

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.	PAGE			
12-2-81		B. Cotcamp		M. Knapp		6834		MPK		5	1			
AREA		TOPO MAP		STATE		COUNTY		RANGE		PARTY MANAGER				
Kansas		Aurora		Kansas		Cloud				L. 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.	
1/2									1491.0	R		407,715	2,120,475	→ SCALED
	4177		171° 41' 31" + 180°	+7.8°	+8.0	89° 57' 34"	-3.0	+5.0	1496.0		BS	+4177	-37	4-way Intersect. 1491.
	4177				+8.0	270° 2' 25"	-2.9	+5.1			BS			
	4177				+8.0									
1	3630		171° 33' 08"	+7.8°	8.0	90° 08' 40"	-9.2	-17.2		1478.8		-3130	+41	408,260 2,120,479
2	3300		" "	+7.8°	10.0	90° 10'	-9.6	-19.6		1476.4		-3300	+37	408,590 2,120,475
3	2970		" "	" "	10.8	90° 10'	-8.6	-19.4		1476.6		-2970	+34	408,920 2,120,472
4	2640		" "	" "	9.8	90° 20'	-15.4	-25.2		1470.8		-2640	+30	409,250 2,120,468
5	2310		" "	+7.8°	13.2	90° 24'	-16.1	-29.3		1466.7		-2310	+26	409,580 2,120,464
6	1980		" "	" "	11.0	90° 10'	-5.8	-16.8		1479.2		-1980	+22	409,910 2,120,460
7	1650		" "	" "	9.5	90° 20'	-9.6	-19.1		1476.9		-1650	+19	410,240 2,120,457
8	1320		" "	+7.8°	9.6	90° 20'	-7.7	-17.3		1478.7		-1320	+15	410,570 2,120,453
9	990		" "	" "	7.8	-	-	-7.8		1488.2		-990	+11	409,700 2,120,449
10	660		" "	" "	13.0	-	-	-13.0		1483.0		-660	+7	411,230 2,120,445
11	330		" "	+7.8°	12.1	-	-	-12.1		1483.9		-330	+4	411,560 2,120,442
12	0				5.4	-	-	-5.4		1490.6	π	0	0	411,890 2,120,438
13	330		352° 08'	+8.0°	6.8	90° 20'	-1.9	-8.7		1487.3		+330	+1	412,220 2,120,439
14	660		" "	+8.0°	17.2	90° 40'	-7.7	-24.9		1471.1		+660	+2	412,550 2,120,440
15	990		" "	" "	23.0	90° 40'	-11.5	-34.5		1461.5		+990	+2	412,880 2,120,440
1/2	1320													
1/2	1127		350° 42' 34"	+7.8°	19.9	90° 42' 03"	-13.8	-33.6		1462.4		+1127	-29	413,017 2,120,409

Instrument - Wild T1 + Lietz RED 1A (EDM)
chaining - 330 steel cable + pins

4-413,015
2-2,120,415
4-way Intersect. 1462.0

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-2-81		B. Cotcamp		M. KNAPP		6834		MPK fr		5		2			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		AURORA-7 1/2'		KANSAS		CLOUD								L. 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
									1496.0						
16	1326		352° 68'	+8.0	15.5	90° 40'	-15.4	-30.9		1465.1		+1320	+3	413,210	2,120,441
17	1650		" "	+8.0	5.3	90° 40'	-19.2	-24.5		1471.5		+1650	+4	413,540	2,120,442
18	1980		" "	" "	12.1	90° 40'	-23.0	-35.1		1460.9		+1980	+5	413,870	2,120,443
19	2310		" "	" "	10.0	90° 28'	-18.8	-28.8		1467.2		+2310	+5	414,200	2,120,443
20	2640		" "	+8.0	5.8	90° 06'	-4.6	-10.4		1485.6		+2640	+6	414,530	2,120,444
21	2966		352° 07' 55"	" "	7.6	89° 50'	+8.6	+1.0			TP	+2966	+7	414,854	2,120,445
21	2966				4.3	89° 54'	+5.2	+0.9		1496.9	TP				
	1650		173° 11' 32" +180	+8.0	11.0	BH	+8.3	+19.3	1516.2		BS	+1650	+34		
22	1650				+9.8	90° 20'	+9.6	+19.4			BS	-			
22	1320		173° 12'	+8.0	10.6	BH	-6.6	-17.2		1499.0		-1320	-28	415,182	2,120,451
23	990		" "	" "	11.8	BH	-5.0	-16.8		1499.4		-990	-21	415,512	2,120,458
24	660		" "	" "	11.4	BH	-3.3	-14.7		1501.5		-660	-14	415,842	2,120,465
25	330		" "	+8.0	10.0	-		-10.0		1506.2		-330	-7	416,172	2,120,472
26	0				5.4	-		-5.4		1510.8	TP	0	0	416,502	2,120,479
27	330		352° 49'	+8.0	12.3	BH	-1.7	-14.0		1502.2		+330	+5	416,832	2,120,484
28	660		" "	" "	11.6	91° 38'	-18.8	-30.4		1485.8		+660	+9	417,162	2,120,488
29	990		" "	" "	13.0	91° 18'	-22.5	-35.5		1480.7		+990	+14	417,492	2,120,493
30	1320		" "	+8.0	12.0	90° 54'	-20.7	-32.7		1483.5		+1320	+19	417,822	2,120,498
31	1650		" "	" "	9.5	90° 54'	-25.9	-35.4		1480.8		+1650	+24	418,152	2,120,503

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE				
12-2-81		B. Cotcamp		M. KNAPP		6834		MPK jr		5		3				
AREA		TOPO MAP		STATE		COUNTY		RANGE		PPM		PARTY MANAGER				
KANSAS		Aurora- 7 1/2'		KANSAS		CLOUD						L. 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
									1516.2							
32	1760		352° 51' 35"	+8.0	9.3	90° 54'	-27.6	-36.9		1479.3		+1760	+26	418,262	2,120,505	SCALED 4-418,265 ELEV. 1479.0
32	1980		352° 49'	+8.0	9.5	90° 50'	-28.8	-38.3		1477.9		+1980	+28	418,482	2,120,507	
33	2310		352° 48' 39"	"	3.2	90° 50'	-33.6	-36.8		1479.4	TP	+2310	+33	418,809	2,120,512	
33	2310				7.2	90° 44'	-29.6	-36.8			TP					
	3299		171° 19' 58" +180°	+8.0	+9.6	TH	-16.5	-6.9	1472.5		BS	+3299	-38			
	3299				+4.7	89° 48'	-11.5	-6.8			BS					
34	2970		171° 20'	+8.0	8.1	89° 48'	+10.4	+2.3		1474.8		-2970	+35	419,135	2,120,509	
35	2640		" "	"	12.7	89° 48'	+9.2	-3.5		1469.0		-2640	+31	419,465	2,120,505	
36	2310		" "	"	7.8	-		-7.8		1464.7		-2310	+27	419,795	2,120,501	
37	1980		" "	+8.0	7.0	-		-7.0		1465.5		-1980	+23	420,125	2,120,497	
38	1650		" "	"	12.4	-		-12.4		1460.1		-1650	+19	420,455	2,120,493	
39	1320		" "	"	6.4	91° -	-23.0	-29.4		1443.1		-1320	+15	420,785	2,120,489	
40	990		" "	+8.0	10.0	91° 24'	-24.2	-34.2		1438.3		-990	+12	421,115	2,120,486	
41	660		171° 20'	"	11.2	91° 24'	-16.1	-27.3		1445.2		-660	+8	421,445	2,120,482	
42	330		" "	"	7.1	90° 58'	-5.6	-12.7		1459.8		-330	+4	421,775	2,120,478	
43	0				5.4	-		-5.4		1467.1	X	0	0	422,105	2,120,474	
44	330		351° 26'	+8.0	9.9	89° 20'	+3.8	-6.1		1466.4		+330	-3	422,435	2,120,471	
45	660		" "	"	12.8	89° 20'	+7.7	-5.1		1467.4		+660	-7	422,765	2,120,467	
46	990		" "	"	9.4	89° 20'	+11.5	+2.1		1474.6		+990	-10	423,095	2,120,464	

