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25 October 2016

Mr Bryan Garland
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12, 48 Hunter Street
SYDNEY NSW 2000

TRINITY POINT HLS REPORT

Reference:

A. Civil Aviation Safety Authority Civil Aviation Advisory Publication (CAAP) 92-2 (2) Guidelines for the Establishment and Operation of Onshore Helicopter Landing Sites.

Dear Bryan,

In response to your request to provide a Report into the proposed helicopter landing site (HLS) at the Trinity Point Marina development, following is our response.

SCOPE

This Report will provide information and context that has been iteratively provided during 2016 as part of the multi-disciplinary investigations to better inform the Trinity Point HLS. The Report will:

a. Provide a summary of historic wind conditions in the area.
b. Provide recommended helicopter approach and departure flight paths to the proposed helicopter landing site (HLS) location at Trinity Point.
c. Assess compliance of the proposed HLS Concept Plan against the Civil Aviation Safety Authority (CASA) Civil Aviation Advisory Publication (CAAP) 92.2 (2)
d. Provide the Draft HLS Operations Procedure Manual for the Trinity Point HLS.
e. Provide a summary of capabilities and specifications of the likely helicopters to use the Trinity Point HLS.

Item c has been provided to address the requirements for the proposed Helipad (MP 06_0309 Mod 3) dated July 2016, Item 1a. Items a, b and e has been provided to inform consideration of the Trinity Point HLS, options, analysis and other technical assessments. Item d has been provided to consolidate and express operational requirements for the HLS.

AviPro is a business that provides aviation advice to various government and non-government organisations including the safety compliance of helicopter landing sites and other aviation subject expertise. It is responsible for the development of Hospital Helicopter Landing Site Guidelines for NSW Ambulance.

WIND CONDITIONS AND FLIGHT PATHS

Appendix A, and specifically Table A6, shows the seasonal wind data for the Lake Macquarie area. The data source is the BOM data at the Norah Head Lighthouse with the samples taken from July 1969 to October 2004. This data was collated to inform preferred approach and departure paths, in discussion with the local marina operator's knowledge of the environment to establish flight operations to and from the HLS that meets available safety compliance and includes fly neighbourly procedures.

Appendix B shows the resultant preferred approach and departure flight paths, with notes relating to the conditions and winds that suit those paths.

The Table highlights the predominate southerly wind directions in all seasons. As a consequence, Approach Path B1 and B2, per Appendix B, seems to be the most probable Path that will meet the Southerly wind directions and should be achievable without overflying built-up areas and in accordance with the test-day tracks.

The second most prevalent wind direction appears to be from the North East. Approach Path A, per Appendix B, would therefore be the most appropriate flight path to meet this wind condition and should also be achievable without overflying built-up areas.

It is noteworthy that there will be periods of no wind (calm) on the lake and helicopters should be able to operate totally over water and therefore within the fly neighbourly procedure designed for the Trinity Point Marina HLS, using preferred flight paths A or B1, as well as in all wind directions other than S/SE. Paths B2 and C, per Appendix B, are provided as operationally appropriate flight path options in instances of S/SE winds. Together, all wind scenarios that can be deducted from the data have been considered by the preferred flight paths.

The preferred flight paths and the 'fly neighbourly' methodology, including noise sensitive areas to avoid where possible, will be communicated with operators and visiting pilots (refer below) as part of the prior permission protocol for the HLS operation, as with all planned paths it will be up to the pilot on the day to conform with these preferred flight paths a much as safety will permit.

HLS DRAFT CONCEPT PLAN AND CAAP COMPLIANCE

Appendix C provides the key HLS criteria from CASA CAAP 92.2 (2) Guidelines for the Establishment and Operation of Onshore Helicopter Landing Sites, the present CASA guidance for HLS.

Prior to the compliance review, AviPro reviewed the proposed nature of the HLS operation, the range of potential helicopter types that might be expected to reasonably utilise the HLS and recommended a design helicopter (being largest to use the HLS) to proceed for the design size and compliance of the HLS. The Compliance matrix was conducted against the assumed largest helicopter to use the HLS – the Agusta 109. Therefore, all other lesser weight/size helicopters should be able to fly into and from the planned HLS.

The matrix shows the HLS Concept Plan compliance against the criteria as presented in the CAAP document. The proposed HLS appears suitable for safe helicopter operations in accordance with eth CAAP.

HLS OPERATIONS PROCEDURES

The Trinity Point HLS Operations Procedures Manual, provided as a draft for finalisation prior to operation of the HLS, is the proposed reference document for both HLS management personnel and also pilots and operators planning to use the HLS. The Procedure document is the key information source for visiting pilots and as such needs to be supplied to them when they first seek permission to land. It is also advisable to keep the site www.helipads.org up to date with the key operational information in the HLS Operations Procedures. This includes:

Part 1:	HLS summary
Part 2:	HLS design, weight static/dynamic loads
Part 3:	Pre-arrival HLS and surrounds inspection procedures
Part 4:	Helicopter reception/dispatch and escort procedures
Part 5:	Approach and departure paths
Part 6:	Fly neighbourly requirements
Part 7:	Rotor downwash considerations on marine craft in the vicinity of the HLS Part 8: Emergency Procedures
Part 9:	HLS contact details
Part 10:	Prior permission
Part 11:	Essential information for visiting Pilots
Part 12:	Trinity Point HLS Staff Training
Part 13:	Communications (if applicable)
Part 14:	Helicopter specifications

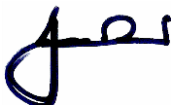
HELICOPTER TYPES

Appendix E provides a list of the most likely helicopter types to use the HLS. It details relevant helicopter specifications including passenger capacity and helicopter weight.

SUMMARY

The Report has provided an analysis of the wind data for the Lake Macquarie area and from that, has provided a number of Approach and Departure Path options that can be used for helicopter operations into the Trinity Point Marina. In addition to the key safety and design criteria detailed in the CAAP for the HLS, a compliance assessment was carried out on the HLS Concept Plan using the 20 m FATO dimensions and assuming a weight bearing capacity (static and dynamic) that will meet the expected largest helicopter, the Agusta 109.

Yours sincerely,



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Appendixes:

A. Wind Data
B. Proposed Flight Paths
C. HLS Concept Plan Compliance with CASA CAAP 92.2 (2)
D. Draft HLS Operations Procedures Manual
E. Summary of Helicopter Specifications

APPENDIX A: WIND DATA

TABLE A1: INDICATIVE 'ANNUAL' WIND DIRECTION PERCENTAGES AND VELOCITY – BOM HISTORICAL DATA

Prevailing Wind	AM Arrival	Av. Wind Speed kmph	PM Arrival	Av. Wind Speed kmph
North	14%	30	7%	31
North East	8%	31	21.5%	42
East	3%	31	11.5%	31
South East	6.5%	41	14%	41
South	17%	43	25.5%	46
South West	18.5%	31	7.5%	41
West	17%	22	6%	30
North West	16%	31	7%	30

Notes:

1. This analysis is based on BOM historical data being daily readings at 9.00 AM and 3.00 PM.
2. Pilots will normally always land and take-off into the prevailing wind.
3. The approach to the HLS will be briefed to all pilots through the Trinity Point Operations Procedure.
4. Pilots will always be responsible for the conduct of the flight and the flightpath they use.
5. Safety will always be the overriding factor in flightpath selection.

TABLE A2: INDICATIVE 'SUMMER' WIND DIRECTION PERCENTAGES AND VELOCITY – BOM HISTORICAL DATA

Prevailing Wind	AM Arrival	Av. Wind Speed kmph	PM Arrival	Av. Wind Speed kmph
North	17%	30	4%	37
North East	15%	30	31%	42
East	6%	27	16%	34
South East	9%	41	18%	41
South	25%	43	25%	44
South West	15%	37	3%	41
West	6%	17	1%	13
North West	7%	22	2%	32

Notes:

1. This analysis is based on BOM historical data.
2. Pilots will normally always land and take-off into the prevailing wind.
3. The approach to the HLS will be briefed to all pilots through the Trinity Point Operations Procedure.
4. Pilots will always be responsible for the conduct of the flight and the flightpath they use.
5. Safety will always be the overriding factor in flightpath selection.

TABLE A3: INDICATIVE 'AUTUMN' WIND DIRECTION PERCENTAGES AND VELOCITY – BOM HISTORICAL DATA

Prevailing Wind	AM Arrival	Av. Wind Speed kmph	PM Arrival	Av. Wind Speed kmph
North	11%	25	6%	30
North East	5%	25	20%	40
East	5%	34	12%	37
South East	7%	41	15%	41
South	16%	43	30%	45
South West	22%	35	6%	41
West	18%	18	4%	24
North West	16%	22	6%	23

Notes:

1. This analysis is based on BOM historical data.
2. Pilots will normally always land and take-off into the prevailing wind.
3. The approach to the HLS will be briefed to all pilots through the Trinity Point Operations Procedure.
4. Pilots will always be responsible for the conduct of the flight and the flightpath they use.
5. Safety will always be the overriding factor in flightpath selection.

