GLADESVILLE BRIDGE MARINA ALTERATIONS AND ADDITIONS

NAVIGATION ASSESSMENT

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Proposed Gladesville Bridge Marina (GBM) Alterations and additions Project Navigation Assessment.

Executive Summary

Navigation on NSW waterways is principally regulated by the *Marine Safety Regulation 2016*, incorporating the International Regulations for Preventing Collisions at Sea (Col Regs). Mariners must make themselves aware of their navigation safety obligations under these regulations and must adhere to them. However other regulations also apply, specifically in relation to the environment and to commercial vessels. Additionally there are local rules, which will apply from time to time, in relation to aquatic and singular special events.

The proposed alterations and additions to the Gladesville Bridge Marina (GBM) are well designed and set in deep water with good navigating space in the confines of the Marina, in the holding area and on the southern side of the berths. The proposed berthing allocations will allow air drafted vessels exiting the Marina to enter the holding area safely, and pass under the Gladesville Bridge, prior to interacting with the channel traffic. There are no set obstacles or blind spots to cause problems approaching or leaving the Marina.

The existing Marina has a well established safety record gained over many years of operation. To provide an even greater safety overlay, Safe Operating Procedures (SOPs) have been developed. The SOPs will provide Marina clients, guests and the broader community with a comprehensive guide to Marina operations and how GBM's clients should safely interact with other vessel operators and conduct themselves as good neighbours with the land based community.

The proposed alterations and additions will lead to a modest increase in vessel traffic in and around the Marina. Client usage patterns indicate a very small percentage of vessels leave the Marina on weekdays whilst weekends and peak periods will see a greater movement of vessels in and out of berths. Given the prevailing, suitable weather and tidal conditions, the compliance regime and the layout of the Marina, vessels will be able navigate into the channel and return safely in most, if not all, situations. The exception may be in the most rare, severe storm events or fog, however the SOPs provide Marina clients with options for berthing in such extreme conditions. These include utilising the Marina's temporary set down and pickup berth and requesting the assistance of GBM management.

The local land based community also have a demonstrable safety and vessel handling record. Navigating past the Marina on the southern side of the bay and into the holding area should not present a problem for these mariners. It should be noted that owners and skippers who will utilise the proposed facility will have a significant investment in their vessel. Previous experience and observation indicates owners and skippers will take great care in how their vessels are handled and secured in the Marina environment.

Provision has been made in the design to include a gangway that will allow kayakers and other small passive craft to navigate close to the shore near the marina as an access option.

This will allow kayaks and other small passive craft to pass under the gangway, thereby facilitating access to the waterfront and also providing safer access to the southern side of the Parramatta River.

As noted in the *Strategic Review* (Ninesquared, 2019) demand analysis *The Marina Berth Demand Assessment* (Australian Marina Management Pty Ltd - marina consultants, 2019), the proposed additions and alterations will enhance the current Marina and provide much needed vessel storage and access for the boating community. The additional capacity will not adversely impact on current river traffic, including ferries and charter boats. Noting the regulatory provisions already in place, the SOPs and the vessels involved, navigation is anticipated to be conducted safely in the Marina confines and its surrounds.

Reliance and Disclaimer

The professional analysis and advice in this report has been prepared by Brett Moore Navigation Consultant (Navcon) for the exclusive use of the Gladesville Bridge Marina (GBM) project.

This report is provided in good faith and reflects the knowledge, expertise and experience of the consultant involved. The report must not be published, quoted or disseminated to any other party without the consent of the Navcon or the proponent of the Gladesville Bridge Marina Expansion project without prior written consent.

The Navcon accepts no responsibility whatsoever for any loss occasioned by any person acting or refraining from action as a result of any reliance on the report.

In conducting the analysis in this report the Navcon has endeavoured to use the best information available at the date of publication, including information supplied by GBM and RMS unless stated otherwise.

The Navcon does not warrant the accuracy of any forecast or prediction in the report, although the Navcon exercises reasonable care when making forecasts, predictions and commentary in relation to external factors which are, but not limited to, future ferry timetables, boating growth in all its forms, waterside development, sea level increase, environmental issues and economic factors which could impact the Marina or the boating industry.

Governance

Navigation on the river is governed by the Marine Safety Regulation 2016 (MSR) and the International Regulations for Preventing Collisions at Sea as amended (Col Regs) and the Domestic Commercial Vessel Regulation (MSDCVR). Environmental matters are covered by the Protection of the Environmental Operations Act 1997.

