MOKOLO / CROCODILE RIVERS
WATER AUGMENTATION PROJECT

G.P.S. CONTROL
GRID
COORDINATE LIST

MOKOLO / CROCODILE WATER AUGMENTATION PROJECT

Control Points

(System WG.27)

Pt. ID.	Y	X	Z (Ellips)	Z (Ortho)	Geoid. Sep.	Description
60DW1	-52450.489	2773080.026	966.221	944.328	21.893	16mm iron peg in concrete
60DW2	-52560.068	2773157.300	966.167	944.269	21.898	25mm iron peg in concrete
A09220001	-72039.778	2651737.579	1021.376	1003.604	17.771	12mm iron peg in concrete
A09220002	-70338.512	2651186.722	1113.778	1096.064	17.714	12mm iron peg in concrete
A09220003	-68989.929	2651887.880	1116.146	1098.414	17.731	12mm iron peg in concrete
A09220004	-67230.195	2651047.655	1056.495	1038.818	17.677	12mm iron peg in concrete
A09220005	-66436.122	2650686.661	1034.665	1016.997	17.668	12mm iron peg in concrete
A09220006	-65026.456	2649243.000	1018.918	1001.296	17.622	12mm iron peg in concrete
A09220007	-64155.370	2647781.965	994.354	976.786	17.568	12mm iron peg in concrete
A09220008	-64211.688	2645849.045	985.415	967.904	17.511	12mm iron peg in concrete
A09220009	-63620.294	2643851.374	1021.212	1003.783	17.430	12mm iron peg in concrete
A09220010	-64328.282	2642029.142	974.568	957.158	17.409	12mm iron peg in concrete
A09220011	-64606.372	2640945.897	986.128	968.729	17.399	12mm iron peg in concrete
A09220012	-63122.468	2639757.116	1026.324	1008.996	17.328	12mm iron peg in concrete
A09220013	-62601.563	2637779.461	927.986	910.740	17.246	12mm iron peg in concrete
A09220014	-62374.416	2635954.430	923.523	906.343	17.179	12mm iron peg in concrete
A09220015	-62131.505	2634091.546	960.906	943.789	17.117	12mm iron peg in concrete
A09220016	-62487.754	2632497.701	944.426	927.354	17.072	12mm iron peg in concrete
A09220017	-63189.783	2630731.217	915.580	898.577	17.003	12mm iron peg in concrete
A09220018	-63327.988	2628805.124	930.361	913.434	16.926	12mm iron peg in concrete
A09220019	-63255.668	2626883.356	903.875	887.016	16.859	12mm iron peg in concrete
A09220020	-63332.484	2624847.306	878.078	861.276	16.802	12mm iron peg in concrete
A09220021	-63546.668	2622860.110	889.344	872.630	16.714	12mm iron peg in concrete
A0922021A	-63769.804	2621517.603	881.824	865.146	16.679	12mm iron peg in concrete
A09220022	-62966.635	2620844.960	881.636	864.977	16.659	12mm iron peg in concrete
A09220023	-60877.350	2619141.994	891.937	875.342	16.595	12mm iron peg in concrete
A09220024	-61170.232	2621666.523	892.652	875.969	16.683	12mm iron peg in concrete
A09220025	-59479.308	2622286.402	906.117	889.419	16.699	12mm iron peg in concrete
A09220026	-59799.512	2622336.251	904.304	887.641	16.663	12mm iron peg in concrete
A09220027	-58128.258	2623305.318	912.177	895.405	16.771	12mm iron peg in concrete
A09220028	-56251.799	2623879.609	925.967	909.265	16.702	12mm iron peg in concrete
A09220029	-55419.397	2624214.233	929.911	913.205	16.707	12mm iron peg in concrete

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A0922029A	-55581.893	2622940.448	922.915	906.241	16.674	12mm iron peg in concrete
A09220030	-53580.967	2623070.634	931.337	914.671	16.665	12mm iron peg in concrete
A09220031	-51610.738	2623074.563	935.091	918.432	16.659	12mm iron peg in concrete
A09220032	-49624.366	2623273.293	931.995	915.329	16.667	12mm iron peg in concrete
A0922032A	-47624.476	2623445.477	938.940	922.277	16.663	12mm iron peg in concrete
A09220033	-46221.091	2624234.158	949.798	933.131	16.666	12mm iron peg in concrete
A09220034	-45356.507	2624880.543	961.031	944.340	16.691	12mm iron peg in concrete
A09220035	-43799.417	2625944.270	966.762	950.044	16.717	12mm iron peg in concrete
A09220036	-42234.543	2625178.602	951.827	935.148	16.679	12mm iron peg in concrete
A09220037	-40789.064	2624394.670	947.161	930.505	16.656	12mm iron peg in concrete
A09220038	-38816.543	2623283.139	944.586	927.978	16.608	12mm iron peg in concrete
A09220039	-36830.085	2622164.025	932.274	915.735	16.539	12mm iron peg in concrete
A09220040	-34930.600	2622484.181	929.134	912.601	16.533	12mm iron peg in concrete
A09220041	-33255.071	2623359.288	933.826	917.270	16.555	12mm iron peg in concrete
A09220042	-31513.643	2624078.802	936.019	919.454	16.565	12mm iron peg in concrete
A09220043	-29705.399	2624826.500	941.122	924.548	16.574	12mm iron peg in concrete
A09220044	-27240.655	2622573.069	927.346	910.866	16.479	12mm iron peg in concrete
A09220045	-28306.080	2624462.010	939.745	923.215	16.530	12mm iron peg in concrete
A09220046	-34035.618	2622632.522	932.002	915.436	16.566	12mm iron peg in concrete
A09220047	-34721.966	2624432.945	939.849	923.238	16.612	12mm iron peg in concrete
A09220048	-35484.800	2626066.424	947.909	931.243	16.666	12mm iron peg in concrete
A09220049	-36367.300	2627503.814	956.722	940.038	16.683	12mm iron peg in concrete
A09220050	-37296.600	2629016.144	962.699	945.954	16.745	12mm iron peg in concrete
A09220051	-38100.836	2630526.670	974.078	957.290	16.788	12mm iron peg in concrete
A09220052	-38850.791	2632244.384	987.622	970.761	16.861	12mm iron peg in concrete
A09220053	-39619.511	2634027.523	992.067	975.175	16.892	12mm iron peg in concrete
A09220054	-39865.046	2635889.735	995.037	978.101	16.936	12mm iron peg in concrete
A09220056	-41376.086	2642613.232	1024.281	1007.223	17.057	12mm iron peg in concrete
A09220057	-41143.582	2643611.552	1033.240	1016.164	17.076	12mm iron peg in concrete
A09220058	-40696.876	2645598.953	1035.917	1018.830	17.087	12mm iron peg in concrete
A09220059	-40260.747	2647525.829	1029.867	1012.774	17.093	12mm iron peg in concrete
A09220060	-39840.527	2649408.140	1010.867	993.778	17.089	12mm iron peg in concrete

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A09220061	-40083.019	2651345.223	1004.966	987.849	17.117	12mm iron peg in concrete
A09220062	-40413.038	2653279.106	998.001	980.843	17.158	12mm iron peg in concrete
A09220063	-40753.721	2655246.361	980.899	963.695	17.204	12mm iron peg in concrete
A09220064	-41079.776	2657136.394	956.367	939.138	17.229	12mm iron peg in concrete
A09220065	-41407.659	2659084.863	966.759	949.501	17.259	12mm iron peg in concrete
A09220066	-41741.660	2661060.358	966.339	949.020	17.318	12mm iron peg in concrete
A09220067	-42090.153	2663045.922	959.358	941.995	17.363	12mm iron peg in concrete
A09220068	-42423.538	2664995.636	940.012	922.587	17.425	12mm iron peg in concrete
A09220069	-42896.105	2666938.495	972.030	954.543	17.487	12mm iron peg in concrete
A09220070	-43388.166	2668884.884	970.865	953.314	17.552	12mm iron peg in concrete
A09220071	-43912.648	2670919.483	967.856	950.238	17.617	12mm iron peg in concrete
A09220072	-44414.378	2672865.317	987.363	969.684	17.679	12mm iron peg in concrete
A09220073	-44924.858	2674843.419	995.117	977.371	17.746	12mm iron peg in concrete
A09220074	-45424.247	2676777.731	998.684	980.868	17.816	12mm iron peg in concrete
A09220075	-45701.712	2678737.364	1006.075	988.202	17.874	12mm iron peg in concrete
A09220076	-45689.394	2680742.265	1011.212	993.310	17.902	12mm iron peg in concrete
A09220077	-45672.879	2682660.636	1020.294	1002.331	17.963	12mm iron peg in concrete
A09220078	-45653.064	2684672.881	1030.394	1012.347	18.047	12mm iron peg in concrete
A0922078A	-45634.524	2686699.964	1038.149	1020.007	18.142	12mm iron peg in concrete
A09220079	-45639.377	2687573.623	1035.667	1017.526	18.142	12mm iron peg in concrete
A09220080	-45606.226	2689648.766	1030.744	1012.530	18.214	12mm iron peg in concrete
A09220081	-45587.501	2691670.933	1038.536	1020.250	18.286	12mm iron peg in concrete
A09220082	-45566.713	2693673.937	1052.987	1034.617	18.370	12mm iron peg in concrete
A09220083	-45548.960	2695629.482	1057.008	1038.582	18.426	12mm iron peg in concrete
A09220084	-45532.287	2697763.687	1058.579	1040.063	18.516	12mm iron peg in concrete
A09220085	-44308.035	2698751.636	1070.305	1051.795	18.510	12mm iron peg in concrete
A09220086	-42378.166	2699633.610	1094.900	1076.439	18.461	12mm iron peg in concrete
A09220088	-40654.126	2700407.550	1094.399	1075.972	18.427	12mm iron peg in concrete
A09220089	-41266.495	2702420.232	1119.038	1100.503	18.535	12mm iron peg in concrete
A09220090	-39395.870	2702898.007	1136.525	1118.065	18.460	12mm iron peg in concrete
A09220091	-38407.277	2703541.585	1104.083	1085.615	18.468	12mm iron peg in concrete
A09220092	-36423.735	2704384.662	1071.058	1052.662	18.396	12mm iron peg in concrete

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A09220093	-34503.158	2705275.135	1041.757	1023.392	18.364	12mm iron peg in concrete
A09220094	-32846.645	2706032.699	1021.730	1003.389	18.340	12mm iron peg in concrete
A09220095	-31573.816	2706615.006	1007.496	989.164	18.332	12mm iron peg in concrete
A09220096	-30234.960	2707329.199	995.110	976.795	18.315	12mm iron peg in concrete
A09220097	-31483.432	2708763.584	1005.929	987.490	18.439	12mm iron peg in concrete
A09220099	-25073.577	2709812.394	955.531	937.232	18.299	12mm iron peg in concrete
A09220100	-26006.708	2711162.069	951.238	932.867	18.371	12mm iron peg in concrete
A09220101	-27427.448	2713169.529	957.834	939.335	18.498	12mm iron peg in concrete
A09220102	-28471.850	2714615.660	961.271	942.651	18.620	12mm iron peg in concrete
A09220103	-29777.234	2716399.931	969.958	951.191	18.766	12mm iron peg in concrete
A09220104	-30853.938	2717896.259	975.797	956.898	18.899	12mm iron peg in concrete
A09220105	-29645.158	2718437.672	960.107	941.196	18.911	12mm iron peg in concrete
A09220106	-27771.194	2718843.427	932.784	913.907	18.877	12mm iron peg in concrete
A09220107	-25975.184	2719365.481	918.546	899.713	18.833	12mm iron peg in concrete
A09220108	-23773.759	2720322.489	922.988	904.130	18.858	12mm iron peg in concrete
A09220109	-25526.116	2720949.637	916.309	897.385	18.924	12mm iron peg in concrete
A09220110	-26897.473	2722208.900	919.530	900.483	19.047	12mm iron peg in concrete
A09220111	-28677.574	2722889.345	926.879	907.738	19.141	12mm iron peg in concrete
A09220112	-30363.657	2724101.522	922.773	903.506	19.266	12mm iron peg in concrete
A09220113	-31596.452	2725329.118	927.198	907.809	19.389	12mm iron peg in concrete
A09220114	-31706.643	2726881.096	961.129	941.673	19.456	12mm iron peg in concrete
A09220115	-31702.392	2728821.028	931.053	911.482	19.570	12mm iron peg in concrete
A09220116	-32408.318	2730544.157	932.580	912.882	19.698	12mm iron peg in concrete
A09220117	-32768.666	2731162.899	930.378	910.657	19.721	12mm iron peg in concrete
A09220118	-33700.544	2730777.579	941.207	921.477	19.730	12mm iron peg in concrete
A09220119	-35026.472	2730439.200	954.928	935.197	19.731	12mm iron peg in concrete
A09220120	-37248.632	2729808.882	935.937	916.190	19.746	12mm iron peg in concrete
A09220121	-38431.175	2728165.774	928.530	908.845	19.684	12mm iron peg in concrete
A09220122	-38077.672	2726051.101	930.740	911.164	19.576	12mm iron peg in concrete
A09220123	-39463.337	2724432.201	951.812	932.261	19.551	12mm iron peg in concrete
A09220126	-34241.284	2722286.566	1023.065	1003.809	19.256	12mm iron peg in concrete
A09220127	-32658.295	2721001.488	996.387	977.245	19.143	12mm iron peg in concrete

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Pt. ID.	Y	X	Z (Ellips)	Z (Ortho)	Geoid. Sep.	Description
A09220128	-31603.716	2719732.969	975.225	956.183	19.041	12mm iron peg in concrete
A09220129	-32930.718	2732865.306	931.815	911.998	19.818	12mm iron peg in concrete
A09220130	-33024.542	2735035.468	934.193	914.256	19.937	12mm iron peg in concrete
A09220131	-33041.080	2736688.400	946.995	926.974	20.021	12mm iron peg in concrete
A09220141	-43825.677	2737133.476	937.843	917.684	20.159	12mm iron peg in concrete
A09220142	-44229.595	2735173.535	933.588	913.514	20.074	12mm iron peg in concrete
A09220143	-44355.941	2733247.960	933.698	913.691	20.007	12mm iron peg in concrete
A09220144	-44419.725	2731267.895	934.418	914.501	19.917	12mm iron peg in concrete
A09220145	-44497.733	2729254.410	944.860	925.014	19.846	12mm iron peg in concrete
A09220146	-42169.261	2729013.002	942.049	922.250	19.799	12mm iron peg in concrete
A09220147	-40195.456	2728327.246	931.641	911.915	19.726	12mm iron peg in concrete
A09220148	-45696.924	2729134.875	945.311	925.423	19.888	12mm iron peg in concrete
A09220149	-47163.536	2730080.799	936.514	916.588	19.926	12mm iron peg in concrete
A09220150	-47522.133	2731321.335	940.245	920.257	19.989	12mm iron peg in concrete
A09220157	-43396.964	2739031.186	940.264	920.021	20.243	12mm iron peg in concrete
A09220158	-40453.834	2698162.424	1097.862	1079.530	18.332	12mm iron peg in concrete
A09220159	-40271.015	2696112.114	1090.672	1072.408	18.265	12mm iron peg in concrete
A09220160	-40087.415	2694051.866	1080.205	1062.009	18.196	12mm iron peg in concrete
A09220161	-39833.998	2692155.490	1068.302	1050.182	18.120	12mm iron peg in concrete
A09220162	-39289.044	2690175.781	1053.215	1035.183	18.032	12mm iron peg in concrete
A09220163	-40653.097	2689621.690	1055.366	1037.321	18.045	12mm iron peg in concrete
A09220164	-42304.389	2688947.886	1060.735	1042.660	18.076	12mm iron peg in concrete
A09220165	-44242.166	2688157.415	1041.470	1023.348	18.122	12mm iron peg in concrete
A09220167	-53346.465	2753505.466	957.986	Not levelled		12mm iron peg in concrete
A09220172	-32758.081	2710233.025	1021.757	1003.201	18.556	12mm iron peg in concrete
A09220173	-33263.011	2710838.991	1033.843	1015.233	18.610	12mm iron peg in concrete
A09220174	-31312.612	2711618.293	1001.335	982.768	18.567	12mm iron peg in concrete
A09220175	-29219.381	2712453.068	974.512	955.989	18.523	12mm iron peg in concrete
A09220176	-36467.809	2722355.764	1013.992	994.663	19.330	12mm iron peg in concrete
A09220180	-39836.482	2719876.374	1013.559	994.240	19.319	12mm iron peg in concrete
A09220181	-39841.281	2718582.023	1042.082	1022.825	19.257	12mm iron peg in concrete
A09220182	-40414.860	2716743.624	1086.881	1067.687	19.194	12mm iron peg in concrete

