	1650		353° 58.2' -180°	-7.2°	+4.9	-		+4.9			BS	-1650+3	-34		
	1650		" "	" "	+13.2	TH	-8.3	+4.9		1,324.7	BS				

209,315 + 1,795,400(s)
4-Way Intersect. elev. 1,328'

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
7/25/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3		65			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		Padua		Minnesota		Stearns		124N		35W				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1,324.7						
877	1320		353° 58.2'	+7.2°	6.0	-	-6.0		1,318.7			+1320	+27	206,914	1,795,350
878	990		" "	"	4.5	-	-4.5		1,320.2			+990	+20	206,584	1,795,343
879	660		" "	"	4.7	-	-4.7		1,320.0			+660	+13	206,254	1,795,336
880	330		" "	"	5.3	-	-5.3		1,319.4			+330	+7	205,924	1,795,330
881	0				54	-	-5.4		1,319.3		TP	0	0	205,594	1,795,323
882	330		173° 57'	+7.2°	5.0	-	-5.0		1,319.7			-330	-7	205,264	1,795,316
883	660		" "	"	5.9	-	-5.9		1,318.8			-660	-13	204,934	1,795,310
884	990		" "	"	6.7	-	-6.7		1,318.0			-990	-20	204,604	1,795,303
885	1320		" "	"	6.3	-	-6.3		1,318.4			-1320	-26	204,274	1,795,297
\perp	1548		173° 38.2'	+7.2°	3.1	-	-3.1		1,321.6		TP	-1548	-23	204,048	1,795,300
\perp	1548			"	10.8	TH	+7.7	-3.1			TP				
	1330		83° 22.3' + 180°	+7.2°	+7.4	-	+7.4		1,329.0		BS	+13	-1330		
	1330			"	+14.1	TH	-6.7	+7.4			BS				
\curvearrowright	0			"	54	-	-5.4		1,323.6		TP	0	0	204,061	1,793,970
886	102		172° 1.6'	+7.2°	4.2	-	-4.2		1,324.8			-102	+1	203,959	1,793,971
887	432		" "	"	5.6	-	-5.6		1,323.4			-432	+7	203,629	1,793,977
888	762		174° 47'	+7.2°	3.0	TH	+3.8	+0.8	1,329.8			-762	-26	203,299	1,793,944
889	1092		174° 47'	+7.2°	6.8	TH	+5.5	-1.3			TP	-1091	-38	202,970	1,793,932
889	1092			"	14.1	89° 20'	+12.7	-1.4		1,327.6	TP				

horiz. correct. $y = +34$, $x = -6$
 204,050 + 1,795,300(s)
 Intersect.

90° bend
 in field
 paved road
 ↓

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE				
7/27/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3		66				
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER		
Minnesota		PADUA		Minnesota		Stearns		124 N.		35 W.				L.O. Davis		
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH - LAT.	EAST + WEST - DEP.	COORDINATES		REMARKS
														Y	X	
889										1327.6						
	1650		354°44.8'-180°	+7.2°	+15.0	89°	-28.8	-13.8	1313.8		BS	-1649	-56			
	1650			"	+14.0	89°2'	-27.8	-13.8			BS					
890	1320		354°44.8'	+7.2°	8.6	89°10'	+19.2	+10.6		1324.4		+1319	+44	202,640	1,793,920	
891	990		"	"	7.7	89°10'	+14.4	+6.7		1320.5		+989	+34	202,310	1,793,910	
892	660		"	"	3.1	89°30'	+5.8	+2.7		1316.5		+660	+22	201,981	1,793,898	
893	330		"	"	1.3	-	-	-1.3		1312.5		+330	+11	201,651	1,793,887	
IF	110		1°27'	+7.2°	3.8	-	-	-3.8		1310.0		+109	+17	201,430	1,793,893	201,425 1,793,895 T-rd (east) elev 1309'
894	0				54	-	-	-5.4		1308.4	X	0	0	201,321	1,793,876	
895	330		173°51.3'	+7.2°	10.8	-	-	-10.8		1303.0		-330	-6	200,991	1,793,870	
896	660		"	"	7.2	91°	-11.5	-18.7		1295.1		-660	-12	200,661	1,793,864	
897	990		"	"	8.1	91°	-17.3	-25.4		1288.4		-990	-18	200,331	1,793,858	
898	1320		"	"	6.1	91°	-23.0	-29.1		1284.7		-1320	-24	200,001	1,793,852	
899	1650		173°51.3'	+7.2°	4.6	91°	-28.8	-33.4		1280.4	TP	-1650	-30	199,671	1,793,846	
899	1650				14.2	90°40'	-19.2	-33.4			TP					
	1320		353°57.7'-180°	+7.2°	+9.8	-	-	+9.8	1290.2		BS	-1320	-27			
	1320				+3.2	8H	+6.6	+9.8			BS					
900	990		353°57.7'	+7.2°	12.8	-	-	-12.8		1277.4		+990	+20	199,341	1,793,839	
901	660		"	"	12.9	-	-	-12.9		1277.3		+660	+13	199,011	1,793,832	last sts. on pavement
902	330		"	"	10.2	-	-	-10.2		1280.0		+330	+7	198,681	1,793,826	dirt road
903	0				5.4	-	-	-5.4		1284.8	X	0	0	198,351	1,793,819	↓