All users, both commercial and recreational, must comply with these provisions along with any local rules introduced by State Regulators. Safe navigation is paramount both on the river, in the Bay and whilst operating in the confines of the Marina. Roads and Maritime Services (RMS), as the regulator, must convey to Marina management any permanent, temporary or other navigational matters, which could affect safety in and around the Marina.

Any new regulations or information provided by the regulator will be amended or published in the Marina Safe Operating Procedures (SOPs) and distributed to clients.

Introduction

The drawing no 21-27558-K101 Rev G prepared by GHD Pty Ltd is the document referred to in this Navigation assessment (**Appendix 1**). The drawing indicates the extent of the project and shows the existing Marina arms and the proposed extensions. Refer to **Appendix 1**.

The drawing also shows an outline indicator of the maximum length of vessels for each berth and the maximum beam of a vessel, which can occupy a particular berth. Smaller vessels may be allocated a larger berth depending on occupancy and vessel handling characteristics. The drawing also shows the position of the current infrastructure and dwellings in, and on the foreshores of, the bay.

The drawing at **Appendix 2** indicates the current mooring layout east and west of the bridge

The proposal is to extend the Marina's capacity from the current 50 wet berths to 115 wet berths. The new configuration will allow capacity for larger vessels and increase the berthing space for smaller craft. There will also be some capacity to retain a number of the existing swing moorings to support vessel storage for clients who do not require or want to have a wet berth.

The Marina currently has permission for 99 boats and would increase this to a total of 130 boats. The proposal would increase storage from 50 to 115 boats as Marina floating berths and maintain 15 commercial mooring spaces. This would mean 31 additional storage spaces overall.

The new proposal extends east from the existing C and D arms to an area just west of the Bridge deck. An extended view of the proposal indicates a line of moorings from the east at Wrights Point to pass under the bridge along a line extending west to the old Gladesville Bridge southern sandstone abutment. A revised mooring field for discussion purposes is referred to at **Appendix 3.**

It should be noted that in some circumstances the vessels on the moorings east of the Bridge would sit further to the northeast and move according to the prevailing winds.

Purpose of the Report

This report provides a strategic overview in relation to navigational, transport and other water related boating matters, which will be factored into the construction process and the day to day operations of the proposed marina alterations and additions.

The holding area at the eastern end of the marina has been designed to facilitate safe interaction with river traffic by allowing vessels to wait in an open area for the purpose of keeping a proper lookout prior to entering the channel.

Additional measures have been developed to provide marina clients with Safe Operating Procedures to utilise at the marina whilst navigation is governed by the Col regs.

River transport should not be affected noting the regulatory provisions already in place and the additional channel space, which will be created by the removal of commercial moorings currently attached to the marina.

Consultation has occurred with the local community and relevant Government agencies regrading matters of navigation in and around the marina to provide detailed information on the project and receive community feedback both positive and negative. Specific queries and suggested changes have been noted and addressed where possible in the report to provide balance in the spirit of cooperation.

The Secretary's Environmental Assessment Requirements (SEARS) is specific and this report addresses certain elements raised under the various headings, specifically sections:

- Strategic Context
- Marine Safety and navigation including:
    - details of the commuter ferry routes and an assessment of the impact of the construction and operation of the marina on these services;
    - an assessment of the impacts on water-based traffic and the existing users of the Parramatta River in the vicinity of the marina; and
    - details of private boat moorings surrounding the site and an assessment of the impact of the construction and operation of the marina on these moorings.

History

The area where the current Marina is situated has been utilised as a vessel building and limited berthing facility for over one hundred years. At times there have also been substantial slip and repair activities associated with the operation. A corner of the bay has also traditionally been used as a mooring area. The present day Gladesville concrete span bridge was opened in 1964 and the current Marina has been in operation for approximately fifty years.

Safety record

Gladesville Bridge Marina has a well-established safety record and has functioned without a serious navigational incident for many years. Noting this record it is reasonable to assume the extended Marina with additional vessel berthing procedures will operate in the same safe manner.

