



Trinity Point Marina and Mixed Use Development

Proposed Helipad

FACT SHEET 2

NOISE, HELICOPTER SURVEY & FLIGHT PATHS

Johnson Property Group (JPG) is proposing the inclusion of a limited use helipad at the approved Trinity Point Marina and Mixed Use Development site at Morisset Park. This fact sheet details noise sources and assessed impacts, and how we propose to manage noise, including details of the helicopter survey, acoustic assessment and the proposed 'fly neighbourly' policy.

Noise potentially generated at the helipad has emerged as the key community issue during consultation with residents, businesses, schools and government agencies.

Our goal is to establish a helipad that supports the approved marina and tourist destination, while minimising the impact of helicopter noise generated on the local community.

What noises will be associated with the helipad?

The primary source of noise expected to be generated at the helipad is noise from helicopters approaching, landing and departing (please see over for details about the type of helicopters that are anticipated to use the helipad).

There will be some noise from people embarking and disembarking, although this is not considered to be of a markedly different quality or quantity than that already expected throughout the approved Marina and Mixed Use Development.

There will be no maintenance or refuelling on the helipad and therefore no associated noise for that activity.

How many helicopter movements will there be?

JPG are applying to fly up to 8 helicopter movements (4 in, 4 out) per day, up to a maximum of 38 movements weekly. We are not proposing any more than a maximum of 8 movements in any one day or more than 38 movements weekly.

Typically, the entire landing operation of a helicopter leaving cruise altitude to approach, hover, land and shut down is audible for about 2 ½ – 4 ½ minutes (depending on where you are and the flight path being used).

Quick Facts

- JPG is applying for up to 8 movements a day (ie 4 flights), to a maximum of 38 a week.
- Use will be by small turbine engine helicopters up to medium sized twin engine helicopters.
- Daylight hours only, after 8am.
- A helicopter survey was undertaken as a component of the acoustic assessment (see over page).
- There are 4 preferred flight paths - operators who do not adhere to these, other than for safety reasons, will not be welcome at Trinity Point.
- Prior Permission and Fly neighbourly procedures will be in place and predominantly avoids built up areas.
- Noise impacts have been assessed in detail and found to be reasonable and acceptable against several different criteria, including consideration of the existing noise environment around Bardens Bay.
- No maintenance or refuelling.

A take-off movement to power up, hover, take off and ascend to cruise altitude occurs over a similar time period. If a maximum of 8 movements occur across any given day, which would represent an audible noise source of approximately 20-36 minutes for that day.

What times will they fly?

All flights will be limited to daylight hours only. The time of operation will start in the morning from 8am on Monday to Saturday, and from 9am on Sundays and public holidays.

The operation is proposed to extend to 7pm or to 'daylight hours' to account for seasonal variation and daylight saving. The helipad will have no lighting and no night time flights will be permitted.

What types of helicopters will use the helipad?

The helipad will be suitable for use by small turbine engine helicopters and occasionally by medium sized twin engine helicopters.

Single engine

- McDonnell Douglas 500 - 3 passengers (includes pilot)
- Bell 206B - 4 passengers
- Airbus 120 - 4 passengers
- Bell 206L - 6 passengers
- Airbus H125 (or "squirrel") - 5 passengers
- Bell 407 - 6 passengers
- Airbus 130 - 4 passengers

Twin engines

- Airbus 135 - 6 passengers
- Agusta Westland AW109 - 7 passengers.



Image: (top) the smallest helicopter MD500series; (bottom) the medium sized Agusta Westland AW109

Helicopters will be flown by professional commercial operators and trained pilots. To limit use by inexperienced pilots, the smaller Robinson R22/44 will not be permitted. Joy flights will not be permitted.

