

COURSE MEASUREMENT REPORT

- REPORT FOR INTERNATIONAL CERTIFIED COURSE -

INFORMATION ABOUT EVENT AND COURSE
Event: Byløpet
Technical Organiser: Herkules Friidrett and Gjerpen Friidrett
City/Place: Skien, Norway
Date of Arrangement: 21.May 2023
Date and time for measurement: 7.May 2023 – 10:30-13:00
Measured distance(s): Half marathon
Length of calibration course: 300 m
Terrain: Flat <input type="checkbox"/> Slightly hilly <input checked="" type="checkbox"/> Hilly <input type="checkbox"/> Terrain <input type="checkbox"/>
Type of course route: Closed loop <input checked="" type="checkbox"/> Back and forth <input type="checkbox"/> A to B <input type="checkbox"/> Other <input type="checkbox"/>
Race surface: Asphalt and firm gravel road (2300 m not asphalt)
Elevation Start - Finish: 5 m
Description of start: Gravel road north side "Hjellevannet", 11,0 m from light pole
Description of finish: City centre, the square, white line
Distance, in a straight line, between start & finish: 700 m
Start and Finish marked: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Km-markings: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Measurement direction: Running direction <input checked="" type="checkbox"/> Opposite running direction <input type="checkbox"/>
National record can be approved: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

CONTACT INFORMATION		
	Measured by:	Organizer:
Contact person:	Erling Hiorth	Øyvind Hylleseth
Phone:	+47 91337338	+47 92496924
Email:	Erling.hiorth@lyse.net	Oyvind.ebkas.no

It is hereby confirmed that the course has been measured by an A- or B certified international certified course measurer from Norwegian Athletics. The course is measured in accordance with AIMS and Norwegian athletics regulations, and the distance(s) has the minimum reported length(s). The survey is valid for 5 years, except if the route is changed.

19.mai 2023 *Erling Hiorth*

Date

Signature by Course measurer

Date

Signature by AIMS

Norwegian Athletic Federation

Ullevaal stadion
Sognsveien 75 J, 0840 Oslo, NORWAY
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Norwegian Championship

Half Marathon – 21 km
Skien, Norway
21.May 2023

CALIBRATION COURSE AND PROCEDURE	
Length of measuring tape (steel measuring tape only)	50 m
Length of calibration course 1st measurement	300,00 m
Length of calibration course 2nd measurement	300,00 m
Possible 3rd measure (max. 1 cm diff per 100m 1 st and 2 nd)	No
Average of measurements before adjustments	300,00 m
Temperature (road or measuring tape)	15 degree
Adjustment cf. $D-(D*(1+(temp-20)*0,0000115))$	- 0,017 m
Measured calibration distance after adjustment	300,003 m (+2 cm on ground)
Distance from start/finish to calibration distance	250 m

CALIBRATION INFORMATION - (max 8 counts difference of 1000 m between 4 measurements, ie 2 counts of 300m and 3 count of 400m)						
	Pre-measurement:			Post measurement:		
	Date and Time: 7.mai 10:30			Date and Time: 7.mai 12:30		
	Start	End	Diff.	Start	End	Diff.
1st measure	92500	95967	3467	19300	22765	3465
2nd measure	95967	99433	3466	22765	26231	3466
3rd measure	99433	102899	3466	26231	29696	3465
4th measure	102899	106365	3466	29696	33162	3466

	Pre measurement	Post measurement	
Average (1+2+3+4) / 4	3466,25	3465,5	Today's constant. Either highest or average of before and after measurement
Constant 1 km	11554,061	11551,561	
Addn. +1‰	11,554	11,552	
Measurement constant (rounded)	11565,615	11563,112	11565

