Appendix C
Discrete Water Level Measurements

Figures and Tables

Introduction: Appendix C

Point water level measurements of all piezometers and several of the monitoring wells were made during site visits and displayed in Table C.1. Water levels, contours, and gradients for December 1997, August 1998, June 1999, July 1999, August 1999, November 1999, January 2000, and March 2000 are shown in Figures C.1 – C.8.

Table C.1: Discrete Water Level Measurements

Well	TOC, ft	Well Depth, ft	4/28/94[1]	6/2/94[1]	2/23/96[1]	4/3/97[1]	10/29/97[1]	11/12/97[1]	11/25/97[1]	1/14/98[1]	2/9/98[1]	4/2/98[1]	5/5/98[1]	6/3/98[1]	7/29/98[1]
P1	1436.79	6.79	NM	NM	NM	NM	1429.84	1430.39	1433.46	1433.58	1434.51	1433.10	1433.76	1433.55	1431.71
P2	1436.98	9.94	NM	NM	NM	NM	1429.52	1431.02	1432.30	1432.46	1432.55	1431.03	1432.68	1432.00	1429.50
P3	1435.98	9.87	NM	NM	NM	NM	1428.36	1428.90	1430.29	1430.80	1431.55	1430.12	1431.49	1431.12	1428.49
P4	1435.04	9.74	NM	NM	NM	NM	1428.52	1428.82	1428.14	1428.54	NF	1427.78	1428.33	1428.86	1428.58
P5	1434.85	9.83	NM	NM	NM	NM	1428.29	1428.80	1428.29	1428.42	1429.73	1427.21	1430.15	1429.53	1428.21
P6	1434.17	9.43	NM	NM	NM	NM	1425.44	1425.80	1426.76	1426.98	NF	NF	1428.15	1428.73	1425.68
P7	1432.77	9.77	NM	NM	NM	NM	1425.59	1425.71	1426.42	1426.62	1426.40	1425.82	1427.77	1426.97	1425.33
P8	1432.14	NM	NM	NM	NM	NM	1425.19	1425.24	1426.96	1425.74	1425.64	1424.80	1427.09	1425.69	dry
P9	1433.01	8.09	NM	NM	NM	NM	1425.40	1425.45	1426.01	1425.72	dry	dry	1427.36	1424.89	dry
P10	1432.19	10.23	NM	NM	NM	NM	1429.41	1429.47	1430.08	1430.26	1424.90	1424.87	1430.61	1424.87	1424.82
P11	1432.74	10.00	NM	NM	NM	NM	1425.48	1426.64	1426.19	1425.93	1425.76	1425.55	1427.83	1425.94	1425.38
P12	1433.28	9.31	NM	NM	NM	NM	1425.76	1426.90	1426.96	1426.86	1426.89	1426.11	1428.45	1427.24	1425.56
P13	1434.68	9.97	NM	NM	NM	NM	1428.24	1428.42	1427.48	1427.66	1428.15	1426.95	1428.87	1427.69	1428.07
P14	1433.98	8.23	NM	NM	NM	NM	1426.56	1426.87	1428.21	1428.63	1429.49	1427.58	1429.83	1428.16	1426.42
P15	1434.63	8.72	NM	NM	NM	NM	1430.25	1430.83	1432.09	1432.06	1432.88	1431.75	1432.59	1431.84	1429.18
P16	1436.04	9.09	NM	NM	NM	NM	1428.76	1429.35	1431.08	1431.48	NF	1430.69	1432.35	1431.76	1428.94
P17	1437.2	8.71	NM	NM	NM	NM	NM	1431.50	1432.84	1432.82	1433.23	NM	1432.94	1432.82	1431.66
P18	1437.17	8.46	NM	NM	NM	NM	NM	1432.06	1432.87	1432.85	1433.31	NM	1432.96	1432.85	1431.97
P19	1435.03	2.50	NM	NM	NM	NM	NM	1432.43	1433.05	1433.05	NF	NM	1433.70	1433.71	1432.84
P20	1434.8	6.32	NM	NM	NM	NM	NM	NM	NM	1427.60	1428.52	1426.50	1430.00	1429.70	dry
P21A	1434.37	5.84	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
P21B	1434.38	6.21	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
P21C	1434.37	8.38	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
P21D	1434.38	9.13	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
P22	1433.9	9.12	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
P23	1438.46	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
temp	1432.96	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW1	1433.64	NM	1424.73	1424.87	1424.72	1424.55	1424.18	1424.34	1424.56	1425	1425.54	NM	1425.42	1425.31	1424.51
MW2	1436.10	NM	1427.90	1428.28	1427.18	1427.60	1427.49	1427.62	1428.13	1428.10	1428.48	NM	1428.34	1428.47	1427.37
MW3	1437.24	NM	1431.07	1430.77	1431.27	1430.25	1428.32	1428.35	1430.66	1430.66	1431.79	1430.20	1431.66	1431.32	1428.67
MW5	1436.62	NM	1432.85	1432.15	1432.56	1431.64	1430.17	1430.52	1432.48	1432.48	1432.20	1430.41	1432.16	1432.06	1429.21
MW6	1434.81	NM	NM	NM	NM	NM	NM	1428.16	1427.19	1427.12	1427.72	1426.86	1428.61	1427.51	1425.85

