

Status Business Park Heathrow

Environmental Noise Survey and Noise Impact Assessment Report

23864/NIA1

21 November 2016

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1.0 Introduction

It is proposed to convert Buildings 2, 3 and 4 at Status Business Park at Heathrow from commercial offices to residential dwellings. This report is intended to provide support for planning permission for the conversion of these units.

Hann Tucker Associates have therefore been instructed to undertake a detailed 24 hour noise survey of the site to determine the current noise climate at site.

This report presents the methodology and findings of our noise survey and assessment in the context of assessing the suitability of the proposed development for residential use.

This report presents the survey methodology and findings. The survey data may be used as the basis for various acoustic design and assessment purposes.

2.0 Objectives

To establish by means of a 24 hour survey the existing L_{Amax} , L_{A10} , L_{Aeq} and L_{A90} environmental noise levels at up to 2No. secure and accessible on-site positions, using fully computerised unmanned monitoring equipment.

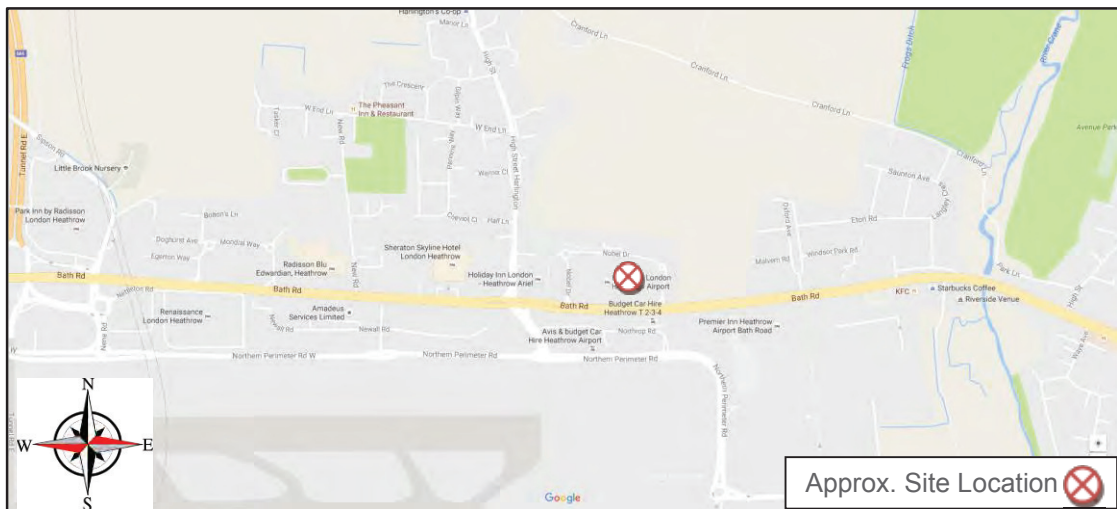
Based on the results of the surveys, to undertake a noise assessment to assess environmental noise levels at the proposed development site and in particular to assess any noise from adjacent commercial premises which could adversely affect future residential occupants, in accordance with the relevant permitted Development requirements.



3.0 Site Description

3.1 Location

The site is located off Nobel Drive, Heathrow and falls within Hillingdon Borough Council's jurisdiction. See Location Map below.



Location Map (maps.google.co.uk)