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MEASUREMENT PROCEDURE		
Measurement constant	11565	
Measured Distance	Counter	Description of place
Pre measurement performed 23.April to define length of closed loop and start line – ref last page		
	34000	Precalculated startline = 13,5 m from light pole
142,6	35649	Precalculated startline 10 km
4522,9	87956	Finish line
	88000	Start from finish line
5477,0	151342	1 closed loop back to finish line
10.142,5 m		Total measured without adjustments
2x 5477 m	88000-151342	2 additional rounds closed loop
+ 2,5	Steel tape	Adjusted start line $13,5 - 2,5 = 11,0$ m from light pole
10.956,5 m		Total measured adjustments
21.099,0 m		Total measured course

CONCLUSION OF MEASUREMENT

1. General information about race course and start/finish
 - The course consist of a closed loop of 4x 5477 m, where 1st round is shorter
 - Pre measurement including calibration, cycling and post calibration performed 23.April to define lenght of closed loop and distance to start line
 - Final measurement with pre- and post calibration performed 7.May
2. Measurement of calibration course
 - Nedre Hjellegate, 250 m from finish, straight/flat asphalt road
 - Measured in accordance with procedure, 3 persons
 - Fixed mark at both ends, adjusted for temperature and adjusted +2cm on ground
3. Calibration of bicycle
 - Calibrated in accordance with procedure, 4 measures, devation 1 count ok
4. Measurement of the course
 - Started from precalculated start to finish, and then 1 closed loop
5. Post calibration of bicycle
 - Same procedure, 4 measures, devation 1 count ok
6. Course adjustments
 - Startline is adjusted by 2,5 m and is now 11,0 m from light pole, measured in opposite direction of running direction. Orange mark on pole, ref picture attached.
7. Overall length of the course
 - The course is not shorter than half marathon
8. Additional info
 - The organizer will set up fences and guards along the course on north side of Hjellevannet
 - The road shall be used in Hjellegaten, not the sidewalk. Fences will be set up.
 - The rest of the course is mainly on cycle path and shortest route can be used
 - Due to construction work on the south side of Hjellevannet during time of measure, a distance of 400 m where re-measured (controlled) on 18.May (construction work finished on 16.May). No adjustments to course length required.