TABLE A4: INDICATIVE 'WINTER' WIND DIRECTION PERCENTAGES AND VELOCITY – BOM HISTORICAL DATA

Prevailing Wind	AM Arrival	Av. Wind Speed kmph	PM Arrival	Av. Wind Speed kmph
North	10%	33	11%	37
North East	1%	23	10%	34
East	1%	30	5%	27
South East	2%	37	8%	40
South	6%	41	26%	42
South West	22%	39	15%	41
West	31%	38	13%	35
North West	27%	32	13%	40

Notes:

1. This analysis is based on BOM historical data.
2. Pilots will normally always land and take-off into the prevailing wind.
3. The approach to the HLS will be briefed to all pilots through the Trinity Point Operations Procedure.
4. Pilots will always be responsible for the conduct of the flight and the flightpath they use.
5. Safety will always be the overriding factor in flightpath selection.

TABLE A5: INDICATIVE 'SPRING' WIND DIRECTION PERCENTAGES AND VELOCITY – BOM HISTORICAL DATA

Prevailing Wind	AM Arrival	Av. Wind Speed kmph	PM Arrival	Av. Wind Speed kmph
North	17%	37	7%	41
North East	9%	37	27%	42
East	3%	35	14%	34
South East	6%	41	16%	40
South	21%	43	22%	45
South West	17%	40	4%	41
West	12%	31	4%	34
North West	15%	37	6%	40

Notes:

1. This analysis is based on BOM historical data.
2. Pilots will normally always land and take-off into the prevailing wind.
3. The approach to the HLS will be briefed to all pilots through the Trinity Point Operations Procedure.
4. Pilots will always be responsible for the conduct of the flight and the flightpath they use.
5. Safety will always be the overriding factor in flightpath selection.

TABLE A6: ANNUAL SEASONAL DATA

Month	N	kmph	NE	kmph	E	kmph	SE	kmph	S	kmph	SW	kmph	W	kmph	NW	kmph	%
Dec AM	16%	31	16%	31	6%	30	8%	41	24%	43	15%	40	7%	20	8%	30	100%
Dec PM	5%	40	33%	42	18%	40	15%	41	22%	43	3%	40	2%	40	2%	40	100%
Jan AM	18%	30	18%	30	5%	20	8%	40	27%	42	14%	31	5%	10	5%	15	100%
Jan PM	5%	40	32%	43	15%	31	20%	41	24%	43	3%	40	0%	0	1%	40	100%
Feb AM	16%	30	11%	30	8%	30	12%	41	24%	44	16%	40	5%	20	8%	20	100%
Feb PM	3%	30	28%	41	16%	32	19%	41	29%	45	2%	42	0%	0	3%	15	100%
AM Av	17%	30	15%	30	6%	27	9%	41	25%	43	15%	37	6%	17	7%	22	
PM Av	4%	37	31%	42	16%	34	18%	41	25%	44	3%	41	1%	13	2%	32	
Mar AM	13%	22	9%	30	7%	40	11%	41	21%	43	20%	40	10%	10	9%	15	100%
Mar PM	3%	30	27%	41	16%	40	19%	41	29%	46	2%	41	1%	10	3%	15	100%
Apr AM	11%	22	3%	30	4%	31	7%	41	18%	43	22%	25	18%	22	17%	22	100%
Apr PM	5%	30	21%	40	14%	40	16%	41	29%	45	5%	41	4%	32	6%	22	100%
May AM	9%	31	2%	15	3%	30	4%	41	10%	43	24%	40	26%	22	22%	30	100%
May PM	9%	30	12%	40	7%	30	11%	41	33%	44	11%	42	8%	30	9%	31	100%
AM Av	11%	25	5%	25	5%	34	7%	41	16%	43	22%	35	18%	18	16%	22	
PM Av	6%	30	20%	40	12%	37	15%	41	30%	45	6%	41	4%	24	6%	23	
Jun AM	9%	30	0%	0	1%	10	3%	41	6%	42	26%	40	30%	40	25%	30	100%
Jun PM	10%	31	7%	30	3%	30	6%	40	28%	43	19%	41	14%	32	13%	40	100%
Jul AM	9%	30	1%	40	1%	40	2%	41	5%	40	20%	35	35%	35	27%	35	100%
Jul PM	11%	40	8%	32	3%	20	7%	41	25%	42	18%	41	14%	32	14%	40	100%
Aug AM	12%	40	3%	30	1%	40	2%	30	6%	41	19%	40	29%	40	28%	32	100%
Aug PM	11%	40	14%	40	8%	31	10%	40	25%	42	9%	41	11%	40	12%	41	100%
AM Av	10%	33	1%	23	1%	30	2%	37	6%	41	22%	38	31%	38	27%	32	
PM Av	11%	37	10%	34	5%	27	8%	40	26%	42	15%	41	13%	35	13%	40	
Sep AM	18%	30	4%	30	2%	25	3%	41	12%	42	20%	41	19%	40	22%	40	100%
Sep PM	9%	41	20%	41	12%	30	14%	40	22%	44	5%	40	8%	40	10%	40	100%
Oct AM	16%	40	11%	40	4%	40	7%	40	24%	43	16%	40	10%	22	12%	40	100%
Oct PM	7%	41	30%	43	15%	40	14%	40	22%	44	4%	40	3%	31	5%	40	100%
Nov AM	17%	40	12%	40	4%	40	8%	41	26%	43	15%	40	8%	30	10%	30	100%
Nov PM	5%	40	30%	43	15%	32	19%	41	23%	47	2%	42	2%	30	4%	40	100%
AM Av	17%	37	9%	37	3%	35	6%	41	21%	43	17%	40	12%	31	15%	37	
PM Av	7%	41	27%	42	14%	34	16%	40	22%	45	4%	41	4%	34	6%	40	

Note: Orange filled areas indicate higher percentage of wind from that direction.

APPENDIX B: PROPOSED FLIGHT PATHS

Approach Path A to meet Calm conditions, North, North East, North West and East winds.

Approach Path B1 to meet North West, West and South West winds.

Approach Path B2 designed to meet South East, South, South West winds.

Alternate Approach Path C for South West, South, South East winds. This is an Alternate to Path B2.

It is the pilot's responsibility to land the helicopter safely and in a direction that assists that outcome.
The HLS Operations Manual will stipulate the preferred paths for arriving and departing flights. Regular operators and visitors will be informed about these preferred paths through the HLS Operations Procedures Manual and Helipads.org web based HLS information portal.
The Manual will also tell pilots to fly neighbourly and inform them of noise sensitive areas to avoid where ever possible.

APPENDIX C: TRINITY POINT HLS COMPLIANCE AGAINST CAAP 92.2 (2)

The Trinity Point Marina HLS will need to comply with the applicable components of the CASA CAAP 92.2 (2) and is presented in two Sections:

Section C1: An overview of CASA CAAP 92.2 (2); and

Section C2: Compliance of the proposed HLS Draft Concept Plan with the CAAP.

SECTION C1: OVERVIEW OF THE CAAP

The CASA reference for the establishment and operations of an HLS is advisory publication CAAP 92.2(2). This document details the operational factors to 'consider' prior to using an HLS. The document details the two types of HLS. These are summarised below. Given the commercial nature of the HLS operations and the planned day-time charter flights into and from the HLS, the Secondary HLS is the most appropriate categorisation for Trinity Point.

Attributes of an HLS

The helicopter is one of the more versatile aircraft and can, if required under special circumstances, operate to and from a space little larger than its overall length. The smaller the site, and the less known about hazards presented by obstacles and surface conditions, the greater the risk associated with its use. The risk presented by such hazards can be reduced when:

- the size of the defined areas of the HLS are greater than the minimum required size
- the pilot-in-command has access to accurate, up-to-date information about the site, which is presented in a suitable and easily interpretable form
- visual information, cues and positional markings are present for the defined areas at the site.

Defined Areas

Defined areas are the basic building blocks of an HLS and have a set of attributes that persist even when co-located or coincidental with another defined area. In such cases, the defined area with the more limiting standard would apply.

Defined areas applicable to the Trinity Point HLS are:

- **Final Approach and Take-Off Area (FATO)** – the area over which the final approach is completed and the take-off conducted
- **Touchdown and Lift-Off Area (TLOF)** – the surface over which the touchdown and lift-off is conducted

Basic HLS

A Basic HLS is a place that may be used as an aerodrome for infrequent, opportunity and short term operations, other than Regular Public Transport, by day under helicopter Visual Meteorological Conditions.

For a Basic HLS, Helicopter pilots and operators should ensure that:

- The FATO and TLOF are clear of all objects and animals likely to be a hazard to the helicopter, other than objects essential to the helicopter operation;
- No person is within 30 metres (m) of the closest point of a hovering or taxiing helicopter, other that persons who are essential to the safe conduct of the operation

or the specific nature of the task and who are trained and competent in helicopter operational procedures;
    - **Note:** pilots must ensure that neither the helicopter or its rotor downwash constitute a hazard to other aircraft, persons or objects.
- Appropriate information from the owners and authorities is obtained to confirm the suitability of the HLS for the proposed operation; and
- Where the performance information in the Rotorcraft Flight Manual details greater or additional limitations for defined areas or the approach and departure paths (compared to those set out in these guidelines), then the greater and/or additional requirements are available for the flight.

Secondary HLS.