Well	TOC, ft	Well Depth, ft	8/28/98[1]	9/21/98[1]	10/9/98[1]	12/10/98[1]	6/14/99	6/15/99	7/14/99 am	7/14/99 pm	8/19/99	10/7/99	11/20/99	1/13/00	3/15/00
P1	1436.79	6.79	1432.48	1430.15	dry	1431.83	1432.42	1432.50	1433.81	1433.76	1431.14	dry	1430.08	1433.09	1433.68
P2	1436.98	9.94	1430.06	1427.92	1427.82	1430.61	1429.84	1429.77	1432.36	1432.33	1428.94	1427.49	1428.22	1431.80	1431.97
P3	1435.98	9.87	1428.73	1427.18	1427.36	1429.82	1428.77	1428.86	1430.90	1430.90	1427.79	1426.68	1427.55	1430.31	1430.70
P4	1435.04	9.74	1426.64	1426.72	1426.69	1427.69	1428.63	1428.74	1428.28	1428.22	1425.88	dry	1425.90	1427.90	1428.28
P5	1434.85	9.83	1426.59	1425.45	dry	1428.16	1428.07	1428.32	1428.86	1428.45	1425.71	dry	1425.86	1427.65	1427.60
P6	1434.17	9.43	1426.89	1426.17	1426.17	1425.81	1425.63	1425.64	1428.62	1428.52	1425.24	dry	1425.22	1428.32	1426.41
P7	1432.77	9.77	1425.60	1426.07	1424.91	1425.21	1425.37	1425.36	1428.67	1428.69	1425.06	1424.52	1425.08	1425.74	1425.88
P8	1432.14	NM	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
P9	1433.01	8.09	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
P10	1432.19	10.23	1424.63	1424.73	1424.69	1424.88	1424.59	1424.64	1424.97	1424.97	1424.73	1426.49	1424.80	1424.82	1424.86
P11	1432.74	10.00	1425.59	1425.04	1425.28	1425.76	1425.30	1425.52	1426.80	1425.88	1425.00	1426.49	1425.04	1425.47	1425.48
P12	1433.28	9.31	1425.66	1425.11	1424.38	1426.92	1425.67	1426.25	1427.74	1427.70	1425.14	1426.59	1425.19	1426.50	1426.13
P13	1434.68	9.97	1426.22	1425.27	1425.57	1427.59	1426.06	1426.52	1428.20	1428.11	1425.33	dry	1425.48	1427.32	1427.30
P14	1433.98	8.23	1426.67	dry	dry	1428.71	1426.41	1426.99	1430.17	1429.78	dry	dry	dry	1428.10	1428.19
P15	1434.63	8.72	1430.65	1427.09	1426.69	1431.35	1430.24	1430.15	1432.67	1432.10	1427.79	1430.56	1425.84	1432.06	1432.02
P16	1436.04	9.09	1430.84	1427.81	1427.49	1429.82	1429.22	1429.23	1431.43	1431.55	1428.24	1427.12	1427.84	1430.73	1431.05
P17	1437.2	8.71	1432.26	1429.49	1429.09	1431.94	1432.37	1432.89	1433.64	1433.00	1430.86	1428.61	1429.37	1432.59	1432.67
P18	1437.17	8.46	1432.31	1429.75	1429.27	1432.21	1432.41	1432.66	1433.65	1433.03	1431.48	1428.98	1429.85	1432.84	1432.73
P19	1435.03	2.50	1433.11	dry	dry	1432.91	1433.00	1433.58	1433.78	1433.91	run over	run over	run over	run over	run over
P20	1434.8	6.32	NF	dry	dry	1428.93	NM	dry	1429.25	1429.18	dry	dry	dry	dry	dry
P21A	1434.37	5.84	NM	NM	NM	NM	NM	dry	dry	dry	dry	dry	dry	dry	dry
P21B	1434.38	6.21	NM	NM	NM	NM	NM	dry	dry	dry	dry	dry	dry	dry	dry
P21C	1434.37	8.38	NM	NM	NM	NM	NM	dry	dry	dry	dry	dry	dry	dry	1426.28
P21D	1434.38	9.13	NM	NM	NM	NM	NM	1426.43	1425.91	1426.03	dry	dry	dry	1426.14	1426.25
P22	1433.9	9.12	NM	NM	NM	NM	NM	NM	NM	NM	NM	1425.33	1425.53	1426.00	1427.21
P23	1438.46	NM	NM	NM	NM	NM	NM	NM	NM	NM	1427.86	dry	dry	1430.03	1430.48
temp	1432.96	NM	NM	NM	NM	NM	NM	NM	NM	NM	1425.69	NM	NM	NM	NM
MW1	1433.64	NM	1424.55	1424.02	1423.96	1424.85	NM	NM	NM	NM	NM	1423.72	1423.93	1424.85	NM
MW2	1436.10	NM	1427.35	1426.62	1426.60	1427.90	NM	NM	NM	NM	NM	1425.76	1426.47	1427.36	NM
MW3	1437.24	NM	1428.13	1427.30	1424.60	1428.60	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW5	1436.62	NM	1429.85	1427.55	1427.33	1431.62	NM	NM	NM	NM	NM	NM	NM	NM	NM
MW6	1434.81	NM	1426.05	1425.29	NM	NM	NM	NM	NM	NM	NM	NM	1425.44	1426.87	1427.01

[1] Data obtained from Lotis, 1999
NM - not measured
NF - not found due to snow or vegetation
TOC - top of casing

Figure C.1: December 1997 Water Level Data, Contours, and Gradients for the Oneida, TN Tie Yard Site

Dec-97			
Triangle	H1<H2<H3	Angle (degrees)	Gradient (ft/ft)
1	MW3, P16, P2	201.44	0.0383
2	P7, P4, P5	137.16	0.0204
3	P18, P19, P1	86.97	0.0037
4	P3, P17, P18	227.37	0.0438
5	P12, P4, MW5	206.76	0.1131
6	P4, P3, MW3	166.80	0.0337
7	P10, P7, P12	180.12	0.0132