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
7/28/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3	67					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		PADUA		Minnesota	Stearns		124 N	35 W								
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
									1290.2							
#	50		147°47'	+7.2°	3.2	-		-3.2		1,287.0		-45	+21	198,306	1,793,840	198,310 + 1,793,835(s) offset 4-way Intersect.
904	330		169°6'	+7.2°	2.5	-		-2.5		1,287.7		-329	+21	198,022	1,793,840	
905	660		172°16'	+7.2°	1.1	-		-1.1		1,289.1		-660	+6	197,691	1,793,825	
906	988		173°16.2'	+7.2°	6.4	TH	+4.9	-1.5		1,288.7	TP	-988+2	-8	197,365	1,793,811	
906	988				4.4	89°50'	+2.9	-1.5			TP					
	990		354°7'-180°	+7.2°	+1.3	-		+1.3	1,290.0		BS	-990+2	-23			
	990				+6.3	TH	-5.0	+1.3			BS					
907	660		354°7'	+7.2°	4.2	-		-4.2		1,285.8		+660	+15	197,037	1,793,803	
908	330		" "	"	6.2	-		-6.2		1,283.8		+330	+8	196,707	1,793,796	
909	0				5.4	-		-5.4		1,284.6	TP	0	0	196,377	1,793,788	last sta. on road
910	330		218°28.3'	+7.2°	7.0	-		-7.0		1,283.0		-231	-236	196,146	1,793,552	in field
911	660		" "	"	6.1	-		-6.1		1,283.9		-461	-472	195,916	1,793,316	
912	990		" "	"	3.7	-		-3.7		1,286.3		-692	-708	195,685	1,793,080	
913	1320		" "	"	4.8	-		-4.8		1,285.2		-922	-944	195,455	1,792,844	
914	1650		218°28.3'	+7.2°	5.9	-		-5.9		1,284.1	TP	-1153+2	-1180	195,226	1,792,608	↓
914	1650				14.2	TH	+8.3	-5.9			TP					
	138		36°28.6'+180°	+7.2°	+3.4	-		+3.4	1,287.5		BS	-100+2	-95			
	138				+4.1	TH	-0.7	+3.4			BS					
π	0				5.4	-		-5.4		1,282.1	π	0	0	195,128	1,792,513	split sta. - curve
915	193		244°7'	+7.2°	7.4	-		-7.4		1,280.1		-62	-183	195,066	1,792,330	dirt road

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
7/28/79		G. Cotcamp		R. Turner		6834		Ransom Turner		3		68			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
Minnesota		PADUA		Minnesota		Stearns		124N		35w				L.O. Davis	
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1287.5						
916	522		239°20A'	+7.2°	10.1	-		-10.1		1,277.4	TP	-208+2	-479	194,922	1792,034
916	522				7.5	BH	-2.6	-10.1			TP				
	648		35°50'+180°	+7.2°	+5.9	89°20'	-7.5	-1.6	1275.8		BS	-474.2	-442		curve
	648				+4.1	89°30'	-5.7	-1.6			BS				
917	330		29°15'	+7.2°	2.9	-		-2.9		1,272.9		+265	+196	194,715	1,791,788
918	0				5.4	-		-5.4		1,270.4	T	0	0	194,450	1,791,592 4-Ton bridge
919	330		209°42'	+7.2°	4.8	-		-4.8		1,271.0		-264	-198	194,186	1,791,394
920	660		" "	"	0.1	-		-0.1		1,275.7		-528	-396	193,922	1,791,196
TP	875		208°50.5'	+7.2°	2.0	89°30'	+7.6	+5.6		1,281.4	TP	-708+2	-515	193,744	1,791,077 split sta. -curve
TP	875				4.6	89°20'	+10.2	+5.6			TP				
	118		353°2'-180'	+7.2°	+7.1	-		+7.1	1288.5		BS	-118+2	0		
	118				+7.7	TH	-0.6	+7.1			BS				
921	0				5.4	-		-5.4		1283.1	T	0	0	193,628	1,791,077 last sta. on road
921	108		155°50'	+7.2°	4.0	-		-4.0		1,284.5		-103	+32	193,525	1,791,109 193,540-1,791,100(s) E-W fence (elev.) 1285'
922	330		213°10'	+7.2°	5.2	-		-5.2		1,283.3		-251	-214	193,377	1,790,863 in field
923	660		211°24'	+7.2°	3.8	-		-3.8		1,284.7		-516	-412	193,112	1,790,665
924	990		" "	"	7.7	TH	+5.0	-2.7		1,285.8		-774	-618	192,854	1,790,459
925	1320		" "	"	10.7	TH	+6.6	-4.1		1,284.4		-1032	-824	192,596	1,790,253
926	1664		211°19.8'	+7.2°	10.8	TH	+8.3	-2.5 (-2.6)		1,285.9	TP	-1302+1	-1037	192,327	1,790,040 ↓
926	1664				10.4	89°44'	+7.7	-2.7			TP				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE		
7/28/79		G. Cotcamp		R. Turner		6834		Ransom Turner		3		69		
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		
Minnesota		PADUA		Minnesota		Stearns		124 N.		35 W.		PARTY MANAGER L.O. Davis		
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
926	316		35°47'+180°	+7.2°	+4.7	-		+4.7	1290.6	1285.9	BS	-231	-215	
	316				+6.2	TH	-1.6	+4.6			BS			
927	0				5.4	-		-5.4		1285.2	TP	0	0	192,096 1,789,825 in field
928	330		173°36'	+7.2°	0.9	TH	+1.7	+0.8		1291.4		-330	-5	191,766 1,789,820 on dirt road
929	660		" "	"	5.9	89°-	+11.5	+5.6		1296.2		-660	-9	191,436 1,789,816 v
930	990		" "	"	10.0	89°-	+17.3	+7.3		1297.9		-990	-14	191,106 1,789,811
931	1315		174°23.3'	+7.2°	14.3	89°18'	+16.1	+1.8		1292.4	TP	-1314	-36	190,782 1,789,789 curve
931	1315				15.0	89°16'	+16.8	+1.8			TP			
	651		32°31.7'+180°	+7.2°	+3.1	TH	-3.3	-0.2			BS	-501	-416	curve
	651				+3.3	89°42'	-3.4	-0.1	1292.3		BS			
11	600		35°34.8'	+7.2°	3.1	TH	+3.0	-0.1		1292.2		+440	+408	190,721 1,789,781 Y-intersect. (Elev) 1293
932	330		36°37'	+7.2°	5.8	-		-5.8		1286.5		+238	+228	190,519 1,789,601
933	0				5.4	-		-5.4		1286.9	TP	0	0	190,281 1,789,373
934	324		162°35.5'	+7.2°	3.5	-		-3.5		1288.8	TP	-319	-55	189,962 1,789,318 curve
934	324				5.1	TH	+1.6	-3.5			TP			
	660		333°11.3'-180°	+7.2°	+9.3	-		+9.3	1298.1		BS	-622	+222	
	660				+12.6	TH	-3.3	+9.3			BS			
935	330		333°11.3'	+7.2°	9.4	-		-9.4		1288.7		+311	-111	189,651 1,789,429
936	0				5.4	-		-5.4		1292.7	TP	0	0	189,340 1,789,540
937	330		169°34'	+7.2°	4.7	-		-4.7		1293.4		-329	+19	189,011 1,789,559