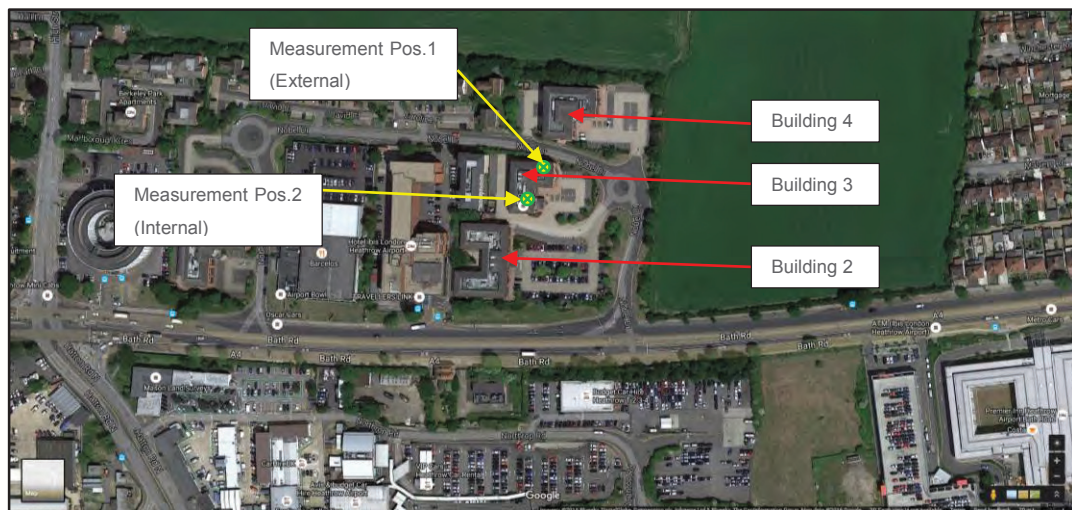
3.2 Description

Buildings 2, 3 and 4 comprise of ground plus two storeys and were originally constructed as commercial office units. All of the units are proposed to be converted to residential dwellings. This report is intended to provide support for planning permission for Buildings 2, 3 and 4.

There will be some remaining office spaces on Status Business Park. There are also a number of hotels and residential dwellings in the locality, as well as Heathrow airport which is approximately 450 metres away (runway to Status Business Park perimeter).

The existing facade of the buildings comprises a double glazed window unit, with a secondary glazed panel separated by a circa. 200mm air gap. This is high performing acoustically and is not proposed to be replaced as part of any conversion to residential use.

The noise measurement positions and proposed development locations are highlighted in the Site Plans on the following page.



Site Plan (Imagery © 2016 DigitalGlobe, Getmapping plc, Infoterra Ltd & Bluesky, Map Data © 2016 Google.)

4.0 Acoustic Terminology

For an explanation of the acoustic terminology used in this report please refer to Appendix A enclosed.

5.0 Methodology

The survey was undertaken by Paul Hill BSc (Hons) MIOA.

5.1 Procedure

Fully automated environmental noise monitoring was undertaken from approximately 11:00 hours on 10/11/2016 to 11:00 hours on 11/11/2016.

Due to the nature of the survey, i.e. unmanned, it is not possible to accurately comment on the weather conditions throughout the entire survey period. However at the beginning and end of the survey period the wind conditions were calm and the sky was generally clear. We understand that generally throughout the survey period the weather conditions were similar and should be considered suitable for obtaining representative measurement results.

Measurements were taken continuously of the A-weighted (dBA) L_{90} , L_{10} , L_{eq} and L_{max} sound pressure levels over 15 minute periods.



5.2 Measurement Positions

The noise level measurements were undertaken at 2No. positions around the development site. The measurement positions were chosen to represent the typical noise climate around the development site. The measurement positions are described in the table below.

Position No	Description
1 (External)	The microphone was located on the roof of Building 3. The microphone was attached to a pole and approximately 1.5 metres off the roof and at least 1.5 metres away from any reflecting surface.
2 (Internal)	The microphone was located on the 2 nd Floor of Building 3 approximately 3 metres from the south-east facade. The microphone was attached to a pole on a tripod and mounted approximately 2 metres off the floor and at least 1.5 metres away from any reflecting surface.

The positions were selected in order to assess typical external noise levels incident at the buildings and also the typical internal noise levels. The positions are highlighted in the Site Plan under Section 3.2.

5.3 Instrumentation

The instrumentation used during the survey is presented in the table below:

Description	Manufacturer	Type	Serial Number	Calibration
Position 1 Type 1 Data Logging Sound Level Meter	Larson Davis	824	3155	calibration on 19/07/2016
Position 1 Type 1 ½" Condenser Microphone	PCB	377B02	107427	calibration on 19/07/2016
Position 2 Type 1 Data Logging Sound Level Meter	Larson Davis	824	3444	calibration on 11/07/2016
Position 2 Type 1 ½" Condenser Microphone	PCB	377B02	122885	calibration on 11/07/2016
Type 1 Calibrator	Larson Davis	CAL200	3082	calibration on 09/06/2016

Each sound level meter, including the extension cable, was calibrated prior to and on completion of the survey. No significant changes were found to have occurred.