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-2-81		B. Cotcamp		M. Knapp		6834		MPK TO 49 B.C. Jr		5		4			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		AURORA-7 1/2		KANSAS		CLOUD								L. 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
									1472.5						
47	1320		351° 26'	+8.0	12.6	89° 20'	+15.4	+2.8		1476.3		+1320	-13	423,425	2,120,461
47	1460		351° 04' 09"	" "	7.2	89° 46'	+8.5	+1.3		1473.8		+1460	-24	423,565	2,120,450
48	1650		351. 26'	" "	9.8	89° 40'	+9.6	-0.2		1472.3		+1650	-16	423,755	2,120,458
49	1980		351° 25' 32"	+7.8	3.6	89° 40'	+11.5	+7.9		1480.4	TP	+1980	-27	424,086	2,120,448
49	1980				9.4	89° 30'	+17.3	+7.9			TP				
BS	1980		171° 22' 12" +180°	+7.8	+10.3	-		+10.3			BS	+1980	-29		
BS	1980				+4.6	90° 10'	+5.8	+10.4	1490.8		BS				
50	1650		171° 22'	+7.8	12.8	-		-12.8		1478.0		-1650	+24	424,417	2,120,444
51	1320		" "	" "	10.7	90° 30'	-11.5	-22.2		1468.6		-1320	+19	424,747	2,120,439
52	990		" "	" "	13.0	90° 40'	-11.5	-24.5		1466.3		-990	+14	425,077	2,120,434
53	660		" "	" "	10.4	91° 30'	-17.3	-27.7		1465.1		-660	+10	425,407	2,120,430
54	330		" "	+7.8	6.3	91° 30'	-8.6	-14.9		1475.9		-330	+5	425,737	2,120,425
55	0				5.4	-		-5.4		1485.4	X	0	0	426,067	2,120,420
56	330		351° 35'	+7.8	5.3	91° 30'	-8.6	-13.9		1476.9		+330	-4	426,397	2,120,416
57	660		" "	+7.8	12.1	90° 40'	-7.7	-19.8		1471.0		+660	-7	426,727	2,120,413
58	990		" "	" "	2.9	90° 40'	-11.5	-14.4		1476.4		+990	-11	427,057	2,120,409
59	1320		" "	" "	11.6	89° 40'	+7.7	-3.9		1486.9		+1320	-14	427,387	2,120,406
60	1650		" "	" "	8.4	89° 40'	+9.6	+1.2		1492.0		+1650	-18	427,717	2,120,402
61	1980		" "	" "	12.5	89° 40'	+11.5	-1.0		1489.8		+1980	-21	428,047	2,120,399

HORIZ. CORR.
y = -12'
x = ±0'
423,565
2,120,450
HWY INT. EL. 1473.

Aurora Quad.

Rice Quad.

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DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-5-81		B. Cotcamp		M. Knapp		6834		in B.C.		5		5			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		RICE - 7 1/2'		KANSAS		CLOUD								L. 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
									1490.8						
62	2310		351° 35'	+7.8°	9.1	89° 40'	+13.4	+4.3		1495.1		+2310	-25	428,377	2,120,395
63	2640		351° 34' 41"	" "	10.6	89° 40'	+15.4	+4.8		1495.6	TP	+2640	-29	428,708	2,120,392
63	2640				2.9	89° 48'	+7.7	+4.8			TP				
	2310		171° 30' 35" +180°	+7.8°	+3.3	TH	-11.6	-8.3			BS	+2310	-28		
	2310				+5.3	89° 40'	-13.4	-8.1	1487.5		BS				
64	2140		171° 43' 48"	+7.8°	13.5	89° 30'	+18.7	+5.2		1492.7	TP	-2140	+18	428,879	2,120,383
															4 way tie - 428,890 x - 2,120,370
64	1980		171° 31'	" "	4.0	89° 50'	+5.8	+1.8		1489.3		-1980	+24	429,039	2,120,389
65	1650		" "	" "	10.9	-		-10.9		1476.6		-1650	+20	429,369	2,120,385
66	1320		" "	+7.8°	7.9	BH	-6.6	-14.5		1473.0		-1320	+16	429,699	2,120,381
67	990		" "	" "	11.2	-		-11.2		1476.8		-990	+12	430,029	2,120,377
68	495660		" "	" "	10.3	-		-10.3		1477.2		-660	+8	430,359	2,120,373
69	330		" "	" "	11.7	-		-11.7		1475.8		-330	+4	430,689	2,120,369
70	0				5.4	-		-5.4		1482.1	X	0	0	431,019	2,120,365
71	330		351° 38'	+7.8°	9.0	92° -	-11.5	-20.5		1467.0		+330	-3	431,349	2,120,362
72	660		" "	" "	3.8	92° -	-23.0	-26.8		1460.7		+660	-7	431,679	2,120,358
73	990		" "	" "	4.0	92° -	-34.5	-38.5		1449.0		+990	-10	432,009	2,120,355
74	1320		" "	+7.8°	11.0	91° 30'	-34.5	-45.5		1442.0		+1320	-13	432,339	2,120,352
75	1650		" "	" "	8.9	91° 10'	-33.6	-42.5		1445.0		+1650	-16	432,669	2,120,349
76	1980		" "	" "	9.3	91° -	-34.6	-43.9		1443.6		+1980	-20	432,999	2,120,345

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE							
12-5-81		B. Lotcamp		M. Knapp		6834		for B.C.		5		6							
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER					
KANSAS		RICE - 7 1/2'		KANSAS		CLOUD								L. 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				
									1487.5										
77	2310		351° 38'	+7.8°	9.4	91° -	-40.3	-49.7		1437.8		+2310	-23	433,329	2,120,342				
78	2640		" "	" "	13.4	91° -	-46.1	-59.5		1428.0		+2640	-26	433,659	2,120,339				
79	2967		351° 38' 13"	" "	6.5	91° 10'	-60.4	-66.9		1420.6	TP	+2966 ₊	-29 ₊	433,986	2,120,337				E.O.M.
79	2967				11.7	91° 04'	-55.2	-66.9			TP								E.O.M.
	2969		171° 36' 06" +16"	+7.8°	+6.1	84	+14.8	+20.9	1441.5		BS	+2969 ₊	-31 ₊						↓
	2969				+12.2	90° 10'	+8.6	+20.8			BS								
80	2772		171° 43' 38"	+7.8°	14.2	90° 10'	-8.1	-22.3		1419.2		-2772	+23	434,184	2,120,330				4-434.195 WAY EAST EL. 1421.0
80	2640		171° 36'	" "	11.2	90° 20'	-15.4	-26.6		1414.9		-2640	+28	434,316	2,120,335				
81	2310		" "	" "	10.0	90° 30'	-20.2	-30.2		1411.3		-2310	+24	434,646	2,120,331				
82	1980		" "	+7.8°	10.0	90° 30'	-17.3	-27.3		1414.2		-1980	+21	434,976	2,120,328				
83	1650		" "	" "	9.0	90° 36'	-14.4	-23.4		1418.1		-1650	+17	435,306	2,120,324				
84	1320		" "	" "	10.4	91° -	-23.0	-33.4		1408.1		-1320	+14	435,636	2,120,321				
85	990		" "	+7.8°	12.0	91° 20'	-23.0	-35.0		1406.5		-990	+10	435,966	2,120,317				
86	660		" "	" "	11.7	91° 20'	-15.4	-27.1		1414.4		-660	+7	436,296	2,120,314				
87	330		" "	" "	5.5	91° 20'	-7.7	-13.2		1428.3		-330	+3	436,626	2,120,310				
88	0				5.4	-		-5.4		1436.1	X	0	0	436,956	2,120,307				
89	330		351° 45'	+7.8°	5.8	90° 20'	-1.9	-7.7		1433.8		+330	-3	437,286	2,120,304				
90	660		" "	" "	9.9	90° 20'	-3.8	-13.7		1427.8		+660	-5	437,616	2,120,302				
91	990		" "	" "	11.1	90° 20'	-5.8	-16.9		1424.6		+990	-8	437,946	2,120,299				