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
7/28/79		G. Cotcamp		R. Turner		5834		RANSOM TURNER		3	70				
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER					
Minnesota		PADUA		Minnesota	Stearns		124N	35w		L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1298.1						
938	660		170° 36.7'	+7.2°	9.4	-		-9.4		1288.7		-660	+25	188,680	1,789,565
939	990		" "	"	7.4	-		-7.4		1290.7		-989	+38	188,351	1,789,578
940	1070		170° 15.3'	+7.2°	6.7	-		-6.7		1291.4		-1069	+48	188,271	1,789,588
940	1320		170° 36.7'	+7.2°	5.6	-		-5.6		1292.5	TP	-1319	+50-2	188,021	1,789,588
940	1320				12.2	TH	+6.6	-5.6			TP				
	990		350° 24.3' -180°	+7.2°	+2.2	-		+2.2	1294.7		BS	-989	+41-2		
	990				+7.1	TH	-5.0	+2.1			BS				
941	660		350° 24.3'	+7.2°	2.9	-		-2.9		1291.8		+659	-28	187,691	1,789,599
942	330		" "	"	4.7	-		-4.7		1290.0		+330	-14	187,362	1,789,613
943	0				5.4	-		-5.4		1289.3	TP	0	0	187,032	1,789,627
944	330		156° 32.8'	+7.2°	6.4	-		-6.4		1288.3		-317	+92	186,715	1,789,719
945	660		" "	"	7.2	-		-7.2		1287.5		-634	+185	186,398	1,789,812
946	990		156° 32.8'	+7.2°	7.9	-		-7.9		1286.8	TP	-950	+277-2	186,082	1,789,902
946	990				2.9	BH	-5.0	-7.9			TP				
	990		345° 53' -180°	+7.2°	+6.5	-		+6.5	1293.3		BS	-983	+119-2		
	990				+11.4	TH	-5.0	+6.4			BS				
947	660		345° 53'	+7.2°	8.2	-		-8.2		1285.1		+655	-79	185,754	1,789,940
948	330		340° 43'	+7.2°	8.0	-		-8.0		1285.3		+323	-69	185,422	1,789,950
949	0				5.4	-		-5.4		1287.9	TP	0	0	185,099	1,790,019
950	330		179° 10'	+7.2°	5.8	-		-5.8		1287.5		-328	-37	184,771	1,789,982

188,290 + 1,789,590 (s)
4-way (elev) 1292'

set-up opposite sta.

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/28/79	INSTRUMENT MAN G. Catcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 3	PAGE 71
AREA Minnesota	TOPO MAP Padua/Belgrade 7 1/2'	STATE Minnesota	COUNTY Stearns	TWP 124N/123N	RANGE 35 W	PPM
				PARTY MANAGER L.O. Davis		

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1,293.3					
951	660		180° 40.3'	+7.2°	8.3	-		-8.3		1,285.0		-654	-90	184,445 1,789,929
952	990		" "	"	8.3	-		-8.3		1,285.0		-981	-136	184,118 1,789,883
953	1320		180° 40.3'	+7.2°	6.3	-		-6.3		1,287.0	TP	-1308	-181-2	183,791 1,789,836
953	1320				3.3	90° 8'	-3.1	-6.4			TP			
	660		1° 35.3' + 180°	+7.2°	+6.0	-		+6.0	1,293.0		BS	-652	-101-2	
	660				+9.3	TH	-3.3	+6.0			BS			↑
954	330		1° 35.3'	+7.2°	6.5	-		-6.5		1,286.5		+326	+50	183,465 1,789,783 Padua Quad.
955	0				5.4	-		-5.4		1,287.6	TP	0	0	183,139 1,789,733 Belgrade Quad.
#	288		172° 47'	+7.2°	0.9	-		-0.9		1,292.1		-288	0	182,851 1,789,733 rail road
956	330		174° 30'	+7.2°	0.9	-		-0.9		1,292.1		-330	-10	182,809 1,789,723 unable to locate B.M. 182,650 + 1,789,725 (6) trail (east)
17	488		173° 41.3'	+7.2°	1.7	TH	+2.4	+0.7		1,293.7		-488	-8	182,651 1,789,725
957	660		174° 30'	+6.0°	1.3	TH	+3.3	+2.0		1,295.0		-660	-6	182,479 1,789,727 horiz. control y=+17 x=-17
958	990		" "	"	5.9	TH	+5.0	-0.9		1,292.1		-990	-9	182,149 1,789,724
959	1320		174° 30'	+6.0°	7.5	TH	+6.6	-0.9		1,292.1	TP	-1320	-12	181,819 1,789,721
959	1320				14.7	89° 24'	+13.8	-0.9			TP			
	1980		355° 43' - 180°	+5.5'	+2.0	-		+2.0	1,294.1		BS	-1980	-42	
	1980				+11.9	TH	-9.9	+2.0			BS			
960	1650		355° 43'	+5.5'	4.9	-		-4.9		1,289.2		+1650	+35	181,489 1,789,714
961	1320		" "	"	5.3	-		-5.3		1,288.8		+1320	+28	181,159 1,789,707
962	990		" "	"	5.8	-		-5.8		1,288.3		+990	+21	180,829 1,789,700