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A09220183	-40618.308	2714753.548	1151.164	1132.038	19.126	12mm iron peg in concrete
A09220184	-41426.514	2713379.888	1100.267	1081.163	19.105	12mm iron peg in concrete
A09220185	-41946.888	2711494.768	1089.507	1070.499	19.008	12mm iron peg in concrete
A09220186	-42154.969	2709499.021	1086.575	1067.665	18.910	12mm iron peg in concrete
A09220187	-42407.385	2707514.289	1103.848	1085.034	18.814	12mm iron peg in concrete
A09220188	-42338.014	2705814.645	1118.742	1100.012	18.730	12mm iron peg in concrete
A09220189	-41986.233	2703922.063	1115.846	1097.215	18.631	12mm iron peg in concrete
A09220212	-57245.915	2778158.195	970.130	948.092	22.037	12mm iron peg in concrete
A09220231	-81270.861	2784161.043	1029.367	Not levelled		12mm iron peg in concrete
A09220248	-45822.345	2799974.778	1011.355	Not levelled		12mm iron peg in concrete
A09220264	-55430.929	2794983.638	1004.312	Not levelled		12mm iron peg in concrete
A09220270	-61307.308	2810652.124	1034.486	Not levelled		12mm iron peg in concrete
A09220271	-66511.819	2818103.292	1038.977	Not levelled		12mm iron peg in concrete
A09220272	-71852.844	2827295.624	1071.273	Not levelled		12mm iron peg in concrete
A09220273	-76790.764	2834386.909	1109.584	Not levelled		12mm iron peg in concrete
A09220274	-80523.421	2841732.679	1134.198	Not levelled		12mm iron peg in concrete
A09220275	-84964.215	2846715.039	1191.404	Not levelled		12mm iron peg in concrete
BOS1	-53026.167	2775948.443	977.022	955.010	22.013	12mm iron peg in concrete
BOS2	-53516.586	2776244.282	975.777	953.754	22.023	12mm iron peg in concrete
BOS3	-54016.910	2776385.725	969.977	947.947	22.030	12mm iron peg in concrete
DJ2	-64062.416	2666301.398	1089.603	1071.655	17.947	Iron standard
MKDW2	-73283.434	2653074.815	895.236	877.403	17.833	Iron standard
SMCA084101	-36423.362	2636050.390	1000.751	983.889	16.862	20mm iron peg in concrete
SMCA084803	-28151.854	2622787.661	930.602	914.097	16.505	12mm iron peg in concrete
SMCA084804	-35400.869	2620448.030	924.395	907.860	16.535	12mm iron peg in concrete
SMCA084805	-43068.830	2622964.189	946.238	929.605	16.633	12mm iron peg in concrete
SMCA084806	-50757.343	2623175.646	931.054	914.387	16.667	12mm iron peg in concrete
SMCA084809	-40764.132	2639587.920	994.253	977.281	16.972	12mm iron peg in concrete
SMCA084810	-36233.631	2634519.706	988.029	Not levelled		12mm iron peg in concrete
SMCA092001	-73217.005	2653177.620	895.036	877.220	17.816	12mm iron peg in concrete
TR34	-39608.087	2690642.063	1087.444	1069.0	18.444	Trig beacon
TR38	-67340.871	2622755.252	893.460	876.1	17.360	Trig beacon

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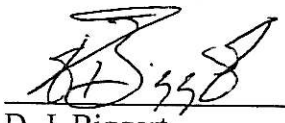
TR42	-59879.762	2662100.323	1276.828	1258.6	18.228	Trig beacon
TR75	-82195.626	2838622.205	1162.382	1137.7	24.682	Trig beacon
TR82	-74424.903	2834876.805	1228.523	1204.0	24.523	Trig beacon
TR94	-48799.552	2746560.119	965.310	944.1	21.209	Trig beacon
TR118	-33291.336	2735417.534	963.131	942.5	20.631	Trig beacon
TR122	-39466.966	2703045.126	1189.607	1172.5	17.107	Trig beacon
TR310	-60397.512	2785350.260	1053.662	1031.3	22.362	Trig beacon
TR347	-81763.555	2787039.463	1083.180	1063.4	19.780	Trig beacon
ERAS	-70999.718	2620758.698	868.601	851.07	17.531	Trignet Base Station

- Problems encountered on the project, although being time consuming, were not difficult to overcome. Initially, access to some areas was hampered by having to supply information not originally budgeted for (Exarro and Transnet). Although official access to the Transnet servitude was never supplied, we decided to go ahead and build, survey and level all necessary beacons on these properties. Once again, strict protocol was followed.
- No accidents occurred during the project.

Data Files Supplied:

- Coordinate lists in spreadsheet format.
- GPS raw data files in Rinex format.
- GPS Data Sheets for all stations occupied.
- GPS Booking Sheets for all stations occupied.
- Control point photographs in JPEG format.
- Raw and reduced raw data level files.
- Schedule of levelling information.
- Level reductions.
- Working plan of control point layout.
- Working plan of level routes and misclosures.

Signed at Westville this 19th day of October 2009.



D. J. Biggert.

40mm different from that as spirit levelled. With the exception of legs A09220011-A09220012 (30mm different), A09220181-A09220182 (46mm different) and A09220182-A09220183 (81mm different), all other legs agreed with the original level runs perfectly. The difference in the first leg mentioned above could have been due to the inhospitable terrain, and the second and third were definitely due to the one surveyor not balancing his back- and foresights when levelled in steep terrain.

- Some loop misclosures were in the order of:
  - 0,041m over 97 kms
  - 0,069m over 67 kms
  - 0,067m over 14 kms (extremely soft sand)
  - 0,011m over 8 kms
  - 0,010m over 93 kms
  - 0,046m over 33 kms
  - 0,001m over 60 kms
  - 0,034m over 37 kms
- Allowable limits for forward and back runs were limited to 10mm over 1km. If this was not achieved, then the leg was re-levelled. Allowance was made for runs over very soft, sandy terrain.
- A schedule of levelled height differences, with reference to the physical raw data file, is supplied with the survey records.

Photographs:

- There is a landscape photograph of each setup, together with a close-up vertical photograph of each beacon.
- The photographs are stored in date directories, each photo being named according to the beacon name.
- The above photographs are pasted onto each instrument location Booking Sheet.

Base Station Booking Sheets:

- Base station booking sheets exist for every control point.
- If control points were occupied more than once, second and subsequent booking sheets were produced.
- If a control point was occupied more than once, a second set of photographs was not necessarily produced. However, copies of corresponding photographs are supplied in each of the date directories.
- The photograph details on these sheets refer to the photograph name to be found under the date the point was occupied.

General Information:

- We were specifically instructed not to enter onto certain properties. Accordingly, beacons could not be constructed or surveyed on Rhenosterpan 361LQ and Paarl 124KQ.
- Protocol was followed on all other private farms, where land owners were contacted in advance, notified when we would be on their properties, and then personally visited when on site.

Over 20 kms 30 minutes

- All survey information is supplied on coordinate system WG.27.
- We were requested to establish control at the Boschkop Weir. Elevation control was finalised in this vicinity by direct link onto two existing DWAF control beacons, 60DW1 and 60DW2.
- We also located a control point, MKDW2, below the Mokolo Dam wall.

GPS Survey:

- Generally, major base stations were established at approximately 10 kilometre intervals, and intermediate points were then occupied for a period of 10 minutes.
- GPS computations were carried out with Leica Geomatics Office V7.
- Two primary networks were initially computed. The first being termed the "Northern" network and the second the "Southern" network. Once the coordinates of the control points of these networks were finalised, they were then utilised to finalise the coordinates of the secondary control networks.
- Attached to this report is a listing of the GPS Processing Methodology listing the method in calculation of each point.
- Also attached, are final coordinate listing of all control points in both Grid and Geographical formats.
- All station occupations have been exported to Rinex format, and are supplied with the project information.

Level Survey:

- To ensure the accuracy of the survey, we had to close level loops back on themselves. There are 3 major level loops in the project:
    - The farms Sterkfontein 642LQ – Rooipan 357LQ approximately 25 kms (A)
    - The farms Matlabas 94KQ – Sterkfontein 642LQ approximately 60 kms (B)
    - The farms Leliefontein 672LQ - Rooipan 357LQ approximately 15 kms (C)
- Together with data supplied on this project, are all raw level fieldbook files, together with the processed fieldbook files.
- The Level Schedule lists the forward and back runs, together with their height differences and mean difference utilised.
- Where possible, level loops were processed to ensure the integrity of the level loops. All such reductions are listed in the Level Reduction spreadsheet.
- Initially, a major loop around the entire northern section (over 200 kms) was considered, however the misclosure on this loop was in excess of 400mm. When comparing heights to the SAQuasi geoidal model that yields orthometric heights, we were concerned about the large geoidal differences in the very north-eastern sector of the project. We re-established on site, and re-run the section from P1-A09220007 and found a 0,5m difference to our original levels. This was put down to a faulty compensator in a machine used for one day on site before it was discovered and sent away for repairs.
- A selection of additional level legs (some 30 in total) were made where the height difference as derived from the SAQuasi geoidal model was more than

MOKOLO / CROCODILE RIVERS
WATER AUGMENTATION PROJECT

SURVEY
REPORT

MOKOLO / CROCODILE RIVERS
WATER AUGMENTATION PROJECT

G.P.S. CONTROL
GEOGRAPHICAL
COORDINATE LIST

MOKOLO / CROCODILE WATER AUGMENTATION PROJECT

Control Points

(System WGS84)

Pt. ID	Lat	Long	Z (Ell)	Description
60DW1	25° 03' 45.05624" S	27° 31' 11.37810" E	966.221	16mm peg in conc
60DW2	25° 03' 47.55371" S	27° 31' 15.29827" E	966.167	25mm peg in conc
A09220001	23° 57' 58.70327" S	27° 42' 28.07636" E	1021.376	12mm peg in conc
A09220002	23° 57' 41.07408" S	27° 41' 27.80989" E	1113.778	12mm peg in conc
A09220003	23° 58' 04.07514" S	27° 40' 40.23350" E	1116.146	12mm peg in conc
A09220004	23° 57' 37.03816" S	27° 39' 37.85432" E	1056.495	12mm peg in conc
A09220005	23° 57' 25.42550" S	27° 39' 09.71124" E	1034.665	12mm peg in conc
A09220006	23° 56' 38.71420" S	27° 38' 19.62556" E	1018.918	12mm peg in conc
A09220007	23° 55' 51.35556" S	27° 37' 48.59096" E	994.354	12mm peg in conc
A09220008	23° 54' 48.52444" S	27° 37' 50.27726" E	985.415	12mm peg in conc
A09220009	23° 53' 43.68213" S	27° 37' 29.05675" E	1021.212	12mm peg in conc
A09220010	23° 52' 44.35424" S	27° 37' 53.79628" E	974.568	12mm peg in conc
A09220011	23° 52' 09.10643" S	27° 38' 03.45385" E	986.128	12mm peg in conc
A09220012	23° 51' 30.68238" S	27° 37' 10.82516" E	1026.324	12mm peg in conc
A09220013	23° 50' 26.47842" S	27° 36' 52.11353" E	927.986	12mm peg in conc
A09220014	23° 49' 27.19307" S	27° 36' 43.80888" E	923.523	12mm peg in conc
A09220015	23° 48' 26.67934" S	27° 36' 34.94394" E	960.906	12mm peg in conc
A09220016	23° 47' 34.82598" S	27° 36' 47.28557" E	944.426	12mm peg in conc
A09220017	23° 46' 37.31226" S	27° 37' 11.81028" E	915.580	12mm peg in conc
A09220018	23° 45' 34.69019" S	27° 37' 16.39405" E	930.361	12mm peg in conc
A09220019	23° 44' 32.23845" S	27° 37' 13.54425" E	903.875	12mm peg in conc
A09220020	23° 43' 26.05096" S	27° 37' 15.94280" E	878.078	12mm peg in conc
A09220021	23° 42' 21.43169" S	27° 37' 23.19734" E	889.344	12mm peg in conc
A0922021A	23° 41' 37.76503" S	27° 37' 30.86581" E	881.824	12mm peg in conc
A09220022	23° 41' 16.01612" S	27° 37' 02.41507" E	881.636	12mm peg in conc
A09220023	23° 40' 20.95405" S	27° 35' 48.42523" E	891.937	12mm peg in conc
A09220024	23° 41' 42.96833" S	27° 35' 59.13553" E	892.652	12mm peg in conc
A09220025	23° 42' 03.34414" S	27° 34' 59.54263" E	906.117	12mm peg in conc
A09220026	23° 42' 04.92166" S	27° 35' 10.85223" E	904.304	12mm peg in conc
A09220027	23° 42' 36.63946" S	27° 34' 11.99805" E	912.177	12mm peg in conc
A09220028	23° 42' 55.54566" S	27° 33' 05.83769" E	925.967	12mm peg in conc
A09220029	23° 43' 06.52593" S	27° 32' 36.49778" E	929.911	12mm peg in conc

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Control Points

(System WGS84)