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-5-81		B. Cotcamp		M. KNAPP		6834		Jm B.C.		5		7			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		RICE - 7 1/2'		KANSAS		CLOUD								L. 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
92	1320		351° 45'	+7.8°	11.4	90° 20'	-7.7	-19.1	1441.5	1422.4		+1320	-10	438,276	2,120,297
93	1650		" "	" "	10.9	90° 20'	-9.6	-20.5		1421.0		+1650	-13	438,606	2,120,294
94	1980		" "	" "	11.7	90° 20'	-11.5	-23.2		1418.3		+1980	-16	438,936	2,120,291
95	2310		351° 44' 56"	+7.8°	4.8	90° 40'	-26.9	-31.7			TP	+2310	-18 +2	439,266	2,120,291
95	2310				11.4	90° 30'	-20.2	-31.6		1409.9	TP				
	3298		171° 34' 45" +180°	+7.8°	+7.1	TH	-16.5	-9.4	1400.5		BS	+3298	-36 +2		E.D.M
	3298				+9.8	89° 40'	-19.2	-9.4			BS				
≠	3080		171° 45' 09"	+7.8°	7.0	89° 50'	+9.0	+2.0		1402.5		-3080	+24	439,484	2,120,281
96	2970		171° 35'	" "	3.4	-		-3.4		1397.1		-2970	+32	439,594	2,120,289
97	2640		" "	" "	9.0	-		-9.0		1391.5		-2640	+28	439,924	2,120,285
98	2310		" "	" "	13.3	-		-13.3		1387.2		-2310	+25	440,254	2,120,282
99	1980		" "	+7.8°	12.0	BH	-9.9	-21.9		1378.6		-1980	+21	440,584	2,120,278
100	1650		" "	" "	10.8	90° 30'	-14.4	-25.2		1375.3		-1650	+18	440,914	2,120,275
101	1320		" "	" "	10.6	90° 40'	-15.4	-26.0		1374.5		-1320	+14	441,244	2,120,271
102	990		" "	" "	11.2	90° 40'	-11.5	-22.7		1377.8		-990	+11	441,574	2,120,268
103	660		" "	+7.8°	12.6	90° 50'	-9.6	-22.2		1378.3		-660	+7	441,904	2,120,264
104	330		" "	" "	10.7	90° 50'	-4.8	-15.5		1385.0		-330	+4	442,234	2,120,261
105	0				5.4	-		-5.4		1395.1	X	0	0	442,564	2,120,257
106	330		351° 43'	+7.8°	8.9	90° 50'	-4.8	-13.7		1386.8		+330	-3	442,894	2,120,254

y=439,490
x=2,120,250
4 WAY INT. EL. 1401.0

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-5-81		B. Cotcamp		M. Knapp		6834		B.C.		5		8			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		RICE - 7 1/2'		KANSAS		CLOUD								L. 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
									1400.5						
107	660		351° 43'	+7.8°	11.8	89° 50'	-9.6	-21.4		1379.1		+660	-6	443,224	2,120,251
108	990		" "	" "	12.7	90° 50'	-14.4	-27.1		1373.4		+990	-8	443,554	2,120,249
109	1320		" "	" "	8.8	90° 50'	-19.2	-28.0		1372.5		+1320	-11	443,884	2,120,246
110	1650		" "	" "	6.9	90° 50'	-24.0	-30.9		1369.6		+1650	-14	444,214	2,120,243
111	1980		" "	+7.8°	12.2	90° 30'	-17.3	-29.5		1371.0		+1980	-17	444,544	2,120,240
#	2231		351° 38' 23"	" "	10.1	90° 30'	-19.5	-29.6		1370.9	#	+2231	-22	444,795	2,120,235
112	2310		351° 43'	" "	8.0	90° 30'	-20.2	-28.2		1372.3		+2310	-19	444,874	2,120,238
113	2640		351° 42' 53"	" "	12.5	-		-12.5		1388.0		+2640	-22	445,204	2,120,235
114	2970		351° 43'	+7.8°	10.0	TH	+14.9	+4.9		1405.4		+2970	-25	445,534	2,120,232
115	3297		351° 42' 53"	+7.7°	2.1	TH	+16.5	+14.4		1414.9	TP	+3297.2	-34.2	445,859	2,120,221
115	3297				14.6	89° 30'	+28.8	+14.2			TP				E.D.M.
	1980		172° 16' 51" +180	+7.7°	+3.1	TH	-9.9	-6.8	1408.1		BS	+1980.2	-1.2		
	1980				+4.6	89° 40'	-11.5	-6.9			BS				
116	1650		172° 17'	+7.7°	7.2	-		-7.2		1400.9		-1650	±0	446,187	2,120,218
117	1320		" "	" "	9.8	90° 40'	-15.4	-25.2		1382.9		-1320	±0	446,517	2,120,218
118	990		" "	" "	12.8	91° 20'	-23.0	-35.8		1372.3		-990	±0	446,847	2,120,218
119	660		" "	+7.7°	11.5	91° 50'	-21.1	-32.6		1375.5		-660	±0	447,177	2,120,218
120	330		" "	" "	7.1	91° 50'	-10.6	-17.7		1390.4		-330	±0	447,507	2,120,218
121	0				5.4	-		-5.4		1402.7	X	0	0	447,837	2,120,218