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
7/28/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3	72					
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		BELGRADE		Minnesota	Stearns	123 N.	35 W.		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
									1294.1							
963	660		355°43'	+55°	7.7	-		-7.7		1,286.4		+660	+19	180,499	1,789,693	180,365+1,789,700(±) T-rd(east)(elev) 1289'
1F	530		357°1.5'	+55°	5.2	-		-5.2		1,288.9		+529	+23	180,368	1,789,702	
964	330		355°43'	+55°	4.6	-		-4.6		1,289.5		+330	+7	180,169	1,789,686	paved road
965	0				5.4	-		-5.4		1,288.7	TP	0	0	179,839	1,789,679	
966	330		174°57'	+48°	5.2	-		-5.2		1,288.9		-330	+1	179,509	1,789,680	
967	660		" "	"	4.3	-		-4.3		1,289.8		-660	+3	179,179	1,789,682	dirt road
968	990		" "	"	3.1	-		-3.1		1,291.0		-990	+4	178,849	1,789,683	↓
969	1320		174°57'	+48°	5.8	-		-5.8		1,288.3	TP	-1320	+6	178,519	1,789,685	
969	1320				12.4	TH	+6.6	-5.8			TP					
	1980		347°30.3'-180°	+44°	+5.6	TH	-9.9	-4.3	1,284.0		BS	-1960	+279			
	1980				+6.1	89°42'	-10.4	-4.3			BS					
970	1650		347°30.3'	+44°	0.7	-		-0.7		1,283.3		+1634	-232	178,193	1,789,732	
971	1320		" "	"	3.0	-		-3.0		1,281.0		+1307	-186	177,866	1,789,778	
972	990		" "	"	3.5	-		-3.5		1,280.5		+980	-139	177,539	1,789,825	
973	660		" "	"	4.0	-		-4.0		1,280.0		+653	-93	177,212	1,789,871	
974	330		" "	"	4.8	-		-4.8		1,279.2		+327	-96	176,886	1,789,918	
975	0				5.4	-		-5.4		1,278.6	TP	0	0	176,559	1,789,964	
976	330		173°37'	+38°	4.2	-		-4.2		1,279.8		-330	+15	176,229	1,789,979	
977	660		" "	"	4.8	-		-4.8		1,279.2		-659	+30	175,900	1,789,994	
978	990		" "	"	6.6	-		-6.6		1,277.4		-989	+95	175,570	1,790,009	

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
7/29/79		G. Cotcamp		R. Turner		6834		Ransom Turner		3	73					
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER		
Minnesota		Belgrade		Minnesota		Stearns		123 N.		35 W.				L.O. Davis		
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
									1284.0							
979	1313		170° 58.3'	+38°	8.7	-		-8.7		1,275.3	TP	-1308	+120	175,251	1,790,084	curve
979	1313				2.1	BH	-6.6	-8.7			TP					
	990		341° 21.8' - 180°	+52°	+4.6	-		+4.6	1,279.9		BS	-957	+254			
	990				+9.5	TH	-5.0	+4.5			BS					
980	660		341° 21.8'	+38°	5.8	-		-5.8		1,274.1		+638	-169	174,932	1,790,169	
981	330		" "	" "	6.0	-		-6.0		1,273.9		+319	-35	174,613	1,790,253	
982	0				5.4	-		-5.4		1,274.5	TP	0	0	174,244	1,790,338	
983	330		122° 50'	+28°	4.5	-		-4.5		1,275.4		-194	+267	174,100	1,790,605	
984	660		119° 25.7'	+30°	4.8	-		-4.8			TP	-356	+556	173,938	1,790,894	
984	660				6.1	TH	+3.3	-4.8		1,275.1	TP					
	640		332° 0.5' - 180°	+32°	+3.0	BH	+3.2	+6.2			BS	-581	+268			Curve
	640				3.6	90° 14'	+2.6	+6.2	1,281.3		BS					
985	330		342° 27'	+32°	7.0	-		-7.0		1,274.3		+320	-82	173,677	1,791,080	
986	0				5.4	-		-5.4		1,275.9	TP	0	0	173,357	1,791,162	
987	327		130° -	+28°	5.0	-		-5.0		1,276.3		-222	+290	173,135	1,791,402	
988	655		123° 20'	+28°	3.9	-		-3.9		1,277.4		-386	+529	172,971	1,791,691	
989	982		121° 18'	+28°	0.7	-		-0.7		1,280.6		-551	+813	172,806	1,791,975	
BM	830		288° 13.8'	+28°	4.3	-		-4.3		1,277.0		+298	-775	173,655	1,790,387	G 10 1-1939 (elev) 1277'
990	1308		120° 30.1'	+28°	5.1	TH	+6.5	+1.4			TP	-718	+1093	172,639	1,792,255	curve
990	1308				6.3	89° 40'	+7.6	+1.3		1,282.6	TP					