*Angles Measured CCW from Horizontal

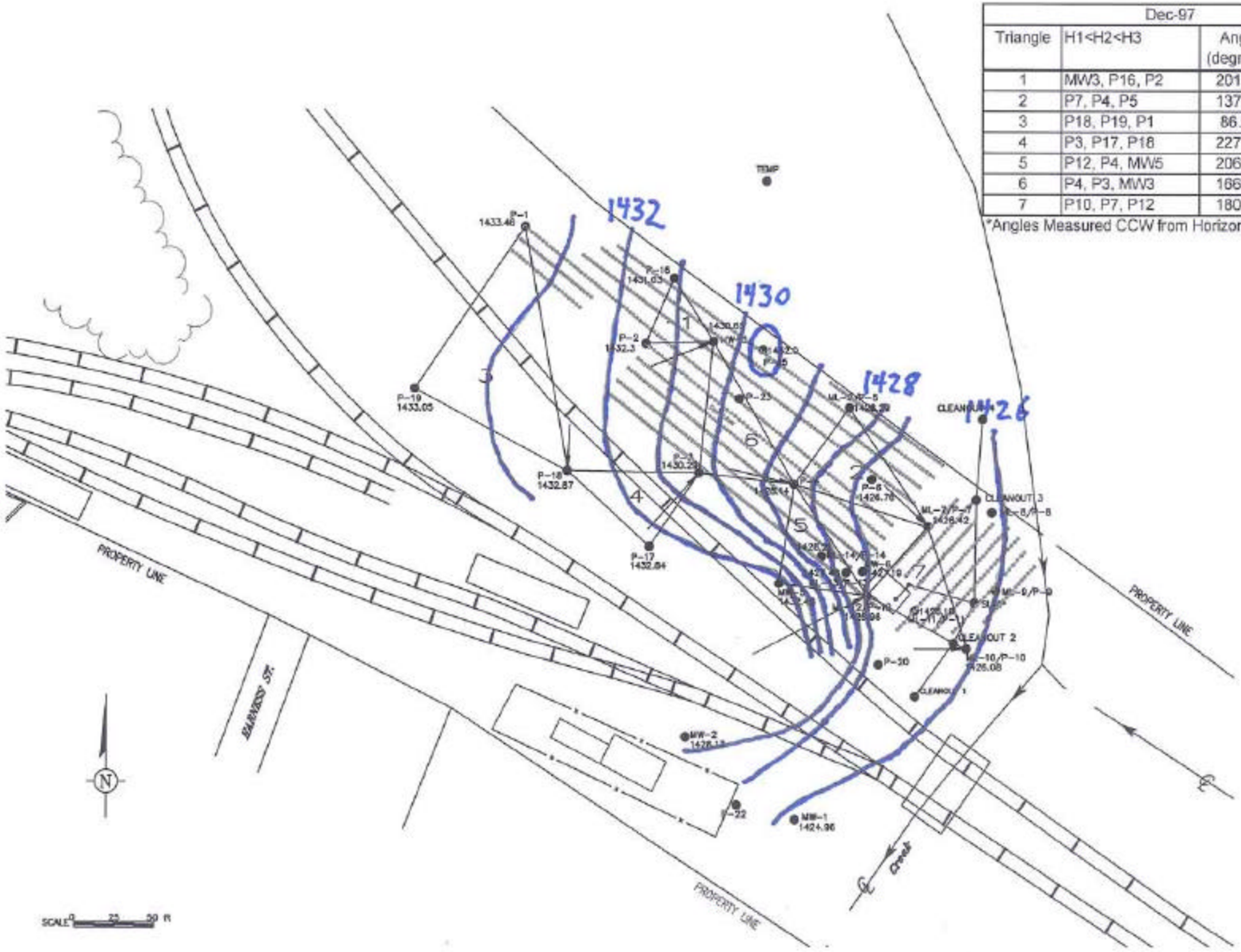

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Figure C.2: August 1998 Water Level Data, Contours, and Gradients for the Oneida, TN Tie Yard Site

Aug-98			
Triangle	H1<H2<H3	Angle (degrees)	Gradient (ft/ft)
1	P2, P16, P15	44.27	0.0134
2	P7, P4, P5	164.48	0.0132
3	P18, P1, P19	182.58	0.0080
4	P3, P17, P18	227.27	0.0606
5	P12, P4, P17	198.51	0.0516
6	P4, P3, P15	122.36	0.0466
7	P10, P7, P12	143.15	0.0112