Horiz. COOP.
y = 444,795
x = 2,120,235
Way ELEV 1373.0

Geosource Inc.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-6-81		B Cotcamp		M. KNAPP		6834		fr		5		9			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		RICE-7 1/2'		KANSAS		CLOUD								L. 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
									1408.1						
122	330		352° 32'	+7.7°	5.8	90° 50'	-4.8	-10.6		1397.5		+330	+1	448,167	2,120,219
123	660		" "	" "	10.6	90° 30'	-9.6	-20.2		1387.9		+660	+3	448,477	2,120,221
124	990		" "	" "	4.1	90° 50'	-14.4	-18.5		1389.6		+990	+4	448,827	2,120,222
125	1320		352° 31' 52"	+7.7°	4.4	-	-	-4.4		1403.7	TP	+1320 ₂	+5 ₂	449,155	2,120,221
125	1320				11.0	TH	+6.6	-4.4			TP				
	1316	1314.2	164° 39' 13" +180°	+7.7°	+14.0	87° -	-68.8	-54.8	1348.9		BS	+1303 ₂	-175 ₂		
	1316				+10.2	87° 10'	-65.0	-54.8			BS				
IF	1053	1051.7	164° 50' 48"	+7.7°	9.1	87° 10'	+52.0	+42.9		1391.8	IF	-1043	+136	449,413	2,120,180
126	990		164° 51'	" "	8.0	87° 20'	+46.0	+38.0		1386.9		-982	+128	449,474	2,120,172
127	660		166° 43'	" "	9.3	88° -	+23.0	+13.7		1362.6		-657	+64	449,799	2,120,108
128	330		163° 25'	" "	11.0	88° -	+11.5	+0.5		1349.4		-326	+51	450,130	2,120,095
129	0				5.4	-	-	-5.4		1343.5	T	0	0	450,456	2,120,044
130	330		341° 40'	+7.7°	6.5	-	-	-6.5		1342.4		+324	-61	450,780	2,119,983
131	660		343° 24'	+7.7°	8.0	-	-	-8.0		1340.9		+652	-102	451,108	2,119,942
132	981		341° 18' 32"	" "	8.6	-	-	-8.6		1340.3	TP	+963 ₂	-187 ₂	451,417	2,119,855
132	981				3.7	BH	-4.9	-8.6			TP				
	1290		181° 25' 26" -180°	" "	+10.3	89° 30'	-11.3	-1.0	1339.3		BS	+1274 ₂	+205 ₂		
	1290				+6.6	89° 40'	-7.5	-0.9			BS				
133	990		184° 38' 16"	+7.7°	3.9	TH	+5.0	+1.1		1340.4		-967	-212	451,722	2,119,846

IF TRD EAST. 449,410
2,120,190

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-6-81		B. Cotcamp		M. KNAPP		6834		Jr B.C.		5		10			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		RICE-7 1/2'		KANSAS		GLOUD								L. 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
									1339.3						
R.R.	908		185° 27' 54"	+7.7°	4.3	TH	+4.5	+0.2		1339.5		-876	-238	451,813	2,119,820
#	801		186° 46' 12"	" "	7.0	89° 30'	+7.0	±0.0		1339.3		-776	-200	451,913	2,119,858
134	660		" "	" "	6.7	89° 30'	+5.8	-0.9		1338.4		-639	-165	452,050	2,119,893
135	330		172° 45' 06"	+7.7°	7.4	89° 30'	+2.9	-4.5		1334.8		-330	-3	452,359	2,120,055
136	0				5.4	-		-5.4		1333.9	π	0	0	452,689	2,120,058
137	330		350° 42'	+7.7°	10.8	-		-10.8		1328.5		+330	-9	453,019	2,120,049
138	660		" "	" "	10.8	BH	-3.3	-14.1		1325.2		+660	-18	453,349	2,120,040
139	996		" "	" "	10.1	BH	-5.0	-15.1		1324.2		+990	-28	453,679	2,120,030
140	1320		350° 41' 48"	" "	9.0	BH	-6.6	-15.6			TP	+1319.1	-37.2	454,007	2,120,019
140	1320				8.0	90° 20'	-7.7	-15.7		1323.6	TP				
	2970		171° 06' 20" + 180°	+7.7°	+4.6	-		+4.6	1328.2		BS	+2969.2	-62.2		
	2970				+1.2	90° 04'	+3.4	+4.6			BS				
141	2640		171° 06'	+7.7°	5.2	-		-5.2		1323.0		-2639	+55	454,335	2,120,010
142	2316		" "	" "	5.3	-		-5.3		1322.9		-2309	+48	454,665	2,120,003
143	1980		" "	" "	4.0	-		-4.0		1324.2		-1980	+41	454,994	2,119,996
144	1656		" "	" "	6.1	-		-6.1		1322.1		-1650	+35	455,324	2,119,990
145	1320		" "	+7.7°	6.0	-		-6.0		1322.2		-1320	+28	455,654	2,119,983
146	990		" "	" "	6.2	-		-6.2		1322.0		-990	+21	455,984	2,119,976
147	660		" "	" "	6.1	-		-6.1		1322.1		-660	+14	456,314	2,119,969

y = 451,890
x = 2,119,835
4 way EAST

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE							
12-6-81		B. Cotcamp		M. KNAPP		6834		B.C.		5		11							
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER					
KANSAS		RICE - 7 1/2'		KANSAS		CLOUD								L. 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				
									1328.2										
148	330		171° 06'	+7.7°	5.8	-		-5.8		1322.4		-330	+7	456,644	2,119,962				
149	0				5.4	-		-5.4		1322.8	X	0	0	456,974	2,119,955				
150	330		351° 12'	+7.7°	5.0	-		-5.0		1323.2		+330	-6	457,304	2,119,949				
151	660		" "	" "	4.9	-		-4.9		1323.3		+660	-13	457,634	2,119,942				
152	990		" "	" "	4.5	-		-4.5		1323.7		+990	-19	457,964	2,119,936				
153	1320		" "	" "	3.8	-		-3.8		1324.4		+1320	-25	458,294	2,119,930				
154	1650		" "	+7.7°	3.0	-		-3.0		1325.2		+1650	-32	458,624	2,119,923				
155	1980		" "	" "	3.8	-		-3.8		1324.4		+1980	-38	458,954	2,119,917				
156	2310		" "	" "	3.4	-		-3.4		1324.8		+2310	-44	459,284	2,119,911				
157	2640		351° 12' 20"	" "	3.7	-		-3.7		1324.5	TP	+2640 ₂	-50 ₂	459,612	2,119,903				
157	2640				8.2	89° 54'	+4.6	-3.6			TP								
	613		226° 17' 25" - 180°	+7.7	+12.2	-		+12.2	1336.7		BS	+360 ₂	+496 ₂						
	613				+9.1	BM	+3.1	+12.2			BS								
158	330		240° 58' 15"	" "	7.9	-		-7.9		1328.8		-120	-307	459,850	2,120,090	AROUND CORN.			
159	0		" "	" "	5.4	-		-5.4		1331.3	X	0	0	459,970	2,120,397				
160	330		60° 05'	+7.7	3.0	TH	+1.7	-1.3		1335.4		+125	+306	460,095	2,120,703				
161	660		" "	" "	4.9	TH	+3.3	-1.6		1335.1		+250	+611	460,220	2,121,008				
TP	820		60° 04' 36"	" "	2.9	-		-2.9		1333.8	TP	+310 ₂	+759 ₂	460,278	2,121,154				5-460,280
TP	820				7.0	TH	+4.1	-2.9			TP								TT-INT. X-2,121,180