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE			
7/29/79		G. Cotcamp		R. Turner		6834		Ransom TURNER		3	74			
AREA		TOPO MAP		STATE		COUNTY		TWP	RANGE	PPM	PARTY MANAGER			
Minnesota		Belgrade		Minnesota		Stearns		123 N	35 W		L.O. Davis			
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS A TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
990										1,282.6				
	2640		357°21.3'180°	+2.8°	+14.8	-		+14.8	1,297.4		BS	-2640	-7	
	2640				+11.7	90°4'	+3.1	+14.8			BS			
##	2565		357°56'	+2.8°	12.2	-		-12.2		1,285.2		+2565	+33	172,564, 1,792,281 railroad
##	2405		358°1'	+2.8°	13.7	-		-13.7		1,283.7		+2405	+34	172,404, 1,792,282 4-Way Intersect.
991	2310		357°46'	+2.8°	3.7	BH	-11.6	-15.3		1,282.1		+2310	+23	172,309, 1,792,271
992	1980		" "	"	13.3	-		-13.3		1,284.1		+1980	+20	171,979, 1,792,268
993	1650		" "	"	11.9	-		-11.9		1,285.5		+1650	+16	171,649, 1,792,264
994	1320		" "	"	9.8	-		-9.8		1,287.6		+1320	+13	171,319, 1,792,261
995	990		" "	"	9.5	-		-9.5		1,287.9		+990	+10	170,989, 1,792,258
996	660		" "	"	7.5	-		-7.5		1,289.9		+660	+7	170,659, 1,792,255
997	330		" "	"	6.3	-		-6.3		1,291.1		+330	+3	170,329, 1,792,251
998	0		" "	"	5.4	-		-5.4		1,292.0	π	0	0	169,999, 1,792,248
999	330		177°59.2'	+2.2°	9.5	-		-9.5		1,287.9		-330	-7	169,669, 1,792,241
1000	660		" "	"	13.2	-		-13.2		1,284.2		-660	-14	169,339, 1,792,234
1001	990		" "	"	14.0	BH	-5.0	-19.0		1,278.4		-990	-21	169,009, 1,792,227
1002	1320		" "	"	10.3	BH	-6.6	-16.9		1,280.5		-1320	-27	168,679, 1,792,221
1003	1650		" "	"	7.0	BH	-8.3	-15.3		1,282.1		-1650	-34	168,349, 1,792,214
1004	1980		" "	"	5.1	BH	-9.9	-15.0		1,282.4		-1980	-41	168,019, 1,792,207
1005	2310		" "	"	13.4	-		-13.4		1,284.0		-2310	-48	167,689, 1,792,200