Each sound level meter was located in an environmental case with the microphone connected to the sound level meter via an extension cable. Each microphone was fitted with a windshield.



6.0 Results

The results have been plotted on Time History Graphs 23864/TH1 to 23864/TH2 enclosed presenting the 15 minute A-weighted (dBA) L_{90} , L_{eq} and L_{max} levels at each measurement position throughout the duration of the survey.

6.1 L_{eq} Noise Levels

In order to compare the results of our survey with suitable guidelines it is necessary to convert the measured $L_{Aeq(15\text{ minute})}$ noise levels into single figure daytime $L_{Aeq(16\text{-hour})}$ (07:00-23:00 hours) and night-time $L_{Aeq(8\text{-hour})}$ (23:00-07:00 hours) levels.

The daytime $L_{Aeq(16\text{-hour})}$ and night-time $L_{Aeq(8\text{-hour})}$ noise levels for each position are presented in the tables below.

Position	Daytime $L_{Aeq(16\text{-hour})}$	Night-Time $L_{Aeq(8\text{-hour})}$
1 (External)	67 dB	59 dB
2 (Internal)	See Notes Below	32 dB

Notes

The overall $L_{Aeq(16\text{-Hour})}$ at Position 2 (internal) was affected by the noise generated by a team of personnel dismantling an art exhibition in these offices between the hours of 11:30 and 14:30. The unoccupied noise levels throughout the rest of the daytime period were no higher than 34 dB $L_{Aeq(15\text{-min})}$.

6.2 L_{90} Noise Levels

The lowest measured L_{A90} noise levels for each position are presented in the table below.

Position	Daytime $L_{Aeq(16\text{-hour})}$	Night-Time $L_{Aeq(8\text{-hour})}$
1 (External)	55 dB	46 dB
2 (Internal)	31 dB	31 dB



7.0 Discussion Of Noise Climate

Due to the nature of the survey, i.e. unmanned, it is not possible to accurately describe the dominant noise sources, or specific noise events throughout the entire survey period. However at the beginning and end of the survey period the dominant noise source at Position 1 (external) was predominantly noise resulting from aircraft at Heathrow. To a lesser extent, there was some residual noise from the local road network and road servicing Status Business Park, but this was perceived to be insignificant.

At Position 2 (internal) the noise levels were low in comparison to the external noise levels. In general the background noise levels were no greater than 34 dB $L_{Aeq(15-min)}$ when the office spaces were unoccupied, but building service, were operating and appear to have been running continuously. There had been an art exhibition in these offices which was cleared away by a team of staff between the hours of 11:30 and 14:30 and can clearly be seen on the enclosed time history graph (23854/TH2). This is responsible for the overall $L_{Aeq(16-hour)}$ reported in Section 6.1. The only other time it exceeded 34 dB $L_{Aeq(15-min)}$ appears to be during a routine security patrol at approximately 19:00 on 10 November and 09:30 on 11 November 2016.

8.0 Planning Policy/Guidance

8.1 National Planning Policy Framework (NPPF)

The following paragraph is from the NPPF:

“123.Planning policies and decisions should aim to:

- avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;
- recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established; and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”



8.2 Permitted Development

The Permitted Development conditions for converting (B1) commercial offices to (C3) residential dwellings are as follows:

Process set out by Part 3, Class O of Schedule 2 of the Town and Country Planning (General Permitted Development) (England) (Amendment) Order 2016.

In accordance with section 60 (2B) and (2C) of the Town and Country Planning Act 1990 (as amended by section 4 (1) of the Growth and Infrastructure Act 2013)

Furthermore we understand the local authority sometimes requires a noise impact assessment to demonstrate that the impact of noise from any surrounding commercial premises would not adversely affect the residential amenities of the future intended occupiers of the Development.