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE						
12-6-81		B. Cotcamp		M. Knapp		6834		Yr B.C.		5		13						
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER				
KANSAS		RICE-7 1/2'		KANSAS		CLOUD								L. 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			
										1333.8								
	486		160° 45' 57" +180	+7.7°	+0.4	-		+0.4	1334.2		BS	+476.2	-97.2					
	486				+2.8	TH	-2.4	+0.4		BS								
162	330		160° 46'	+7.7°	10.1	89° -	+5.8	-4.3		1329.9		-323	+66	460,429	2,121,121			
163	0				5.4	-		-5.4		1328.8	TP	0	0	460,752	2,121,055			
164	330		332° 30'	+7.7°	11.4	89° -	+5.8	-5.6		1328.6		+311	-110	461,063	2,120,945			
165	660		332° 50' 11"	" "	5.5	-		-5.5			TP	+622.2	-220.2	461,372	2,120,833			
165	660				4.8	90° 04'	-0.8	-5.6		1328.6	TP							
	985		138° 03' 14" +180	" "	+13.7	BH	+4.9	+18.6	1347.2		BS	+814.2	-554.2					
	985				+12.9	90° 20'	+5.7	+18.6		BS								
166	660		138° 03'	+7.7°	10.7	90° 40'	-7.7	-18.4		1328.8		-546	+371	461,638	2,120,648			
167	330		134° 06'	" "	10.6	90° 40'	-3.8	-14.4		1332.8		-259	+204	461,925	2,120,481			
168	0				5.4	-		-5.4		1341.8	TP	0	0	462,184	2,120,277			
169	330		300° 28'	" "	3.3	TH	+1.7	-1.6		1345.6		+204	-259	462,388	2,120,018			
170	630		309° 25' 18"	+7.7°	1.6	TH	+3.2	+1.6		1348.8	TP	+462.3	-429.2	462,643	2,119,846	AROUND CORNER		
170	630				3.9	89° 30'	+5.5	+1.6			TP							
	1655		173° 04' 29" +180	" "	+9.8	-		+9.8			BS	+655.3	+22.					
	1655				+7.8	90° 04'	+1.9	+9.7	x1358.5		BS							
171	1320		173° 04'	+7.7°	5.9	-		-5.9		1352.6		-1320	-18	462,975	2,119,850			
172	990		" "	" "	9.8	TH	+5.0	-4.8		1353.7		-990	-13	463,305	2,119,855			

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-6-81		B. Cotcamp		M. KNAPP		6834		for B.C.		5		13			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		Rice - 7 1/2'		KANSAS		CLOUD								L. 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
									1368.5						
173	660		173° 04'	+7.7°	6.9	TH	+3.3	-3.6		1364.9		-660	-9	463,635	2,119,859
174	330		" "	" "	6.1	-		-6.1		1352.4		-330	-4	463,965	2,119,864
175	0				5.4	-		-5.4		1353.1	TP	0	0	464,295	2,119,868
176	330		352° 50'	" "	3.0	-		-3.0		1355.5		+330	+3	464,625	2,119,871
177	660		" "	+7.7°	6.0	89° 20'	+7.7	+1.7		1360.2		+660	+6	464,955	2,119,874
178	905		352° 45' 06"	" "	4.0	89° 20'	+10.5	+6.5		1365.0	TP	+905	+7	465,200	2,119,875
178	990		352° 50'	" "	6.8	89° 10'	+14.4	+7.6		1366.1		+990	+9	465,285	2,119,877
179	1320		" "	+7.7°	9.5	89° 10'	+19.2	+9.7		1368.2		+1320	+12	465,615	2,119,880
180	1655		352° 49' 30"	+7.7°	11.9	89° 16'	+24.1	+12.2			TP	+1655	+15	465,949	2,119,885
180	1655				7.1	89° 20'	+19.2	+12.1		1370.6	TP				
	2640		171° 47' 28" +180	+7.7°	+6.1	91° -	+46.1	+56.2			BS	+2639	-23		
	2640				+7.6	91° 04'	+49.1	+56.1	1426.7		BS				
181	2310		171° 47'	+7.7°	12.9	91° -	-40.3	-53.2		1373.5		-2310	+21	466,277	2,119,885
182	1980		" "	" "	9.4	91° 10'	-40.3	-49.7		1377.0		-1980	+18	466,607	2,119,882
183	1650		" "	" "	11.1	91° 10'	-38.6	-44.7		1382.0		-1650	+15	466,937	2,119,879
184	1320		" "	" "	10.5	91° 10'	-26.9	-37.4		1389.3		-1320	+12	467,267	2,119,876
185	990		" "	+7.7°	10.1	90° 50'	-14.4	-24.5		1402.2		-990	+9	467,597	2,119,873
186	660		" "	" "	10.3	90° 50'	-9.6	-19.9		1406.8		-660	+6	467,927	2,119,870
187	330		" "	" "	12.6	90° 50'	-4.8	-17.4		1409.3		-330	+3	468,257	2,119,867

Horiz. corr. 8--34
y=465,200 x=2,119,875
WAGENT, E.L. 1365.0

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.		PAGE					
12-7-81		B. Cutcamp		M. Knapp		6834		MPK dm			5		14					
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER				
KANSAS		RICE-7 1/2'		KANSAS		CLOUD								L. 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 -		EAST + WEST -		COORDINATES		REMARKS
												LAT.	DEP.	Y	X			
188	0				5.4	-		-5.4	1426.7		T	0	0	468,587	2,119,864			
189	330		351° 58'	+7.7°	7.1	-		-7.1		1419.6		+330	-2	468,917	2,119,862			
190	660		" "	" "	9.0	-		-9.0		1417.7		+660	-4	469,247	2,119,860			
191	990		" "	" "	9.2	-		-9.2		1417.5		+990	-6	469,577	2,119,858			
192	1320		" "	" "	8.1	-		-8.1		1418.6		+1320	-8	469,907	2,119,856			
193	1650		" "	+7.7°	8.8	-		-8.8		1417.9		+1650	-10	470,237	2,119,854			
194	1720		" "	" "	8.6	-		-8.6		1418.1		+1720	-10	470,307	2,119,854			
194	1889		351° 46' 15"	" "	1.5	-		-1.5		1425.2		+1889	-17	470,476	2,119,847			y=470,485 x=2,119,850 4 way INT. LINE TIC.
194	1978		351° 58' 14"	" "	3.4	-		-3.4		1423.3	TP	+1978	-11	470,564	2,119,855			
194	1978				13.3	TH	+9.9	-3.4			TP							
	1980		172° 03' 58" +180°	+7.7°	+3.6	TH	-9.9	-6.3	1419.0		BS	+1980	-8					RICE QUAD
	1980				+5.3	89° 40'	-11.5	-6.2			BS							WAYNE QUAD
195	1650		172° 04'	+7.7°	11.2	TH	+8.3	-2.9		1414.1		-1650	+7	470,893	2,119,856			↓
196	1320		" "	" "	10.6	-		-10.6		1406.4		-1320	+5	471,223	2,119,854			
197	990		" "	" "	13.0	TH	-5.0	-18.0		1399.0		-990	+4	471,553	2,119,853			
198	660		" "	" "	10.0	91°	-11.5	-21.5		1395.5		-660	+3	471,883	2,119,852			
199	330		" "	+7.7°	8.0	91°	-6.8	-13.8		1403.2		-330	+1	472,213	2,119,850			
200	0		" "		5.4	-		-5.4		1411.6	T	0	0	472,543	2,119,849			
201	330		352° 12'	+7.7°	10.9	91°	-5.8	-16.7		1400.3		+330	±0	472,873	2,119,849			