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE								
7/29/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3	76								
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER					
Minnesota		BELGRADE		Minnesota		Stearns		123 N.		35 W.				L.O. Davis					
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
									1297.5										
1020	1980		176°50'	+3.5°	1.5	-		-1.5		1,296.0	TP	-172	-12	162,739	1,792,146				
1020	1980				11.4	TH	+9.9	-1.5			TP								
	2310		356°57'-180°	+3.5°	+14.2	89°-	-40.3	-26.1	1,269.9		BS	-2310	+18						
	2310				+7.5	89°10'	-33.6	-26.1			BS								
1021	1980		356°57'	+3.5°	10.9	89°-	+34.6	+24.2		1,294.1		+1920	+16	162,409	1,792,144				
1022	1650		" "	"	9.2	89°-	+28.8	+19.6		1,289.5		+1650	+13	162,079	1,792,141				
-11	1505		357°49.4'	+3.5°	8.8	89°-	+26.3	+17.5		1,287.4		+1505	+35	161,934	1,792,163				161,995 + 1,792,160 (s) fence (elev) 1288'
1023	1320		357°54'	+3.5°	8.3	89°-	+23.0	+14.7		1,284.6		+1320	+32	161,749	1,792,160				
1024	990		" "	"	8.2	89°-	+17.3	+9.1		1,279.0		+990	+29	161,419	1,792,152				
1025	660		" "	"	7.9	89°-	+11.5	+3.6		1,273.5		+660	+16	161,089	1,792,144				
1026	330		1°16'	+3.5°	1.8	-		-1.8		1,268.1		+329	+27	160,758	1,792,155				
1027	0				5.4	-		-5.4		1,264.5	X	0	0	160,429	1,792,128				
1028	330		195°34'	+4.3°	4.3	-		-4.3		1,265.6		-310	-112	160,119	1,792,016				
1029	660		200°26.1'	+4.3°	2.7	-		-2.7		1,267.2	TP	-599	-276-2	159,830	1,791,850				curve
1029	660				6.0	TH	+3.3	-2.7			TP								
	330		44°39'+180°	+4.3°	+4.3	-		+4.3			BS	-217	-249-3						
	330				+6.0	TH	-1.7	+4.4	1271.6		BS								
1030	0				5.4	-		-5.4		1,266.2	X	0	0	159,613	1,791,598				159,545 + 1,791,525 (s)
TP	78		218°46'	+4.3°	3.7	-		-3.7		1,267.9		-57	-53	159,556	1,791,545				ST-intersect (elev) 1269'
1031	263		169°27'	+4.3°	2.4	-		-2.4		1,269.2		-258	+51	159,355	1,791,649				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE				
7/30/79		G. Cotcamp		R. Turner		6834		Ransom TURNER		3	77				
AREA		TOPO MAP		STATE	COUNTY	TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Belgrade		Minnesota	Stearns	123N	35W		L.O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1271.6						
1032	590		159°50'	+4.7°	2.0	-		-2.0		1,269.6		-569	+157	159,044	1,791,755
1033	920		158°44'	+4.7°	1.7	-		-1.7		1,269.9	TP	-882	+262-2	158,731	1,791,858 shooting across curve
1033	920				6.3	TH	+4.6	-1.7			TP				
	1310		319°40'-180°	-4.7°	+10.9	-		+10.9	1,280.8		BS	-1065	+763-2		curve
	1310				+9.3	90°4'	+1.5	+10.8			BS				
1034	990		317°31'	+4.7°	5.6	-		-5.6		1,275.2		+782	-607	158,448	1,792,012
1035	660		" "	"	7.4	-		-7.4		1,273.4		+522	-404	158,188	1,792,215
1036	330		" "	"	9.0	-		-9.0		1,271.8		+261	-202	157,927	1,792,417
1037	0				5.4	-		-5.4		1,275.4	π	0	0	157,666	1,792,619
1038	330		159°1.6'	+5.1°	13.6	BH	-1.7	-15.3		1,265.5	TP	-317	+90-2	157,349	1,792,707
1038	330				14.3	90°10'	-1.0	-15.3			TP				
	990		350°36.6'-180°	+5.5°	+6.2	-		+6.2	1,271.7		BS	-988	+67		
	990				+11.2	TH	-5.0	+6.2			BS				
1039	660		350°36.6'	+5.5°	5.7	-		-5.7		1,266.0		+658	-95	157,019	1,792,729
1040	330		" "	"	6.3	-		-6.3		1,265.4		+327	-22	156,690	1,792,752
1041	0				5.4	-		-5.4		1,266.3	π	0	0	156,361	1,792,774
1042	330		182°3'	+5.5°	4.0	-		-4.0		1,267.7		+327	-43	156,034	1,792,731
1043	660		" "	"	3.2	-		-3.2		1,268.5		-654	-87	155,707	1,792,687
1044	985		178°16.3'	+5.5°	5.9	TH	+4.9	-1.0		1,270.7	TP	-983	-65	155,378	1,792,709 curve
1044	985				5.0	89°46'	+4.0	-1.0			TP				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE								
7/30/79		G. Cotcamp		R Turner		6839		RANSOM TURNER		3	78								
AREA		TOPO MAP	STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER										
Minnesota		Belgrade	Minnesota	Stearns		123 N.	35 W.		L.O. Davis										
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -		EAST + WEST -		COORDINATES		REMARKS	
												LAT.	DEP.	Y	X				
1044										1,270.7									
	651		2°51.5' + 180°	+5.5°	+6.2	-		+6.2	1,276.9		BS	-5.7	-85						curve
	651				+9.4	TH	-3.3	+6.1			BS								(155,017, 1,792,226)
1045	330		4°25.3'	+5.5°	6.2	-		-6.2	1,270.7			+6.0	+108	155,354	1,792,724				Tr-d (east) (elev) 12.71'
1045	330		9°52'	+5.5°	9.0	-		-9.0	1,267.9			+3.8	+87	155,052	1,792,701				
1046	0				5.4	-		-5.4	1,271.5		TP			154,734	1,792,614				
1047	330		198°3.4'	+5.9°	6.7	-		-6.7	1,270.2			-3.0	-124	154,432	1,792,480				
1048	660		198°3.4'	+5.9°	3.5	-		-3.5	1,273.4		TP	-6.0	-262	154,131	1,792,346				
1048	660				6.8	TH	+3.3	-3.5			TP								
	326		56°53' + 180°	+5.9°	+11.1	-		+11.1	1,284.5		BS	-1.2	-288						curve
	326				+12.7	TH	-1.6	+11.1			BS								
1049	0				5.4	-		-5.4	1,279.1		TP			153,978	1,792,058				
1050	322		190°55.3'	+5.9°	6.2	-		-6.2	1,278.3		TP	-3.5	-122	153,670	1,791,965				curve
1050	322				7.8	TH	+1.6	-6.2			TP								
	990		356°1.4' + 180°	+5.9°	+6.5	89°	-17.3	-10.8			BS	-9.0	-322						
	990				+0.8	89°20'	-11.5	-10.7	1,267.6		BS								
1051	660		356°1.4'	+5.9°	0.2	-		-0.2	1,267.4			+6.0	+122	153,341	1,791,954				
1052	330		"	"	3.7	-		-3.7	1,263.9			+3.0	+111	153,011	1,791,943				
1053	0				5.4	-		-5.4	1,262.2		TP			152,681	1,791,932				
1054	330		176°15'	+5.9°	5.1	-		-5.1	1,262.5			-3.0	-122	152,351	1,791,920				
1055	660		"	"	1.8	-		-1.8	1,265.8			-6.0	-322	152,021	1,791,907				

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE					
7/30/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3	79					
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER						
Minnesota		Belgrade		Minnesota	Stearns/Kandiyohi		123N/122N	35 W.		L.O. Davis						
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS		
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y	X
									1,267.6						↑ Stearns Co.	
1056	990		176°15'	-59°	6.1	-		-6.1		1,261.5		-779	-37	151,692	1,791,895	
⊥	1262		175°39.5'	+59°	4.0	-		-4.0		1,263.6	TP	-732	-39	151,419	1,791,898	Intersect (elev) 1264'
⊥	1262				10.3	TH	+6.3	-4.0			TP					
	1890		264°33'-180°	+63°	+3.8	-		+3.8	1,267.4		BS	-38	+220			4.0' offset east
	1890				+13.2	TH	-9.5	+3.8			BS					
⊥	0				5.4	-		-5.4		1,262.0	⊥	0	0	151,391	1,793,788	
⊥	2120		83°37.1'	+63°	13.6	90°4'	-2.5	-16.1		1,251.3	TP	+3	+220	151,394	1,795,908	Intersect (elev) 1252'
⊥	2120				5.5	8H	-10.6	-16.1			TP					
	718		354°17.8'-180°	+67°	+14.4	90°36'	+7.5	+21.9			BS	-22	-14			
	718				+13.6	90°40'	+8.4	+22.0	1,273.3		BS					
1057	660		353°26'	+58°	11.3	91°-	-11.5	-22.8		1,250.5		+360	+3	151,336	1,795,897	Kandiyohi Co.
1058	330		" "		10.0	91°-	-5.8	-15.8		1,257.5		+330	-1	151,006	1,795,895	↓
1059	0				5.4	-		-5.4		1,267.9	⊥	0	0	150,676	1,795,894	
1060	330		173°51'	+58°	11.4	-		-11.4		1,261.9		-330	-4	150,346	1,795,890	
1061	660		" "		7.2	-		-7.2		1,266.1		+660	7	150,016	1,795,887	
1062	990		" "		10.5	8H	-5.0	-15.5		1,257.8		-990	-11	149,686	1,795,883	
1063	1320		" "		13.4	-		-13.4		1,259.9		-1320	-5	149,356	1,795,879	
1064	1650		173°51'	+58°	10.4	-		-10.4		1,262.9		+1650	+17	149,026	1,795,875	
⊥	1960		173°39.5'	+58°	5.8	8H	-9.8	-15.6		1,257.7	TP	-1960	-1	148,716	1,795,878	90° bend
⊥	1960				13.4	90°4'	-2.3	-15.7			TP					