*Angles Measured CCW from Horizontal

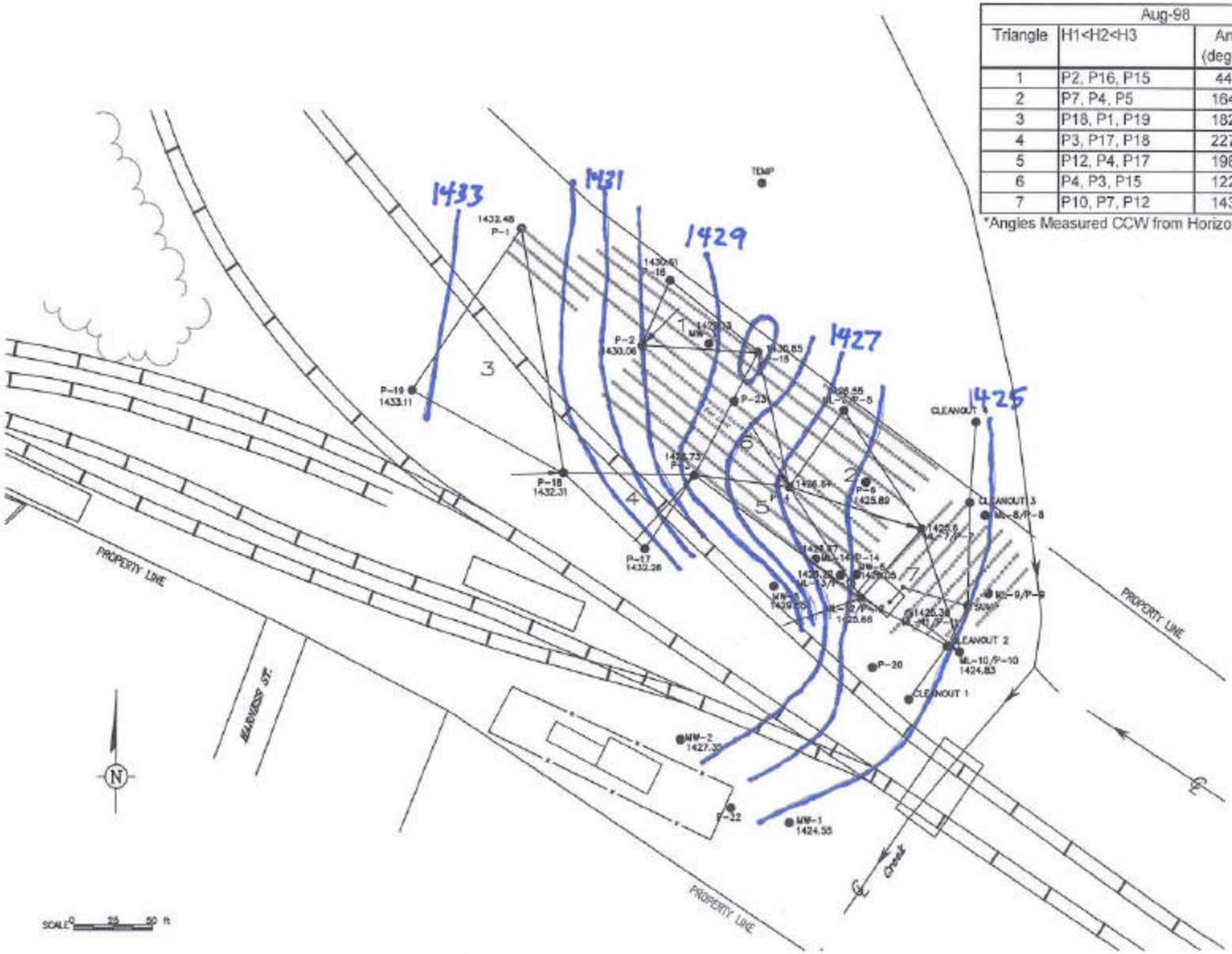

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Figure C.3: June 1999 Water Level Data, Contours, and Gradients for the Oneida, TN Tie Yard Site

Jun-99			
Triangle	H1<H2<H3	Angle (degrees)	Gradient (ft/ft)
1	P16, P2, P15	286.99	0.0152
2	P7, P5, P4	170.83	0.0149
3	P2, P1, P18	191.38	0.0023
4	P3, P17, P18	227.18	0.0643
5	P12, P4, P3	205.35	0.0390
6	P4, P3, P15	132.75	0.0433
7	P10, P7, P12	181.11	0.0213