Pt. ID	Lat	Long	Z (Ell)	Description
A0922029A	23° 42' 25.10393" S	27° 32' 42.06225" E	922.915	12mm peg in conc
A09220030	23° 42' 29.57964" S	27° 31' 31.44807" E	931.337	12mm peg in conc
A09220031	23° 42' 29.93915" S	27° 30' 21.90017" E	935.091	12mm peg in conc
A09220032	23° 42' 36.62343" S	27° 29' 11.80562" E	931.995	12mm peg in conc
A0922032A	23° 42' 42.43751" S	27° 28' 01.22866" E	938.940	12mm peg in conc
A09220033	23° 43' 08.21963" S	27° 27' 11.77646" E	949.798	12mm peg in conc
A09220034	23° 43' 29.31794" S	27° 26' 41.32544" E	961.031	12mm peg in conc
A09220035	23° 44' 04.04813" S	27° 25' 46.46640" E	966.762	12mm peg in conc
A09220036	23° 43' 39.31197" S	27° 24' 51.13647" E	951.827	12mm peg in conc
A09220037	23° 43' 13.96571" S	27° 24' 00.02548" E	947.161	12mm peg in conc
A09220038	23° 42' 38.01252" S	27° 22' 50.28357" E	944.586	12mm peg in conc
A09220039	23° 42' 01.80512" S	27° 21' 40.05955" E	932.274	12mm peg in conc
A09220040	23° 42' 12.36384" S	27° 20' 33.03805" E	929.134	12mm peg in conc
A09220041	23° 42' 40.93598" S	27° 19' 33.96390" E	933.826	12mm peg in conc
A09220042	23° 43' 04.44922" S	27° 18' 32.54418" E	936.019	12mm peg in conc
A09220043	23° 43' 28.87624" S	27° 17' 28.76138" E	941.122	12mm peg in conc
A09220044	23° 42' 15.78763" S	27° 16' 01.59415" E	927.346	12mm peg in conc
A09220045	23° 43' 17.11971" S	27° 16' 39.33320" E	939.745	12mm peg in conc
A09220046	23° 42' 17.25450" S	27° 20' 01.45819" E	932.002	12mm peg in conc
A09220047	23° 43' 15.72246" S	27° 20' 25.83786" E	939.849	12mm peg in conc
A09220048	23° 44' 08.75675" S	27° 20' 52.90980" E	947.909	12mm peg in conc
A09220049	23° 44' 55.40621" S	27° 21' 24.19621" E	956.722	12mm peg in conc
A09220050	23° 45' 44.48566" S	27° 21' 57.14836" E	962.699	12mm peg in conc
A09220051	23° 46' 33.51510" S	27° 22' 25.69016" E	974.078	12mm peg in conc
A09220052	23° 47' 29.28192" S	27° 22' 52.34028" E	987.622	12mm peg in conc
A09220053	23° 48' 27.17216" S	27° 23' 19.66605" E	992.067	12mm peg in conc
A09220054	23° 49' 27.67815" S	27° 23' 28.52148" E	995.037	12mm peg in conc
A09220056	23° 53' 06.07410" S	27° 24' 22.59011" E	1024.281	12mm peg in conc
A09220057	23° 53' 38.54403" S	27° 24' 14.47234" E	1033.240	12mm peg in conc
A09220058	23° 54' 43.18146" S	27° 23' 58.87966" E	1035.917	12mm peg in conc
A09220059	23° 55' 45.85017" S	27° 23' 43.65081" E	1029.867	12mm peg in conc
A09220060	23° 56' 47.06844" S	27° 23' 28.97628" E	1010.867	12mm peg in conc

MOKOLO / CROCODILE WATER AUGMENTATION PROJECT

Control Points

(System WGS84)

Pt. ID	Lat	Long	Z (Ell)	Description
A09220061	23° 57' 50.00686" S	27° 23' 37.74311" E	1004.966	12mm peg in conc
A09220062	23° 58' 52.83297" S	27° 23' 49.60835" E	998.001	12mm peg in conc
A09220063	23° 59' 56.74228" S	27° 24' 01.85755" E	980.899	12mm peg in conc
A09220064	24° 00' 58.14262" S	27° 24' 13.58480" E	956.367	12mm peg in conc
A09220065	24° 02' 01.44166" S	27° 24' 25.38596" E	966.759	12mm peg in conc
A09220066	24° 03' 05.61809" S	27° 24' 37.40979" E	966.339	12mm peg in conc
A09220067	24° 04' 10.11991" S	27° 24' 49.95109" E	959.358	12mm peg in conc
A09220068	24° 05' 13.45755" S	27° 25' 01.95740" E	940.012	12mm peg in conc
A09220069	24° 06' 16.55833" S	27° 25' 18.89456" E	972.030	12mm peg in conc
A09220070	24° 07' 19.77117" S	27° 25' 36.52714" E	970.865	12mm peg in conc
A09220071	24° 08' 25.84700" S	27° 25' 55.32259" E	967.856	12mm peg in conc
A09220072	24° 09' 29.03922" S	27° 26' 13.30781" E	987.363	12mm peg in conc
A09220073	24° 10' 33.27852" S	27° 26' 31.61167" E	995.117	12mm peg in conc
A09220074	24° 11' 36.09490" S	27° 26' 49.52285" E	998.684	12mm peg in conc
A09220075	24° 12' 39.75670" S	27° 26' 59.57758" E	1006.075	12mm peg in conc
A09220076	24° 13' 44.91986" S	27° 26' 59.36988" E	1011.212	12mm peg in conc
A09220077	24° 14' 47.27098" S	27° 26' 59.00367" E	1020.294	12mm peg in conc
A09220078	24° 15' 52.67330" S	27° 26' 58.53120" E	1030.394	12mm peg in conc
A0922078A	24° 16' 58.55761" S	27° 26' 58.10570" E	1038.149	12mm peg in conc
A09220079	24° 17' 26.95187" S	27° 26' 58.37775" E	1035.667	12mm peg in conc
A09220080	24° 18' 34.39946" S	27° 26' 57.43968" E	1030.744	12mm peg in conc
A09220081	24° 19' 40.12363" S	27° 26' 57.00714" E	1038.536	12mm peg in conc
A09220082	24° 20' 45.22502" S	27° 26' 56.49925" E	1052.987	12mm peg in conc
A09220083	24° 21' 48.78349" S	27° 26' 56.09361" E	1057.008	12mm peg in conc
A09220084	24° 22' 58.14828" S	27° 26' 55.74686" E	1058.579	12mm peg in conc
A09220085	24° 23' 30.38419" S	27° 26' 12.41474" E	1070.305	12mm peg in conc
A09220086	24° 23' 59.24212" S	27° 25' 04.02277" E	1094.900	12mm peg in conc
A09220088	24° 24' 24.56106" S	27° 24' 02.91631" E	1094.399	12mm peg in conc
A09220089	24° 25' 29.91656" S	27° 24' 24.86007" E	1119.038	12mm peg in conc
A09220090	24° 25' 45.61905" S	27° 23' 18.50621" E	1136.525	12mm peg in conc
A09220091	24° 26' 06.62472" S	27° 22' 43.47544" E	1104.083	12mm peg in conc
A09220092	24° 26' 34.19706" S	27° 21' 33.13755" E	1071.058	12mm peg in conc

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Control Points

(System WGS84)

Pt. ID	Lat	Long	Z (Ell)	Description
A09220093	24° 27' 03.29575" S	27° 20' 25.03074" E	1041.757	12mm peg in conc
A09220094	24° 27' 28.04634" S	27° 19' 26.28013" E	1021.730	12mm peg in conc
A09220095	24° 27' 47.06674" S	27° 18' 41.13310" E	1007.496	12mm peg in conc
A09220096	24° 28' 10.37446" S	27° 17' 53.64776" E	995.110	12mm peg in conc
A09220097	24° 28' 56.90371" S	27° 18' 38.09506" E	1005.929	12mm peg in conc
A09220099	24° 29' 31.41127" S	27° 14' 50.52554" E	955.531	12mm peg in conc
A09220100	24° 30' 15.22145" S	27° 15' 23.75586" E	951.238	12mm peg in conc
A09220101	24° 31' 20.37715" S	27° 16' 14.35971" E	957.834	12mm peg in conc
A09220102	24° 32' 07.30942" S	27° 16' 51.56633" E	961.271	12mm peg in conc
A09220103	24° 33' 05.21070" S	27° 17' 38.07949" E	969.958	12mm peg in conc
A09220104	24° 33' 53.76600" S	27° 18' 16.45524" E	975.797	12mm peg in conc
A09220105	24° 34' 11.44724" S	27° 17' 33.54018" E	960.107	12mm peg in conc
A09220106	24° 34' 24.75973" S	27° 16' 26.97186" E	932.784	12mm peg in conc
A09220107	24° 34' 41.83909" S	27° 15' 23.17781" E	918.546	12mm peg in conc
A09220108	24° 35' 13.06985" S	27° 14' 04.99599" E	922.988	12mm peg in conc
A09220109	24° 35' 33.35175" S	27° 15' 07.32072" E	916.309	12mm peg in conc
A09220110	24° 36' 14.19443" S	27° 15' 56.15133" E	919.530	12mm peg in conc
A09220111	24° 36' 36.19371" S	27° 16' 59.47953" E	926.879	12mm peg in conc
A09220112	24° 37' 15.47354" S	27° 17' 59.51263" E	922.773	12mm peg in conc
A09220113	24° 37' 55.28134" S	27° 18' 43.44046" E	927.198	12mm peg in conc
A09220114	24° 38' 45.71251" S	27° 18' 47.48410" E	961.129	12mm peg in conc
A09220115	24° 39' 48.76047" S	27° 18' 47.49026" E	931.053	12mm peg in conc
A09220116	24° 40' 44.70901" S	27° 19' 12.73905" E	932.580	12mm peg in conc
A09220117	24° 41' 04.79051" S	27° 19' 25.60811" E	930.378	12mm peg in conc
A09220118	24° 40' 52.19521" S	27° 19' 58.72208" E	941.207	12mm peg in conc
A09220119	24° 40' 41.09137" S	27° 20' 45.85409" E	954.928	12mm peg in conc
A09220120	24° 40' 20.41832" S	27° 22' 04.83258" E	935.937	12mm peg in conc
A09220121	24° 39' 26.91319" S	27° 22' 46.73010" E	928.530	12mm peg in conc
A09220122	24° 38' 18.21844" S	27° 22' 33.95278" E	930.740	12mm peg in conc
A09220123	24° 37' 25.47907" S	27° 23' 23.05973" E	951.812	12mm peg in conc
A09220126	24° 36' 16.19507" S	27° 20' 17.21269" E	1023.065	12mm peg in conc
A09220127	24° 35' 34.55330" S	27° 19' 20.83414" E	996.387	12mm peg in conc

MOKOLO / CROCODILE WATER AUGMENTATION PROJECT

Control Points

(System WGS84)

Pt. ID	Lat	Long	Z (Ell)	Description
A09220128	24° 34' 53.40511" S	27° 18' 43.24757" E	975.225	12mm peg in conc
A09220129	24° 42' 00.10582" S	27° 19' 31.51604" E	931.815	12mm peg in conc
A09220130	24° 43' 10.62812" S	27° 19' 35.03767" E	934.193	12mm peg in conc
A09220131	24° 44' 04.34643" S	27° 19' 35.76631" E	946.995	12mm peg in conc
A09220141	24° 44' 17.83863" S	27° 25' 59.57858" E	937.843	12mm peg in conc
A09220142	24° 43' 14.10049" S	27° 26' 13.72945" E	933.588	12mm peg in conc
A09220143	24° 42' 11.50766" S	27° 26' 18.00571" E	933.698	12mm peg in conc
A09220144	24° 41' 07.15031" S	27° 26' 20.04943" E	934.418	12mm peg in conc
A09220145	24° 40' 01.70520" S	27° 26' 22.59476" E	944.860	12mm peg in conc
A09220146	24° 39' 54.09553" S	27° 24' 59.75663" E	942.049	12mm peg in conc
A09220147	24° 39' 31.99882" S	27° 23' 49.48878" E	931.641	12mm peg in conc
A09220148	24° 39' 57.69391" S	27° 27' 05.22984" E	945.311	12mm peg in conc
A09220149	24° 40' 28.27650" S	27° 27' 57.50337" E	936.514	12mm peg in conc
A09220150	24° 41' 08.55323" S	27° 28' 10.40854" E	940.245	12mm peg in conc
A09220157	24° 45' 19.55638" S	27° 25' 44.53444" E	940.264	12mm peg in conc
A09220158	24° 23' 11.61156" S	27° 23' 55.57847" E	1097.862	12mm peg in conc
A09220159	24° 22' 04.99178" S	27° 23' 48.88290" E	1090.672	12mm peg in conc
A09220160	24° 20' 58.04886" S	27° 23' 42.16071" E	1080.205	12mm peg in conc
A09220161	24° 19' 56.43806" S	27° 23' 32.98059" E	1068.302	12mm peg in conc
A09220162	24° 18' 52.14497" S	27° 23' 13.45506" E	1053.215	12mm peg in conc
A09220163	24° 18' 34.01095" S	27° 24' 01.77614" E	1055.366	12mm peg in conc
A09220164	24° 18' 11.95403" S	27° 25' 00.26707" E	1060.735	12mm peg in conc
A09220165	24° 17' 46.07007" S	27° 26' 08.89840" E	1041.470	12mm peg in conc
A09220167	24° 53' 08.81611" S	27° 31' 40.62745" E	957.986	12mm peg in conc
A09220172	24° 29' 44.56651" S	27° 19' 23.48412" E	1021.757	12mm peg in conc
A09220173	24° 30' 04.22208" S	27° 19' 41.46883" E	1033.843	12mm peg in conc
A09220174	24° 30' 29.69603" S	27° 18' 32.25532" E	1001.335	12mm peg in conc
A09220175	24° 30' 56.97384" S	27° 17' 17.96433" E	974.512	12mm peg in conc
A09220176	24° 36' 18.26043" S	27° 21' 36.36667" E	1013.992	12mm peg in conc
A09220180	24° 34' 57.38069" S	27° 23' 35.86319" E	1013.559	12mm peg in conc
A09220181	24° 34' 15.31386" S	27° 23' 35.90242" E	1042.082	12mm peg in conc
A09220182	24° 33' 15.51224" S	27° 23' 56.09710" E	1086.881	12mm peg in conc

MOKOLO / CROCODILE WATER AUGMENTATION PROJECT

Control Points

(System WGS84)