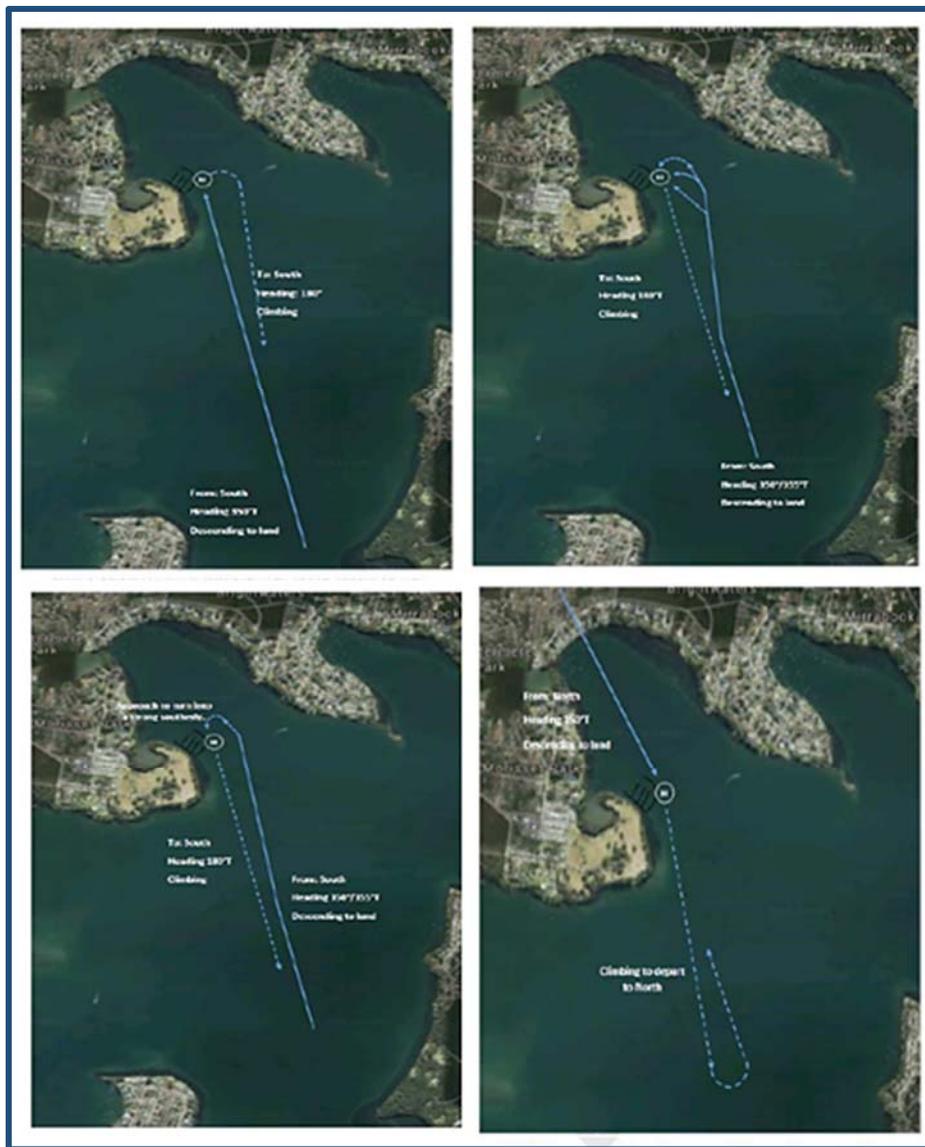
What are the flight paths?

There are a number of preferred flight paths (see image over page) that have been acoustically tested and designed to cater to different wind directions.

- Preferred Path A approaches from and exits to the south (over water) in a clockwise direction.
- Preferred Path B1 approaches from and exits to the south (over water) and in an anti-clockwise direction.
- Preferred Path B2 approaches from and exits to the south in an anti-clockwise direction, catering for strong southerly winds.
- Alternative Path C approaches from the north (over land) and exits to the south (over water), and provides an option for a helicopter, having departed to the south to conduct a turn movement that allows it to travel north if desired. This flight path does fly over some residences as well as flying near Brightwaters Christian College. This is an alternative path to Path B2 for use in strong southerly or south-easterly winds.