*Angles Measured CCW from Horizontal

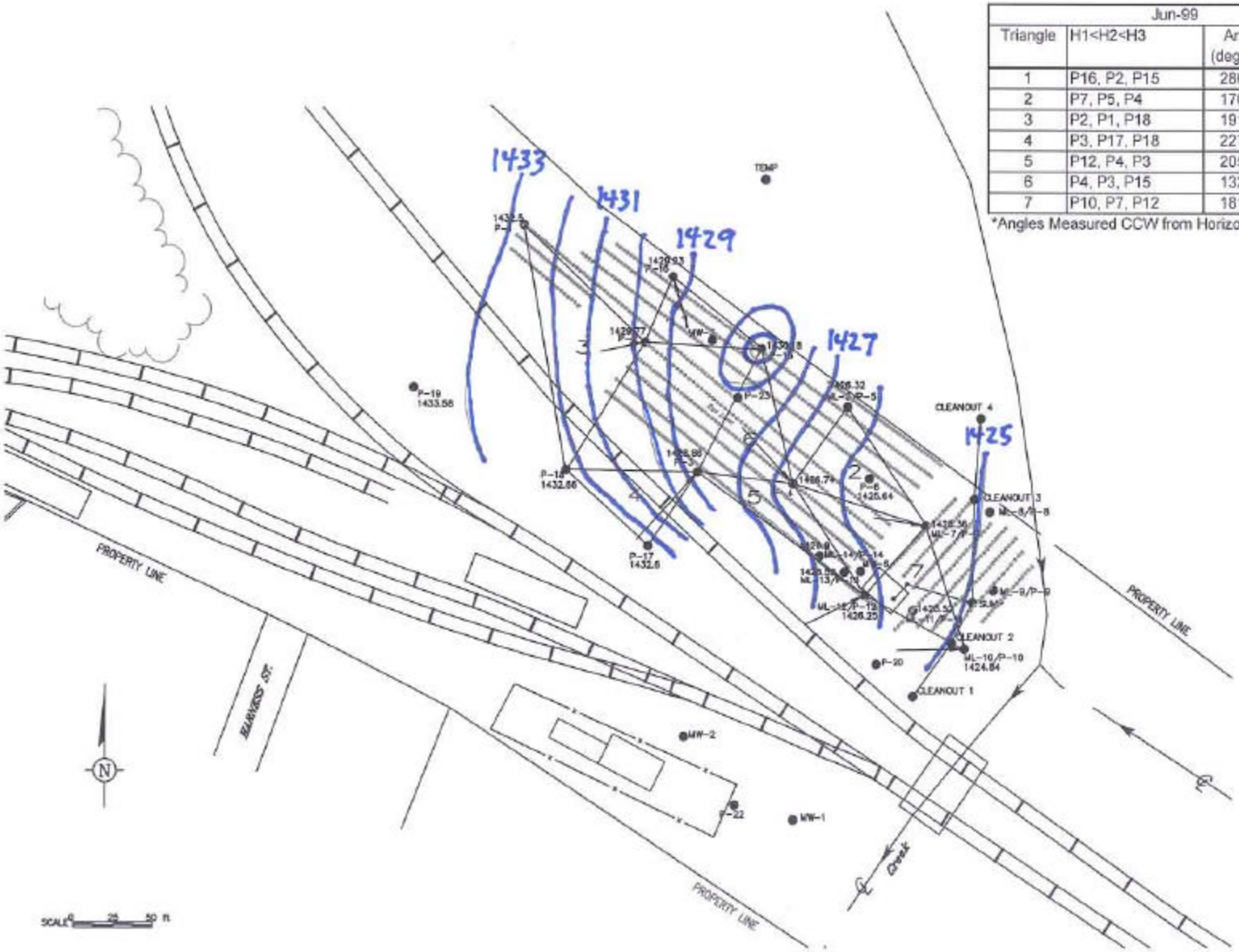

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Figure C.4: July 1999 Water Level Data, Contours, and Gradients for the Oneida, TN Tie Yard Site

Jul-99 pm			
Triangle	H1<H2<H3	Angle (degrees)	Gradient (ft/ft)
1	P16, P15, P2	256.90	0.0169
2	P7, P4, P5	114.73	0.0404
3	P2, P18, P1	173.87	0.0161
4	P3, P17, P18	227.26	0.0361
5	P12, P4, P3	206.79	0.0501
6	P4, P3, P15	137.41	0.0514
7	P10, P7, P12	186.67	0.0438

*Angles Measured CCW from Horizontal

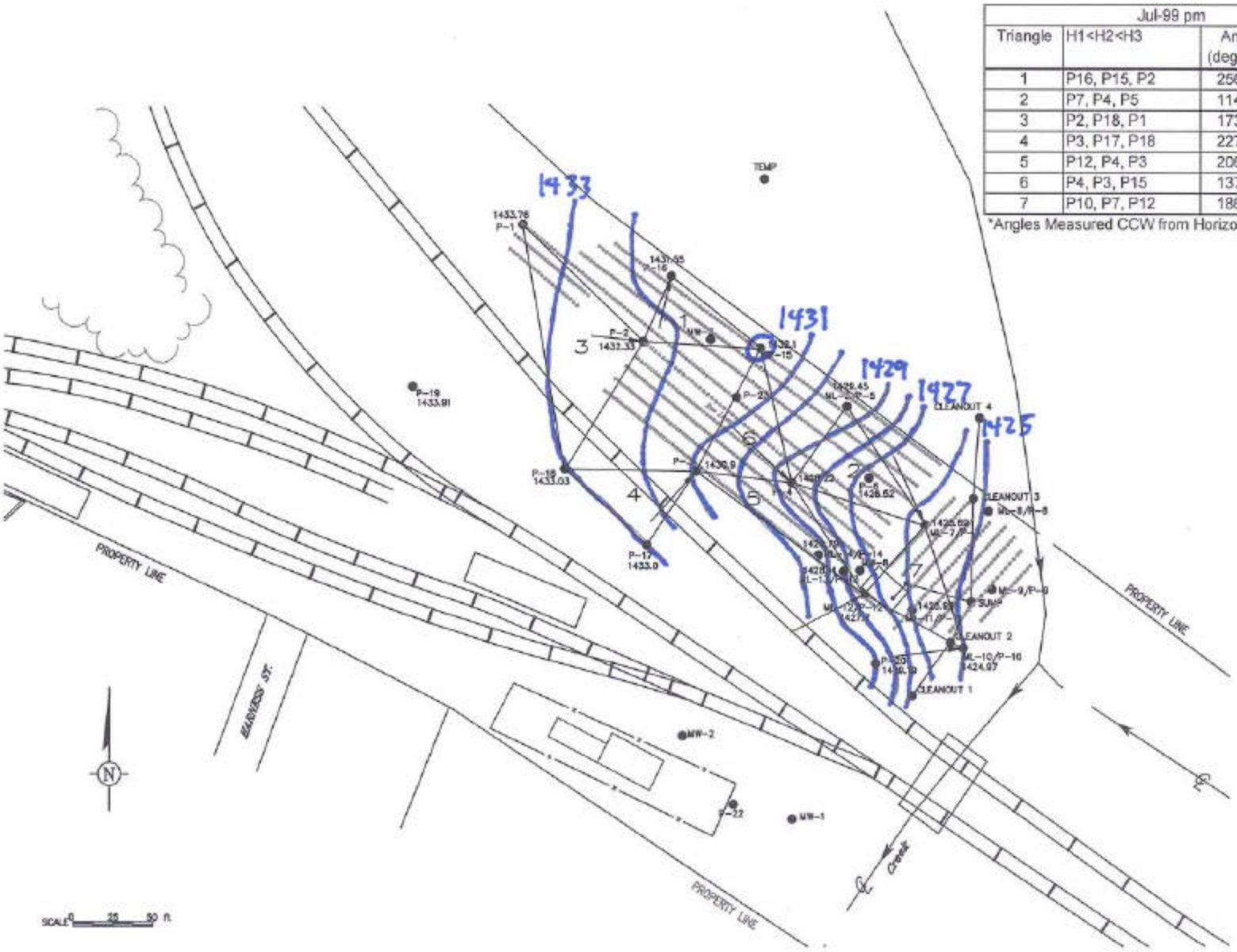

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Figure C.5: August 1999 Water Level Data, Contours, and Gradients for the Oneida, TN Tie Yard Site

Aug-99			
Triangle	H1<H2<H3	Angle (degrees)	Gradient (ft/ft)
1	Temp, P15, P16	219.81	0.0288
2	P7, P5, P4	162.07	0.0088
3	P2, P1, P18	193.39	0.0359
4	P3, P17, P18	219.11	0.0544
5	P12, P4, P3	198.78	0.0329
6	P6, P4, P23	148.68	0.0329
7	P10, P7, P12	152.02	0.0054
8	P15, P23, P2	163.45	0.0150