A Secondary HLS is a place suitable for use as an aerodrome for helicopter operations by day that does not conform fully to the standards for a heliport set out in Volume II of Annex 14 of the Chicago Convention.

The CAAP states the recommended criteria for the Secondary HLS are:

FATO

- Have a dimension of 1.5 'D' for the largest helicopter intended to use the site where 'D' is the overall length (rotors turning) of that helicopter.
- Have an additional Safety Area of a minimum 0.25 D or 3 m around the FATO whichever is larger.
- The FATO has sufficient structural integrity to accept the static load of the largest planned helicopter (3.2 t for the AW 109) and a dynamic load bearing capacity of 3.25 times the static load (3.25 x 3.2 t = approximately 10.4 t).
- The slope of the FATO should not exceed 5% and the safety area should not exceed 4% up away from the FATO.

TLOF

- The TLOF should be cleared and level capable of bearing the dynamic loads and be at least 0.83 D (eg: for the AW 109 that is 0.83 x 13.04 m = 10.8 m).
- The TLOF should provide adequate drainage.

Approach and Departure Paths

- CASA recommends the application of the ICAO Annex 14° approach and departure paths for EMS operations at metropolitan hospital sites.
- There is to be a minimum of two approach and departure paths assigned. These need to be separated by a minimum of 150°.
- The approach and departure path slopes need to meet the slope in Figure C1.

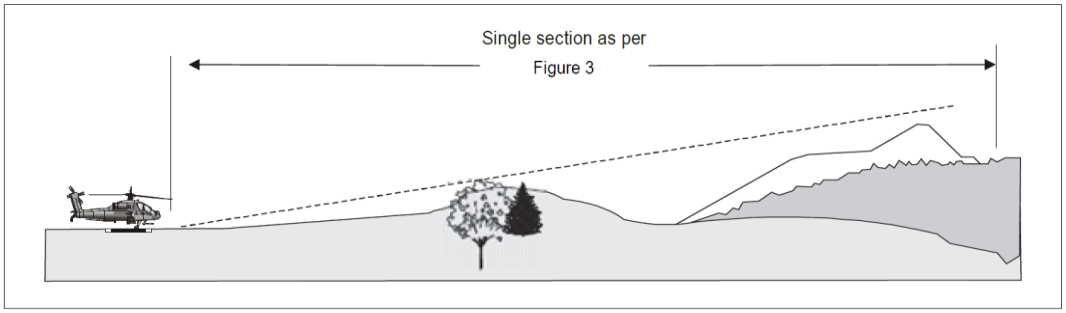


Figure C1: The slope of 4.5% or 2.5˚ representing the approach and take-off climb surfaces

- The approach and departure path should meet the design width criteria in Figure C2.

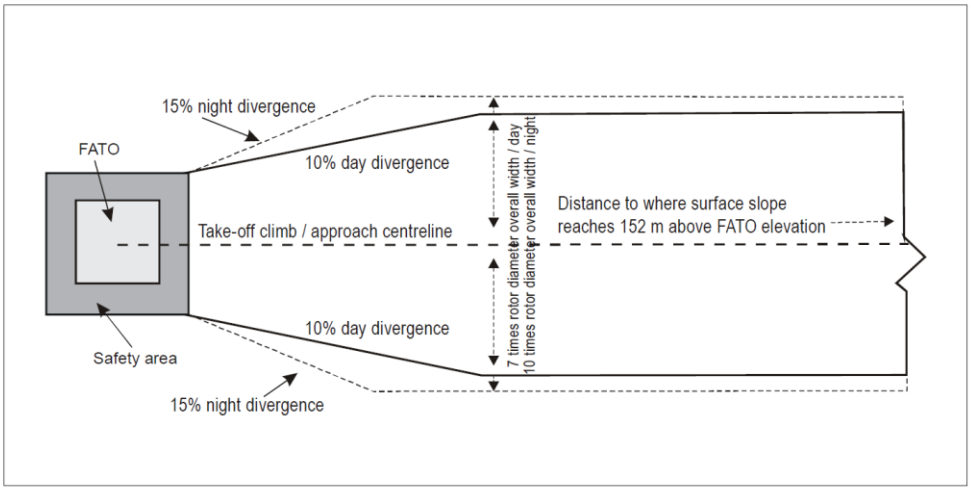


Figure C2: Take-off climb/Approach surface width

Other Physical Attributes of the HLS

In addition to the dimension and structural details above, the Trinity Point Marina HLS needs to comply with:

- Wind indicator;
- Relevant HLS markings to include:
    - HLS Identification Marking,
    - FATO edge markings,
    - Approach and departure path markings, and
    - Maximum operational helicopter tonnage marking.

Figure C3: Secondary HLS: A 1.5 x D FATO with additional 0.25 x D Safety Area (Total area is 2 x D). Also showing 'H', FATO perimeter and 0.5 x D Touchdown/Positioning Markings (TD/PM).

- Personnel access route; and
- Suitable fire protection.

Wind Indicator

A Secondary HLS should be equipped with at least one (1) 2.4 m tall wind indicator visible to the pilot during take-off, approach and landing.

Relevant HLS Markings

HLS Identification Marker. An identification marker should be painted onto the HLS FATO in the form of a large white 'H' (see Figure C3) with dimensions:

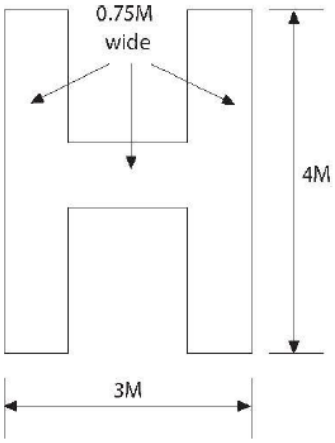


Figure C3: HLS Identification Marking at a 0.75 m stripe thickness.

FATO Edge Markings. The edge of the FATO is to be marked with a 30-50 cm wide broken white stripe to clearly delimit the FATO (see Figure C3).

Approach and Departure Path(s) Marking. The preferred approach and departure paths should be marked on the HLS with single or double-headed yellow arrows. They should be positioned in such a way to be easily viewed by the pilot (see Figure C4).

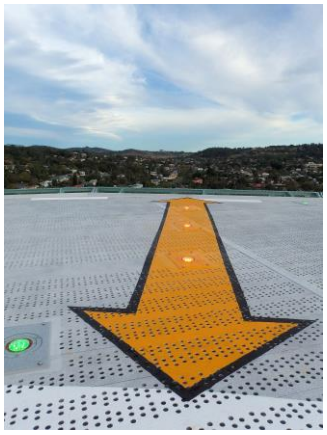


Figure C4: Example approach and departure arrow.

Maximum Helicopter Operational Tonnage Marking. The maximum operational helicopter tonnage should be painted on the FATO where such a limit exists. The positioning of this marking should be oriented so as to be visible by pilots on a preferred final approach direction (see Figure C5).

Figure C5: Example HLS with tonnage marking (in this case up to 3.2 tonne static load).

Personnel Access Route

The HLS ideally needs a primary and an emergency personnel access route located as far apart as possible.

Suitable Fire Protection

The HLS should be supported with suitable fire protection and equipment. As a minimum, this should include:

a. At least two (2) fire extinguishers having the specifications in accordance with Section 9 of the National Fire Protection Standard NFPA 418-2011. These are to be positioned at the access route(s), and
b. Any additional equipment as may be required to effectively extinguish a fire at the HLS.

SECTION C2: COMPLIANCE OF THE DRAFT HLS CONCEPT PLAN WITH CAAP 92.2 (2)

The following section examines the HLS Concept Plan against the CAAP. AviPro provided earlier comments on draft concepts and notes that the concept plan has incorporated previous advice.

The major advantage of the proposed HLS is its positioning. Being a pontoon based HLS facilitates unobstructed approach and departure directions over the water when prevailing wind conditions permit. Figure C6 is the locality sketch of the pontoon relative to the marina walkway and shows the proposed HLS position away to the east of the planned marina facility. This will be addressed further when the approach and departure paths are considered.

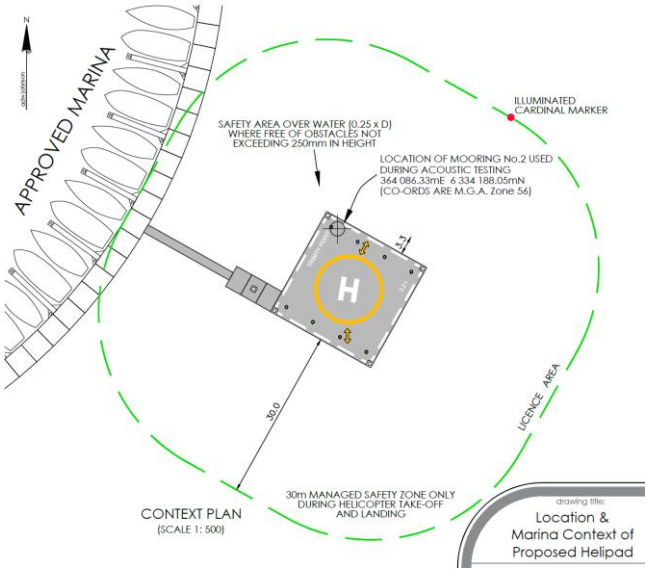


Figure C6: Positioning of the HLS on a pontoon.