These preferred paths are the only flight paths proposed for the helipad. All aircraft using the helipad will receive information on these flight paths via a 'prior permission' protocol, acknowledge these paths and overall Fly Neighbourly protocol including 'avoid' areas, and be expected to adhere to the paths.

A pilot or operator that does not adhere to use of the paths (except for rare safety events) or protocol will not be welcome at Trinity Point.



How was noise impacts assessed?

Noise impacts have been assessed by independent noise consultants The Acoustic Group. The assessment identifies the types of helicopters proposed to be used, preferred flight paths, hours and frequency of operation and noise levels, and adopts best practice for measurement and assessment of noise impacts, against acoustic criteria, including a suite of inbuilt conservative calculations.

Key elements of the Study were:

- Understanding of existing noise context, including community concerns and environmental issues.
- Discussion and decision making regarding appropriate noise criteria* (*Air Services Australia Aircraft Noise Exposure Forecast system (ANEF) was selected as the primary criteria, supplemented by a range of other measures and considerations).
- Identification of preferred flight paths to avoid built up areas and optimise flying predominantly over water.
- Rather than relying on a standard practice of only using a theoretical model, testing of flight paths was carried out for noise impact at different locations for a base helicopter type (not chosen to be either the quietest or noisiest) via a tailored Helicopter Survey (more over page). The survey itself involved an intensive high number of movements (up to 64 movements) in a condensed time (over 3.5hrs), which is not representative of the usual operation and noise associated with the number of movements (maximum 8 in any one day) proposed at Trinity Point. The survey itself is only one part of the acoustic assessment methodology, and is used to inform assessment, including for other helicopter types.
- Analysis and modelling of results, including as directed by relevant standards on measurement and analysis of helicopter noise. This includes use of an accepted 'weighting' method to provide assessment for all helicopter types.

The assessment confirmed that the proposal will comply with noise targets applied to helipads against several different acoustic criteria, including consideration of the existing noise environment, and that the helipad can be introduced without unreasonable or unacceptable acoustic impact to surrounding residential areas, on the basis that definitive management practices are introduced.

How will noise be managed?

Findings from the Acoustic Study have been used to develop a suite of management practices that will help us achieve our goal to establish a helipad that supports Trinity Point as a destination, while minimising the impact of helicopter noise generated for the local community.

The Acoustic study concluded that the helipad can be introduced without unreasonable or unacceptable acoustic impact to surrounding residential areas, on the basis that:

- a Fly Neighbourly and 'prior permission' protocol is implemented;
- Preferred flight paths are adhered to;
- the helipad operates during daylight hours;
- there are no joy flights;
- there is a maximum of 8 movements per day and a maximum of 38 movements per week; and
- there is no maintenance or refuelling on the pad.

JPG has committed to all of the above management practises in the Environmental Assessment documents submitted to the Department of Planning and Environment, with the expectation that these will be included as terms or conditions for helipad approval.

Need more information?

JPG is committed to ensuring accurate and up to date information about the proposed helipad is available to all interested community members. We have established a Community Information web page <http://trinitypoint.com.au/helipad> that has details around the environmental studies and consultation activities, as well as a series of fact sheets including:

- Fact Sheet 1 – Why a Helipad?
- Fact Sheet 2 – Noise, Helicopter Survey and Flight Paths
- Fact Sheet 3 – Helipad Operations
- Fact Sheet 4 – Public Access and Safety
- Fact Sheet 5 – Community Engagement

We welcome your questions and feedback. Please contact JPG on 8023 8888 or visit the above designated webpage and use the feedback form.

What is Flying Neighbourly?

Australia's Civil Aviation Safety Authority (CASA) sets out Fly Neighbourly information to guide operations with a specific interest to reduce disturbance caused by aircraft.