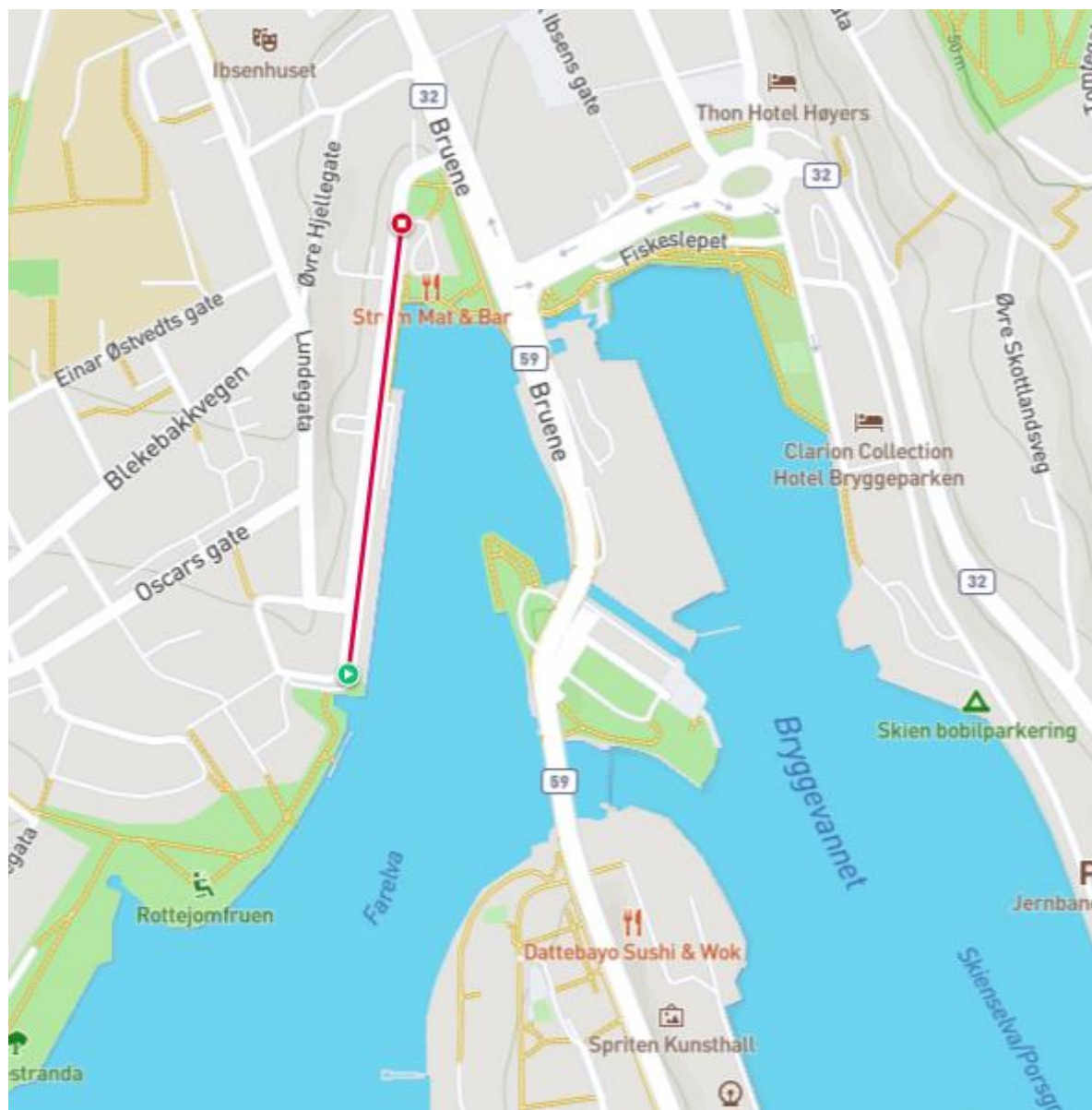
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CALIBRATION COURSE MAP