Marina management may wish to qualify the abilities of owners and skippers to ensure competency levels are commensurate with the accessibility of an allocated berth. GBM will implement a set Safe Operating Procedures (SOPs) for clients on the Marina. This document will provide a comprehensive guide for skippers and guests to follow specifically in relation to safety and environmental matters in and around the Marina. A more detailed description of this document is included at **Appendix 4**

Tides

The current Marina sits in a semi enclosed bay and is not adversely affected by tidal flows or particular tidal instabilities. Spring tides can generate a flow of approximately less than one knot in the channel with some minor residual affect in the bay, whilst neap tides have very little effect on the Marina and the commercial moorings east of the Bridge.

Major rain events where storm water flows into the system can cause flow issues outside the tidal conditions described earlier. Fresh on salt water flows due to rain or storm events can impact the channel and has only a slight effect on the Marina due to its position in the bay.

Noting the small tidal influence in the bay, navigation can be conducted safely in most, if not all, conditions in and around the Marina

Wind

Commentary on this topic is provided from observation and interview. It is not intended to be scientific and does not contain any data to support any opinions or conclusions.

The proposed Marina extension will be protected from most winds, which will allow vessels to berth in nearly every situation. Certain weather events and storms might cause issues from time to time however due to its location, the Marina is well protected.

The predominant wind direction in summer is from the northeast and south and during winter winds are generally from the west-north-west and west.[1] Noting the confines of the river in that location and the Bridge, skippers will experience a fairly consistent breeze, which is predictable and manageable.

Vessels with air draft will be prone to more windage and require additional care in berthing procedures. Winds from the south and west can be treated in the same manner however the overlay of safety prevails in all cases and the decision to berth will be in the hands of the skipper

Boating Usage Patterns

Usage patterns of vessels stored on Marinas and moorings is dependent on location, population accessibility, the availability of the owner to find the time to utilise a vessel. Anecdotal evidence from the recreational boating and marine sector and basic research, indicate vessel usage hovers around fifteen to twenty per cent at peak boating times (summer weekends, special events, school and public holidays) and from two to five per cent at other times.

Similarly, usage of vessels on moorings is around eight to ten per cent at peak times and lower on weekdays. The winter months can see usage reduce even further. Noting this, the increase in berths in the expanded section should not be difficult to manage or cause substantial traffic issues in the river, as the vessels do not vacate the Marina at the same time.

Anecdotal information from Marina operators along the NSW coast suggests vessels on berths are used on average twenty times per year with vessels on moorings being used even less frequently.

A time capture was undertaken on the 29th April 2019; there were a total of 29 power vessel movements either in the Marina or outside the confines. There was a blend of power and sail vessels in this capture however they all would have been under power or towed. The GBM work boat made 9 trips on the day. The slipway had 2 movements and there was a small fishing boat, which pulled up to the marina. The movements in and out were made up of boats leaving the Marina and travelling either east or west for some time or, boats leaving the marina for testing purposes. In addition to the 29,

[1] Air Quality Assessment, prepared by GHD dated October 2019

there were also 2 kayak movements. This type of vessel movement is typical for April and would diminish as winter approached. The summer would see a greater movement of vessels particularly those leaving the Marina and heading East for the day. Subject to the completion of the alterations and additions this movement pattern would increase by around 30% noting the additional vessels in the Marina.

The loss of the slipway will reduce day to day movements by vessels utilising the slipway facility.

Navigational care entering and leaving the marina.

The design of the Marina, including the navigation holding area under the Bridge, allows for the safe manoeuvring of vessels to observe the channel at that **T** intersection prior to heading east or west. The **T** is formed by the Marina on the western side and the mooring area on the eastern side with the holding area making the centre of the **T**. Safe navigation is paramount and all mariners must observe the provisions of the Col Regs in all circumstances.

Interaction with Rowers and Sailing Club Vessels

Rowers tend to train early in the morning thus lessening the frequency of interaction with Marina traffic. Nonetheless, there is an existing aquatic licence course (the yellow line) across the northern face of the Marina, which is to facilitate rowing activities in the area. Officers of Roads and Maritime Services are insistent on maintaining this longstanding single file training course; This together with feedback from stakeholders informed revisions to the preliminary design.

The area under the Bridge is a natural pinch point and care must be taken when navigating in this area. Noting the extension of the Marina, sailing club members who utilise this section of the river will, as they do now, proceed with caution keeping a proper lookout for vessels and travelling on the starboard side of the channel. Club members continue to follow their own sailing rules and avoid tacking in the Bridge area or sailing into the established mooring fields.

Adverse weather conditions.

The Marina and surrounds are largely protected from winds and tides due to their position in the bay, however there will be occasions when more severe weather conditions impact the Marina.