Pt. ID	Lat	Long	Z (Ell)	Description
A09220183	24° 32' 10.81538" S	27° 24' 03.12077" E	1151.164	12mm peg in conc
A09220184	24° 31' 26.09418" S	27° 24' 31.69022" E	1100.267	12mm peg in conc
A09220185	24° 30' 24.77703" S	27° 24' 49.97556" E	1089.507	12mm peg in conc
A09220186	24° 29' 19.89444" S	27° 24' 57.15321" E	1086.575	12mm peg in conc
A09220187	24° 28' 15.36527" S	27° 25' 05.90443" E	1103.848	12mm peg in conc
A09220188	24° 27' 20.13302" S	27° 25' 03.25893" E	1118.742	12mm peg in conc
A09220189	24° 26' 18.65756" S	27° 24' 50.56786" E	1115.846	12mm peg in conc
A09220212	25° 06' 29.45491" S	27° 34' 03.22841" E	970.130	12mm peg in conc
A09220231	25° 09' 40.54784" S	27° 48' 21.95304" E	1029.367	12mm peg in conc
A09220248	25° 18' 19.83304" S	27° 27' 18.14212" E	1011.355	12mm peg in conc
A09220264	25° 15' 36.46891" S	27° 33' 00.90427" E	1004.312	12mm peg in conc
A09220270	25° 24' 04.80217" S	27° 36' 33.44376" E	1034.486	12mm peg in conc
A09220271	25° 28' 06.12249" S	27° 39' 40.96216" E	1038.977	12mm peg in conc
A09220272	25° 33' 03.92335" S	27° 42' 53.91499" E	1071.273	12mm peg in conc
A09220273	25° 36' 53.45038" S	27° 45' 52.25288" E	1109.584	12mm peg in conc
A09220274	25° 40' 51.41890" S	27° 48' 07.61996" E	1134.198	12mm peg in conc
A09220275	25° 43' 32.40742" S	27° 50' 48.00122" E	1191.404	12mm peg in conc
BOS1	25° 05' 18.19951" S	27° 31' 32.31494" E	977.022	12mm peg in conc
BOS2	25° 05' 27.75116" S	27° 31' 49.85711" E	975.777	12mm peg in conc
BOS3	25° 05' 32.28351" S	27° 32' 07.73167" E	969.977	12mm peg in conc
DJ2	24° 05' 53.27279" S	27° 37' 48.23489" E	1089.603	Iron standard
ERAS	23° 41' 12.01007" S	27° 41' 45.91351" E	868.601	Trignet Base Station
MKDW2	23° 58' 41.95989" S	27° 43' 12.30381" E	895.236	Iron standard
SMCA084101	23° 49' 33.19524" S	27° 21' 26.93529" E	1000.751	20mm peg in conc
SMCA084803	23° 42' 22.70631" S	27° 16' 33.77384" E	930.602	12mm peg in conc
SMCA084804	23° 41' 06.14394" S	27° 20' 49.46320" E	924.395	12mm peg in conc
SMCA084805	23° 42' 27.25606" S	27° 25' 20.35946" E	946.238	12mm peg in conc
SMCA084806	23° 42' 33.32236" S	27° 29' 51.78799" E	931.054	12mm peg in conc
SMCA084809	23° 51' 27.79914" S	27° 24' 00.65649" E	994.253	12mm peg in conc
SMCA084810	23° 48' 43.45833" S	27° 21' 20.09616" E	988.029	12mm peg in conc
SMCA092001	23° 58' 45.31215" S	27° 43' 09.97265" E	895.036	12mm peg in conc
TR34	24° 19' 07.27068" S	27° 23' 24.81667" E	1087.444	Government trig

MOKOLO / CROCODILE WATER AUGMENTATION PROJECT

Control Points

(System WGS84)

Pt. ID	Lat	Long	Z (Ell)	Description
TR38	23° 42' 17.46825" S	27° 39' 37.10885" E	893.460	Government trig
TR42	24° 03' 37.32341" S	27° 35' 19.52386" E	1276.828	Government trig
TR118	24° 43' 23.02436" S	27° 19' 44.56291" E	963.131	Government trig
TR122	24° 25' 50.39402" S	27° 23' 21.04469" E	1189.607	Government trig
TR310	25° 10' 22.72972" S	27° 35' 56.85126" E	1053.662	Government trig
TR347	25° 11' 13.98572" S	27° 48' 40.16334" E	1083.180	Government trig
TR75	25° 39' 10.01823" S	27° 49' 06.89122" E	1162.382	Government trig
TR82	25° 37' 09.80546" S	27° 44' 27.56210" E	1228.523	Government trig
TR94	24° 49' 23.65202" S	27° 28' 57.75858" E	965.310	Government trig

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
KM71	212B'	EM23KLEV	23/08	-1.8319	EM23JLEV	23/08	1.8265	-1.829	-0.005
212B	212A	EM23GLEV	23/08	-4.9691	EM23FLEV	23/08	4.9683	-4.969	-0.001
212A	212	EM23HLEV	23/08	-0.2998	EM23ELEV	23/08	0.2937	-0.297	-0.006
KM89.2	P91	Lindo (Sprint)	12/10	1.9821	Lindo (Sprint)	12/10	-1.9814	1.982	0.001
P91	KM88.2	Lindo (Sprint)	12/10	-3.0878	Lindo (Sprint)	12/10	3.0923	-3.090	0.004
P91	P92	Lindo (Sprint)	12/10	-13.5942	Lindo (Sprint)	12/10	13.5993	-13.597	0.005
P92	P93	Lindo (Sprint)	12/10	-14.3470	Lindo (Sprint)	12/10	14.3520	-14.350	0.005
P93	P94	Lindo (Sprint)	12/10	2.0631	Lindo (Sprint)	12/10	-2.0524	2.058	0.011
P94	005	Lindo (Sprint)	12/10	10.3653	Lindo (Sprint)	12/10	-10.3626	10.364	0.003

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
115	116	JV1-...-D1	DvR	1.3985		DvR	-1.3985	1.399	0.000
116	117	JV1-...-D1	DvR	-2.2270		DvR	2.2230	-2.225	-0.004
117	118	JV1-...-D1	DvR	10.8158		DvR	-10.8221	10.819	-0.006
118	119	JV1-...-D1	DvR	13.7184		DvR	-13.7210	13.720	-0.003
119	DV4	JV1-...-D1	DvR	-2.6133		DvR	2.6121	-2.613	-0.001
DV4	120	JV1-...-D1	DvR	-16.3948		DvR	16.3943	-16.395	0.000
120	121	JV1-...-D1	DvR	-7.3454		DvR	7.3469	-7.346	0.001
121	122	JV1-...-D1	DvR	2.3187		DvR	-2.3179	2.318	0.001
122	LEON	JV1-...-D1	DvR	5.1702		DvR	-5.1738	5.172	-0.004
LEON	123	JV1-...-D1	DvR	15.9233		DvR	-15.9253	15.924	-0.002
123	D1	JV1-...-D1	DvR	9.3282		DvR	-9.3271	9.328	0.001
117	129	117-131-117	DvR	1.3400		DvR	-1.3413	1.341	-0.001
129	130	117-131-117	DvR	2.2590		DvR	-2.2578	2.258	0.001
130	131	117-131-117	DvR	12.7142		DvR	-12.7208	12.718	-0.007
121	147	121-...-141	DvR	3.0716		DvR	-3.0669	3.069	0.005
147	146	121-...-141	DvR	10.3362		DvR	-10.3352	10.336	0.001
146	145X	121-...-141	DvR	2.8061		DvR	-2.8090	2.808	-0.003
145X	144	121-...-141	DvR	-10.5563		DvR	10.5581	-10.557	0.002
144	143	121-...-141	DvR	-0.8088		DvR	0.8095	-0.809	0.001
143	142	121-...-141	DvR	-0.1754		DvR	0.1800	-0.178	0.005
142	141	121-...-141	DvR	4.1685		DvR	-4.1726	4.171	-0.004
145X	145	145X-...-145X	DvR	-0.0452		DvR	0.0433	-0.044	-0.002
145	148	145X-...-145X	DvR	0.4106		DvR	-0.4078	0.409	0.003
148	149	145X-...-145X	DvR	-8.8324		DvR	8.8391	-8.836	0.007
149	150	145X-...-145X	DvR	3.6693		DvR	-3.6689	3.669	0.000
60DW1	60DW2	Lindo (Sprint)	23/08	-0.0582	Lindo (Sprint)	23/08	0.0590	-0.059	0.001
60DW2	KM75	Lindo (Sprint)	23/08	0.7184	Lindo (Sprint)	23/08	-0.7124	0.715	0.006
KM75	BOS1	Lindo (Sprint)	23/08	10.0266	Lindo (Sprint)	23/08	-10.0233	10.025	0.003
BOS1	BOS2	Lindo (Sprint)	23/08	-1.2568	Lindo (Sprint)	23/08	1.2543	-1.256	-0.003
BOS2	BOS3	Lindo (Sprint)	23/08	-5.8084	Lindo (Sprint)	23/08	5.8051	-5.807	-0.003
BOS3	KM71	Lindo (Sprint)	23/08	7.2406	Lindo (Sprint)	23/08	-7.2391	7.240	0.001

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
126	127	089-...-089	DvR	-26.5644		DvR	26.5639	-26.564	-0.001
127	128	089-...-089	DvR	-21.0593		DvR	21.0620	-21.061	0.003
128	JV1	089-...-089	DvR	-5.4844		DvR	5.4818	-5.483	-0.003
JV1	104	089-...-089	DvR	6.1982		DvR	-6.1983	6.198	0.000
104	103	089-...-089	DvR	-5.7073		DvR	5.7071	-5.707	0.000
103	102	089-...-089	DvR	-8.5418		DvR	8.5386	-8.540	-0.003
102	101	089-...-089	DvR	-3.3148		DvR	3.3162	-3.316	0.001
101	175	089-...-089	DvR	16.6570		DvR	-16.6519	16.654	0.005
175	174	089-...-089	DvR	26.7768		DvR	-26.7819	26.779	-0.005
174	173	089-...-089	DvR	32.4656		DvR	-32.4634	32.465	0.002
173	172	089-...-089	DvR	-12.0330		DvR	12.0302	-12.032	-0.003
172	097	089-...-089	DvR	-15.7116		DvR	15.7105	-15.711	-0.001
097	096	089-...-089	DvR	-10.6946		DvR	10.6947	-10.695	0.000
096	095	089-...-089	DvR	12.3694		DvR	-12.3678	12.369	0.002
095	094	089-...-089	DvR	14.2288		DvR	-14.2215	14.225	0.007
094	093	089-...-089	DvR	20.0036		DvR	-20.0026	20.003	0.001
093	092	089-...-089	DvR	29.2696		DvR	-29.2706	29.270	-0.001
092	091	089-...-089	DvR	32.9500		DvR	-32.9563	32.953	-0.006
091	090	089-...-089	DvR	32.4496		DvR	-32.4509	32.450	-0.001
090	089	089-...-089	DvR	-17.5627		DvR	17.5621	-17.562	-0.001
101	100	099-101-099	DvR	-6.4669		DvR	6.4692	-6.468	0.002
100	99	099-101-099	DvR	4.3650		DvR	-4.3640	4.365	0.001
JV1	105	JV1-...-D1	DvR	-9.5044		DvR	9.5051	-9.505	0.001
105	106	JV1-...-D1	DvR	-27.2916		DvR	27.2883	-27.290	-0.003
106	107	JV1-...-D1	DvR	-14.1940		DvR	14.1941	-14.194	0.000
107	108	JV1-...-D1	DvR	4.4143		DvR	-4.4172	4.416	-0.003
108	109	JV1-...-D1	DvR	-6.7475		DvR	6.7437	-6.746	-0.004
109	110	JV1-...-D1	DvR	3.0968		DvR	-3.0973	3.097	0.000
110	111	JV1-...-D1	DvR	7.2538		DvR	-7.2545	7.254	-0.001
111	112	JV1-...-D1	DvR	-4.2312		DvR	4.2332	-4.232	0.002
112	113	JV1-...-D1	DvR	4.3027		DvR	-4.3019	4.302	0.001
113	114	JV1-...-D1	DvR	33.8618		DvR	-33.8638	33.863	-0.002
114	115	JV1-...-D1	DvR	-30.1916		DvR	30.1898	-30.191	-0.002

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
085B	086	EM21DLEV	21/08	11.0644	EM21ALEV	21/08	-11.0660	11.065	-0.002
086	087A	EM20DLEV	20/08	3.3045	EM20GLEV	20/08	-3.3065	3.305	-0.002
087A	088	Lindo (Sprint)	19/08	-3.7715	Lindo (Sprint)	19/08	3.7780	-3.775	0.006
088	158	089-162-089	DvR	3.5518		DvR	-3.5570	3.554	-0.005
158	159	089-162-089	DvR	-7.1278		DvR	7.1220	-7.125	-0.006
159	160	089-162-089	DvR	-10.4057		DvR	10.3971	-10.401	-0.009
160	161	089-162-089	DvR	-11.8299		DvR	11.8291	-11.830	-0.001
161	162	089-162-089	DvR	-15.0050		DvR	14.9990	-15.002	-0.006
162	162A	Lindo (Sprint)	28/07	0.6230	Lindo (Sprint)	28/07	-0.6145	0.619	0.008
162A	163	Lindo (Sprint)	28/07	1.5167	Lindo (Sprint)	28/07	-1.5179	1.517	-0.001
163	163A	Lindo (Sprint)	28/07	5.5226	Lindo (Sprint)	28/07	-5.5333	5.528	-0.011
163A	164	Lindo (Sprint)	28/07	-0.1961	Lindo (Sprint)	28/07	0.1881	-0.192	-0.008
164	164A	Lindo (Sprint)	28/07	-12.0703	Lindo (Sprint)	28/07	12.0730	-12.072	0.003
164A	165	Lindo (Sprint)	28/07	-7.2402	Lindo (Sprint)	28/07	7.2459	-7.243	0.006
165	165A	Lindo (Sprint)	28/07	-1.0089	Lindo (Sprint)	28/07	1.0089	-1.009	0.000
165A	79	Lindo (Sprint)	28/07	-4.8137	Lindo (Sprint)	28/07	4.8174	-4.816	0.004
088	089	089-162-089	DvR	24.5268		DvR	-24.5341	24.530	-0.007
141	141A	EM23ALEV	23/08	1.2550	EM23DLEV	23/08	-1.2633	1.259	-0.008
141A	157	EM23BLEV	23/08	1.0749	EM23CLEV	23/08	-1.0806	1.078	-0.006
089	189	089-...-089	DvR	-3.2901		DvR	3.2853	-3.288	-0.005
189	188	089-...-089	DvR	2.7977		DvR	-2.7954	2.797	0.002
188	187	089-...-089	DvR	-14.9772		DvR	14.9781	-14.978	0.001
187	186	089-...-089	DvR	-17.3666		DvR	17.3711	-17.369	0.005
186	185	089-...-089	DvR	2.8336		DvR	-2.8339	2.834	0.000
185	184	089-...-089	DvR	10.6638		DvR	-10.6638	10.664	0.000
184	183	089-...-089	DvR	50.8753		DvR	-50.8750	50.875	0.000
183	182	089-...-089	12/10	-64.3496		12/10	64.3507	-64.350	0.001
182	181	089-...-089	12/10	-44.8617		12/10	44.8628	-44.862	0.001
181	180	089-...-089	DvR	-28.5838		DvR	28.5859	-28.585	0.002
180	D1	089-...-089	DvR	-52.6328		DvR	52.6265	-52.630	-0.006
D1	176	089-...-089	DvR	53.0538		DvR	-53.0529	53.053	0.001
176	126	089-...-089	DvR	9.1473		DvR	-9.1450	9.146	0.002