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-7-81		B. Cotcamp		M. Knapp		6834		B.C.		5		15			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		WAYNE-7 1/2'		KANSAS		CLOUD								L. 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
									1417.0						
202	660		352° 22'	+7.7°	10.6	91° -	-11.5	-22.1		1394.9		+660	+1	473,203	2,119,850
203	990		" "	" "	10.7	91° -	-17.3	-28.0		1389.0		+990	+1	473,533	2,119,850
204	1320		" "	" "	11.1	91° 10'	-26.9	-38.0		1379.0		+1320	+2	473,863	2,119,851
205	1650		" "	+7.7°	10.5	91° 10'	-33.6	-44.1		1372.9		+1650	+2	474,193	2,119,851
206	1980		352° 21' 46"	+7.8°	3.2	91° -	-34.6	-37.8		1379.2	TP	+1980	+6 +2	474,522	2,119,857
206	1980				9.0	90° 50'	-28.8	-37.8			TP				
	3298		171° 07' 08" +180°	+7.8°	+1.3	89° 30'	-28.8	-27.5	1351.7		BS	+3297	-62 +2		E.D.M.
	3298				+7.0	89° 24'	-34.5	-27.5			BS				
207	2970		171° 07'	+7.8°	8.6	89° 30'	+26.9	+17.3		1369.0		-2969	+61	474,849	2,119,858
208	2640		" "	" "	10.9	89° 30'	+23.0	+12.7		1363.8		-2639	+55	475,179	2,119,852
209	2310		170° 57'	" "	12.1	89° 30'	+20.2	+8.1		1359.8		-2309	+54	475,509	2,119,851
#	2056		170° 56' 59"	" "	5.2	89° 40'	+12.0	+6.8		1358.5	#	-2056	+45	475,762	2,119,842
210	1980		170° 57'	+7.8°	7.6	89° 40'	+11.5	+4.5		1356.2		-1979	+47	475,839	2,119,844
211	1650		" "	" "	7.4	89° 40'	+9.6	+2.2		1353.9		-1650	+39	476,168	2,119,836
212	1320		" "	" "	6.2	89° 40'	+7.7	+1.5		1353.2		-1320	+31	476,498	2,119,828
213	990		" "	" "	6.6	89° 40'	+5.8	-0.8		1350.9		-990	+23	476,828	2,119,820
214	660		" "	+7.8°	7.0	89° 40'	+3.8	-3.2		1348.5		-660	+16	477,158	2,119,813
215	330		" "	" "	6.4	89° 40'	+1.9	-4.5		1347.2		-330	+8	477,488	2,119,805
216	0				5.4	-		-5.4		1346.3	X	0	0	477,818	2,119,797

y = 475,740
x = 2,119,805
4 WAY EL 1358.0

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-7-81		B. Cotcamp		M. Knapp		6734		MPK Jm		5		16			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		WAYNE - 7 1/2'		KANSAS		CLOUD/REPUBLIC								L. 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
									1351.7						
217	330		350° 34'	+7.8	5.9	-		-5.9		1345.8		+330	-10	478,148	2,119,787
218	660		" "	" "	7.0	-		-7.0		1344.7		+660	-20	478,478	2,119,777
219	990		" "	" "	7.9	-		-7.9		1343.8		+990	-30	478,808	2,119,767
220	1320		" "	" "	12.3	-		-12.3		1339.4		+1320	-40	479,138	2,119,757
221	1650		" "	+7.8	13.4	-		-13.4		1338.3		+1649	-50	479,467	2,119,747
222	1980		" "	" "	12.9	-		-12.9		1338.8		+1979	-60	479,797	2,119,737
223	2310		" "	" "	2.8	84	-11.6	-14.4		1337.3		+2309	-70	480,127	2,119,727
224	2640		" "	" "	7.8	90° 10'	-7.7	-15.5		1336.2		+2639	-80	480,457	2,119,717
225	2970		" "	+7.8	6.9	90° 10'	-8.6	-15.5		1336.2		+2969	-90	480,787	2,119,707
TI	3283		350° 33' 55"	+7.8	5.8	90° 10'	-9.6	-15.4		1336.3		+3282	-94 ₊₂	481,100	2,119,705
TI	3283				9.6	90° 06'	-5.7	-15.3							
															TI INTERSECT. EL. 1335. Note: 5.510' (scaled) offset west
R	4way - INTERSECT.		ELEVATION -	1365.0						1365.0	R	SCALE R, Y, X	481,045	2,114,180	4way INT. EL. 1365.0
2960	2980		171° 16' 40" +180	+7.9	+1.2	TH	-14.9	-13.7	1351.3		BS	+2980	-43		E.D.M. CLOUD COUNTY
2980	2980				+3.6	89° 40'	-17.3	-13.7			BS				REPUBLIC
226	2969		171° 24' 24"	+7.9	3.7	89° 40'	+17.3	+13.6		1364.9		-2969	+36	481,056	2,114,173
227	2640		171° 17'	" "	6.8	89° 40'	+15.4	+8.6		1359.9		-2640	+38	481,385	2,114,175
228	2310		" "	" "	8.3	89° 40'	+13.4	+5.1		1356.4		-2310	+33	481,715	2,114,170

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-8-81		B. Cotcamp		M. Knapp		6834		MPK Jr		5		17			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		WAYNE-7 1/2'		KANSAS		REPUBLIC								L. 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
									1351.3						
229	1980		171° 17'	+7.9°	10.0	89° 40'	+11.5	+1.5		1352.8		-1980	+28	482,045	2,114,165
230	1650		" "	" "	11.3	89° 40'	+9.6	-1.7		1349.6		-1650	+24	482,375	2,114,161
231	1320		" "	" "	11.1	89° 40'	+7.7	-3.4		1347.9		-1320	+19	482,705	2,114,156
232	990		" "	+7.9°	10.3	89° 40'	+5.8	-4.5		1346.8		-990	+14	483,035	2,114,151
233	660		" "	" "	11.8	89° 50'	+1.9	-9.9		1341.4		-660	+9	483,365	2,114,146
234	330		" "	" "	7.1	89° 50'	+1.0	-6.1		1345.2		-330	+5	483,695	2,114,142
235	0				5.4	-		-5.4		1345.9	TP	0	0	484,025	2,114,137
236	330		351° 17'	+7.9°	5.6	89° 50'	+1.0	-4.6		1346.7		+330	-5	484,355	2,114,132
237	660		" "	" "	8.3	89° 30'	+5.8	-2.5		1348.8		+660	-9	484,685	2,114,128
238	990		" "	" "	9.1	89° 30'	+8.6	-0.5		1350.8		+990	-14	485,015	2,114,123
239	1320		" "	" "	8.2	89° 30'	+11.5	+3.3		1354.6		+1320	-19	485,345	2,114,118
240	1650		" "	+7.9°	5.3	89° 30'	+14.4	+9.1		1360.4		+1650	-24	485,675	2,114,113
241	1980		" "	" "	9.4	89° 20'	+23.0	+13.6		1364.9		+1980	-28	486,005	2,114,109
#	2302		351° 01' 28"	" "	10.3	89° 20'	+26.8	+16.5		1367.8	#	+2301	-43	486,326	2,114,094
242	2310		351° 17'	" "	4.3	89° 30'	+20.2	+15.9		1367.2		+2310	-33	486,335	2,114,104
243	2639		351° 16' 50"	+7.9°	5.7	89° 30'	+23.0	+17.3		1368.6	TP	+2639	-38	486,664	2,114,099
243	2639				8.8	89° 26'	+26.1	+17.3			TP				
	2310		171° 10' 14" +180	+7.9°	+3.8	-		+3.8	1372.4		BS	+2310	-37		
	2310				+10.5	89° 50'	-6.7	+3.8			BS				