Certain storm conditions which include, but are not limited to, rain events, high winds and fog have the potential to cause navigational issues in and around the Marina. Adverse weather conditions are usually preceded by a warning from the Bureau of Meteorology (BOM), which alerts boaters about impending bad weather.

In the event of a vessel returning to the Marina in bad weather, the SOPs will indicate a process to bring a vessel along side and in a safe place to allow Marina Management to assist in berthing the vessel temporarily. The vessel can remain secured until it is safe to move back to its allocated berth.

Ferry Services on the Parramatta River

Media reports indicate there could be additional ferry services on the Parramatta River. Whilst this will have an impact on vessel traffic there are specific regulations that must be adhered to by recreational and commercial vessels to safely transit the River. It is imperative that skippers drive to the conditions, which could mean slowing down, maintaining channel separation, avoiding collisions and keeping a proper lookout. The same can be said for vessels entering or leaving the Marina precinct irrespective of additional or normal traffic.

Harbour ferry services have increased over the years with boaters adjusting to additional services and being aware that ferries, in the main, take the same course to preserve a timetable.

Currently ferries slow down in the channel under the Gladesville Bridge due to the long established low wash zone, which is an additional traffic and environmental feature to assist in safe navigation. The current Rivercat ferries have a banana shaped hull, which on the surface appears to generate very little wash, however there is a pressure wave generated under the water, which causes wash when that wave reaches the shore. Government indications are that any new ferries used in the river transport system will be of a genuine low wash variety.

The current Circular Quay to Parramatta and return service only runs to Rydalmere as the Parramatta wharf is currently being renovated.

Utilising the current timetable there are ninety eight journeys which would pass GBM on weekdays and approximately ninety five on weekends. The service reduces to about fifty three services on Public holidays. Noting the service has been running for many years utilising the same course past GBM and slowing in the no wash zone, the modest increase in vessels utilising the marina should not experience difficulties interacting with river traffic. The route taken by ferries as they pass the Marina is the starboard side of the channel in the direction they are travelling, unless they have to avoid other vessels in the channel.

Navigation during construction

Noting the current layout of the marina in the confines of the bay and the proposed design of the alterations and additions, it is anticipated plant and machinery required for the construction phase will be able to operate without impacting on river traffic. Current indications are that plant involved in construction will be secured within the marina boundaries and if required lit buoys will indicate any navigation hazards around the construction zone. This type of requirement is common when plant and equipment are operating in navigable waters. In addition, a notice to mariners will also form part of the communication process to alert river traffic of any potential obstacles during the construction period.

Navigation, marine flora and siltation movement

Commentary on this topic is provided from observation and interview. It is not intended to be scientific and does not contain data to support any opinions or conclusions. For information, the reader is referred to the Ecology Assessment report in the Environmental Impact Assessment appendices.

The current Marina layout is set in deep water and does not appear to have any major impact on marine flora. The depth of water also mitigates any sediment movement from propeller agitation.

Vessels berthed against the shore in the bay at private properties are more likely to cause sediment movement as they are secured in most cases ‘stern to’ in their allocated berths and operate in shallower water. Vessels berthed at the Marina closest to the shore or operating in shallower water will be encouraged to keep their wash and propeller agitation to a minimum to control the possibility of any sediment movement.

The fish life under the Marina is prolific as it is well known that fish like structure. In common with many other Marinas GBM supports this fish life by providing protection and a food source on the underwater infrastructure. Recent observations reveal large bream and other species under the vessels and around the piles. The Marina is also one of the first Australian accredited “Fish Friendly’ marinas.

The Low Wash Zone in the Vicinity of Gladesville Bridge

Low Wash Zones can be established in an area by RMS simply by the erection of signs. Low Wash Zones do not require gazettal however they are subject to a media campaign and, in the main, are established following significant consultation with users and other stakeholders in the community.

The whole notion of wash requires education and explanation to ensure the boating public understand how wash can cause an array of issues, chief of which is safety.

The existing Low Wash Zone in the vicinity of the Gladesville Bridge was established sometime in 1993 following user group representation to the then MSB Waterways Authority to address wash caused by larger power vessels transiting the area at semi displacement speeds.

Accordingly the Low Wash Zone has been in place for 26 years and, as indicated in the Boating Safety Plan, Sydney Harbour 2014, it will not be altered from its current location on the river.