Compliance against the CAAP

The table at Figure C7 details the proposed Trinity Point Marina HLS against the requirements of CAAP 92.2 (2). The eventual dimensions of the HLS were based on the largest charter helicopter considered most likely to utilise the HLS – the Agusta Westland AW109.

Item	CAAP Requirement	HLS Concept Plan Detail	Compliance Outcome
1	FATO size 1.5 D	AW109 with D of 13.05 m = 19.58 m	20 m FATO meets CAAP
2	TLOF size 0.83 D	AW109 with D of 13.05 m = 10.83 m	11 m TLOF meets CAAP
3	Planned Approach and Departure Paths	**Path A:** Approach heading 350°T. Departure right turn onto heading 180°T to intercept 170°T.	Meets 150° separation. Meets slope and surface width requirements.
		Path B1: Approach heading 350°/355°T. Departure onto heading 180°T.	Meets 150° separation. Meets slope and surface width requirements.
		Path B2: Approach heading 350°/355°T. Departure onto heading 180°T.	

Item	CAAP Requirement	HLS Concept Plan Detail	Compliance Outcome
		Path C: Approach heading 150°T. Departure south to climb above 1000' prior to overflying built-up areas.	Meets 150° separation. Meets slope and surface width requirements.
4	Wind indicator	Compliant wind indicator positioned on the marina in full sight of pilot.	Compliant when sighted correctly.
5	HLS markings	Compliant if the HLS markings meet the CAAP requirements (see Figure C7)	Compliant if all markings addressed: • HLS Identification Marking • FATO edge markings • Approach and departure path markings • Maximum operational helicopter tonnage marking
6	HLS access routes	The 'planned' gangway access from the Marina walkway to the pontoon would meet the primary pedestrian access requirements to/from the HLS. Given the expense and design issues to have an emergency access pathway, The Project Team plans to position life buoys on the side of the pontoon in the case of persons potentially needing to jump into the water in the extreme case of an emergency (see Figure C8).	Compliant given current planned design.
7	Fire-fighting equipment	The Marina will need to place appropriate fire extinguishers accessible to the HLS staff in the case of a fire.	Compliant if extinguishers are available and accessible.
8	Downwash Exclusion Zone	The planned exclusion zone for rotorwash (downwash) protection is detailed at Figure C9.	Plan reflects 30 m **from the edge of the FATO**. This distance is compliant.

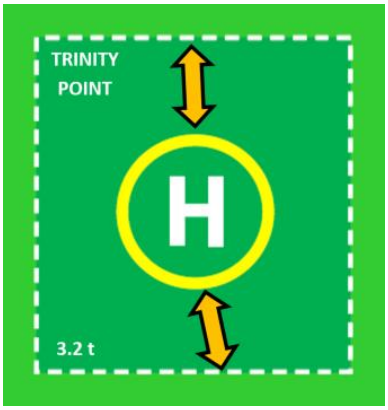


Figure C7: Indicative HLS Markings

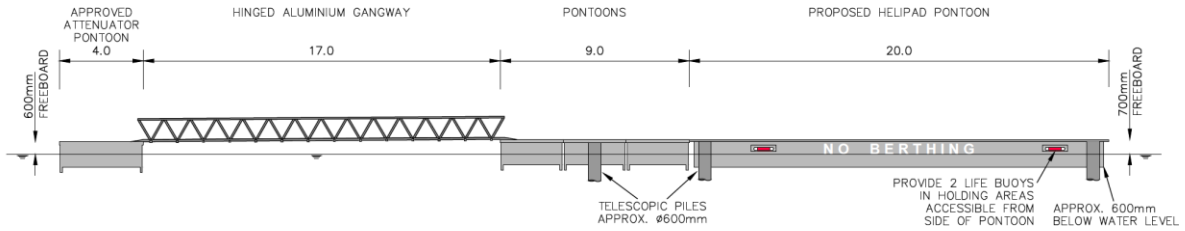


Figure C8: Planned Trinity Point HLS Design – Plan View with illustrated Life Buoy positions

Downwash. The downwash from charter helicopters, may cause movement of loose items if they are not secured prior to flight operations. CASA CAAP 92.2 (2) para 5.1 states:

> *"no person is within 30 m of the closest point of a hovering or taxiing helicopter, other than persons who are essential to the safe conduct of the operation or the specific nature of the task and who are trained and competent in helicopter operational safety procedures".*

Figure C9 illustrates the planned 30 m downwash exclusion zone (green dotted line) that would be applicable to the Trinity Point Marina HLS. A procedure to ensure the HLS is clear and that the exclusion zone is free of water craft will need to be developed for the HLS Operations Procedure.

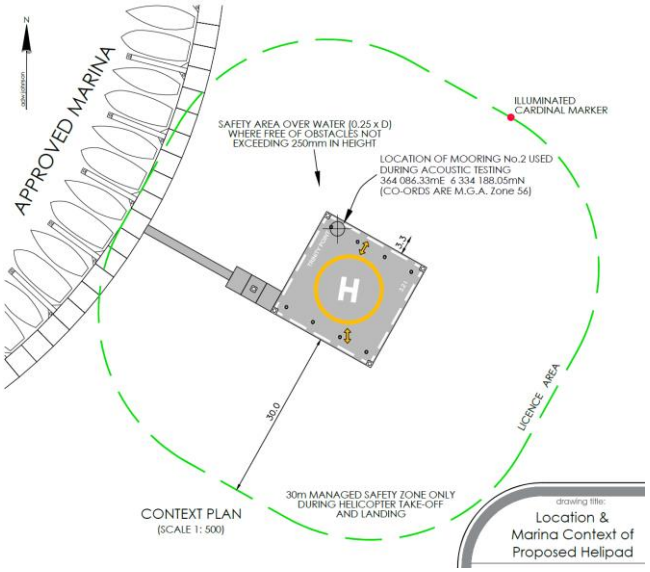


Figure C9: Planned Trinity Point HLS Design showing green Downwash Exclusion Zone.

Conclusion

Given the plans presented to AviPro and the analysis of these plans against CAAP 92.2 (2), the proposed Trinity Point Marina HLS plans, appear to meet the requirements of the CAAP.

AviPro provides the aviation advice as to the compliance of the facility to meet existing CAAP requirements. The engineering certification of the HLS pontoon however, remains a responsibility of the certifying structural engineering organisation.

APPENDIX D: DRAFT HLS OPERATIONS MANUAL

Contents

Author's note:

This Draft Manual is required to be finalised prior to the commencement of operations onto the HLS.

This final version must include robust safety and routine procedures, HLS inspection criteria, and the Essential Information for visiting pilots.

PART 1: HLS SUMMARY

The final HLS image needs to be inserted here.

Figure D1: Trinity Point Marina HLS

Name:	**Trinity Point Marina**
Lat/Long:	**33° 07' 92" S 151° 32' 33" E**
	(Location TBC on completion)
Elevation:	**0'**
Contact:	**02- (insert primary contact mobile number)**
Prior-permission:	**Yes. See Part 10 – Contact Details**
Approach/Departure Paths:	**Yes. See Part 5 – Approach/Departure Paths**
HLS Available:	**Daylight hours only as below**
Operating Hours:	**Mon-Sat: 8AM-end of daylight**
	Sun/Public Hols.: 9AM-end of daylight
HLS Limits:	**MAUW 3.2 tonne**
Fly Neighbourly Required:	**Yes. See Part 6 – Fly Neighbourly**
Communications:	**'Trinity Marina'**
	(VHF frequency to be inserted)

PART 2: HLS DESIGN AND MARKINGS

HLS FATO Size: The HLS FATO size is **20 m x 20 m** (Figure D2).

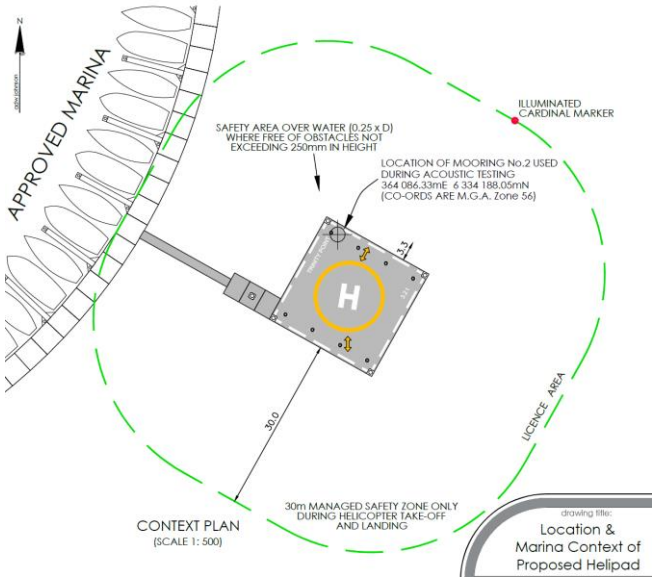


Figure D2: Draft Plan Illustration Trinity Point Marina HLS FATO 20 m x 20 m.

Static Weight Limitation: The maximum static design weight of the HLS is 3.2 t.