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE			
7/30/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3	80			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE	PPM	PARTY MANAGER		
Minnesota		Belgrade		Minnesota		Kandiyohi		122 N.		35 W.		L.O. Davis		
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
L										1257.7				
	590		262°25.5'-180°	+1.8°	+8.9	89°	-10.3	-1.4	1256.3		BS	+2		1,315' offset east
	590				+5.5	89°20'	-6.9	-1.4			BS			
π	0				5.4	-		-5.4		1,250.9	π	0	0	148,726, 1,796,468
7i	725		83°17.7'	+4.8°	5.1	90°54'	-11.4	-16.5			TP	-1+3	+725	148,728, 1,797,193 90° bend (south)
7i	725				5.9	90°50'	-10.5	-16.4		1,239.9	TP			
	680		353°18.2'-180°	+4.2°	+8.8	91°-	+11.9	+20.7			BS	-680+3	-1	
	680				+14.7	90°30'	+5.9	+20.6	1,260.5		BS			
1065	660		353°6'	+5.7°	19.9	90°30'	-5.8	-20.7		1,239.8		+660	-1	148,711, 1,797,191 in field
1066	330		"	"	9.1	-		-9.1		1,251.4		+330	-1	148,381, 1,797,191
1067	0				5.4	-		-5.4		1,255.1	π	0	0	148,051, 1,797,192
1068	330		173°12'	+5.0°	8.7	-		-8.7		1,251.8		-330	0	147,721, 1,797,192
1069	660		"	"	15.7	-		-15.7		1,244.8		-660	0	147,391, 1,797,192
1070	990		"	"	11.2	-		-11.2		1,249.3		-990	0	147,061, 1,797,192
1071	1320				5.2	TH	+6.6	+1.4		1,261.9		-1320	0	146,731, 1,797,192
1072	1650		173°12'	+5.8°	1.9	TH	+8.3	+6.4	(+6.3)	1,266.8	TP	-1650+3	0	146,404, 1,797,192
1072	1650				5.3	89°36'	+11.5	+6.2			TP			
	660		350°39.2'-180°	+6.8°	+1.0	-		+1.0	1,267.8		BS	-659	+29	
	660				+4.3	TH	-3.3	+1.0			BS			
14	368		350°36'	+6.8°	11.3	-		-11.3		1,256.5		+368	-17	146,113, 1,797,204 14-Way Intersect (elev) 1257'
1073	330		350°39.2'	+6.8°	11.6	-		-11.6		1,256.2		+330	-15	146,075, 1,797,206

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE						
7/30/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3	81						
AREA		TOPO MAP		STATE	COUNTY		TWP	RANGE	PPM	PARTY MANAGER							
Minnesota		Belgrade		Minnesota	Kandiyohi		122 N.	35 W.		L.O. Davis							
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	NORTH + SOUTH -	EAST + WEST -	COORDINATES		REMARKS	
												LAT.	DEP.	Y	X		
									1267.8								
1074	0				5.4	-		-5.4		1262.4	π	0	0	145,745	1,797,221		
1075	330		169°15.7'	+7.2°	12.3	-		-12.3		1255.5		-329	+20	145,416	1,797,241		
1076	660		"	"	13.5	-		-13.5		1254.3		-659	+41	145,086	1,797,262		
1077	990		169°15.7'	+7.2°	13.3	BH	-5.0	-18.3		1249.5	TP	-988+3	+61	144,760	1,797,282		
1077	990				13.1	90°18'	-5.2	-18.3			TP						
	640		341°12'-180°	+7.2°	+5.2	-		+5.2	1254.7		BS	-627+3	+129			sharp curve	
	640				+8.4	TH	-3.2	+5.2			BS						
1078	320		345°14'	+7.2°	5.1	-		-5.1		1249.6		+317	-42	144,453	1,797,369		
1079	0				5.4	-		-5.4		1249.3	π	0	0	144,136	1,797,411		
1080	330		204°29.7'	+7.2°	11.9	-		-11.9		1242.8	TP	-281+3	-173	143,858	1,797,238		
1080	330				13.6	TH	+1.7	-12.0			TP						
	326		7°26'+180°	+7.2°	+0.7	-		+0.7	1243.5		BS	-315+3	-82			curve	
	326				+2.3	TH	-1.6	+0.7			BS						
1081	0				5.4	-		-5.4		1238.1	π	0	0	143,546	1,797,156		
1082	330		173°42.7'	+7.2°	8.9	-		-8.9		1234.6		-330	-5	143,216	1,797,151		
1083	660		"	"	9.4	-		-9.4		1234.1		-660	-11	142,886	1,797,145		
1084	990		173°42.7'	+7.2°	10.4	-		-10.4		1233.1	TP	-990+3	-16	142,559	1,797,140		
1084	990				5.4	BH	-5.0	-10.4			TP						
	990		353°54.3'-180°	+7.2°	+13.8	90°30'	+8.6	+22.4	1255.5		BS	-990+3	-19				
	990				+10.9	90°40'	+11.5	+22.4			BS						