y = 486,310
x = 2,114,105
E.D.M. # 4 Wayne El. 1368.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE		
12-8-81		B. Cotcamp		M. Knapp		6834		MPK dr		5		18		
AREA		TOPO MAP		STATE		COUNTY		RANGE		PPM		PARTY MANAGER		
KANSAS		WAYNE-7 1/2		KANSAS		REPUBLIC						L. 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.	
									1372.4					
244	1980		171° 10'	+7.9°	13.6	TH	+9.9	-3.1		1369.3		-1980	+32	486,994 2,114,094
245	1650		" "	" "	12.1	TH	+8.3	-3.8		1368.6		-1650	+27	487,324 2,114,089
246	1320		" "	" "	10.8	TH	+6.6	-4.2		1368.2		-1320	+22	487,654 2,114,084
247	990		" "	" "	9.6	TH	+5.0	-4.6		1367.8		-990	+16	487,984 2,114,078
248	660		" "	+7.9°	6.7	TH	+3.3	-3.4		1369.0		-660	+11	488,314 2,114,073
249	330		" "	" "	2.1	-	-2.1	-2.1		1370.3		-330	+5	488,644 2,114,067
250	0		" "	" "	5.4	-		-5.4		1367.0	TP	0	0	488,974 2,114,062
HI	10		338° 12'	" "	5.4	-		-5.4		1367.0	HI	+10	-2	488,984 2,114,060
251	330		351° 08'	+7.9°	8.9	90° 50'	-4.8	-13.7		1358.7		+330	-6	489,304 2,114,056
252	660		" "	" "	11.6	90° 50'	-9.6	-21.2		1351.2		+660	-11	489,634 2,114,051
253	990		" "	" "	11.1	90° 50'	-14.4	-25.5		1346.9		+990	-17	489,964 2,114,045
254	1320		" "	" "	8.3	90° 50'	-19.2	-27.5		1344.9		+1320	-22	490,294 2,114,040
255	1650		" "	+7.9°	9.9	90° 50'	-24.0	-33.9		1338.5		+1650	-28	490,624 2,114,034
256	1980		" "	" "	11.8	90° 30'	-17.3	-29.1		1343.3		+1980	-33	490,954 2,114,029
257	2310		" "	" "	8.3	90° 30'	-20.2	-28.5		1343.9		+2310	-39	491,284 2,114,023
258	2640		351° 02' 40"	+7.9°	1.9	90° 30'	-23.0	-24.9		1347.5		+2640	-49	491,614 2,114,013
TP	2652		351° 07' 53"	" "	1.7	90° 30'	-23.2	-24.9			TP	+2652	-45	491,627 2,114,018
TP	2652				9.4	90° 20'	-15.4	-24.8		1347.6	TP			
	3128		261° 54' 10" - 180	" "	+12.2	04	+15.6	+27.8	1375.4		BS	+11	+1	43128
	3128				+9.6	89° 20'	+18.2	+27.8			BS			

4-488,970
2-2,114,065
TTP WEST. EL. 1369.0

4-491,605
2-2,114,005
TTP INT. EL. 1347.0

NOTE: 3128 OFFSET EAST. DISTANCE CHECKED WITH E.D.M.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE				
12-8-81		B. Cotcamp		M. Knapp		6834		MPK Jm		5		19				
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER		
KANSAS		WAYNE-7 1/2'		KANSAS		REPUBLIC								L. 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
≡	0				5.4	-		-5.4	1375.4		X	0	0	491,639	2,117,147	≡ TINT. s-491,640 x-2,117,150 EL. 1370
259	318		351° 52'	+7.9°	6.7	-		-6.7		1368.7		+318	-1	491,957	2,117,146	
260	648		" "	" "	7.9	-		-7.9		1367.5		+648	-3	492,287	2,117,144	
261	978		" "	" "	7.1	-		-7.1		1368.3		+978	-4	492,617	2,117,143	
262	1308		" "	+7.9°	5.3	-		-5.3		1370.1		+1308	-5	492,947	2,117,142	
263	1638		" "	" "	8.0	-		-8.0		1367.4		+1638	-7	493,277	2,117,140	
264	1968		" "	" "	11.3	-		-11.3		1364.1		+1968	-8	493,607	2,117,139	
265	2298		" "	" "	12.0	-		-12.0		1363.4		+2298	-9	493,937	2,117,138	
266	2628		" "	+7.9°	10.8	-		-10.8		1364.6		+2628	-11	494,267	2,117,136	
267	2955		351° 51' 40"	" "	6.5	-		-6.5		1368.9	TP	+2955	-12	494,595	2,117,136	E.O.M
267	2955				10.1	89° 36'	+3.4	-6.7			TP					
	990		171° 12' 35" +180°	+7.9°	+7.0	-		+7.0			BS	+990	-15			
	990				+2.1	BH	+5.0	+7.1	1376.0		BS					
268	660		171° 13'	+7.9°	10.1	-		-10.1		1365.9		-660	+10	494,925	2,117,132	
269	330		" "	" "	6.2	-		-6.2		1369.8		-330	+5	495,255	2,117,127	
270	0				5.4	-		-5.4		1370.6	X	0	0	495,585	2,117,122	
271	330		351° 15'	+7.9°	2.0	-		-2.0		1374.0		+330	-5	495,915	2,117,117	
272	660		" "	" "	4.0	89° 30'	+5.8	+1.8		1377.8		+660	-10	496,245	2,117,112	
273	990		" "	" "	4.0	89° 30'	+8.6	+4.6		1380.6		+990	-15	496,575	2,117,107	

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-8-81		B. Cotcamp		M. KNAPP		6881		MPK <i>zr</i>		5		20			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		WAYNE-7 1/2		KANSAS		REPUBLIC								L. 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
									1376.0						
274	1310		350° 53' 54"	+79°	4.8	89° 30'	+11.4	+6.6		1382.6	TP	+1310	-27	496,895	2,117,095
274	1320		351° 14' 58"	"	8.6	89° 20'	+15.4	+6.8		1382.8	TP	+1320	-20	496,905	2,117,102
274	1320				4.8	89° 30'	+11.5	+6.7			TP				
	2310		171° 32' 01" +180°	+79°	+14.4	-		+14.4	1397.2		BS	+2310	-23		
	2310				+2.7	BH	+11.6	+14.3			BS				
275	1980		171° 32'	+79°	6.2	90° 20'	-11.5	-17.7		1379.5		-1980	+20	497,235	2,117,099
276	1650		" "	" "	7.5	90° 20'	-9.6	-17.1		1380.1		-1650	+16	497,565	2,117,095
277	1320		" "	" "	9.9	90° 20'	-7.7	-17.6		1379.6		-1320	+13	497,895	2,117,092
278	990		" "	" "	10.7	90° 20'	-5.8	-16.5		1380.7		-990	+10	498,225	2,117,089
279	660		" "	+79°	6.3	90° 20'	-3.8	-10.1		1387.1		-660	+7	498,555	2,117,086
280	330		" "	" "	6.5	-		-6.5		1390.7		-330	+3	498,885	2,117,082
281	0				5.4	-		-5.4		1391.8	X	0	0	499,215	2,117,079
282	330		351° 34'	+79°	7.3	-		-7.3		1389.9		+330	-3	499,545	2,117,076
283	660		" "	" "	11.9	BH	-3.3	-15.2		1382.0		+660	-6	499,875	2,117,073
284	990		" "	" "	10.1	BH	-5.0	-15.1		1382.1		+990	-9	500,205	2,117,070
285	1320		" "	" "	8.0	-		-8.0		1389.2		+1320	-12	500,535	2,117,067
286	1650		" "	+79°	4.9	-		-4.9		1392.3		+1650	-15	500,865	2,117,064
287	1980		" "	" "	4.4	-		-4.4		1392.8		+1980	-18	501,195	2,117,061
288	2310		351° 34' 26"	" "	4.2	-		-4.2		1393.0	TP	+2310	-21	501,525	2,117,059
288	2310				10.9	89° 50'	+6.7	-4.2			TP				