9.0 BS 8233:2014

British Standard 8233: 2014 "Guidance on sound insulation and noise reduction for buildings" states that it is desirable that internal ambient noise levels do not exceed the following guideline values:

Activity	Location	Desirable Internal Ambient Criteria	
		07:00 – 23:00	23:00 to 07:00
Resting	Living Rooms	35 dB LAeq,16hour	-
Dining	Dining Room/Area	40 dB LAeq,16hour	-
Sleeping (Daytime Resting)	Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour

Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.

On the basis of the above we would propose the following internal noise levels be adopted as minimum design targets in the worst affected dwellings.

Activity	Location	Desirable Internal Ambient Criteria	
		07:00 – 23:00	23:00 to 07:00
Resting	Living Rooms	35 dB LAeq,16hour	-
Dining	Dining Room/Area	40 dB LAeq,16hour	-
Sleeping (Daytime Resting)	Bedroom	35 dB LAeq,16hour	30 dB LAeq,8hour



Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.

10.0 Internal Noise Levels

As we have stated the internal noise levels in Section 6.0, the results of our internal noise monitoring position (Position 2) show that when unoccupied, the noise levels generally fall within the range specified in BS8233: 2014.

As this is an application under Permitted Development, the facade is not proposed to be changed as part of the works. It is however important to understand the existing facade comprises a double glazed window unit, with a secondary glazed panel separated by a circa. 200mm air gap. This type of glazing system offers a high sound reduction that would be difficult to increase even if the facade were to be replaced. The building also has existing mechanical ventilation which we assume will be the strategy for the proposed residential use.

11.0 Conclusions

The environmental noise impact upon the proposed dwellings has been assessed in the context of Permitted Development.

A detailed environmental noise survey has been undertaken in order to establish the currently prevailing environmental noise climate around the site and also inside Building 3.

Appropriate internal noise criteria have been proposed for environmental noise intrusion, based on BS 8233: 2014. The results of our environmental noise survey show these should be achievable whilst retaining the existing facade elements.

We have assessed the impact from surrounding commercial premises which could adversely affect any residential premises. Having reviewed the internal noise levels in the unoccupied building, there is no evidence of any adverse commercial uses in the vicinity and should therefore be deemed to satisfy the requirements of Part 3, Class O of Schedule 2 of the Town and Country Planning (General Permitted Development) (England) (Amendment) Order 2016.



Appendix A

The acoustic terms used in this report are defined as follows:

dB Decibel - Used as a measurement of sound level. Decibels are not an absolute unit of measurement but an expression of ratio between two quantities expressed in logarithmic form. The relationships between Decibel levels do not work in the same way that non-logarithmic (linear) numbers work (e.g. 30dB + 30dB = 33dB, not 60dB).

dBA The human ear is more susceptible to mid-frequency noise than the high and low frequencies. The 'A'-weighting scale approximates this response and allows sound levels to be expressed as an overall single figure value in dBA. The _A subscript is applied to an acoustical parameter to indicate the stated noise level is A-weighted

It should be noted that levels in dBA do not have a linear relationship to each other; for similar noises, a change in noise level of 10dBA represents a doubling or halving of subjective loudness. A change of 3dBA is just perceptible.

L_{90,T} L₉₀ is the noise level exceeded for 90% of the period *T* (i.e. the quietest 10% of the measurement) and is often used to describe the background noise level.

L_{eq,T} L_{eq,T} is the equivalent continuous sound pressure level. It is an average of the total sound energy measured over a specified time period, *T*.

L_{max} L_{max} is the maximum sound pressure level recorded over the period stated. L_{max} is sometimes used in assessing environmental noise where occasional loud noises occur, which may have little effect on the L_{eq} noise level.

L_p Sound Pressure Level (SPL) is the sound pressure relative to a standard reference pressure of 2×10^{-5} Pa. This level varies for a given source according to a number of factors (including but not limited to: distance from the source; positioning; screening and meteorological effects).