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff	
KM65	KM66	Lindo (Sprint)	18/08	7.7340	Lindo (Sprint)	18/08	-7.7321	7.733	0.002	
KM66	KM67	Lindo (Sprint)	18/08	13.7727	Lindo (Sprint)	18/08	-13.7638	13.768	0.009	
KM67	KM68	EM18LLEV	18/08	13.2026	Lindo (Sprint)	18/08	-13.2064	13.204	-0.004	
KM68	KM69	EM19ALEV	19/08	15.9902	EM19DLEV	19/08	-15.9913	15.991	-0.001	
KM69	DJ2	EM19BLEV	19/08	-12.8230	EM19CLEV	19/08	12.8163	-12.820	-0.007	
DJ2	KM71	RP19ALEV	19/08	2.5780	RP19FLEV	19/08	-2.5741	2.576	0.004	
KM71	KM72	RP19BLEV	19/08	-6.3816	RP19ELEV	19/08	6.3908	-6.386	0.009	
KM72	KM73	RP19CLEV	19/08	-4.0125	RP19DLEV	19/08	4.0167	-4.015	0.004	
KM73	KM74	EM19ELEV	19/08	-7.4401	EM19HLEV	19/08	7.4378	-7.439	-0.002	
KM74	KM75	EM19FLEV	19/08	-2.2857	EM19GLEV	19/08	2.2844	-2.285	-0.001	
KM75	KM76	RP19GLEV	19/08	14.1807	RP19KLEV	19/08	-14.1884	14.185	-0.008	
KM76	KM77	RP19HLEV	19/08	4.5897	RP19JLEV	19/08	-4.5889	4.589	0.001	
KM77	KM78	EM19JLEV	19/08	-1.9612	EM19NLEV	19/08	1.9577	-1.959	-0.004	
KM78	KM79	EM19KLEV	19/08	3.9193	EM19MLEV	19/08	-3.9214	3.920	-0.002	
P1	KM87	EM15ALEV	15/08	6.1950	EM15BLEV	15/08	-6.1985	6.197	-0.004	
KM87	KM86	RP21BLEV	21/07	10.4305	RP21BLEV	21/07	-10.4295	10.430	0.001	
KM86	KM85	RP21CLEV	21/07	9.6921	RP21CLEV	21/07	-9.6899	9.691	0.002	
KM85	KM84	RP19NLEV	19/08	10.8881	RP19QLEV	19/08	-10.8849	10.887	0.003	
KM84	KM83	RP19PLEV	19/08	9.0988	RP19LLEV	19/08	-9.0912	9.095	0.008	
KM83	KM82	EM15CLEV	15/08	6.2513	EM15GLEV	15/08	-6.2639	6.257		Mean of 3 runs
		EM15HLEV	15/08	6.2572						
KM82	KM81	EM15DLEV	15/08	5.2719	EM15FLEV	15/08	-5.2746	5.273	-0.003	
KM81	KM80	EM16FLEV	16/08	-3.6868	EM16JLEV	16/08	3.6896	-3.688	0.003	
KM80	KM79	EM16GLEV	16/08	-6.1848	EM16HLEV	16/08	6.1863	-6.186	0.001	
079	080	Lindo (Sprint)	20/08	-5.0041	Lindo (Sprint)	20/08	4.9922	-4.998	-0.012	2km section
080	081	Lindo (Sprint)	20/08	7.7115	Lindo (Sprint)	20/08	-7.7223	7.717	-0.011	2km section
081	082	Lindo (Sprint)	20/08	14.3604	Lindo (Sprint)	20/08	-14.3679	14.364	-0.008	
082	083	Lindo (Sprint)	20/08	3.9615	Lindo (Sprint)	20/08	-3.9618	3.962	0.000	
083	084A'	Lindo (Sprint)	19/08	-0.2839	Lindo (Sprint)	19/08	0.2844	-0.284	0.000	
084A	084	Lindo (Sprint)	19/08	1.7591	Lindo (Sprint)	19/08	-1.7650	1.762	-0.006	
084	085A	Lindo (Sprint)	19/08	4.0151	Lindo (Sprint)	19/08	-4.0158	4.015	-0.001	
085A	085	Lindo (Sprint)	19/08	7.7178	Lindo (Sprint)	19/08	-7.7109	7.714	0.007	
085	085B	EM21CLEV	21/08	13.5708	EM21BLEV	21/08	-13.5803	13.576	-0.009	

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
074A	075	Lindo (Sprint)	16/08	8.2596	Lindo (Sprint)	16/08	-8.2617	8.261	-0.002
075	075A	Lindo (Sprint)	16/08	3.5642	Lindo (Sprint)	16/08	-3.5602	3.562	0.004
075A	076	RP16DLEV	16/08	1.5503	RP16GLEV	16/08	-1.5428	1.547	0.008
076	076A	RP16ELEV	16/08	-1.5036	RP16FLEV	16/08	1.5076	-1.506	0.004
076A	077	EM17HLEV	17/08	10.5264	EM17FLEV	17/08	-10.5271	10.527	-0.001
077	077A	EM17JLEV	17/08	9.3186	EM17ELEV	17/08	-9.3241	9.321	-0.006
077A	078	RP17CLEV	17/08	0.6976	RP17BLEV	17/08	-0.6910	0.694	0.007
078	078B	RP17DLEV	17/08	9.0406	RP17ALEV	17/08	-9.0366	9.039	0.004
078B	078A	EM17CLEV	17/08	-1.3794	EM17BLEV	17/08	1.3770	-1.378	-0.002
078A	079	EM17DLEV	17/08	-2.4817	EM17ALEV	17/08	2.4801	-2.481	-0.002
079	KM40	Lindo (Sprint)	17/08	-12.5915	Lindo (Sprint)	17/08	12.5900	-12.591	-0.002
KM40	KM41	Lindo (Sprint)	17/08	-7.6630	Lindo (Sprint)	17/08	7.6587	-7.661	-0.004
KM41	KM43	Lindo (Sprint)	17/08	-13.4498	Lindo (Sprint)	17/08	13.4585	-13.454	0.009
KM43	KM44	Lindo (Sprint)	17/08	-7.8635	Lindo (Sprint)	17/08	7.8680	-7.866	0.004
KM44	KM45	Lindo (Sprint)	17/08	-2.3445	Lindo (Sprint)	17/08	2.3496	-2.347	0.005
KM45	KM46	RP17ELEV	17/08	3.0788	RP17JLEV	17/08	-3.0815	3.080	-0.003
KM46	KM47	RP17FLEV	17/08	6.1751	RP17GLEV	17/08	-6.1786	6.177	-0.003
KM47	KM48	EM17KLEV	17/08	-8.2984	EM17LLEV	17/08	8.2941	-8.296	-0.004
KM48	KM49	EM18ALEV	18/08	-5.9554	EM18HLEV	18/08	5.9465	-5.951	-0.009
KM49	KM50	EM18BLEV	18/08	7.0429	EM18KLEV	18/08	-7.0463	7.045	-0.003
KM50	KM51	EM18CLEV	18/08	-1.5412	EM18FLEV	18/08	1.5350	-1.538	-0.006
KM51	KM52	EM18DLEV	18/08	-5.3568	EM18ELEV	18/08	5.3511	-5.354	-0.006
KM52	KM53	RP18ALEV	18/08	13.7393	RP18HLEV	18/08	-13.7335	13.736	0.006
KM53	KM54	EM22BLEV	22/08	4.7911	EM22ALEV	22/08	-4.7971	4.794	-0.006
KM54	KM55	RP18CLEV	18/08	1.5397	RP18FLEV	18/08	-1.5371	1.538	0.003
KM55	KM56	RP18DLEV	18/08	0.3307	RP18ELEV	18/08	-0.3251	0.328	0.006
KM56	KM57	Lindo (Sprint)	18/08	1.8981	Lindo (Sprint)	18/08	-1.8950	1.897	0.003
KM57	KM58	Lindo (Sprint)	18/08	5.7277	Lindo (Sprint)	18/08	-5.7305	5.729	-0.003
KM58	KM59	Lindo (Sprint)	18/08	4.9376	Lindo (Sprint)	18/08	-4.9313	4.934	0.006
KM59	KM60	Lindo (Sprint)	18/08	7.5114	Lindo (Sprint)	18/08	-7.5019	7.507	0.009
KM60	KM61	Lindo (Sprint)	18/08	7.2863	Lindo (Sprint)	18/08	-7.2891	7.288	-0.003
KM61	KM62	Lindo (Sprint)	18/08	5.9381	Lindo (Sprint)	18/08	-5.9326	5.935	0.005
KM62	KM63	Lindo (Sprint)	18/08	6.4111	Lindo (Sprint)	18/08	-6.4041	6.408	0.007
KM63	KM64	Lindo (Sprint)	18/08	3.0424	Lindo (Sprint)	18/08	-3.0380	3.040	0.004
KM64	KM65	Lindo (Sprint)	18/08	1.8800	Lindo (Sprint)	18/08	-1.8765	1.878	0.003

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
057	057A	Lindo (Sprint)	13/08	-0.2840	Lindo (Sprint)	13/08	0.2827	-0.283	-0.001
057A	058	Lindo (Sprint)	13/08	2.9479	Lindo (Sprint)	13/08	-2.9511	2.949	-0.003
058	058A	RP20ALEV	20/08	0.9734	RP20BLEV	20/08	-0.9710	0.972	0.002
058A	059	Lindo (Sprint)	13/08	-7.0252	Lindo (Sprint)	13/08	7.0307	-7.028	0.005
059	059A	Lindo (Sprint)	13/08	-11.2376	Lindo (Sprint)	13/08	11.2380	-11.238	0.000
059A	060	Lindo (Sprint)	13/08	-7.7579	Lindo (Sprint)	13/08	7.7578	-7.758	0.000
060	060A	Lindo (Sprint)	13/08	-5.7978	Lindo (Sprint)	13/08	5.7968	-5.797	-0.001
060A	061	RP13GLEV	13/08	-0.1307	RP13KLEV	13/08	0.1320	-0.131	0.001
061	061A	RP13HLEV	13/08	-2.1827	RP13JLEV	13/08	2.1794	-2.181	-0.003
061A	062	EM22CLEV	22/08	-4.8244	EM22ELEV	22/08	4.8236	-4.824	-0.001
062	062A	Lindo (Sprint)	14/08	-8.2695	Lindo (Sprint)	14/08	8.2662	-8.268	-0.003
062A	063	Lindo (Sprint)	14/08	-8.8778	Lindo (Sprint)	14/08	8.8827	-8.880	0.005
063	063A	Lindo (Sprint)	14/08	-13.6785	Lindo (Sprint)	14/08	13.6762	-13.677	-0.002
063A	064	Lindo (Sprint)	14/08	-10.8809	Lindo (Sprint)	14/08	10.8787	-10.880	-0.002
064	064A	Lindo (Sprint)	14/08	9.3899	Lindo (Sprint)	14/08	-9.3880	9.389	0.002
064A	065	Lindo (Sprint)	14/08	0.9735	Lindo (Sprint)	14/08	-0.9745	0.974	-0.001
065	065A	Lindo (Sprint)	14/08	0.7398	Lindo (Sprint)	14/08	-0.7370	0.738	0.003
065A	066	Lindo (Sprint)	14/08	-1.2184	Lindo (Sprint)	14/08	1.2194	-1.219	0.001
066	066A	RP14ALEV	14/08	-5.4968	RP14HLEV	14/08	5.5016	-5.499	0.005
066A	067	RP14BLEV	14/08	-1.5268	RP14GLEV	14/08	1.5247	-1.526	-0.002
067	067A	RP14CLEV	14/08	-10.8140	RP14FLEV	14/08	10.8237	-10.819	0.010
067A	068	RP14DLEV	14/08	-8.5935	RP14ELEV	14/08	8.5838	-8.589	-0.010
068	068A	Lindo (Sprint)	15/08	15.1058	Lindo (Sprint)	15/08	-15.1091	15.107	-0.003
068A	069	EM20ALEV	20/08	16.8443	EM20BLEV	20/08	-16.8521	16.848	-0.008
069	069A	Lindo (Sprint)	15/08	-5.7597	Lindo (Sprint)	15/08	5.7668	-5.763	0.007
069A	070	Lindo (Sprint)	15/08	4.5344	Lindo (Sprint)	15/08	-4.5343	4.534	0.000
070	070A	Lindo (Sprint)	16/08	3.8359	Lindo (Sprint)	16/08	-3.8388	3.837	-0.003
070A	071	Lindo (Sprint)	16/08	-6.9145	Lindo (Sprint)	16/08	6.9111	-6.913	-0.003
071	071A	RP15ALEV	15/08	8.6207	RP16ALEV	16/08	-8.6195	8.620	0.001
071A	072	RP15BLEV	15/08	10.8284	RP15GLEV	15/08	-10.8236	10.826	0.005
072	072A	RP15CLEV	15/08	5.4984	RP15FLEV	15/08	-5.4915	5.495	0.007
072A	073	RP15DLEV	15/08	2.1901	RP16BLEV	16/08	-2.1931	2.192	-0.003
073	073A	Lindo (Sprint)	16/08	3.0262	EM20CLEV	20/08	-3.0281	3.027	-0.002
073A	074	Lindo (Sprint)	16/08	0.4658	Lindo (Sprint)	16/08	-0.4738	0.470	-0.008
074	074A	Lindo (Sprint)	16/08	-0.9263	Lindo (Sprint)	16/08	0.9276	-0.927	0.001

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
P60	P61	RP12CLEV	12/08	2.1200	RP12KLEV	12/08	-2.1229	2.121	-0.003
P61	P62	RP12DLEV	12/08	-3.5902	RP12JLEV	12/08	3.5874	-3.589	-0.003
P62	P63	RP12ELEV	12/08	4.2298	RP12HLEV	12/08	-4.2368	4.233	-0.007
P63	P64	RP12FLEV	12/08	-1.6385	RP12GLEV	12/08	1.6456	-1.642	0.007
P64	P65	Lindo (Sprint)	12/08	-6.2182	Lindo (Sprint)	12/08	6.2211	-6.220	0.003
P65	P66	Lindo (Sprint)	12/08	0.9707	Lindo (Sprint)	12/08	-0.9749	0.973	-0.004
P66	P67	RP12LLEV	12/08	0.8417	RP12MLEV	12/08	-0.8404	0.841	0.001
P67	P68	RP13ELEV	13/08	-0.6366	RP13FLEV	13/08	0.6299	-0.633	-0.007
P68	P53	RP13DLEV	13/08	8.3637	RP13CLEV	13/08	-8.3669	8.365	-0.003
A4809	P70	RP20CLEV	20/08	-9.0573	RP20KLEV	20/08	9.0596	-9.058	0.002
P70	P71	RP20DLEV	20/08	-9.1298	RP20JLEV	20/08	9.1347	-9.132	0.005
P71	P72	RP20ELEV	20/08	-8.0574	RP21ALEV	21/08	8.0636	-8.061	0.006
P72	P73	Lindo (Sprint)	21/08	-2.4400	Lindo (Sprint)	21/08	2.4415	-2.441	0.002
P73	P74	Lindo (Sprint)	21/08	2.8171	Lindo (Sprint)	21/08	-2.8141	2.816	0.003
P74	P75	Lindo (Sprint)	21/08	-6.8697	Lindo (Sprint)	21/08	6.8691	-6.869	-0.001
P75	P76	RP21BLEV	21/08	-6.2114	RP21FLEV	21/08	6.2131	-6.212	0.002
P76	P77	RP21GLEV	21/08	-4.1562	RP21DLEV	21/08	4.1593	-4.158	0.003
P77	P78	Lindo (Sprint)	21/08	-6.3463	Lindo (Sprint)	21/08	6.3501	-6.348	0.004
P78	P79	Lindo (Sprint)	21/08	-3.9905	Lindo (Sprint)	21/08	3.9941	-3.992	0.004
P79	P80	Lindo (Sprint)	21/08	-3.4455	RP22ALEV	22/08	3.4532	-3.449	0.008
P80	P81	Lindo (Sprint)	21/08	-5.8984	Lindo (Sprint)	21/08	5.9002	-5.899	0.002
P81	P82	Lindo (Sprint)	21/08	-4.1475	Lindo (Sprint)	21/08	4.1516	-4.150	0.004
P82	P83	Lindo (Sprint)	22/08	-5.1209	Lindo (Sprint)	22/08	5.1195	-5.120	-0.001
P83	P84	EM23CLEV	23/08	-3.8325	RP23BLEV	23/08	3.8304	-3.831	-0.002
P84	P85	RP23DLEV	23/08	-1.2133	RP23ELEV	23/08	1.2197	-1.217	0.006
P85	P86	Lindo (Sprint)	22/08	-2.0452	Lindo (Sprint)	22/08	2.0424	-2.044	-0.003
P86	P87	Lindo (Sprint)	22/08	-4.5698	Lindo (Sprint)	22/08	4.5717	-4.571	0.002
P87	P88	EM22FLEV	22/08	-6.2764	EM22GLEV	22/08	6.2716	-6.274	-0.005
P88	P89	RP22ELEV	22/08	0.5628	RP22DLEV	22/08	-0.5581	0.560	0.005
P89	P90	RP22FLEV	22/08	28.2839	RP22CLEV	22/08	-28.2911	28.288	-0.007
P90	029	RP22GLEV	22/08	-2.9027	RP22HLEV	22/08	2.9054	-2.904	0.003