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE		
7/30/79		G. Cotcamp		R. Turner		6834		RANSOM TURNER		3		82		
AREA		TOPO MAP		STATE		COUNTY		RANGE		PPM		PARTY MANAGER		
Minnesota				Minnesota		Kandiyohi		122 N.		35 W.		L.O. Davis		
STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.	
									1,255.5					
1085	660		353° 54.3'	+7.2°	12.2	90° 30'	-5.8	-18.0		1,237.5		+660	+13	142,232, 1,797,134
1086	330		" "	"	10.8	-		-10.8		1,244.7		+330	+6	141,902, 1,797,127
1087	0				5.4	-		-5.4		1,250.1	π	0	0	141,572, 1,797,121
1088	330		173° 27'	+7.2°	0.3	-		-0.3		1,255.2		-330	-4	141,242, 1,797,117
1089	660		" "	"	1.7	TH	+3.3	+1.6		1,257.1		-660	-7	140,912, 1,797,114
TL	687		172° 28.6'	+7.2°	3.5	89° 30'	+6.0	+2.5		1,258.0	TP	-687	+4	140,885, 1,797,125
TL	687				0.9	TH	+3.4	+2.5			TP			
	1637		89° +180°	+7.2°	+6.6	TH	-8.2	-1.6	1,256.4		BS	+34-3	-1637	
	1637				+6.1	89° 44'	-7.6	-1.5			BS			
π	0				5.4	-		-5.4		1,251.0	π	0	0	140,916, 1,795,488
TP	1008		262° 18'	+7.2°	2.3	TH	+5.0	+2.7		1,259.1	TP			140,400 + 1,794,495 T-intersect. (elev) 1258'
TP	1008				2.6	89° 42'	+5.3	+2.7			TP	-9-3	-1008	140,904, 1,794,480
	963		353° 52.7'-180°	+7.2°	+14.9	BH	+4.8	+19.7	1,278.8		BS			
	963				+14.1	90° 20'	+5.6	+19.7			BS	-963-1	-18-1	
1090	660		353° 3'	+7.2°	14.9	90° 20'	-3.8	-18.7		1,260.1		+660	+3	140,600, 1,794,461
1091	330		" "	"	14.0	90° 30'	-2.9	-16.9		1,261.9		+330	+1	140,270, 1,794,462
1092	0				5.4	-		-5.4		1,273.4	π	0	0	139,940, 1,794,461
1093	330		173° 32'	+7.2°	6.3	-		-6.3		1,272.5		-330	-4	139,610, 1,794,451
1094	660		" "	"	13.2	96° 30'	-5.8	-19.0		1,259.8		-660	-8	139,280, 1,794,453
1095	990		" "	"	12.3	91°	-17.3	-29.6		1,249.2		-990	-13	138,950, 1,794,448

SURVEY NOTES-HIGH RESOLUTION DATA

GEO-445

Geosource Inc.

DATE 7/31/79	INSTRUMENT MAN G. Catcamp	ROD MAN R. Turner	PARTY NUMBER 6834	NOTES CHECKED BY RANSOM TURNER	LINE NO. 3	PAGE 83 of 83
AREA MINNESOTA	TOPO MAP Belgrade/Mount Tom	STATE Minnesota	COUNTY Kandiyohi	TWP 122 N.	RANGE 35 W.	PPM
PARTY MANAGER L.O. Davis						

STATION NO.	SLOPE DISTANCE	PLOTTING DISTANCE	AZIMUTH FROM MAGNETIC NORTH	DEC	ROD READING	VERTICAL ANGLE	VERTICAL CHANGE	DIFFERENCE IN ELEVATION	ELEVATION OF INSTRUMENT	ELEVATION OF STATION	BS X TP	COORDINATES		REMARKS	
												NORTH + SOUTH - LAT.	EAST + WEST - DEP.		Y
									1,278.8						
1096	1320		173°32'	+7.2°	13.3	90°40'	-15.4	-28.7		1,250.1		+1320	-17	138,620	1,794,444
1097	1650		173°32'	+7.2°	9.8	90°40'	-19.2	-29.0		1,249.8	TP	-1650	-21	138,290	1,794,439
1097	1650				14.6	90°30'	-14.4	-29.0			TP				
	1650		353°4.3'-180°	+7.2°	12.2	90°40'	+19.2	+31.4			BS	-1650	-8		
	1650				+15.0	90°34'	+16.3	+31.3	1,281.1		BS				
1098	1320		353°4.3'	+7.2°	12.0	91°-	-2.3	-35.0		1,246.1		+1320	+104	137,960	1,794,534
1099	990		" "	"	12.9	91°-	-17.3	-30.2		1,250.9		+990	+5	137,630	1,794,435
1100	660		" "	"	7.8	91°-	-11.5	-19.3		1,261.8		+660	+3	137,300	1,794,433
1101	330		" "	"	13.6	-		-13.6		1,267.5		+330	+2	136,970	1,794,432
1102	0				5.4	-		-5.4		1,275.7	X	0	0	136,640	1,794,430
1103	330		173°9.3'	+7.2°	5.3	-		-5.3		1,275.8		-330	-2	136,310	1,794,428
1104	660		" "	"	7.4	-		-7.4		1,273.7		-660	-4	135,980	1,794,426
1105	990		" "	"	14.7	90°30'	-8.6	-23.3		1,257.8		-990	-6	135,650	1,794,424
1105	1020		172°32'	+7.2°	15.2	90°32'	-9.5	-24.7		1,256.4		-1020	+5	135,620	1,794,435
															road under construction south

EOL #3
135,620 + 1,794,435
4-way Intersect (elev) 1256