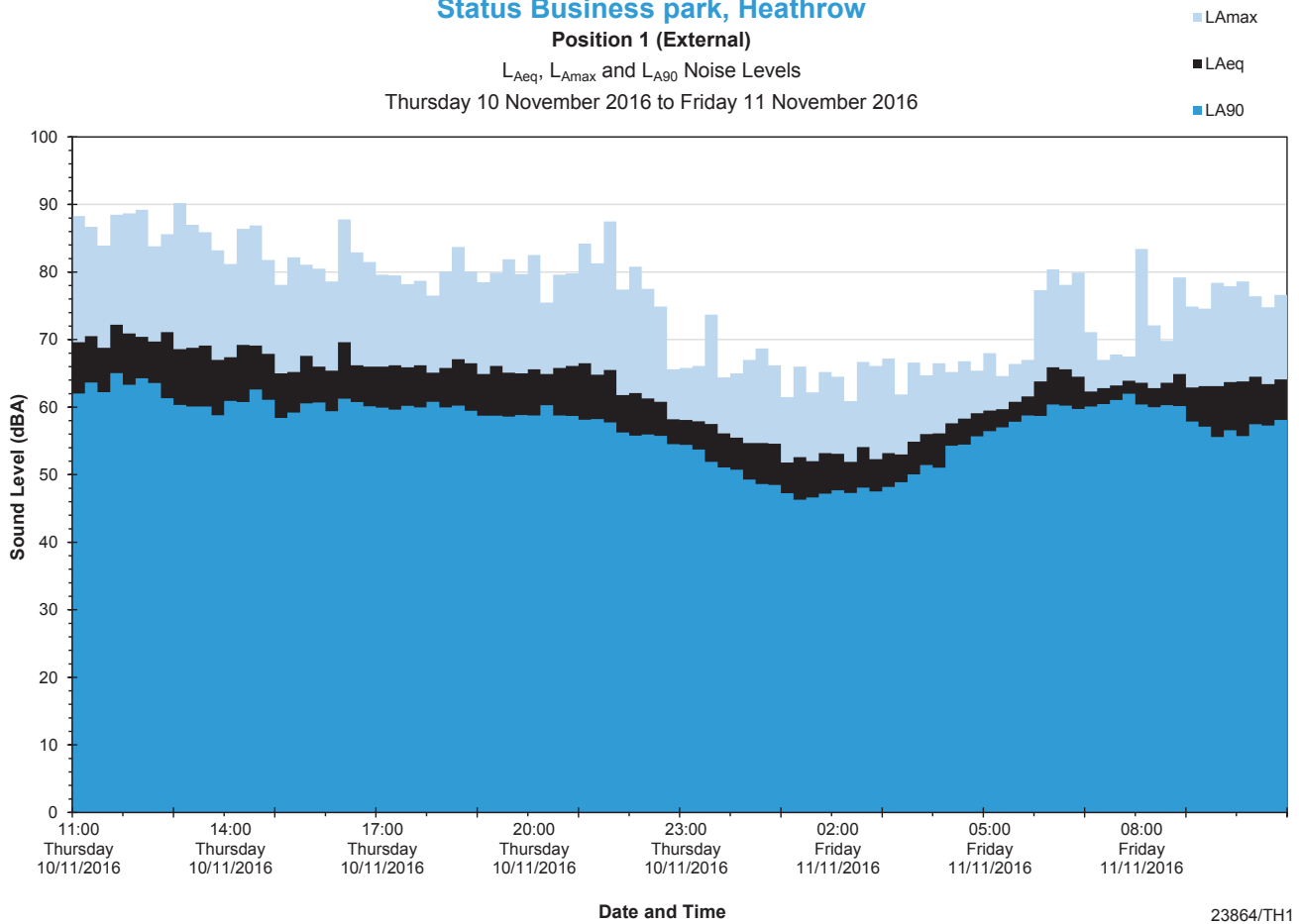
L_w Sound Power Level (SWL) is the total amount of sound energy inherent in a particular sound source, independent of its environment. It is a logarithmic measure of the sound power in comparison to a specified reference level (usually 10^{-12} W).

