



# COURSE MEASUREMENT SUMMARY SHEET

Jan 1011

Cert no:	
Replaces Cert no:	

RACE LICENCE/PERMIT BODY:      AREA:

Course Name:	Newborough Forest UltraTrail	County:	Anglesey	
Race Name (if diff):	Commonwealth Ultra Trail Championships 2011	Race Date:	24 Sept 2011	
Promoting Club or Organisation				
Name & address of race organiser / director:	Norman Wilson 61 Daryll Close Quedgeley Gloucester GL2 4YR	Tel.(work):	01452 722720	
		E-mail:	normanukltra@aol.co.uk	
Distance:	53.73 km	Measurer:	MCW Sandford	
		Grade:	IAAF/AIMS – A	
Measurement method:	GPS carried on bike + Jones counter	Measurement Date:	21/04/11	
Height (in metres above sea level) if not same.	Start:	5 m	Finish:	5 m
Distance in straight line from Start to Finish:	0 m	Approx Start Grid Ref:	SH403635	

## Brief Description of Course

### Terrain

(Flat/Undulating/Severe Hills/etc.)

Generally undulating with one steep 30m hill

**Race Surface** (city streets/country lanes/paths/etc.; amount off road e.g. on grass). Is it a Multi-terrain course?

All off road. Trails comprising: Forest fire tracks & paths, cliff top path, sandy dunes and sandy beach. Beach may be wet at high tide.

### Course Configuration

(single lap/multi lap/anti-clockwise/out & back/point to point)

Clockwise figure of 8. One 10.44 k m lap followed by 4 laps each with extra 383 m per lap.

## Measurement Details (additional information may be shown in the report)

The section of the road available to the runners on the day of the race. Are pavements allowed?

Full width of all tracks and paths

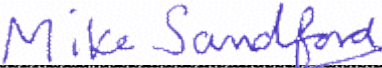
The line to be taken at right hand turns.

N/A

Dates for race series & Any other information

N/A

I am sending the measurement report : this **summary page, all data sheets, course map & sketches** showing the exact position of the start/finish to the **Race Director**, who must use this report to lay out the course & carefully keep it for future years. It should be shown to any official requiring details of the measured course. I am also sending a copy to the **Area Course Measurement Secretary**, who will check the report, file it, & issue a certificate of course accuracy.

Signed:		Date:	08/05/11
Measurer's Address:	22 Stevenson Drive, Abingdon, Oxon, OX14 1SN	Email:	m.sandford@lineone.net
ACMS name/address:		Email:	

**Course Measurement  
of  
Newborough Forest Trail Ultra, Anglesey  
for  
Commonwealth Championships  
25 September 2011**

Since this is a trail race which does not use sealed roads it can not qualify for a certificate of course accuracy according to road course measurement procedures. If one were to attempt to measure using a bicycle and Jones counter, it will not be feasible to calibrate the bicycle wheel accurately for all the varying surfaces encountered throughout the course. I therefore relied on my GPS carried on my bike as the primary method of measurement. I used the Jones counter to provide a rough check as a back up. Once I had recorded the route with the GPS I was able to follow it on satellite views, and measure these as another means of providing a rough check.

The GPS method which I use can give 3 standard deviation accuracy of about +/- 0.4%, as I have reported at <http://coursemeasurement.org.uk/gps/abingdonloopmeasurements.htm>

The method employed here involved setting the GPS to record a track point every 3 seconds. This gave 2000 points since it took 1 hour 40 minutes to go round the course. I imported these points into the GPSU utility program and smoothed the points by replacing all points within 2m of a straight line, by a straight line. This reduced the number of points needed to define the course accurately to 316. This smoothing of the track points has the effect of reducing the positional noise in the GPS record, while still having enough resolution to accurately follow the sharp bends and corners on twisty parts of the course.

Since the plan is to have a common start/finish line, this can be adjusted as convenient in the region shown on the map. On lap 1 the runners stay on the wide forest fire track for nearly 1km. On laps 2 to 5 they divert off this adding 383m by the time they return to the initial lap.

While the surface in the first km was a reasonable stony forest fire track, it soon deteriorated into a sandy track which led to the beach with wet sand, through some water to sandy tracks onto Llanddwyn Island then back into dunes and the forest. On many sections it was not possible to ride, and I had to push the bike because of the soft sand especially when combined with steep hills.