*Angles Measured CCW from Horizontal

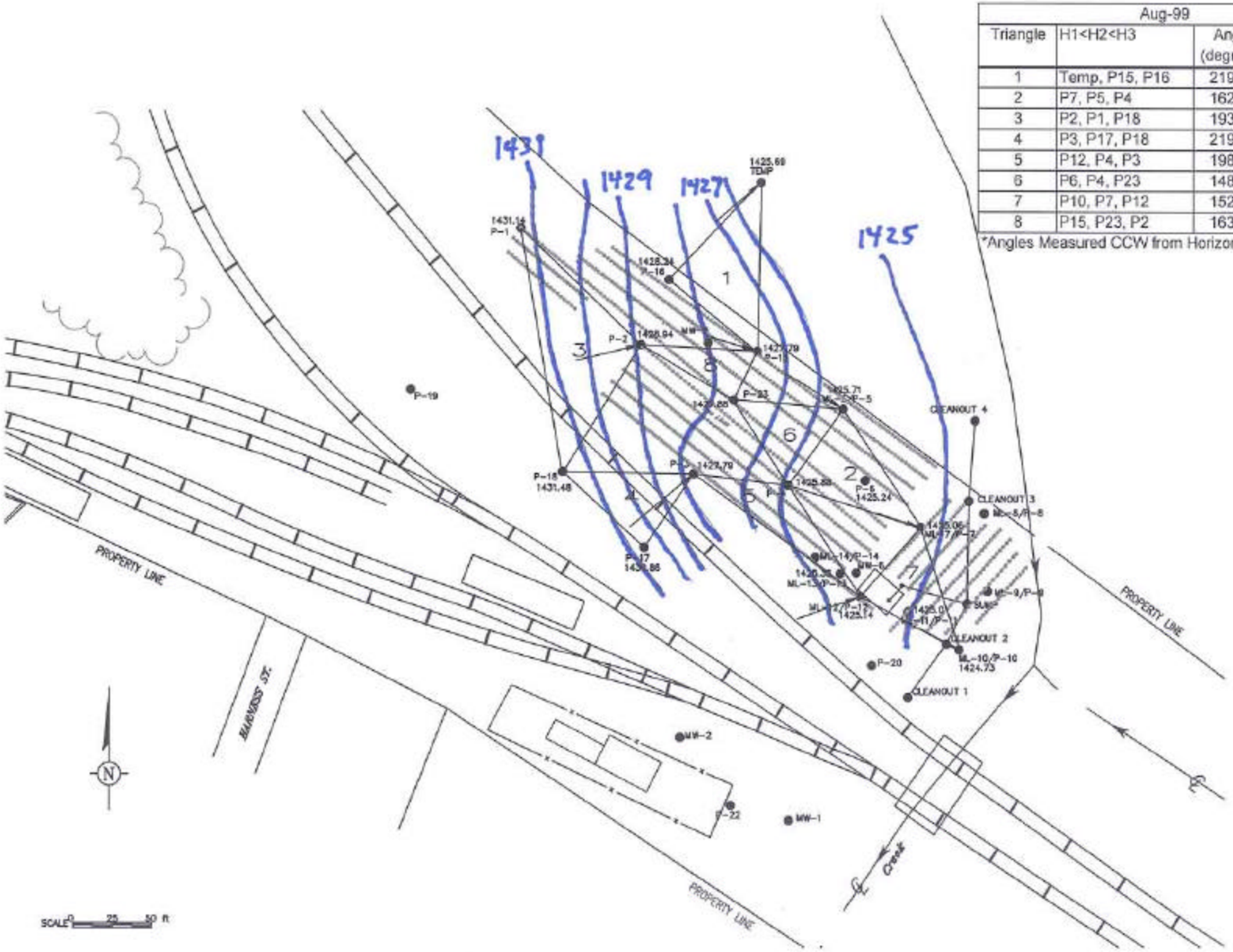

Figure C.6: November 1999 Water Level Data, Contours, and Gradients for the Oneida, TN Tie Yard Site

Nov-99			
Triangle	H1<H2<H3	Angle (degrees)	Gradient (ft/ft)
1	P16, P2, P15	293.93	0.0092
2	P7, P5, P4	169.79	0.0062
3	P2, P18, P1	175.04	0.0315
4	P3, P17, P18	221.15	0.0319
5	P12, P4, P3	196.83	0.0280
6	P4, P3, P15	129.00	0.0358
7	P10, P7, P12	158.33	0.0052
8	MW1, P22, MW2	200.35	0.0508