Status Business park, Heathrow

Position 1 (External)

L_{Aeq} , L_{Amax} and L_{A90} Noise Levels

Thursday 10 November 2016 to Friday 11 November 2016

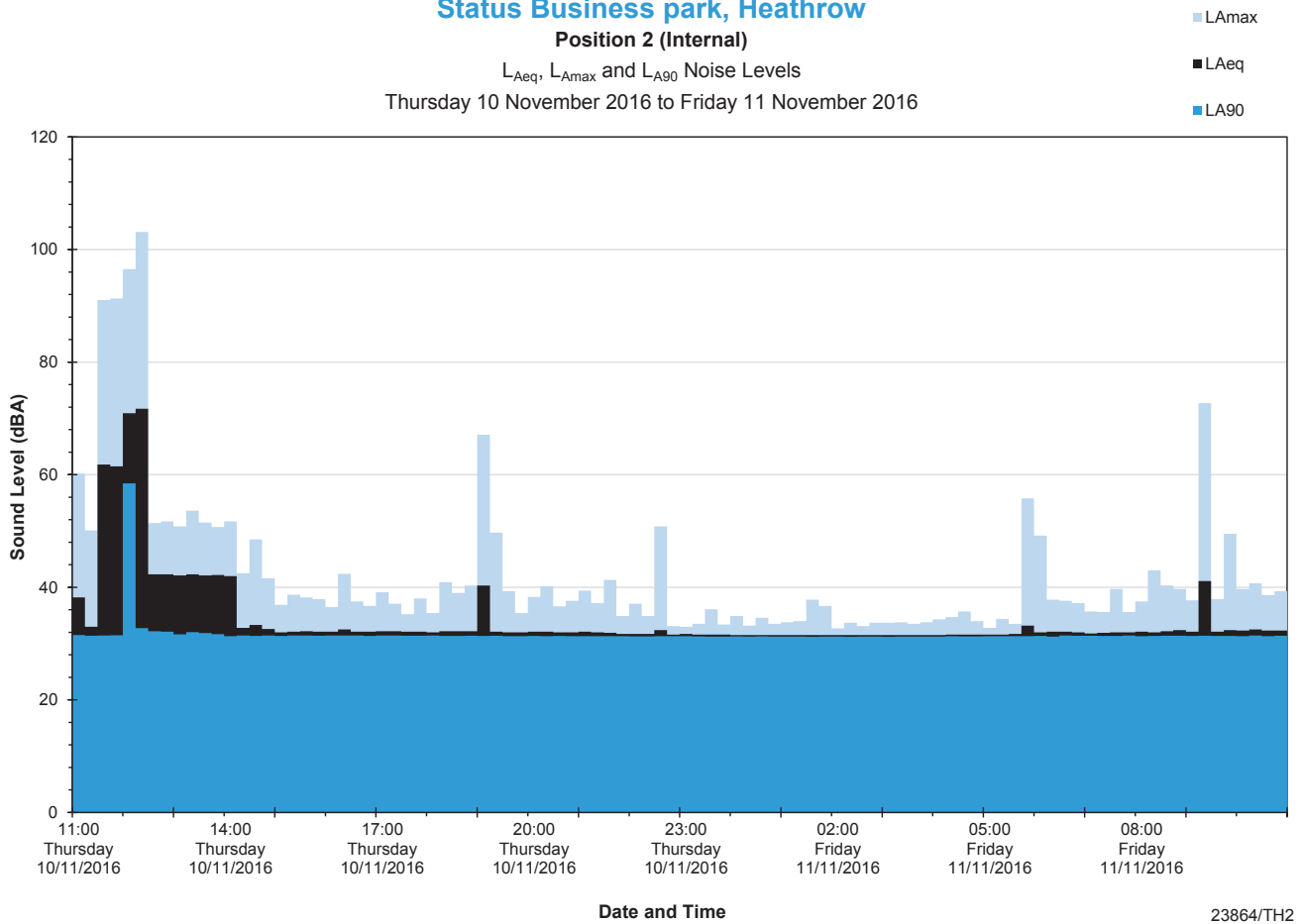


Status Business park, Heathrow

Position 2 (Internal)

L_{Aeq}, L_{Amax} and L_{A90} Noise Levels

Thursday 10 November 2016 to Friday 11 November 2016



23864/TH2