

# ANNEXURE 13

## LEVELLING RESULTS

**Job Description**

Levelling circuit from to Total distance 8.6Km

LEVELS BASED ON NRB107 = 686.887m A.M.S.L. and TSOBM 6 = 686.696m A.M.S.L.

From	To	Level Forward	Level Reverse	Difference	No of Setups	Mean height difference	Beacon Number	Provisional Heights	Corrections	Final Heights
NRB107/10							<b>NRB107/10</b>	686.887		<b>686.887</b>
NRB107/10	NRB01/11	4.660	-4.661	-0.001	4	4.660	<b>NRB01/11</b>	691.547		
NRB01/11	NRB02/11	1.810	-1.810	0.000	5	1.810	<b>NRB02/11</b>	693.358		
NRB02/11	NRB03/11	5.156	-5.155	0.001	6	5.156	<b>NRB03/11</b>	698.514		
NRB03/11	NRB04/11	-0.892	0.890	-0.002	7	-0.891	<b>NRB04/11</b>	697.622		
NRB04/11	NRB05/11	0.830	-0.828	0.002	8	0.829	<b>NRB05/11</b>	698.451		
NRB05/11	NRB06/11	-3.350	3.349	-0.001	4	-3.350	<b>NRB06/11</b>	695.101		
NRB06/11	NRB07/11	5.140	-5.142	-0.002	5	5.141	<b>NRB07/11</b>	700.242		
NRB07/11	NRB08/11	3.016	-3.016	0.000	6	3.016	<b>NRB08/11</b>	703.258		
NRB08/11	NRB09/11	0.841	-0.842	-0.001	7	0.842	<b>NRB09/11</b>	704.100		
NRB09/11	NRB10/11	-0.595	0.603	0.008 *	8	-0.599	<b>NRB10/11</b>	703.501		
NRB10/11	NRB11/11	-1.235	1.238	0.002	4	-1.236	<b>NRB11/11</b>	702.264		
NRB11/11	NRB12/11	-0.432	0.435	0.003	5	-0.434	<b>NRB12/11</b>	701.830		
NRB12/11	NRB13/11	-9.880	9.884	0.003	6	-9.882	<b>NRB13/11</b>	691.949		
NRB13/11	NRB14/11	1.494	-1.491	0.003	7	1.493	<b>NRB14/11</b>	693.441		
NRB14/11	NRB15/11	-9.495	9.492	-0.002	8	-9.493	<b>NRB15/11</b>	683.948		
NRB15/11	NRB16/11	-7.599	7.598	-0.002	4	-7.599	<b>NRB16/11</b>	676.349		
NRB16/11	NRB17/11	-0.895	0.899	0.004	5	-0.897	<b>NRB17/11</b>	675.452		
NRB17/11	NRB18/11	11.189	-11.191	-0.002	6	11.190	<b>NRB18/11</b>	686.642		
NRB18/11	NRB19/11	-5.196	5.202	0.006 *	7	-5.199	<b>NRB19/11</b>	681.443		
NRB19/11	NRB20/11	-5.672	5.674	0.002	8	-5.673	<b>NRB20/11</b>	675.770		
NRB20/11	NRB21/11	-3.516	3.522	0.006 *	4	-3.519	<b>NRB21/11</b>	672.251		
NRB21/11	NRB22/11	13.042	-13.045	-0.003	5	13.043	<b>NRB22/11</b>	685.295		
NRB22/11	NRB23/11	0.509	-0.510	-0.001	6	0.509	<b>NRB23/11</b>	685.804		
NRB23/11	NRB24/11	-8.158	8.163	0.005	7	-8.160	<b>NRB24/11</b>	677.644		
NRB24/11	NRB25/11	7.063	-7.069	-0.006 *	8	7.066	<b>NRB25/11</b>	684.710		
NRB25/11	NRB26/11	-5.549	5.550	0.001	4	-5.550	<b>NRB26/11</b>	679.160		
NRB26/11	NRB27/11	2.172	-2.171	0.001	5	2.172	<b>NRB27/11</b>	681.332		
NRB27/11	NRB28/11	4.508	-4.509	-0.001	6	4.509	<b>NRB28/11</b>	685.840		
NRB28/11	TSOBM 6	0.891	-0.891	0.000	7	0.891	<b>TSOBM 6</b>	686.731	-0.035	<b>686.696</b>
<b>CHECKS</b>	<b>TOTAL</b>	<b>-0.143</b>	<b>0.169</b>	<b>0.026</b>	<b>172</b>	<b>-0.156</b>	<b>CHECK</b>	<b>-0.156</b>		

**Allowable error between forward and reverse levelling:** **0.003 X √ no of setups**  
 Allowable Closure 0.039  
 Actual Closure 0.026 Pass

**Allowable error between Terminal points:** **0.013 X √ Total distance in Km between terminal points**  
 Allowable Closure 0.038  
 Actual Closure -0.035 Pass

Out of tolerance closures. Maximum closure between points 300m apart is .005m

Checked by:

Signature

Name

Plato No