Maximum Helicopter Size: The maximum helicopter size (length from main rotor tip to tail rotor tip – turning) of the HLS is 13.05 m.

HLS Markings: The Trinity Point Marina HLS is marked as per the illustration in Figure D3.

The final HLS image needs to be inserted here

Figure D3: HLS Markings

PART 3: PRE-ARRIVAL HLS AND SURROUNDS INSPECTION PROCEDURES

TRINITY POINT MARINA HLS INSPECTION CHECKLIST

Daily Serviceability Inspection

Marina Staff are responsible for conducting an inspection of the HLS and surrounds to ensure operational readiness for an event that can occur without significant advanced notice. These inspections must occur at the commencement of each day and after significant weather events such as severe wind or rain storms.

Pre-arrival Inspection

The inspection is to confirm the operational and safety status of the HLS prior to all imminent helicopter arrivals.

Item	Yes	No
HLS Gangway		
Clear of any loose items		
Safety net clear and serviceable (if applicable)		
Fire extinguishers serviceable		
Non-slip surface intact		
HLS Deck		
Clear of any loose items		
Life Buoys - condition		
HLS Markings – serviceable and clear		
Non-slip surface undamaged		
Windsock serviceable and visible		
Marina Walkway		
Clear of any loose items between lights/booms		
Signage in position		
Access control in position (if applicable)		
Horn/Light Test (if applicable)		
HLS Exclusion Zone		
Clear of marine craft		
No vessel masts on main approaches (to be determined)		
Radio Check (if applicable)		

Author's notes:

Details of this Inspection will be finalised once the pontoon HLS is completed.

The inspection activity may be divided into 'daily' and 'pre-arrival' inspections.

PART 4: HELICOPTER RECEPTION/DISPATCH PROCEDURES

Pre-arrival:

Check that pilot has gained approval to arrive and has met the prior-permission requirements.

Check arrival time

Check aircraft call-sign/registration from pre-approval acceptance

Understand number of passengers disembarking/embarking

Helicopter shutdown: YES / NO.

HLS Daily/Pre-arrival Inspection complete

Check for any masts or obstructions near HLS under approach paths noting that the pilot will have ultimate responsibility to approach in a safe and unobstructed manner.

Arrival Reception:

Do not approach helicopter until pilot signals

PART 4.1: ROTORS RUNNING

Rotors Running - Unload:

- Obtain clearance from pilot to approach cabin door (See Figure D4).
- Approach and open cabin door – careful that objects/persons DO NOT fall out.
- Passengers to REMOVE CAPS AND LOOSE ITEMS that may fly off into the rotor system.
- Assist passengers out from ONE SIDE ONLY.
- Young children to be closely assisted by adults.
- Direct them to the gangway reception staff member.

WARNING: Passengers are to be kept away from the tail rotor (See Figure D4)

- Ensure all seatbelts and communication leads are INSIDE the helicopter.
- Close the cabin door carefully – DO NOT FORCE THE DOOR. If in doubt, ask the pilot.
- Signal to the pilot ‘thumbs up’ indicating doors secure.

Rotors Running - Load

- Passengers to REMOVE CAPS AND LOOSE ITEMS that may fly off into the rotor system.
- Young children or passengers requiring assistance TO BE CLOSELY ESCORTED.
- Obtain clearance from pilot to approach cabin door.
- Approach and open cabin door (See Figure D4).

WARNING: Passengers are to be kept away from the tail rotor (See Figure D4)

- Assist passengers into the aircraft from ONE SIDE ONLY.

- Before closing door, ensure all seatbelts and communication leads are INSIDE the helicopter.
- Close the cabin door carefully – DO NOT FORCE THE DOOR. If in doubt, ask the pilot.
- Signal to the pilot 'thumbs up' indicating doors secure.

PART 4.2: ROTORS STOPPED

Rotors Stopped - Unload:

- WAIT UNTIL ROTORS STOP before approaching the cabin door,
- Approach and open cabin door (See Figure D4) – careful that objects/persons DO NOT fall out,
- Welcome them inside cabin and direct them to the gangway and wait,
- Assist passengers out,
- Ensure all seatbelts and communication leads are INSIDE the helicopter,
- Close the cabin door carefully – DO NOT FORCE THE DOOR. If in doubt, ask the pilot

Rotors Stopped - Load

- Obtain clearance from pilot to approach cabin door.
- Young children passengers requiring assistance TO BE CLOSELY ESCORTED.
- Approach and open cabin door (See Figure D4).
- Assist passengers into the aircraft.
- Before closing door, ensure all seatbelts and communication leads are INSIDE the helicopter.
- Close the cabin door carefully – DO NOT FORCE THE DOOR. If in doubt, ask the pilot.
- Inform the pilot doors secure.

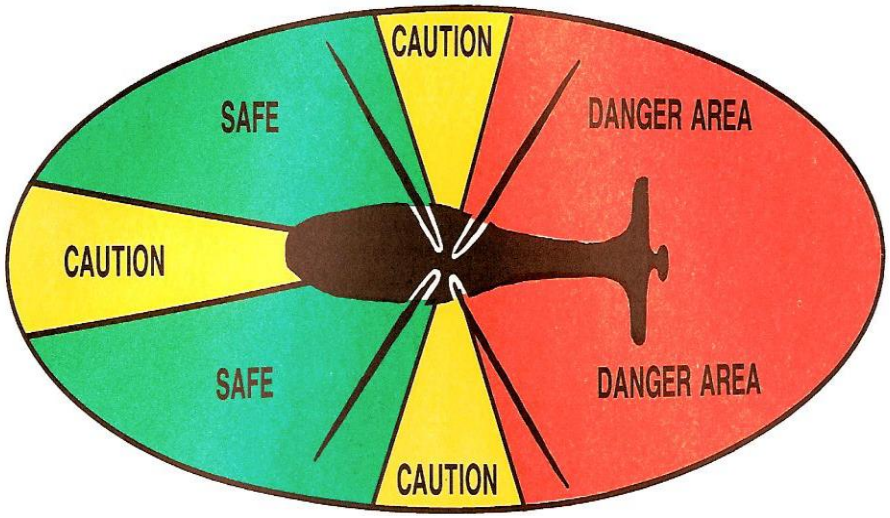


Figure D4: Helicopter safety zones

NOTE: At all times, the Marina Staff member MUST be safety aware. Passengers know nothing about helicopters. If in doubt, STOP. Control the HLS, inform the pilot.

PART 5: HLS APPROACH AND DEPARTURE PATHS

Introduction

The Trinity Point Marina Management are focussed on maintaining a safe work place and also to ensure users of the HLS are fully informed of the preferred approach and departure paths. All these paths have been identified as the least 'intrusive' on the residents of the Lake Macquarie area.

There are three preferred approach paths to the Trinity Point HLS. They are:

Approach and Departure Path A (Figure D5):

This preferred path approaches the HLS from the South and land towards the North, North East or North West. This approach path is conducted over the water. The preferred departure path takes-off into wind and then turns over water towards the South.

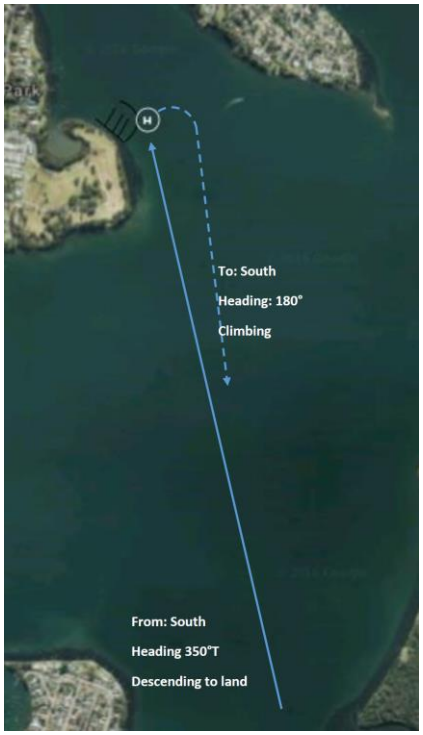


Figure D5: Approach/Departure Path A

Figure D6: Approach/Departure Path B1

Approach and Departure Path B1 (Figure D6):

This preferred path approaches the HLS in a Western or South Western heading to land at the HLS. This approach path is conducted over the water.

The preferred departure path takes-off into wind and then turns over water towards the South.

Approach and Departure Path B2 (Figure D7):

This preferred path approaches the HLS in a Southerly heading to land at the HLS. This approach path is conducted over the water.

The preferred departure path takes-off into wind over water towards the South.

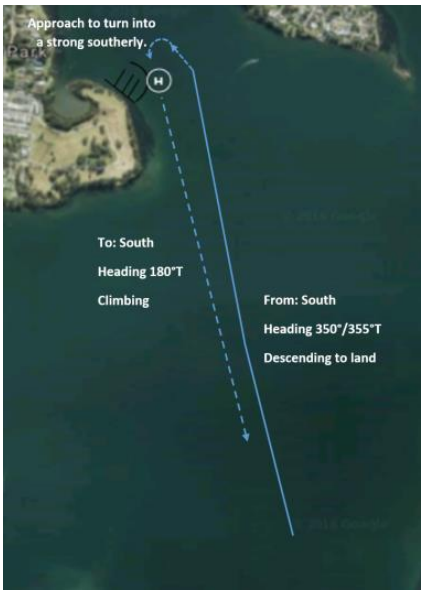


Figure D7: Approach/Departure Path B2

Figure D8: Approach/Departure Path C

Approach and Departure Path C (Figure D8):

This preferred path approaches the HLS from the North and land towards the South or South East. When this path is used, it will involve a flight over land between Windermere Park and Brightwaters.