Results of GPS measurement

Lap 1 = 10.440 km

Laps 2 to 5 = 10.823 km

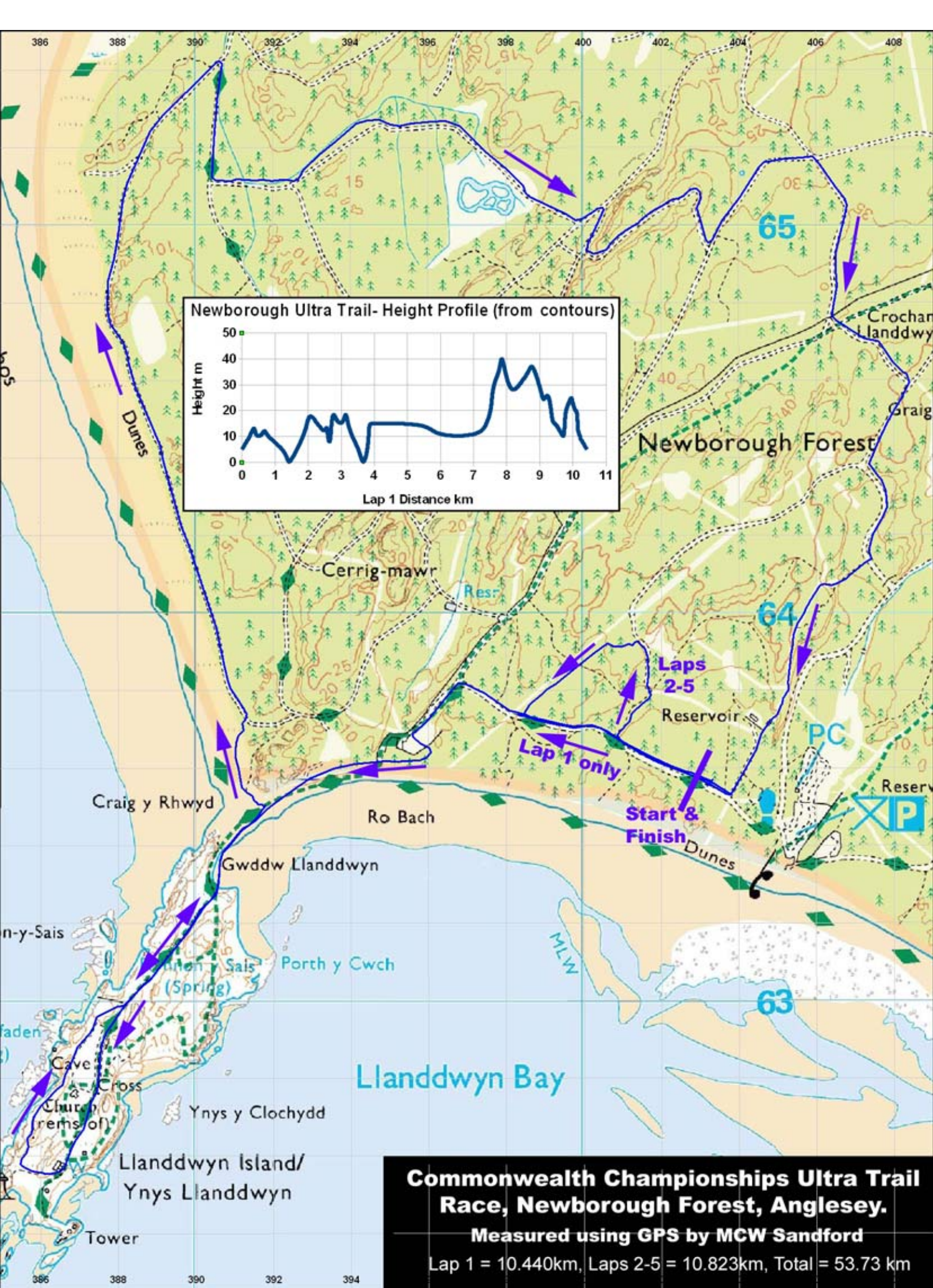
Total course length = 53.73 km

For comparison the satellite view track at <http://www.gmap-pedometer.com/?r=4451032> gave a distance of 10.501 km for lap 1. Laps 2 to 5 could not be followed on the satellite view since the narrow track used for the diversion is largely hidden by trees

My Jones counter gave a distance for lap 1 of 10.375 km but as noted above I had to dismount and push the bike. 1 km of pushing would decrease the distance by about 100m due the expansion of the bike's tyre. It is hard to predict the effect on the Jones measurement of riding on soft sand.

**Conclusion: The GPS measurement gives a race length of 53.73 km for the 5 laps ( shorter first lap plus 4 longer laps.)**





**Commonwealth Championships Ultra Trail Race, Newborough Forest, Anglesey.**  
 Measured using GPS by MCW Sandford  
 Lap 1 = 10.440km, Laps 2-5 = 10.823km, Total = 53.73 km