y-496,895 Horiz. *zr*
x-2,117,095 Coll. *zr*
Way Int. EL. 1383.0

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-9-81		B. Catcamp		M. Knapp		6834		MPK Jr		5		21			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		WAYNE - 7 1/2'		KANSAS		REPUBLIC								L. 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
										1398.0					
	1650		171° 23' 53" +180°	+7.9°	+4.3	89° 30'	-14.4	-10.1	1382.9		BS	+1650	-20.1		
	1650				+9.1	89° 20'	-19.2	-10.1		BS					
289	1320		171° 24'	+7.9°	11.1	89° 20'	+15.4	+4.3		1387.2		-1320	+16	501,855	2,117,056
290	990		" "		6.2	89° 50'	+2.9	-3.3		1379.6		-990	+12	502,185	2,117,052
291	935		171° 40' 54"	+7.9°	4.3	89° 50'	+2.7	-1.6		1381.3	IF	-935	+7	502,240	2,117,047
291	660		171° 24'	" "	3.8	89° 50'	+1.9	-1.9		1381.0		-660	+8	502,515	2,117,048
292	330		" "	" "	5.8	89° 50'	+1.0	-4.8		1378.1		-330	+4	502,845	2,117,044
293	0		" "	" "	5.4	-		-5.4		1377.5	T	0	0	503,175	2,117,040
294	330		351° 47'	" "	11.2	87° 50'	+12.5	+1.3		1384.2		+330	-2	503,505	2,117,038
295	660		" "	+7.9°	9.9	87° 50'	+24.9	+15.0		1397.9		+660	-4	503,835	2,117,036
296	990		" "	" "	10.2	87° 50'	+37.4	+27.2		1410.1		+990	-5	504,165	2,117,035
297	1320		" "	" "	13.2	87° 50'	+49.9	+36.7		1419.6	TP	+1320	-7	504,495	2,117,033
298	1650	1649.0	351° 47' 12"	" "	12.3	88° 10'	+52.8	+40.5		1423.4	TP	+1649	-9	504,823	2,117,032
298	1650				7.6	88° 20'	+48.0	+40.4			TP				
	1320		171° 36' 42" +180°	+7.9°	+5.8	TH	-6.6	-0.8	1422.6		BS	+1320	-11		
	1320				+6.9	89° 40'	-7.7	-0.8		BS					
299	990		171° 37'	" "	6.3	89° 30'	+8.6	+2.3		1424.9		-990	+8	505,152	2,117,030
300	660		" "	+7.9°	7.7	90° 30'	-5.8	-13.5		1409.1		-660	+6	505,482	2,117,028
301	330		" "	" "	9.9	92° -	-11.5	-21.4		1401.2		-330	+3	505,812	2,117,025

5-502,230
11-x-2,117,020
11-120 EAST EL. 1383.0

Hilly

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY			LINE NO.		PAGE		
12-9-81		B. Cotcamp		M. KNAPP		6834		MPK Jm			5		22		
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		WAYNE - 7 1/2		KANSAS		REPUBLIC								L. 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
									1422.6						
302	0				5.4	-		-5.4		1417.2	T	0	0	506,142	2,117,022
303	330		352° 08'	+7.9°	6.0	85° 40'	+24.9	+18.9		1441.5		+330	±0	506,472	2,117,022
304	660		" "	" "	9.9	85° 40'	+49.7	+39.8		1462.4		+660	±0	506,802	2,117,022
305	990	988.	352° 07' 50"	" "	9.9	86° -	+68.9	+59.0		1481.6	TP	+988	+1	507,129	2,117,024
305	990				12.7	85° 50'	+71.7	+59.0			TP				
	1320		169° 41' 36" +180°	+7.9°	+13.6	88° 12'	-41.4	-27.8	1453.8		BS	+1318	-55		
	1320				+11.3	88° 18'	-39.1	-27.8			BS				
306	1010		169° 58' 23"	+7.9°	0.8	88° 20'	+29.4	+28.6		1482.4	IF	-1009	+37	507,437	2,117,007
306	990		169° 42'	" "	7.4	88° -	+34.5	+27.1		1480.9		-989	+41	507,457	2,117,042
307	660		" "	" "	10.9	89° 20'	+7.7	-3.2		1450.6		-659	+28	507,787	2,116,998
308	330		" "	" "	8.6	91° 50'	-10.6	-19.2		1434.6		-330	+14	508,116	2,116,984
309	0			+7.9°	5.4	-		-5.4		1448.4	T	0	0	508,446	2,116,970
310	330		349° 31"	" "	8.8	91° 50'	-10.6	-19.4		1434.4		+330	-15	508,776	2,116,955
311	666		" "	" "	10.9	91° 50'	-21.1	-32.0		1421.8		+659	-30	509,105	2,116,940
312	990		" "	" "	8.5	91° 50'	-31.7	-40.2		1413.6		+989	-45	509,435	2,116,925
313	1321		349° 30' 36"	+7.9°	4.3	91° 50'	-42.2	-46.5		1407.3	TP	+1319	-60	509,764	2,116,911
313	1321				8.1	91° 40'	-38.4	-46.5			TP				
	1650		169° 30' 02" +180°	+7.9°	+6.3	-		+6.3	1413.6		BS	+1648	-75		
	1650				+14.5	TH	-8.3	+6.2			BS				

507,480
2,116,990
TRD EAST. EL.

DATE		INSTRUMENT MAN		ROD MAN		PARTY NUMBER		NOTES CHECKED BY		LINE NO.		PAGE			
12-9-81		B. Cotcamp		M. KNAPP		6834		MPK Jm		5		23			
AREA		TOPO MAP		STATE		COUNTY		TWP		RANGE		PPM		PARTY MANAGER	
KANSAS		WAYNE-7 1/2'		KANSAS		REPUBLIC								L. 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-	EAST+ WEST-		Y
									1413.6						
314	1320		169° 30"	+7.9°	12.1	84	-6.6	-18.7		1394.9		-1319	+60	510,092	2,116,897
315	990		" "	" "	11.3	-		-11.3		1402.3		-989	+45	510,422	2,116,882
316	660		" "	" "	7.7	-		-7.7		1405.9		-659	+30	510,752	2,116,867
317	330		" "	" "	11.7	-		-11.7		1401.9		-330	+15	511,081	2,116,852
318	0				5.4	-		-5.4		1408.2	TP	0	0	511,411	2,116,837
319	330		349° 59'	+7.9°	9.8	88° -	+11.5	+1.7		1415.3		+330	-12	511,741	2,116,825
320	660		" "	+7.9°	12.2	88° 20'	+19.2	+7.0		1420.6		+660	-24	512,071	2,116,813
321	990		349° 59' 12"	" "	8.1	88° -	+34.5	+26.4		1440.0		+989	-37	512,400	2,116,800
322	1241		349° 27' 49"	" "	8.5	88° -	+43.3	+34.8		1448.4	TP	+1239	-57	512,650	2,116,780
	1890				+5.8	92° -	+65.9	+71.7	1520.1		BS				
	1890				+11.2	91° 50'	+60.4	+71.6			BS				
TP	0				5.4	-		-5.4		1514.7	TP				
SEC. CORN	860				2.9	89° 30'	+7.5	+4.6		1524.7	TP				SECTION CORNER E.L. 1527.0

E.O.L. LINE #5
y-512,650
x-2,116,780
HORIZONTAL CORRECTION
y-6'
x-8'