The preferred departure path takes-off into wind and then climbs out over the water to an altitude where a turn towards their next destination can be made.

PART 6: FLY NEIGHBOURLY REQUIREMENTS

Background (from AirServices Australia – Helicopter Operations)

Helicopters are often used for services that are of benefit to communities, such as fire - fighting, crime prevention, search and rescue, construction and media coverage. Helicopter operations require flexibility, as they can be required to fly over residential areas that are rarely flown over by other aircraft. The noise helicopters generate can therefore be particularly noticeable to people who are not accustomed to aircraft noise on a regular basis.

Several airports and airfields have established Fly Neighbourly Agreements (FNAs) between aircraft operators and airports or local councils. These agreements help reduce the impact of aircraft noise on local communities.

FNAs for helicopter operators will normally include advice on how to avoid noise sensitive areas by following unpopulated routes (for example, waterways) or areas with high ambient noise levels such as highways. They usually advise that above residential areas, if possible, operators should:

- maintain a hover/circling altitude of at least 2000 ft (610 m),
- reduce speed
- observe low noise speed/descent settings
- avoid sharp manoeuvres
- vary routes
- use high take-off/descent profiles.

At most airports or helipads, standard departure and arrival procedures ensure that, if possible, twin engine helicopters should not fly over residential areas below 1500ft, however, normal flight is permitted down to 1000ft over residential areas. Lower levels will be flown during landing and take-off.

Occasionally, helicopters need to fly at lower levels. This could be, for example, for law enforcement, search and rescue, surveying or construction purposes. If a helicopter operator needs to fly below 500 ft for private operations or aerial work operations, authorisation is required from the Civil Aviation Safety Authority. In addition, helicopters that are being used in response to an emergency are permitted to operate outside normal procedures, should the circumstances demand.

Trinity Point Flying Neighbourly

Helicopter operations into Trinity Point Marina are expected to be infrequent at best. Regardless, we are committed to a Fly Neighbourly procedure and the provision of Fly Neighbourly advice to pilots will be used as a priority.

This includes the development of preferred approach and departure paths and the conduct of acoustic testing to minimise any inconvenience to surrounding communities.

Preferred Approach and Departure Paths. The preferred Approach and Departure Paths detailed in Part 5 to this Manual have been designed to take into consideration minimum noise effect on the surrounding communities. By designing these paths predominately over water, the helicopters should operate without travelling over or near populated areas.

In the case of the approach from the North towards the South, it is expected this may be infrequently used.

Acoustic Testing. Trinity Point Management has commissioned acoustic testing of the levels of helicopter noise that may be audible in surrounding communities. This testing was thorough and was a prime input to the design of the approach and departure paths. It was the acoustic results and the analysis of historical BOM wind data that has resulted in the preferred approach and departure paths.

Noise Sensitive Areas – Trinity Point

The aim of the fly neighbourly is to ensure any noise associated with the small number of flights to/from the HLS per day is minimised.

In addition to the flying techniques pilots could employ, the intent is to minimise, and where possible avoid, any flight over build up areas when below 1000'.

The illustration Figure D9 provides an indication of the 'avoid' areas.

Figure D9: Fly Neighbourly Avoid areas below 1,000'.

Class G Airspace – Uncontrolled

The airspace over and around the Lake Macquarie area is classed as Class G airspace. Air Services Australia categorise Class G Airspace as airspace that is uncontrolled. They further state both IFR and VFR aircraft are permitted and neither require Air Traffic Control clearance. This means that appropriately licensed pilots can operate their aircraft around and over the area without any permissions from air traffic or other agencies.

Figure D10 provides a current illustration of the airspace around the Lake Macquarie area taken from the CASA web Portal designed for private pilots transiting along the coastline or flying north of Sydney.
http://ontrack.casa.gov.au/index?craftType=fixed&aeroId=1325&direction=inbound&flightId=8111#

The lower level of controlled airspace over the Trinity Point area is 8,500' above sea level. As a consequence, there is no restriction in where aircraft can fly over the Lake Macquarie area.

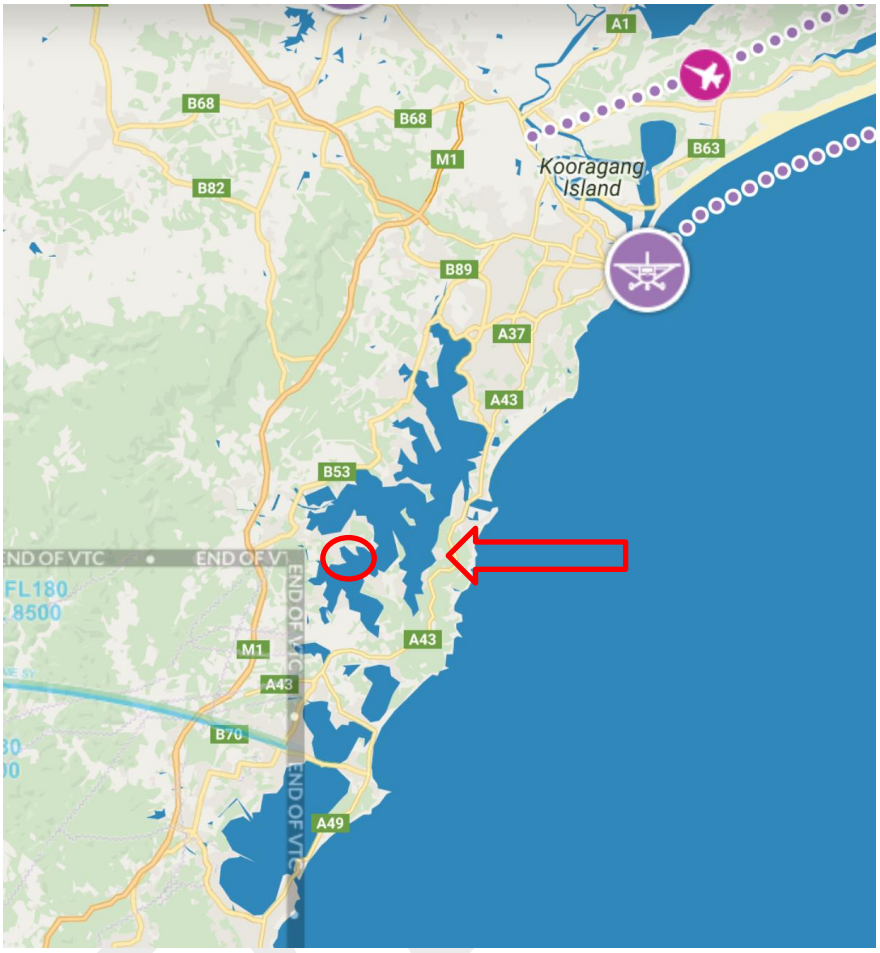


Figure D10: Extract from CASA 'On-Track' Inbound - Bankstown Aerodrome.

There are rules covering the height that helicopters can fly over residential areas.

'*…twin engine helicopters should not fly over residential areas below 1500ft, however, normal flight is permitted down to 1000ft over residential areas. Lower levels will be flown during landing and take-off.*[1]'

[1] http://www.airservicesaustralia.com/aircraftnoise/aircraft-operations/helicopter-operations

PART 7: ROTOR DOWNWASH CONSIDERATIONS

It is appropriate this Part follows-on from the Fly Neighbourly Part in this manual.

Rotor downwash is the movement of air as a consequence of the helicopter rotor creating lift. It is more prevalent during the take-off and landing phases of flight.

With the smaller helicopter types expected to use the pontoon based HLS at Trinity Point, it is still essential all stakeholders are aware of their responsibilities to minimise the effect of any downwash on people and objects.

Responsibilities

Pilots. Pilots are always responsible for the safe conduct of the flight. This includes any effects rotor downwash may have on persons and objects near a landing location.

Pilots will need to ensure their flight path is clear of potential objects, small craft, masts, and pedestrians on the marina walkways. This will normally be done in-conjunction with the duty Marina HLS staff member.

The preferred Approach and Departure Paths detailed in Part 5 of this Manual, provide guidance as to the preferred tracks to avoid noise sensitive areas. Pilots will ALWAYS remain responsible for keeping their aircraft clear of all obstructions.

Marina Staff. As part of these Procedures, the Marina Staff have duties detailed in Part 3: Pre-arrival HLS and Surrounds Inspection Procedures, and Part 4: Helicopter Reception/Dispatch and Escort Procedures.

Through these Procedures, Marina Staff will be responsible to ensure persons are clear of, and objects secure within, the 30 m 'exclusion zone' identified for the helicopter operations. Equally, the Marina Staff will need to ensure that small craft are not moored close to the HLS where any downwash from an arriving or departing helicopter could affect them.