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
A4804	P43	RP09ELEV	09/08	0.0205	RP09HLEV	09/08	-0.0294	0.025	-0.009
P43	P44	RP09FLEV	09/08	-1.6545	RP09GLEV	09/08	1.6701	-1.662	0.016
P44	P45	Lindo (Sprint)	08/08	0.4970	Lindo (Sprint)	08/08	-0.4908	0.494	0.006
P45	P46	Lindo (Sprint)	08/08	-0.4118	Lindo (Sprint)	08/08	0.4092	-0.410	-0.003
P46	P47	Lindo (Sprint)	09/08	-0.3006	Lindo (Sprint)	09/08	0.3069	-0.304	0.006
P47	P48	Lindo (Sprint)	09/08	0.3589	Lindo (Sprint)	09/08	-0.3574	0.358	0.002
P48	P49	EM13ELEV	13/08	1.6397	Lindo (Sprint)	09/08	-1.6404	1.640	-0.001
P49	A4803	Lindo (Sprint)	09/08	6.0920	Lindo (Sprint)	09/08	-6.0855	6.089	0.006
A4803	P50	Lindo (Sprint)	09/08	2.0271	Lindo (Sprint)	09/08	-2.0258	2.026	0.001
P50	044	Lindo (Sprint)	09/08	-5.2571	Lindo (Sprint)	09/08	5.2572	-5.257	0.000
046	046B	RP11CLEV	11/08	3.0933	RP11BLEV	11/08	-3.0876	3.090	0.006
046B	047	RP11DLEV	11/08	4.7124	RP11ALEV	11/08	-4.7057	4.709	0.007
047	047A	RP11ELEV	11/08	4.8525	RP11KLEV	11/08	-4.8472	4.850	0.005
047A	048	RP11FLEV	11/08	3.1510	RP11JLEV	11/08	-3.1565	3.154	-0.005
048	048A	RP11GLEV	11/08	3.8936	RP11HLEV	11/08	-3.8927	3.893	0.001
048A	049	RP10HLEV	10/08	4.8984	RP10GLEV	10/08	-4.9021	4.900	-0.004
049	049A	RP10DLEV	10/08	2.2050	RP10CLEV	10/08	-2.2052	2.205	0.000
049A	050	RP10ELEV	10/08	3.7084	RP10BLEV	10/08	-3.7086	3.709	0.000
050	050A	RP10FLEV	10/08	9.0389	RP10ALEV	10/08	-9.0423	9.041	-0.003
050A	051	EM10ALEV	10/08	2.2908	EM10KLEV	10/08	-2.2953	2.293	-0.005
051	051A	EM10BLEV	10/08	9.9568	EM10JLEV	10/08	-9.9665	9.962	-0.010
051A	052	EM10CLEV	10/08	3.5066	EM10HLEV	10/08	-3.5086	3.508	-0.002
052	052A	EM10DLEV	10/08	7.1809	EM10GLEV	10/08	-7.1875	7.184	-0.007
052A	053	EM10DLEV	10/08	-2.7768	EM10FLEV	10/08	2.7671	-2.772	-0.010
053	053A	Lindo (Sprint)	12/08	-2.6780	Lindo (Sprint)	12/08	2.6808	-2.679	0.003
053A	054	Lindo (Sprint)	12/08	5.6068	Lindo (Sprint)	12/08	-5.6008	5.604	0.006
054	054A	Lindo (Sprint)	12/08	6.5918	Lindo (Sprint)	12/08	-6.5944	6.593	-0.003
054A	054B	Lindo (Sprint)	12/08	7.7547	Lindo (Sprint)	12/08	-7.7454	7.750	0.009
054B	054C	Lindo (Sprint)	12/08	0.6341	Lindo (Sprint)	12/08	-0.6336	0.634	0.001
054C	P60	Lindo (Sprint)	12/08	-0.2220	Lindo (Sprint)	12/08	0.2231	-0.223	0.001
P60	A4101	RP12ALEV	12/08	-8.9687	RP12BLEV	12/08	8.9701	-8.969	0.001

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff	
039	039A	EM11ALEV	11/08	-5.4743	EM11DLEV	11/08	5.4714	-5.473	-0.003	
039A	039B	EM11BLEV	11/08	-4.0723	EM11CLEV	11/08	4.0687	-4.071	-0.004	
039B	A4804	EM12KLEV	12/08	1.6869	EM12LLEV	12/08	-1.6910	1.689	-0.004	
039	040	EM08HLEV	08/08	-3.1491	EM08GLEV	08/08	3.1360	-3.143	-0.013	Long run, soft sand, rush to finish
040	046	EM08ALEV	08/08	2.8265	EM08FLEV	08/08	-2.8332	2.830	-0.007	
046	046A	EM08BLEV	08/08	1.5307	EM08ELEV	08/08	-1.5344	1.533	-0.004	
046A	041	EM08CLEV	08/08	0.3019	EM08DLEV	08/08	-0.3056	0.304	-0.004	
041	041A	Lindo (Sprint)	11/08	1.0278	Lindo (Sprint)	11/08	-1.0263	1.027	0.002	
041A	042	Lindo (Sprint)	11/08	1.1582	Lindo (Sprint)	11/08	-1.1594	1.159	-0.001	
042	042A	Lindo (Sprint)	11/08	2.5184	Lindo (Sprint)	11/08	-2.5230	2.521	-0.005	
042A	043	Lindo (Sprint)	11/08	2.5752	Lindo (Sprint)	11/08	-2.5746	2.575	0.001	
043	043A	Lindo (Sprint)	11/08	2.7654	Lindo (Sprint)	11/08	-2.7658	2.766	0.000	
043A	043B	Lindo (Sprint)	11/08	0.5475	Lindo (Sprint)	11/08	-0.5476	0.548	0.000	
043B	045	RP09LLEV	09/08	-4.6422	RP09KLEV		4.6461	-4.644	0.004	
045	P50	Lindo (Sprint)	09/08	-7.0903	Lindo (Sprint)		7.0894	-7.090	-0.001	
P30	P31	Lindo (Sprint)	07/08	12.3831	Lindo (Sprint)	07/08	-12.3799	12.381	0.003	
P31	P32	Lindo (Sprint)	08/08	-3.0651	Lindo (Sprint)	08/08	3.0731	-3.069	0.008	
P32	P33	Lindo (Sprint)	07/08	0.9206	Lindo (Sprint)	07/08	-0.9115	0.916	0.009	
P33	P34	Lindo (Sprint)	07/08	-3.2399	Lindo (Sprint)	07/08	3.2410	-3.240	0.001	
P34	A4805X	Lindo (Sprint)	07/08	-2.3342	Lindo (Sprint)	07/08	2.3336	-2.334	-0.001	
A4805X	A4805	Lindo (Sprint)	08/08	0.0193	Lindo (Sprint)	08/08	-0.0191	0.019	0.000	
A4805X	P35	EM07HLEV	07/08	-12.7283	EM07JLEV	07/08	12.7254	-12.727	-0.003	
P35	P36	Lindo (Sprint)	07/08	-0.2711	Lindo (Sprint)	07/08	0.2756	-0.273	0.004	
P36	P37	Lindo (Sprint)	07/08	0.1429	Lindo (Sprint)	07/08	-0.1403	0.142	0.003	
P37	P38	EM07KLEV	07/08	-2.6362	EM07LLEV	07/08	2.6355	-2.636	-0.001	
P38	P39	Lindo (Sprint)	07/08	-1.4239	Lindo (Sprint)	07/08	1.4282	-1.426	0.004	
P39	P40	EM07MLEV	07/08	-7.3113	EM07NLEV	07/08	7.3125	-7.312	0.001	
P40	P41	Lindo (Sprint)	08/08	1.1875	Lindo (Sprint)	08/08	-1.1807	1.184	0.007	
P41	A4804X	Lindo (Sprint)	08/08	1.4166	Lindo (Sprint)	08/08	-1.4118	1.414	0.005	
A4804X	A4804	RP09CLEV	09/08	-0.0999	RP09DLEV	09/08	0.0995	-0.100	0.000	

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022	024A	EM29FLEV	29/07	7.9116	EM29GLEV	29/07	-7.9132	7.912	-0.002	
024A	024	Lindo (Sprint)	06/08	3.0777	Lindo (Sprint)	06/08	-3.0804	3.079	-0.003	
024	025A	EM29HLEV	29/07	8.5136	EM29JLEV	29/07	-8.5178	8.516	-0.004	
025A	025	Lindo (Sprint)	29/07	4.9342	Lindo (Sprint)	29/07	-4.9334	4.934	0.001	
025	026	EM09ALEV	09/08	-1.7790	EM09MLEV	09/08	1.7780	-1.778	-0.001	
026	026A	EM09BLEV	09/08	12.8464	EM09LLEV	09/08	-12.8518	12.849	-0.005	
026A	027	EM09CLEV	09/08	-5.0893	EM09KLEV	09/08	5.0808	-5.085	-0.009	
027	027A	EM09DLEV	09/08	7.8323	EM09JLEV	09/08	-7.8377	7.835	-0.005	
027A	028	EM09ELEV	09/08	6.0234	EM09HLEV	09/08	-6.0247	6.024	-0.001	
028	029	EM09FLEV	09/08	3.9381	EM09GLEV	09/08	-3.9400	3.939	-0.002	
029	029A	EM09NLEV	09/08	-6.9686	EM09PLEV	09/08	6.9622	-6.965	-0.006	
029A	029B	EM13FLEV	13/08	7.4922	EM13NLEV	13/08	-7.4947	7.493	-0.002	
029B	030	EM13GLEV	13/08	0.9330	EM13MLEV	13/08	-0.9359	0.934	-0.003	
030	030A	EM13HLEV	13/08	-0.0262	EM13LLEV	13/08	0.0209	-0.024	-0.005	
030A	031	EM13JLEV	13/08	3.7802	EM13KLEV	13/08	-3.7844	3.782	-0.004	
031	A4806	EM15JLEV	15/08	-4.0482	EM15KLEV	15/08	4.0443	-4.046	-0.004	
A4806	032	RP11MLEV	11/08	0.9413	RP11LLEV	11/08	-0.9383	0.940	0.003	
032	032C	Lindo (Sprint)	11/08	2.2598	Lindo (Sprint)	11/08	-2.2631	2.261	-0.003	
032C	032A	Lindo (Sprint)	11/08	4.6851	Lindo (Sprint)	11/08	-4.6830	4.684	0.002	
032A	P30	EM07ALEV	07/08	2.6484	EM07GLEV	07/08	-2.6487	2.649	0.000	
P30	033	EM07BLEV	07/08	8.1978	EM07FLEV	07/08	-8.2057	8.202	-0.008	
033	034	EM07CLEV	07/08	11.2028	EM07ELEV	07/08	-11.2040	11.203	-0.001	
034	034A	RP08GLEV	08/08	4.7863	RP08FLEV	08/08	-4.7755	4.781	0.011	Very soft sand run
034A	035	RP08HLEV	08/08	0.9207	RP08ELEV	08/08	-0.9087	0.915	0.012	Very soft sand run
035	035A	RP08JLEV	08/08	-9.1672	RP08DLEV	08/08	9.1747	-9.171	0.007	
035A	036	RP08KLEV	08/08	-5.7301	RP08CLEV	08/08	5.7357	-5.733	0.006	
036	036A	RP08ALEV	08/08	-2.1229	RP08BLEV	08/08	2.1194	-2.121	-0.004	
036A	037	RP09BLEV	09/08	-2.5292	RP09ALEV	09/08	2.5298	-2.530	0.001	
037	038B	EM12DLEV	12/08	-1.7717	EM12CLEV	12/08	1.7673	-1.770	-0.004	
038B	038A	EM12ELEV	12/08	-0.4457	EM12BLEV	12/08	0.4378	-0.442	-0.008	
038A	038	EM12FLEV	12/08	-0.3278	EM12ALEV	12/08	0.3251	-0.326	-0.003	
038	039D	EM12GLEV	12/08	-0.7992	EM11GLEV	11/08	0.7942	-0.797	-0.005	
039D	039C	EM12HLEV	12/08	-5.8029	EM11ELEV	11/08	5.6539	-5.728	-0.149	039C must've been moved overnight
039C	039	EM12JLEV	12/08	-5.6586	EM11FLEV	11/08	5.7970	-5.728	0.138	
038	039	Sum of above		-11.4615	Sum of above		11.4510	-11.456	-0.011	