CASA's Fly Neighbourly techniques and principles include:

- avoid noise sensitive areas;
- follow high ambient noise routes (highways) or alternatively, following unpopulated routes (waterways);
- maintain an appropriate fly-over altitude;
- maintain appropriate hover and circling altitude;
- speed reduction;
- route variation;
- use of high take off/descent profiles; and
- low noise speed/descent settings.

Fly Neighbourly requirements specific to the Trinity Point development have been developed and tested during preparation for the Environmental Assessment, and contained within a draft Operations Manual (refer Appendix D of the Environmental Assessment). It also includes 'avoid' areas.



Further information about CASA Fly Neighbourly advice is available at <https://www.casa.gov.au/standard-page/fly-neighbourly-advice>

About the Helicopter Survey



The helicopter survey was undertaken on 24 March 2016 for about 3.5 hours from 9.15am – 12.45pm. It was a fine day (18-24 degrees) with a light wind that shifted from the north west to east north east. A calm morning was selected to capture lowest level of ambient (background) noise and allow all flights to be flown on the same day, and as well as meet testing requirements under AS 2363-1999 for required calm weather conditions. Machinery associated with the construction of JPG's adjoining residential subdivision was stood down for the duration of the test.

A helicopter, the Airbus H125 (otherwise known as a "Squirrel") was selected to represent the typical aircraft type anticipated to use the helipad. It is a small turbine helicopter that can accommodate 4 passengers (plus the pilot) or less passengers if includes luggage, with the ability to fly from/to Sydney without the need to refuel. The helicopter used is neither the 'quietest' or 'noisiest' helicopter that might use the helipad. To be clear, the helicopter survey is only one part of the acoustic assessment methodology, and is used to inform the noise assessment. The overall noise assessment includes use of an accepted 'weighting' method to provide assessment for all helicopter types that might use the helipad, not just the helicopter used for the survey.

During the 3.5 hours, there were 64 dedicated movements over multiple flight paths. This included hovering for periods of time over the proposed helipad sites and thrusting to simulate take off, and some overflight and landing/take-off on the adjoining land. Two potential helipad locations were tested and shown over page – with the helipad closest to the Trinity Point site being the selected helipad location within the Environmental Assessment.

This high number of movements, in a condensed time, greatly over-represented the acoustic environment that would arise from the proposed operation of the helipad (which will be limited to 8 movements over a day and no more than 38 movements in any week) but was necessary for accurate and efficient noise testing.