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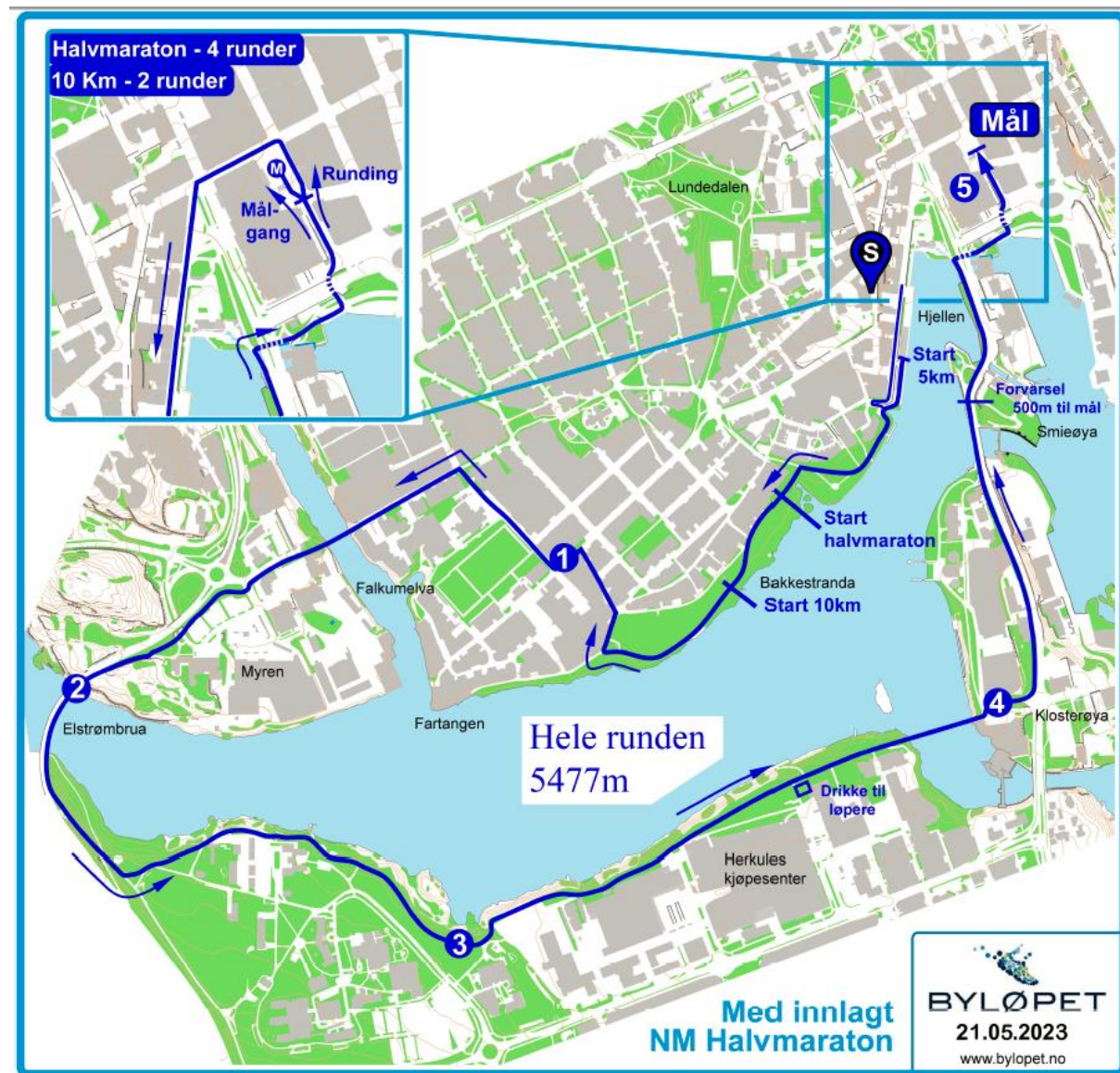
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COURSE MAP & DESCRIPTION

Closed loop is 5477 m

1st round is 4668 m and then 3x closed loop of 5477 m

“Mål” = Finish



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Attachment

Start line is 11,0 m from light pole (in opposite direction than running direction)



Mark on Light Pole



Finish Line, city centre



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South side of Hjellevannet, 400 m cycle path, construction work

1. 7.May - Measurement performed on 400 m firm gravel road, running in parallell with final course, due to ongoing construction work – ref picture 1
2. 18.May - Final control measurement done, after construction work were finished 2 days before – ref picture 2
3. No changes to measured course length required



Picture 1 – Construction work

Fence / barrier shall be set up along left side of cycle path



Picture 2 – After completed work on cycle path

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Back-up documentation - Pre-measurement performed 23.April

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	Pre-measurement:			Post measurement:		
	Date and Time: 23.apr 16:45			Date and Time: 23.apr 18:45		
	Start	End	Diff.	Start	End	Diff.
1st measure	230838	234179	3341	325800	329140	3340
2nd measure	234179	237518	3339	329140	332482	3342
3rd measure	237518	240859	3341	332482	335823	3341
4th measure	240859	244199	3340	335823	339165	3342

	Pre measurement	Post measurement	
Average (1+2+3+4) / 4	3340,25	3341,25	Today's constant. Either highest or average of before and after measurement
Constant 1 km	11134,065	11137,398	
Addn. +1‰	11,134	11,137	
Measurement constant (rounded)	11145,199	11148,535	11147

MEASUREMENT PROCEDURE		
Measurement constant	11147	
Measured Distance	Counter	Description of place
	247000	Finish line
5477,0 m	308052	1 closed loop back to finish line
	308100	Finish line
810,4 m	317134	Calculated from finish to start in course direction