*Angles Measured CCW from Horizontal

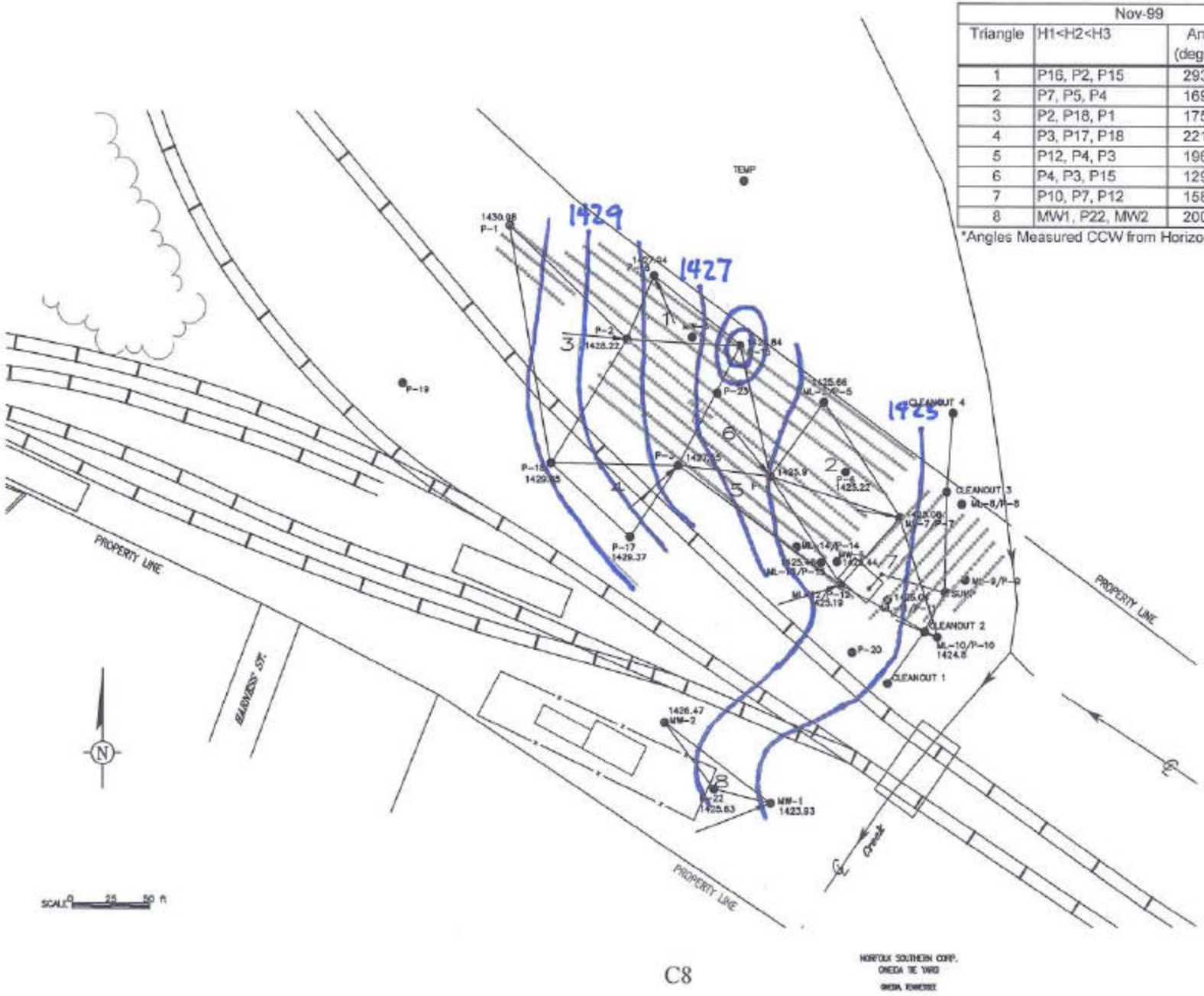

Figure C.7: January 2000 Water Level Data, Contours, and Gradients for the Oneida, TN Tie Yard Site

Jan-00			
Triangle	H1<H2<H3	Angle (degrees)	Gradient (ft/ft)
1	P16, P2, P15	274.76	0.0206
2	P7, P5, P4	153.82	0.0206
3	P2, P18, P1	175.45	0.0183
4	P3, P17, P18	226.92	0.0392
5	P12, P4, P3	189.54	0.0391
6	P4, P3, P15	130.07	0.0514
7	P10, P7, P12	169.77	0.0234
8	MW1, MW2, P22	221.94	0.1468