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
KM97	KM98	RP24BLEV	24/07	-28.3237	RP24BLEV	24/07	28.3262	-28.325	0.002
KM98	010	EM24BLEV	24/07	-18.2751	EM24ALEV	24/07	18.2749	-18.275	0.000
010	KM99	EM24CLEV	24/07	-11.3687	EM24CLEV	24/07	11.3682	-11.368	0.000
KM99	MTN1	EM24DLEV	24/07	1.7813	EM24DLEV	24/07	-1.7816	1.781	0.000
MTN1	011	RP24CLEV	24/07	21.1576	RP24CLEV	24/07	-21.1573	21.157	0.000
011	011A	EM12FLEV	12/10	38.5212	EM12KLEV	12/10	-38.5294	38.525	-0.008
011A	011B	EM12GLEV	12/10	48.1757	EM12JLEV	12/10	-48.1881	48.182	-0.012
011B	012	EM26CLEV	26/07	-46.4428	RP26CLEV	26/07	46.4396	-46.441	-0.003
012	012A	EM26DLEV	26/07	-89.6792	RP26BLEV	26/07	89.6853	-89.682	0.006
012A	013	EM25CLEV	25/07	-8.5756	RP26ALEV	26/07	8.5746	-8.575	-0.001
013	013A	RP25ALEV	25/07	11.9110	RP25ALEV	27/07	-11.9127	11.912	-0.002
013A	013B	RP28CLEV	28/07	-36.6071	RP28BLEV	28/07	36.6105	-36.609	0.003
013B	014	RP27HLEV	27/07	20.2975	RP28ALEV	28/07	-20.3016	20.300	-0.004
014	014A	EM06ALEV	06/08	47.4100	EM06HLEV	06/08	-47.4047	47.407	0.005
014A	014B	EM06BLEV	06/08	-5.7423	EM06GLEV	06/08	5.7413	-5.742	-0.001
014B	015	EM06CLEV	06/08	-4.2226	EM06FLEV	06/08	4.2187	-4.221	-0.004
015	015A	EM06DLEV	06/08	-3.1889	EM06JLEV	06/08	3.1886	-3.189	0.000
015A	016	RP06ELEV	06/08	-13.2459	RP06DLEV	06/08	13.2477	-13.247	0.002
016	016A	RP06FLEV	06/08	-12.5263	RP06CLEV	06/08	12.5249	-12.526	-0.001
016A	017	RP06GLEV	06/08	-16.2593	RP06BLEV	06/08	16.2460	-16.253	-0.013
017	017A	RP06HLEV	06/08	8.3803	RP06JLEV	06/08	-8.3734	8.377	0.007
017A	018	RP05FLEV	05/08	6.4770	RP05ELEV	05/08	-6.4826	6.480	-0.006
018	018A	RP05GLEV	05/08	-15.6050	RP05DLEV	05/08	15.5995	-15.602	-0.005
018A	019	RP05HLEV	05/08	-10.8261	RP05CLEV	05/08	10.8079	-10.817	-0.018
019	019A	Lindo (Sprint)	06/08	-18.0966	LB05FLEV	05/08	18.1011	-18.099	0.005
019A	020	Lindo (Sprint)	06/08	-7.6455	LB05DLEV	05/08	7.6395	-7.642	-0.006
020	020A	LB05ALEV	05/08	5.7968	LB05CLEV	05/08	-5.8080	5.802	-0.011
020A	021	LB05BLEV	05/08	5.5459	LB05CLEV	05/08	-5.5560	5.551	-0.010
021	021A	Lindo (Sprint)	27/07	-7.4888	Lindo (Sprint)	27/07	7.4815	-7.485	-0.007
021A	022	Lindo (Sprint)	29/07	-0.1733	Lindo (Sprint)	27/07	0.1657	-0.169	-0.008
022	022A	Lindo (Sprint)	04/08	13.5407	Lindo (Sprint)	04/08	-13.5347	13.538	0.006
022A	023	Lindo (Sprint)	29/07	-3.1683	Lindo (Sprint)	29/07	3.1769	-3.173	0.009
			04/08						

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff
057	P51	Lindo (Sprint)	10/08	-8.6712	Lindo (Sprint)	10/08	8.6716	-8.671	0.000
P51	P52	Lindo (Sprint)	10/08	-7.5011	Lindo (Sprint)	10/08	7.5046	-7.503	0.003
P52	P53	Lindo (Sprint)	10/08	-2.6701	Lindo (Sprint)	10/08	2.6704	-2.670	0.000
P53	P54	Lindo (Sprint)	10/08	6.4432	Lindo (Sprint)	10/08	-6.4386	6.441	0.005
P54	P55	Lindo (Sprint)	10/08	-3.9810	Lindo (Sprint)	10/08	3.9811	-3.981	0.000
P55	P56	Lindo (Sprint)	10/08	-7.1589	Lindo (Sprint)	10/08	7.1602	-7.160	0.001
P56	P57	Lindo (Sprint)	10/08	-8.5845	Lindo (Sprint)	10/08	8.5919	-8.588	0.007
P57	A4809	Lindo (Sprint)	10/08	-6.7470	Lindo (Sprint)	10/08	6.7471	-6.747	0.000
SMC2001	MKDW2	EM13ALEV	13/08	0.1822	EM13BLEV	13/08	-0.1835	0.183	-0.001
SMC2001	MK	EM21BLEV	21/07	3.8816	EM21ALEV	21/07	-3.8819	3.882	0.000
MK	DAM1	EM16ELEV	16/08	55.6418	EM16DLEV	16/08	-55.6491	55.645	-0.007
DAM1	DAM2	EM16BLEV	16/08	52.0055	EM16CLEV	16/08	-52.0067	52.006	-0.001
DAM2	001	EM21ELEV	21/07	14.8514	EM21ELEV	21/07	-14.8512	14.851	0.000
001	DAM3	EM13CLEV	13/08	56.6402	EM13CLEV	13/08	-56.6356	56.638	0.005
DAM3	DAM4	EM22BLEV	22/07	31.3110	EM22BLEV	22/07	-31.3128	31.312	-0.002
DAM4	DAM5	EM22CLEV	22/07	4.1162	EM22CLEV	22/07	-4.1182	4.117	-0.002
DAM5	002	EM22DLEV	22/07	0.3928	EM22DLEV	22/07	-0.3935	0.393	-0.001
002	DAMA	RP22ALEV	22/07	10.9199	RP22ALEV	22/07	-10.9160	10.918	0.004
DAMA	003	RP22BLEV	22/07	-8.5679	RP22BLEV	22/07	8.5683	-8.568	0.000
003	DAMB	RP22CLEV	22/07	-33.8798	RP22CLEV	22/07	33.8794	-33.880	0.000
DAMB	004	RP22DLEV	22/07	-25.7118	RP22DLEV	22/07	25.7206	-25.716	0.009
004	005	EM23ALEV	23/07	-21.8216	EM23ALEV	23/07	21.8218	-21.822	0.000
005	005A	Lindo (Sprint)	26/07	-3.8280	Lindo (Sprint)	26/07	3.8278	-3.828	0.000
005A	006	Lindo (Sprint)	26/07	-11.8809	Lindo (Sprint)	26/07	11.8700	-11.875	-0.011
006	006A	Lindo (Sprint)	27/07	-21.4819	Lindo (Sprint)	27/07	21.4777	-21.480	-0.004
006A	007	Lindo (Sprint)	27/07	-3.0341	Lindo (Sprint)	27/07	3.0328	-3.033	-0.001
007	KM93	EM23CLEV	23/07	1.3071	EM23CLEV	23/07	-1.3113	1.309	-0.004
KM93	KM94	EM28ELEV	28/07	-2.5003	RP28HLEV	28/07	2.5011	-2.501	0.001
KM94	008	EM23DLEV	23/07	-7.6924	EM23DLEV	23/07	7.6916	-7.692	-0.001
008	KM95	RP23DLEV	23/07	-6.8398	RP23DLEV	23/07	6.8397	-6.840	0.000
KM95	KM96	EM23ELEV	23/07	22.5666	EM23ELEV	23/07	-22.5682	22.567	-0.002
KM96	009	EM24ALEV	24/07	20.1500	EM24ALEV	24/07	-20.1504	20.150	0.000
009	KM97	RP24ALEV	24/07	-0.0239	RP24ALEV	24/07	0.0253	-0.025	0.001

From	To	Fwd file	Date	Ht. Diff	Back file name	Date	Ht. Diff	Mean	Diff	
007	KM91.2	EM12DLEV	12/10	4.3212	EM12CLEV	12/10	-4.3271	4.324	-0.006	
KM91.2	KM90.2	RP04ALEV	04/08	21.0687	RP04BLEV	04/08	-21.0708	21.070	-0.002	
KM90.2	KM89.2	EM17BLEV	17/07	25.2711	EM17BLEV	17/07	-25.2699	25.270	0.001	
KM89.2	KM88.2	RP17BLEV	17/07	1.9750	RP17BLEV	17/07	-1.9788	1.977	-0.004	
KM88.2	P1	EM17CLEV	17/07	-2.5715	EM17CLEV	17/07	2.5720	-2.572	0.001	
P1	P2	EM17DLEV	17/07	7.5153	EM17DLEV	17/07	-7.5177	7.517	-0.002	
P2	P3	RP17CLEV	17/07	27.5571	RP17CLEV	17/07	-27.5616	27.559	-0.005	
P3	P4	RP18ALEV	18/07	27.8806	RP18ALEV	18/07	-27.8817	27.881	-0.001	
P4	P5	EM18ALEV	18/07	-10.8613	EM18ALEV	18/07	10.8648	-10.863	0.003	
P5	P6	EM18BLEV	18/07	7.5510	EM18BLEV	18/07	-7.5477	7.549	0.003	
P6	P7	RP18BLEV	18/07	15.2096	RP18BLEV	18/07	-15.2038	15.207	0.006	
P7	P8	RP04CLEV	04/08	30.7053	RP04DLEV	04/08	-30.7017	30.703	0.004	
P8	P9	EM18CLEV	18/07	26.9354	EM18CLEV	18/07	-26.9377	26.937	-0.002	
P9	P10	RP18DLEV	18/07	40.3538	RP18DLEV	18/07	-40.3463	40.350	0.007	Mean of 3
P10	P11	RP04ELEV	04/08	-18.6107	RP04FLEV	04/08	18.6069	-18.609	-0.004	
P11	P12	RP19ALEV	19/07	-24.1783	RP19ALEV	19/07	24.1773	-24.178	-0.001	
P12	P13	RP19BLEV	19/07	-29.3470	RP19BLEV	19/07	29.3499	-29.348	0.003	
P13	P14	EM19BLEV	19/07	-20.4654	EM19BLEV	19/07	20.4651	-20.465	0.000	
P14	P15	EM19CLEV	19/07	-14.8900	EM19CLEV	19/07	14.8874	-14.889	-0.003	
P15	P16	RP04GLEV	04/08	-13.1101	RP04HLEV	04/08	13.1149	-13.113	0.005	
P16	P17	EM19DLEV	19/07	11.8759	EM19DLEV	19/07	-11.8770	11.876	-0.001	
P17	P18	EM20ALEV	20/07	6.6737	EM20ALEV	20/07	-6.6756	6.675	-0.002	
P18	P19	RP20ALEV	20/07	-26.5850	RP20ALEV	20/07	26.5832	-26.584	-0.002	
P19	P20	RP04JLEV	04/08	-20.0048	RP04KLEV	04/08	20.0131	-20.009	0.008	
P20	P21	EM20BLEV	20/07	-17.9192	EM20BLEV	20/07	17.9201	-17.920	0.001	
P21	P22	RP05ALEV	05/08	1.5237	RP05BLEV	05/08	-1.5211	1.522	0.003	
P22	P23	EM20DLEV	20/07	-7.7009	EM20DLEV	20/07	7.6997	-7.700	-0.001	
P23	P24	EM20ELEV	20/07	-8.1397	EM20ELEV	20/07	8.1401	-8.140	0.000	
P24	057	RP21ALEV	21/07	-2.6382	RP21ALEV	21/07	2.6385	-2.638	0.000	
057	056	RP13ALEV	13/08	-8.9360	RP13BLEV	13/08	8.9459	-8.941	0.010	

MOKOLO / CROCODILE RIVERS
WATER AUGMENTATION PROJECT

LEVEL
SCHEDULE

9156 Level Reductions Ver.2

Loop A4809 - P53 - 057 - P1 - 029 - A4809:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
A4809					**977.281**
	20.035		5.0	0.002	
P53		997.316			997.318
	18.845		3.0	0.001	
057		1016.161			**1016.164**
	10.679		24.8	0.010	
P1		1026.840			1026.854
	-50.070		5.0	0.002	
007		976.770			**976.786**
	-8.883		1.9	0.001	
008		967.887			**967.904**
	35.878		2.1	0.001	
009		1003.765			**1003.783**
	-46.625		2.0	0.001	
010		957.140			**957.158**
	11.570		1.1	0.000	
011		968.710			**968.729**
	40.266		1.9	0.001	
012		1008.976			**1008.996**
	-98.257		2.0	0.001	
013		910.719			**910.740**
	-4.397		1.8	0.001	
014		906.322			**906.343**
	37.445		1.9	0.001	
015		943.767			**943.789**
	-16.436		1.6	0.001	
016		927.331			**927.354**
	-28.778		1.9	0.001	
017		898.553			**898.577**
	14.857		1.9	0.001	
018		913.410			**913.434**
	-26.419		1.9	0.001	
019		886.991			**887.016**
	-25.741		2.0	0.001	
020		861.250			**861.276**
	11.353		2.0	0.001	
021		872.603			**872.630**
	-7.485		1.4	0.001	
021A		865.118			**865.146**
	-0.169		1.0	0.000	
022		864.949			**864.977**
	10.991		2.0	0.001	
024		875.940			**875.969**
	13.449		1.8	0.001	
025		889.389			**889.419**
	-1.778		0.3	0.000	
026		887.611			**887.641**
	7.764		1.9	0.001	
027		895.375			**895.405**
	13.859		2.0	0.001	
028		909.234			**909.265**

	3.939		0.9	0.000	
029		913.173			**913.205**
	64.067		22.0	0.009	
A4809		977.240			977.281
	Miscl:	0.041	97.1		
	Class A:	0.246			

977.281

Loop 029 - P30 - A4805 - A4803 - 045 - 046 - 054 - P60 - P53:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
029					913.205
	-6.965		1.3	0.001	
029A		906.240			**906.241**
	8.428		2.0	0.002	
030		914.668			**914.671**
	3.759		2.0	0.002	
031		918.427			**918.432**
	-4.046		1.0	0.001	
A4806		914.381			**914.387**
	0.940		1.0	0.001	
032		915.321			**915.329**
	6.946		2.0	0.002	
032A		922.267			**922.277**
	2.649		1.0	0.001	
P30		924.916			924.927
	4.673		5.0	0.005	
A4805		929.589			**929.605**
	-21.753		8.0	0.008	
A4804		907.836			**907.860**
	6.229		8.0	0.008	
A4803		914.065			**914.097**
	2.026		0.4	0.000	
P50		916.091			916.124
	7.090		1.6	0.002	
045		923.181			**923.215**
	1.331		1.9	0.002	
043		924.512			**924.548**
	-5.096		2.0	0.002	
042		919.416			**919.454**
	-2.186		1.9	0.002	
041		917.230			**917.270**
	-1.836		1.4	0.001	
046		915.394			**915.436**
	7.800		1.9	0.002	
047		923.194			**923.238**
	8.004		1.8	0.002	
048		931.198			**931.243**
	8.793		1.7	0.002	
049		939.991			**940.038**
	5.914		1.8	0.002	
050		945.905			**945.954**
	11.334		1.7	0.002	
051		957.239			**957.290**
	13.469		1.9	0.002	
052		970.708			**970.761**