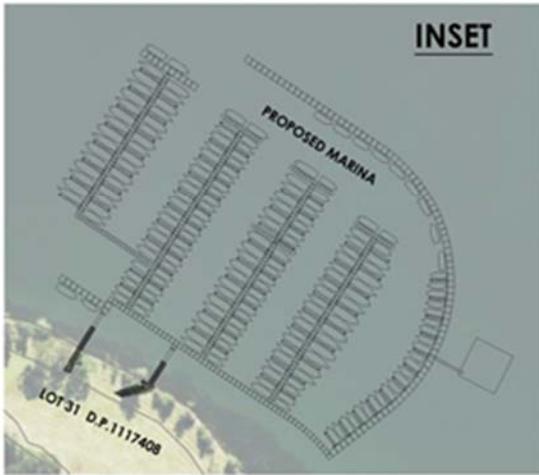
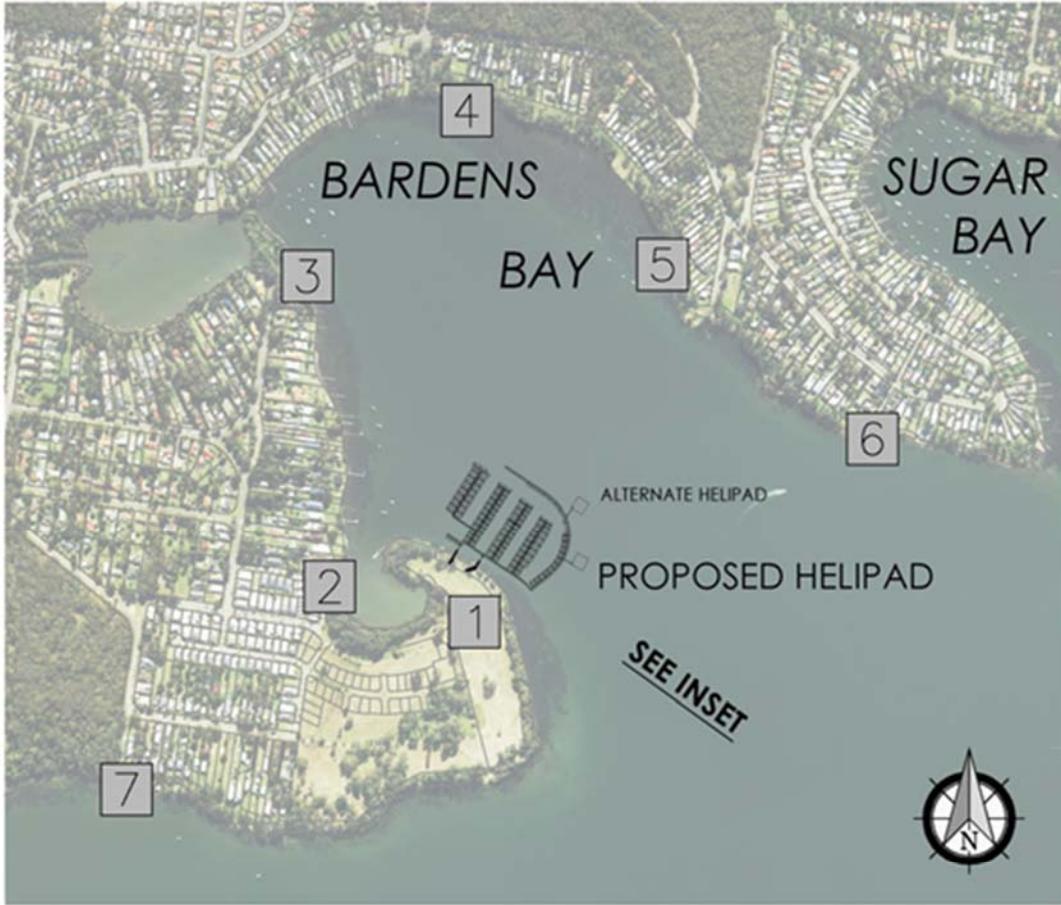
Monitoring was undertaken at seven locations around Bardens Bay (two of these locations were requested by Council). The location, set up and calibration of monitoring equipment was undertaken by consultant engineers, and each measurement location was attended during the test procedure.

A professional pilot with significant flight experience and considerable local knowledge operated the craft, in communication with acousticians. Lake Macquarie Council officers observed the test from the ground and during part of the test, within the helicopter.

Prior to the survey, JPG notified the surrounding local community of the intended test day and high number of movements by publication in the local newspaper and by letter box mail out to over 5100 residences and business. Some residents have advised that they did not receive a notice and for this JPG duly apologises.

A link to a video of one of the movements is included on the Trinity Point Helipad website and has been provided as part of the Environmental Assessment.

The helicopter survey is a critical component of the noise assessment, providing real results in real locations. However, it is not the only component of the noise assessment, which builds on the survey results to provide calculations, results and assessment for various scenarios including for other helicopters.



NOISE LOGGER LOCATIONS

- [1] ON TRINITY POINT SITE
- [2] NW CORNER OF JPG LAND
- [3] MORISSET PARK BOAT RAMP
- [4] ADJACENT TO BRIGHTWATERS CHRISTIAN COLLEGE
- [5] PUBLIC FORESHORE (BRIGHTWATERS JETTY)
- [6] SOUTHERN END OF BARDON STREET
- [7] SOUTHERN END OF CHARLES AVENUE