Marina Management. The HLS is only rated to approximately 3.2 t maximum helicopter weight. As a consequence of the Prior Permission procedure in Part 10, Management have an obligation to limit the size of the helicopter permitted to visit the HLS. The HLS has been designed to meet the landing requirements of light helicopters only – and therefore lighter downwash. Heavier helicopters should not be permitted to land at the HLS.

Exclusion Zone

Figure D11 shows the planned exclusion zone for the protection of persons and security of objects. This 30 m radius from the FATO will be managed by Marina Staff. This includes making sure there are no pedestrians on the Marina walkway during the times when helicopters are operating to/from the HLS or small craft in the vicinity of the HLS.

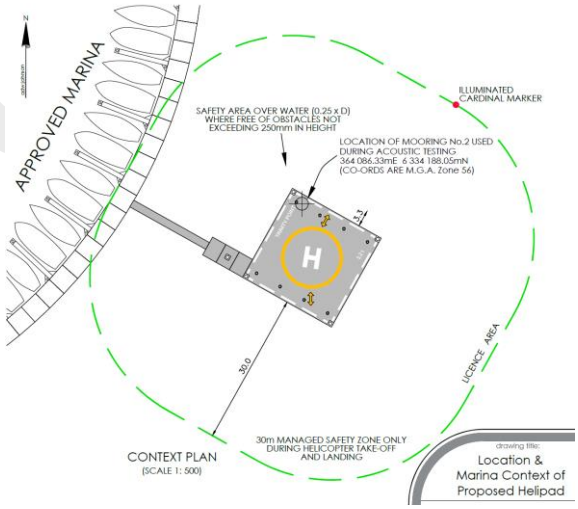


Figure D11: Planned Exclusion Zone (dotted green line)

PART 8: EMERGENCY PROCEDURES (need link to Marina emergency procedures prior to final Operations Manual)

Introduction

An emergency incident is any event that causes, or threatens to cause, or injury to Marina Staff, visiting mariners, helicopter passengers helicopter crew, bystanders, or persons in or near the HLS and/or damage to the helicopter, the HLS environment and/or equipment.

The HLS represents both the routine risks of the Marina site and specific risks associated with aircraft operations. These risks include:

- Helicopter accident;
- Helicopter fuel spill (Hazardous materials spill);
- Helicopter fire and/or explosion;
- HLS structural collapse; and
- HLS deck or locality fire.

All incidents on the HLS are managed using the same methodology and processes outlined in the Trinity Point Marina Manual.

Helicopter Fire Risks

In the event of a helicopter accident on the HLS deck, there is potential for a fire and/or explosion. The expected largest helicopter to land on the HLS is the Agusta 109. It has the maximum fuel capacity of any helicopter type likely to use the HLS, with a maximum capacity of 870 litres. It is therefore possible but unlikely, that up to 870 litres of Jet A-1 fuel (kerosene) could be on-board a helicopter on the deck.

Following an accident, a tank could rupture or fuel lines break, disgorging fuel onto the deck, followed by a possible fire. Ignition sources for this fuel include hot metal from the engine or exhaust systems or arcing from damaged electrical systems.

Firefighters face other potential hazards that may include explosions from oxygen bottles, nitrogen bottles or CO2 tanks that are carried as part of the aircraft equipment. High-pressure tyres and struts, magnesium components and hydraulic accumulators also pose a potential hazard and caution should be exercised if it is apparent that any of these items have suffered damage as a result of the accident.

Rescue Guidelines

Aircraft accidents are extreme events that may require actions that do not fall into a predictable pattern and that are unlikely to have been experienced by Marina staff members. The Marina Staff member responsible for the HLS should take a course of action based on experience, training and judgement, maintaining self-safety at all times.

When in doubt, wait for emergency services to arrive to undertake the rescue.

If survivors are in the wrecked aircraft and rescue appears feasible, remember:

- Only approach the aircraft if confident it is safe to do so and take a moment to ensure that no adverse risks are being taken;
- Do not approach the helicopter until the blades have stopped moving;
- The safest approach to the crash is generally from upwind, to the side of the aircraft fuselage;
- It will be easier to access the wreckage through hatches, rescue points, aircraft doors or emergency exits;
- Do not move any controls, handles or levers in the cockpit;
- Before trying to remove survivors, always unfasten or cut the seatbelt and shoulder harness and remember to disconnect the radio cord to the helmet or headset; and
- If survivors are wearing helmets leave them on until you have them clear of the wreckage.

Need to link with Trinity Point Marina Manual Emergency Procedures and fuel spill protocols.

PART 9: HLS CONTACT DETAILS

Trinity Point Marina is a private HLS. As a consequence, a Prior Permission to land approval is needed.

Name:	Trinity Point Marina	
Phone:	02- (insert best contact number)	
Email:	marinaops@trinitypoint.com.au (insert email for HLS contact)	
Open Hours:	Mon-Fri:	0800-end of daylight
	Sun/Pub Holidays:	0900-end of daylight
Website:	(insert web)	
	(need to ensure parts of these procedures are available on website)	
Weather Info:	Trinity Point Marina weather station link (insert web link to real-time weather station information)	
Prior Permission:	Trinity Point requires prior permission.	
	Pilots and Charter Operators need to gain approval and book a time	

PART 10: PRIOR PERMISSION PROCEDURE

Background

Trinity Point Marina is positioned on Lake Macquarie. As part of our commitment to the residents of the area, we have implemented a fly neighbourly procedure that will reduce any slight imposition of helicopter noise.

These initiatives are detailed in Part 6 and include:

- Fly neighbourly avoid areas
- Preferred approach and departure paths
- Restricted hours of operations
- Restricted number of flight movements to the HLS per day

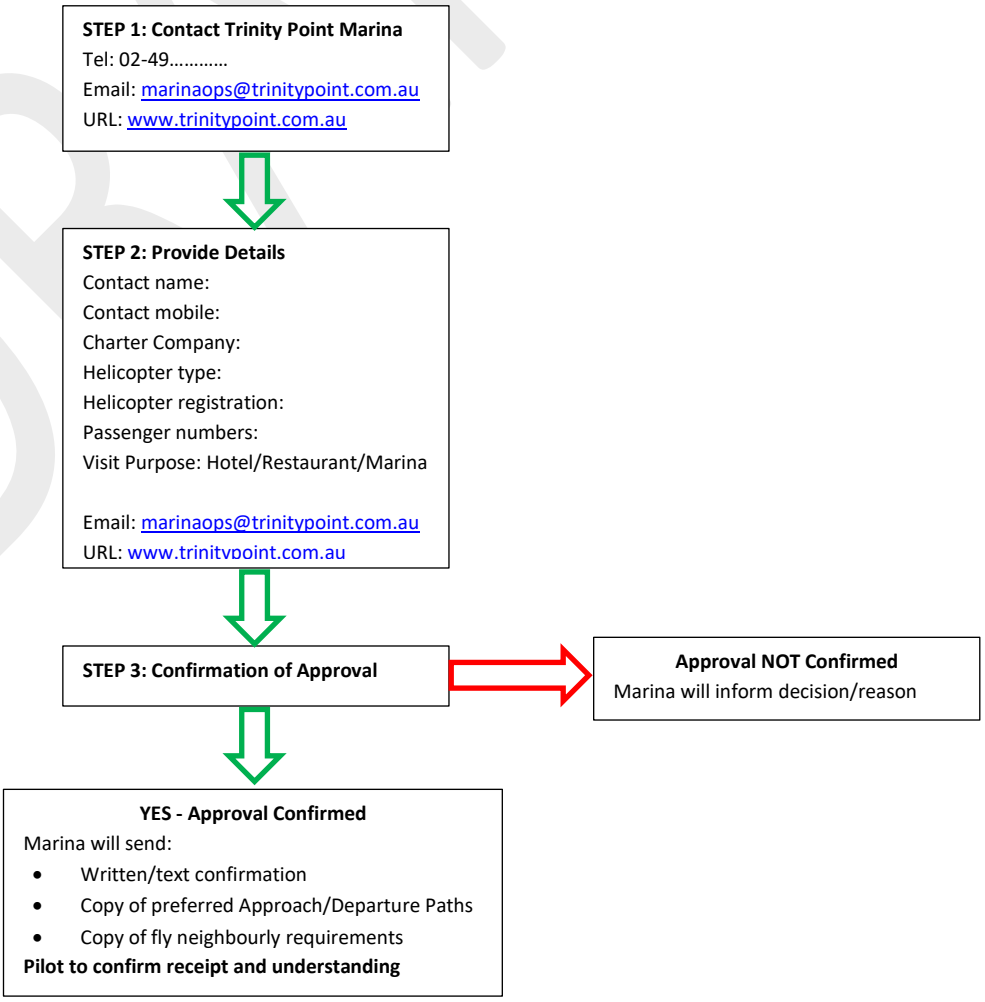
It is the Marina's intent to ensure all helicopter operators and pilots comply with this community approach to provide a safe and harmonious existence between helicopter flights to the Marina and the local residents.

Seeking Prior Permission

Helicopter operators and pilots planning to visit the Trinity Point Marina HLS need prior permission. The reasons include:

- There are limited flights per day.
- The HLS has a weight limitation and therefore only certain helicopter types will be permitted (see Table at Figure D12).
- Priority needs to be given to Marina Hotel/Restaurant guests.