*Angles Measured CCW from Horizontal

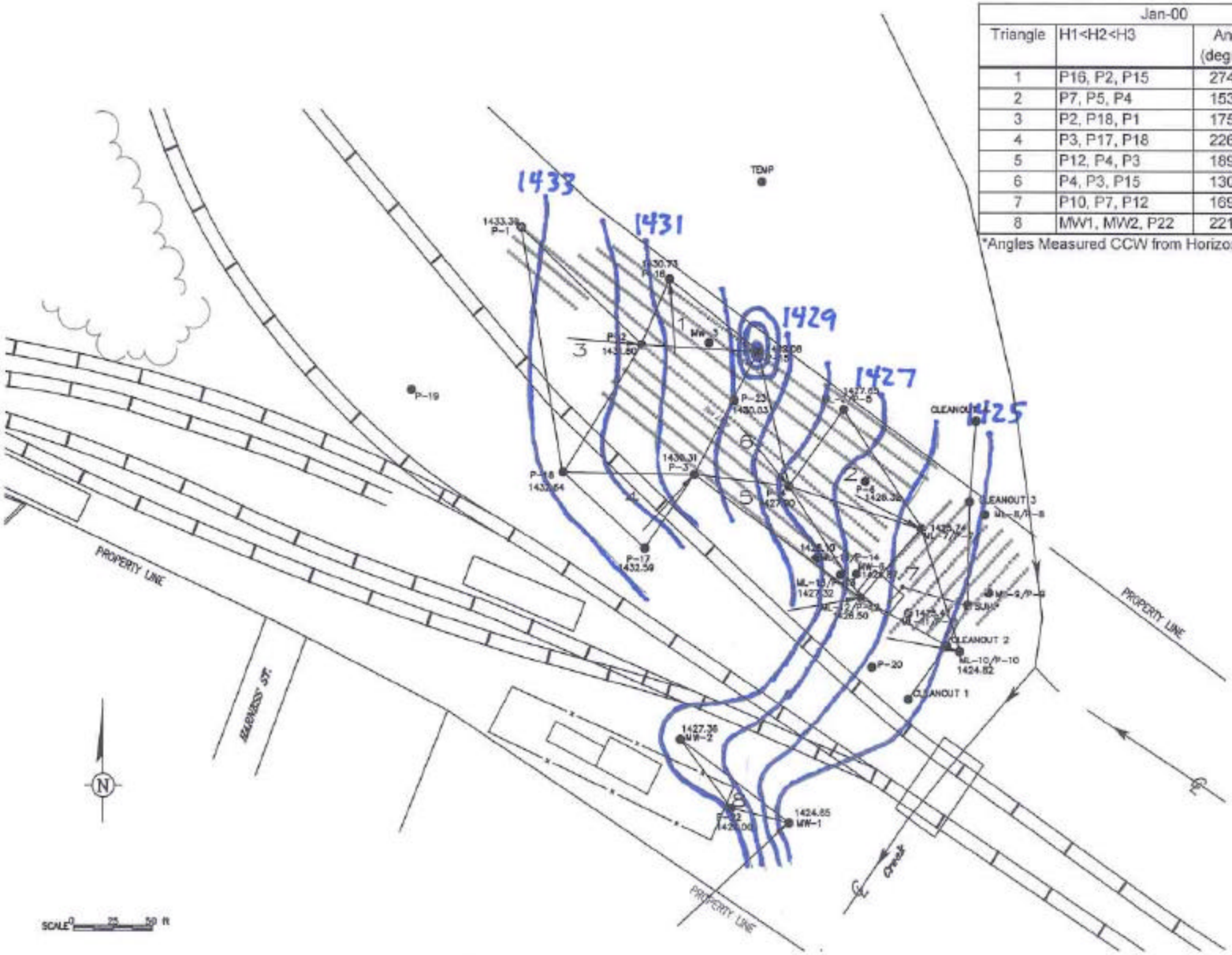

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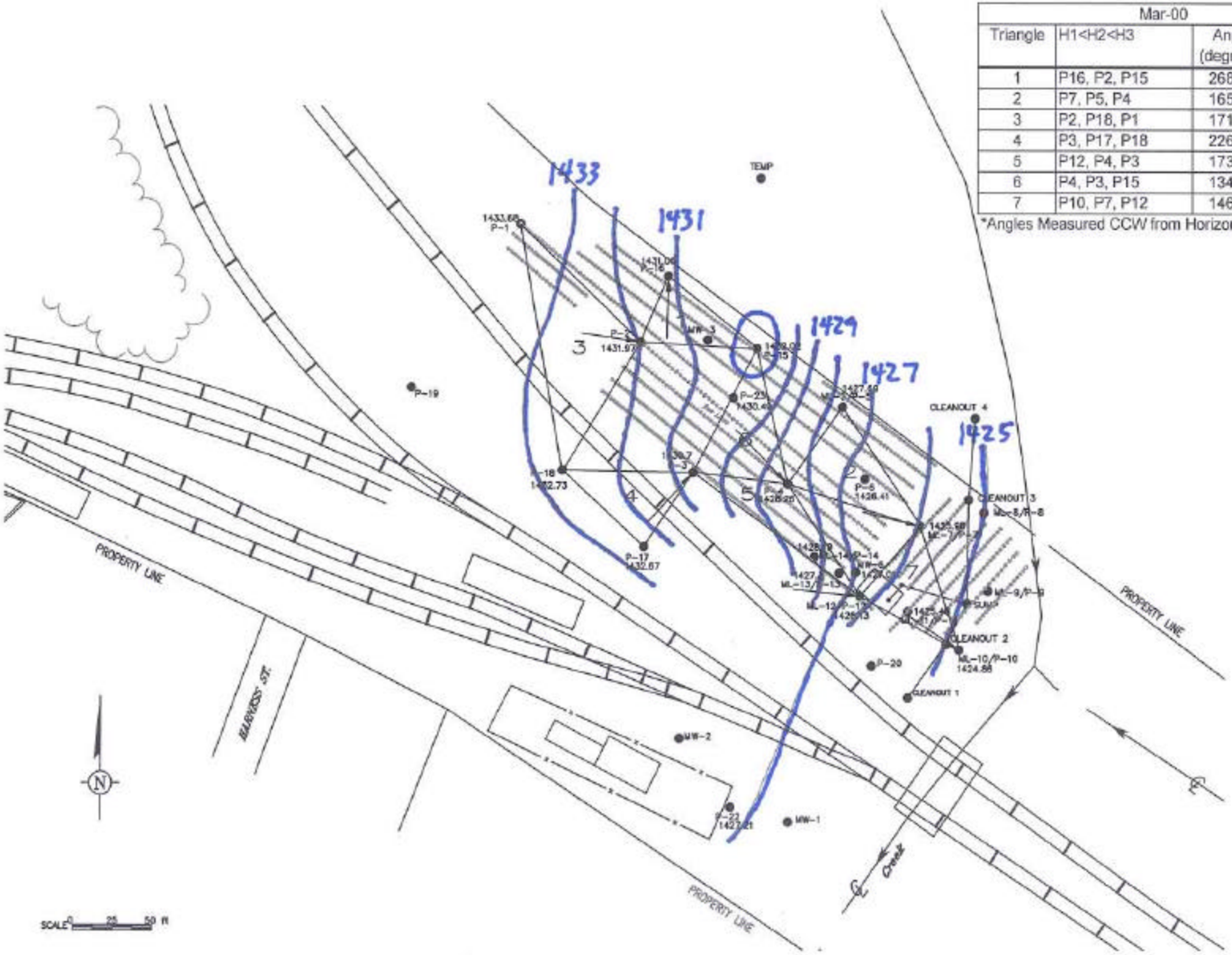
Figure C.8: March 2000 Water Level Data, Contours, and Gradients for the Oneida, TN Tie Yard Site

Mar-00			
Triangle	H1<H2<H3	Angle (degrees)	Gradient (ft/ft)
1	P16, P2, P15	268.58	0.0201
2	P7, P5, P4	165.94	0.0183
3	P2, P18, P1	171.94	0.0187
4	P3, P17, P18	226.54	0.0339
5	P12, P4, P3	173.95	0.0380
6	P4, P3, P15	134.85	0.0484
7	P10, P7, P12	146.43	0.0169

*Angles Measured CCW from Horizontal



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