	4.412		1.9	0.002	
053		975.120			**975.175**
	2.924		1.9	0.002	
054		978.044			**978.101**
	14.755		3.0	0.003	
P60		992.799			992.859
	4.450		9.0	0.009	
P53		997.249			997.318
	Miscl:	0.069	67.1		
	Class A:	0.205			

997.318

Loop P30 - 046:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
P30					924.927
	8.202		0.6	0.003	
033		933.129			**933.131**
	11.203		1.1	0.005	
034		944.332			**944.340**
	5.696		1.9	0.009	
035		950.028			**950.044**
	-14.904		1.7	0.008	
036		935.124			**935.148**
	-4.651		1.6	0.007	
037		930.473			**930.505**
	-2.538		2.3	0.011	
038		927.935			**927.978**
	-12.253		2.3	0.011	
039		915.682			**915.735**
	-3.143		1.9	0.009	
040		912.539			**912.601**
	2.830		0.9	0.004	
046		915.369			**915.436**
	Miscl:	0.067	14.3		
	Class A:	0.095			

915.436

Loop P50 - 044 - P50:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
P50					916.124
	-5.257		0.5	0.000	
044		910.866			**910.866**
	5.257		0.5	0.000	
P50		916.124			916.124
	Miscl:	0.000	1.0		
	Class A:	0.025			

916.124

Loop P60 - A4101:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.	
P60					992.859	
	-8.969		0.5	-0.001		
A4101		983.890			**983.889**	
	8.970		0.5	-0.001		
P60		992.860			992.859	992.859
	Miscl:	-0.001	1.0			
	Class A:	0.025				

Loop 057 - 056 - 057:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.	
057					**1016.164**	
	-8.936		1.0	-0.005		
056		1007.228			**1007.223**	
	8.946		1.0	-0.005		
057		1016.174			**1016.164**	1016.164
	Miscl:	-0.010	2.0			
	Class A:	0.035				

Loop P1 - 007:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.	
P1					1026.854	
	5.662		1.0	0.001		
P91		1032.516			1032.517	
	-15.525		3.5	0.005		
005		1016.991			**1016.997**	
	-15.703		2.0	0.003		
006		1001.288			**1001.296**	
	-24.513		2.0	0.003		
007		976.775			**976.786**	976.786
	Miscl:	0.011	8.5			
	Class A:	0.073				

Loop 005 - A2001

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.		
005					**1016.997**		
	21.822		0.9	0.000			
004		1038.818			1038.818	**1038.818**	**Mean**
	59.600		2.0	0.000			
003		1098.418			1098.418	**1098.414**	**Mean**
	-2.348		1.5	0.000			
002		1096.071			1096.070	**1096.064**	**Mean**
	-92.460		1.8	0.000			
001		1003.611			1003.610	**1003.604**	**Mean**
	-126.389		1.9	0.000			
A2001		877.222			877.220	**877.220**	**Mean**
	0.182		0.1	0.000			
MKDW2		877.404			**877.403**		

	-0.184		0.1	0.000	
A2001		877.221			877.219
	126.380		1.9	0.000	
001		1003.601			1003.599
	92.460		1.8	0.000	
002		1096.061			1096.059
	2.352		1.5	0.000	
003		1098.413			1098.411
	-59.592		2.0	0.000	
004		1038.821			1038.819
	-21.822		0.9	0.000	
005		1017.000			**1016.997**
	Miscl:	-0.003	16.4		
	Class A:	0.101			

1016.997

Loop 022 - 023:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
022					**864.977**
	10.372		2.2	-0.008	
023		875.349			**875.342**
	-10.358		2.2	-0.008	
022		864.992			**864.977**
	Miscl:	-0.015	4.4		
	Class A:	0.052			

864.977

Loop 057 - 079 - DJ2 - P1 - 057:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
057					**1016.164**
	2.666		2.0	0.000	
058		1018.830			**1018.830**
	-6.056		2.0	0.000	
059		1012.774			**1012.774**
	-18.996		1.9	0.000	
060		993.778			**993.778**
	-5.929		2.0	0.000	
061		987.849			**987.849**
	-7.005		2.0	0.000	
062		980.844			**980.843**
	-17.148		2.0	0.000	
063		963.696			**963.695**
	-24.557		1.9	0.000	
064		939.139			**939.138**
	10.363		2.0	0.000	
065		949.502			**949.501**
	-0.480		2.0	0.000	
066		949.022			**949.020**
	-7.025		2.0	0.000	
067		941.997			**941.995**
	-19.408		2.0	0.000	
068		922.589			**922.587**
	31.956		2.0	0.000	
069		954.545			**954.543**

	-1.229		2.0	0.000		
070		953.316			**953.314**	
	-3.075		2.1	0.000		
071		950.241			**950.238**	
	19.446		2.0	0.000		
072		969.687			**969.684**	
	7.687		2.0	0.000		
073		977.374			**977.371**	
	3.497		2.0	0.000		
074		980.871			**980.868**	
	7.334		2.0	0.000		
075		988.205			**988.202**	
	5.109		2.0	0.000		
076		993.314			**993.310**	
	9.021		1.9	0.000		
077		1002.335			**1002.331**	
	10.016		2.0	0.000		
078		1012.351			**1012.347**	
	7.660		2.0	0.000		
078A		1020.011			**1020.007**	
	-2.481		0.9	0.000		
079		1017.530			**1017.526**	
	54.133		30.5	-0.003		
DJ2		1071.663			1071.655	
	-44.800		18.0	-0.002		
P1		1026.863			1026.853	1026.854
	Miscl:	-0.010	93.2			
	Class A:	0.241				

Loop 079 - 088 - 079:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
079					**1017.526**
	-4.998		2.1	0.003	
080		1012.528			**1012.530**
	7.717		2.0	0.003	
081		1020.245			**1020.250**
	14.364		2.0	0.003	
082		1034.609			**1034.617**
	3.962		2.0	0.003	
083		1038.571			**1038.582**
	1.478		2.1	0.003	
084		1040.049			**1040.063**
	11.730		1.6	0.002	
085		1051.779			**1051.795**
	24.641		2.1	0.003	
086		1076.420			**1076.439**
	-0.469		1.9	0.003	
088		1075.951			**1075.972**
	3.554		2.3	0.003	
158		1079.505			**1079.530**
	-7.125		2.1	0.003	
159		1072.380			**1072.408**
	-10.401		2.1	0.003	
160		1061.979			**1062.009**

	-11.830		1.9	0.003	
161		1050.149			**1050.182**
	-15.002		2.1	0.003	
162		1035.147			**1035.183**
	2.136		1.5	0.002	
163		1037.283			**1037.321**
	5.336		1.8	0.002	
164		1042.619			**1042.660**
	-19.315		2.1	0.003	
165		1023.304			**1023.348**
	-5.824		1.5	0.002	
079		1017.480			**1017.526**
	Miscl:	0.046	33.2		
	Class A:	0.144			

1017.526

Loop 088 - 089 - 088:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
088					**1075.972**
	24.527		2.0	0.004	
089		1100.499			**1100.503**
	-24.534		2.0	0.004	
088		1075.965			**1075.972**
	Miscl:	0.007	4.0		
	Class A:	0.050			

1075.972

Loop 089 - D1 - JV1 - 089:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
089					**1100.503**
	-3.288		2.0	0.000	
189		1097.215			**1097.215**
	2.797		1.9	0.000	
188		1100.012			**1100.012**
	-14.978		1.7	0.000	
187		1085.034			**1085.034**
	-17.369		2.0	0.000	
186		1067.665			**1067.665**
	2.834		2.0	0.000	
185		1070.499			**1070.499**
	10.664		2.0	0.000	
184		1081.163			**1081.163**
	50.875		1.6	0.000	
183		1132.038			**1132.038**
	-64.351		2.0	0.000	
182		1067.687			**1067.687**
	-44.862		1.9	0.000	
181		1022.825			**1022.825**
	-28.585		1.3	0.000	
180		994.240			**994.240**
	-52.630		2.0	0.000	
D1		941.610			941.610
	53.053		3.0	0.000	
176		994.663			**994.663**

	9.146		2.1	0.000	
126		1003.809			**1003.809**
	-26.564		2.1	0.000	
127		977.245			**977.245**
	-21.061		1.6	0.000	
128		956.184			**956.183**
	-5.483		0.7	0.000	
JV2		950.701			950.700
	6.198		1.3	0.000	
104		956.899			**956.898**
	-5.707		1.8	0.000	
103		951.192			**951.191**
	-8.540		2.2	0.000	
102		942.652			**942.651**
	-3.316		1.8	0.000	
101		939.336			**939.335**
	16.654		1.9	0.000	
175		955.990			**955.989**
	26.779		2.3	0.000	
174		982.769			**982.768**
	32.465		2.1	0.000	
173		1015.234			**1015.233**
	-12.032		0.8	0.000	
172		1003.202			**1003.201**
	-15.711		1.9	0.000	
097		987.491			**987.490**
	-10.695		1.9	0.000	
096		976.796			**976.795**
	12.369		1.5	0.000	
095		989.165			**989.164**
	14.225		1.4	0.000	
094		1003.390			**1003.389**
	20.003		1.8	0.000	
093		1023.393			**1023.392**
	29.270		2.1	0.000	
092		1052.663			**1052.662**
	32.953		2.2	0.000	
091		1085.616			**1085.615**
	32.450		1.2	0.000	
090		1118.066			**1118.065**
	-17.562		2.0	0.000	
089		1100.504			**1100.503**
	Miscl:	-0.001	60.1		
	Class A:	0.194			

1100.503

Loop 101 - 100 - 99 - 101:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.
101					**939.335**
	-6.467		2.5	-0.001	
100		932.868			**932.867**
	4.365		1.6	-0.001	
099		937.233			**937.232**
	-4.364		1.6	-0.001	
100		932.869			932.867

	6.469		2.5	-0.001		
101		939.338			**939.335**	939.335
	Miscl:	-0.003	8.2			
	Class A:	0.072				

Loop JV1 - 117 - D1:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.	
JV2					950.700	
	-9.505		1.4	0.001		
105		941.195			**941.196**	
	-27.290		1.9	0.001		
106		913.905			**913.907**	
	-14.194		1.9	0.001		
107		899.711			**899.713**	
	4.416		2.4	0.001		
108		904.127			**904.130**	
	-6.746		1.9	0.001		
109		897.381			**897.385**	
	3.097		1.9	0.001		
110		900.478			**900.483**	
	7.254		1.9	0.001		
111		907.732			**907.738**	
	-4.232		2.1	0.001		
112		903.500			**903.506**	
	4.302		1.7	0.001		
113		907.802			**907.809**	
	33.863		1.6	0.001		
114		941.665			**941.673**	
	-30.191		1.9	0.001		
115		911.474			**911.482**	
	1.399		1.9	0.001		
116		912.873			**912.882**	
	-2.225		0.6	0.000		
117		910.648			**910.657**	
	10.819		1.0	0.000		
118		921.467			**921.477**	
	13.720		1.3	0.000		
119		935.187			**935.197**	
	-2.613		1.7	0.001		
DV4		932.574			932.585	
	-16.395		1.6	0.001		
120		916.179			**916.190**	
	-7.346		2.0	0.001		
121		908.833			**908.845**	
	2.318		2.1	0.001		
122		911.151			**911.164**	
	5.172		0.7	0.000		
LEON		916.323			916.336	
	15.924		1.4	0.001		
123		932.247			**932.261**	
	9.328		2.0	0.001		
D1		941.575			941.589	941.610
	Miscl:	0.034	36.9			
	Class A:	0.152				

Loop 117 - 131 - 117:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.		
117					**910.657**		
	1.340		1.7	0.001			
129		911.997			911.998	**911.998**	**mean**
	2.259		2.2	0.001			
130		914.256			914.259	**914.256**	**mean**
	12.714		1.7	0.001			
131		926.970			**926.974**		
	-12.721		1.7	0.001			
130		914.249			914.254		
	-2.258		2.2	0.001			
129		911.991			911.997		
	-1.341		1.7	0.001			
117		910.650			**910.657**	910.657	
	Miscl:	0.007	11.2				
	Class A:	0.084					

Loop 121 - 145X - 157 - 121:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.		
121					**908.845**		
	3.072		1.8	0.000			
147		911.917			911.918	**911.915**	**mean**
	10.336		2.1	0.001			
146		922.253			922.254	**922.250**	**mean**
	2.806		2.1	0.001			
145X		925.059			925.061	925.058	mean
	-10.556		2.0	0.001			
144		914.503			914.505	**914.501**	**mean**
	-0.809		2.0	0.001			
143		913.694			913.697	**913.691**	**mean**
	-0.175		1.9	0.000			
142		913.519			913.522	**913.514**	**mean**
	4.168		2.0	0.001			
141		917.687			917.691	**917.684**	**mean**
	2.330		2.0	0.001			
157		920.017			**920.021**		
	-2.344		2.0	0.001			
141		917.673			917.678		
	-4.173		2.0	0.001			
142		913.500			913.505		
	0.180		1.9	0.000			
143		913.680			913.686		
	0.810		2.0	0.001			
144		914.490			914.496		
	10.558		2.0	0.001			
145X		925.048			925.055		
	-2.809		2.1	0.001			
146		922.239			922.246		
	-10.335		2.1	0.001			
147		911.904			911.912		

	-3.067		1.8	0.000		
121		908.837			908.845	908.845
	Miscl:	0.008	31.8			
	Class A:	0.141				

Loop 145X - 150 - 145X:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.		
145X					925.058		
	-0.045		0.3	0.000			
145		925.013			925.012	**925.014**	**Mean**
	0.411		2.0	-0.001			
148		925.424			925.422	**925.423**	**Mean**
	-8.832		2.0	-0.001			
149		916.592			916.589	**916.588**	**Mean**
	3.669		2.0	-0.001			
150		920.261			**920.257**		
	-3.669		2.0	-0.001			
149		916.592			916.586		
	8.839		2.0	-0.001			
148		925.431			925.424		
	-0.408		2.0	-0.001			
145		925.023			925.015		
	0.043		0.3	0.000			
145X		925.066			925.058	925.058	
	Miscl:	-0.008	12.6				
	Class A:	0.089					

Loop 60DW1 - 60DW1:

Point	Ht. Diff	Prov. Ht.	Dist (kms)	Corrn.	Final Ht.		
60DW1					**944.328**	**(Supplied)**	
	-0.058		0.1	0.000			
60DW2		944.270			944.270	**944.269**	Mean
	10.745		3.0	0.001			
BOS1		955.015			955.016	**955.010**	Mean
	-1.257		0.6	0.000			
BOS2		953.758			953.759	**953.754**	Mean
	-5.808		0.5	0.000			
BOS3		947.950			947.951	**947.947**	Mean
	0.140		3.8	0.001			
212		948.089			**948.092**		
	-0.151		3.8	0.001			
BOS3		947.939			947.943		
	5.805		0.5	0.000			
BOS2		953.744			953.749		
	1.254		0.6	0.000			
BOS1		954.998			955.003		
	-10.736		3.0	0.001			
60DW2		944.263			944.269		
	0.059		0.1	0.000			
60DW1		944.322			944.328	944.328	
	Miscl:	0.006	16.0				
	Class A:	0.100					