Prior Permission Flowchart



List or Acceptable Helicopter Types Agusta 109 series

Bell 206 series

Bell 407

Airbus H125 (formally Eurocopter AS350)

Airbus H120

Airbus 130

MD 500

Airbus 135

PART 11: ESSENTIAL INFORMATION FOR VISITING PILOTS

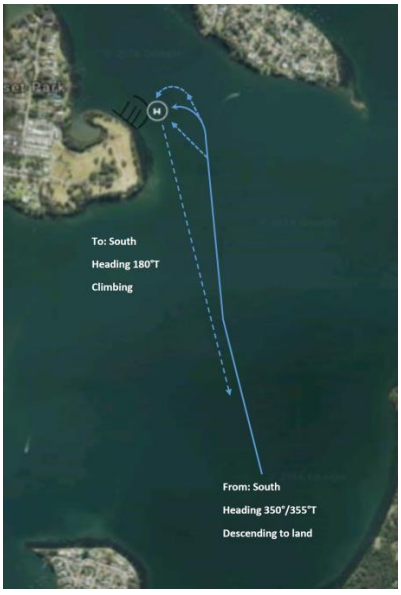
This Part provides the essential information for pilots planning to operate into/from the Trinity Point Marina.

The final HLS image needs to be inserted here

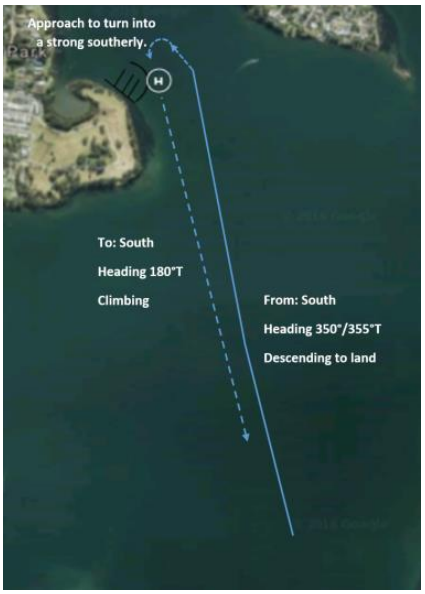
Trinity Point Marina HLS

Name:	**Trinity Point Marina**
Lat/Long:	**33° 07’ 92” S 151° 32’ 33” E**
Elevation:	**0’**
Contact:	**02- (insert primary contact mobile number)**
Prior-permission:	**Required, call Marina Ops 02- (insert number)**
Approach/Departure Paths:	**Preferred paths attached. Paths designed to meet most wind conditions. *Pilot remains responsible for the safe operation of aircraft.***

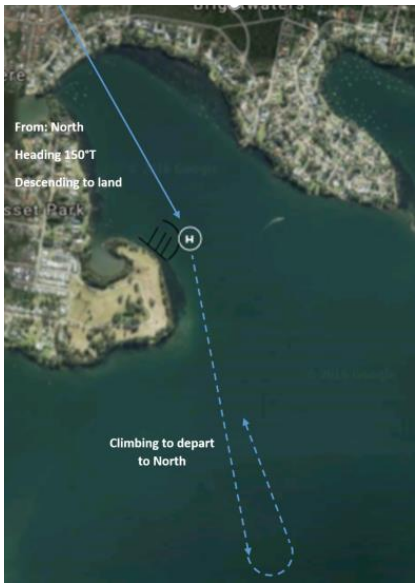
Approach/Departure Path A



Approach/Departure Path B1



Approach/Departure Path B2



Approach/Departure Path C

Note: The above preferred Approach and Departure paths provide access to the HLS whilst over water, with the exception of Path C. Path C involves flight over residential areas and pilots are requested to observe the fly neighbourly procedures.

No fuel available at HLS

Warning: Mast and small craft hazards may exist in the vicinity of the HLS

HLS Available:	**Daylight hours only as below**	
Operating Hours:	**Mon-Sat:**	**8AM-end of daylight**
	Sun/Public Hols.:	**9AM-end of daylight**
HLS Limits:	**MAUW 3.2 tonne**	
Fly Neighbourly Required:	**Yes. Figure below shows 'avoid' areas.**	

Communications: **'Trinity Marina' (VHF frequency TBD)**

PART 12: TRINITY POINT MARINA HLS STAFF TRAINING

(Note: this training to be considered in-conjunction with Marina Emergency Training and other training)

Introduction

This information has been prepared to provide the basis for the initial and on-going training of the Trinity Point Marina Staff responsible for HLS management. This position is called the Helideck Landing Officer (HLO).

Training Responsibility

The responsibility for training of Trinity Point Marina personnel in safe HLS operations is held by the Management HLO. AviPro will provide training support and it is planned initial training will be followed by periodic training observations and corrections (if required).

Initial training will be conducted at the HLS once the site has been built.

Training Policy

All Marina staff members who are expected to work on the HLS during helicopter operations must receive training on safe HLS operations at the commencement of their duties and annual updates for the duration of their employment.

The HLO will retain records of training sessions including the type of training delivered, dates and attendees.

Safe HLS Operations Training Syllabus

Training in the appropriate responses to a HLS Emergency situation will be provided to appropriate staff associated with the use of the HLS.

Safe HLS operations training consist of:

- Orientation to the HLS;
- Communication and HLS facility equipment;
- How to manage emergencies;
- How to work safely around aircraft; and
- How to manage passenger transfers to/from helicopters with rotors running and rotors stopped.

Upkeep and use of the fire extinguishers will also be included in the training.

PART 13: COMMUNICATIONS (to be issued)

This will be completed prior to the HLS becoming operational.

PART 14: HELICOPTER SPECIFICATIONS

Aircraft Name	Picture	Specifications
Bell 407		Passengers: 6 Maximum weight: 2,381 kg Engines: 1 Total length: 12.68 m Fuel capacity: 484 lr Max speed: 259 km/h
Bell 206B		Passengers: 4 Maximum weight: 1,451 kg Engines: 1 Total length: 11.96 m Fuel capacity: 366 lr Max speed: 225 km/h
Bell 206L		Passengers: 6 Maximum weight: 2,018 kg Engines: 1 Total length: 13.02 m Fuel capacity: 419 lr Max speed: 232 km/h
Airbus H125 (formally AS350)		Passengers: 5 Maximum weight: 2,250 kg Engines: 1 Total length: 12.94 m Fuel capacity: 540 lr Max speed: 259 km/h
Airbus 120		Passengers: 4 Maximum weight: 1,715 kg Engines: 1 Total length: 11.52 m Fuel capacity: 400 lr Max speed: 278 km/h

Aircraft Name	Picture	Specifications
Airbus 130		Passengers: 4 Maximum weight: 2,500 kg Engines: 1 Total length: 12.64 m Fuel capacity: 541 lr Max speed: 285 km/h
MD500 series		Passengers 3 Maximum weight: 1,361 kg Engines 1 Total length: 9.4 m Fuel capacity: 242 lr Max speed: 282 km/h
Airbus 135		Passengers: 6 Maximum weight: 2,835 kg Engines: 2 Total length: 12.19 m Fuel capacity: 717 lr Max speed: 259 km/h
Agusta Westland AW109		Passengers: 7 Maximum weight: 2,850 kg Engines: 2 Total length: 13.04 m Fuel capacity: 870 lr Max speed: 311 km/h

APPENDIX E: SUMMARY OF HELICOPTER SPECIFICATIONS

Aircraft Name	Picture	Specifications
Bell 407		Passengers: 6 Maximum weight: 2,381 kg Engines: 1 Total length: 12.68 m Fuel capacity: 484 lr Max speed: 259 km/h
Bell 206B		Passengers: 4 Maximum weight: 1,451 kg Engines: 1 Total length: 11.96 m Fuel capacity: 366 lr Max speed: 225 km/h
Bell 206L		Passengers: 6 Maximum weight: 2,018 kg Engines: 1 Total length: 13.02 m Fuel capacity: 419 lr Max speed: 232 km/h
Airbus H125 (formally AS350)		Passengers: 5 Maximum weight: 2,250 kg Engines: 1 Total length: 12.94 m Fuel capacity: 540 lr Max speed: 259 km/h
Airbus 120		Passengers: 4 Maximum weight: 1,715 kg Engines: 1 Total length: 11.52 m Fuel capacity: 400 lr Max speed: 278 km/h

Aircraft Name	Picture	Specifications
Airbus 130		Passengers: 4 Maximum weight: 2,500 kg Engines: 1 Total length: 12.64 m Fuel capacity: 541 lr Max speed: 285 km/h
MD500 series		Passengers 3 Maximum weight: 1,361 kg Engines 1 Total length: 9.4 m Fuel capacity: 242 lr Max speed: 282 km/h
Airbus 135		Passengers: 6 Maximum weight: 2,835 kg Engines: 2 Total length: 12.19 m Fuel capacity: 717 lr Max speed: 259 km/h
Agusta Westland AW109		Passengers: 7 Maximum weight: 2,850 kg Engines: 2 Total length: 13.04 m Fuel capacity: 870 lr Max speed: 311 km/h