An Explanation of Wash

All vessels propelled through the water will generate some form of wash. A rowing shell at full speed will generate the smallest amount of wash, which is barely discernible on the surface of the water. A yacht under sail in a moderate breeze will generate very little wash.

A fast planing hull with a large outboard engine running at speed will be sitting on top of the water, generating some wash as it passes. Should the same vessel slow down to a moderate displacement speed where the hull is moving in the water, not on top it, this vessel will generate a much larger wash signature than if it were on the plane.

At displacement speed, the operator of the same vessel can reduce wash by slowing down. Should the area concerned have a gazetted speed limit and a low wash zone then care must be taken to comply with both provisions. Speed or planing is not an option in this case.

A large displacement cruiser at speed will generate a significant amount of wash. That being the case in a low wash area, the skipper should slow down significantly to minimise the wash signature.

The same could be said for a semi-planing hull as these hulls tend to 'bog down' in the stern causing a lot of wash and in turn generate a stern wave, which can cause problems for other boaters.

Regrettably a lot of boaters do not understand wash, its source and the impact it can have on other users. For this reason, GBM will provide information to Marina clients about wash in its SOPs.

Commercial and private moorings

To facilitate the additional berths GBM will relinquish approximately 29 commercial moorings east of the bridge. Existing private licensees east of the bridge will retain their positions and should not be affected. Should some slight repositioning be required, the cost of any revision will be borne by GBM. A total of 15 commercial moorings will be retained by GBM to service clients requiring a swing mooring.

Marina management will consult and negotiate through RMS with private mooring licensees who will be affected by the positioning of the new arms to relocate their moorings to an agreed position east of the bridge as close as possible to their current location at no cost to the licensee.

A revised draft preliminary mooring layout has been prepared by GBM. Refer to **Appendix 3.** It should be noted the plan is in a consultation phase with RMS and HCF to ensure safe navigation outcomes and to inconvenience private mooring licensees affected by the proposed alterations as little as possible. HCF will also benefit from additional channel width, which is indicated on the plan, however the exact location of the 15 retained commercial moorings is still to be determined.

It is proposed that the mooring line which currently exists from Wrights point, to a spot north of the old Drummoyne side stone bridge abutment (Five Dock Point), will be moved to the south via a reduction in commercial moorings to allow more channel space in that part of the river. The emergency mooring at the eastern end will be relocated to provide additional navigational space. The gain in channel width will be approximately 28metres. This is shown in **Appendix 3**.

Passive craft in the bay

Paddle craft utilising the bay will be able to circumnavigate the Marina with the addition of a gangway that will allow kayakers and other small passive craft to navigate close to the shore near the marina as an access option. Paddlers will be able to pass under the Marina gangway at all tides to facilitate a passive run from east to west and reverse inshore of the Marina and moorings.

In case of Fire

The combat agency for fires is the NSW Fire Brigade who have provided advice to GBM management regarding how to contain or manage a boat fire in the marina. The current strategy is to isolate the vessel in so far as it is possible and attempt to extinguish the fire and bund the immediate area to secure any oil or fuel, which may be leaking from the vessel. It is common practice to let a glass fibre vessel burn as this type of material is very difficult to extinguish. The NSW Fire Brigade no longer have access to small fire fighting vessels and rely on Sydney ports to assist in the event of on water fires. In relation to GBM, Sydney Ports can respond upon request from the Brigade which will allow a high capacity fire fighting tug to approach from the channel or the small Ports pump vessels to get in close to the shore.

Safety Operating Procedures

Refer to **Appendix 4**

Definitions

Safe Operating Procedures SOPS

- An internal document prepared by Marina Management to provide clients and guests with specific guidelines on how to operate in the confines of the Marina and how to integrate into the broader channel

Governance

- Refers to the International Regulations for Preventing Collisions at Sea as amended (Col Regs) and the Marine Safety Regulation 2016, as amended (MSR) and the Marine Safety Domestic Commercial Vessel Regulation (MSDCV), as well as the Protection of the Environment Operations Act 1997 (POEO Act)

Air draft

- The area occupied by a vessel above the waterline. This term in the recreational sense usually applies to yachts or large vessels with multiple levels or decks.

RMS

- Roads and Maritime Services. From 1 July 2019, the maritime functions sit under the broad Transport portfolio. A new identity will be provided by the State Government however for the sake of this report the term Roads and Maritime or RMS will be used.

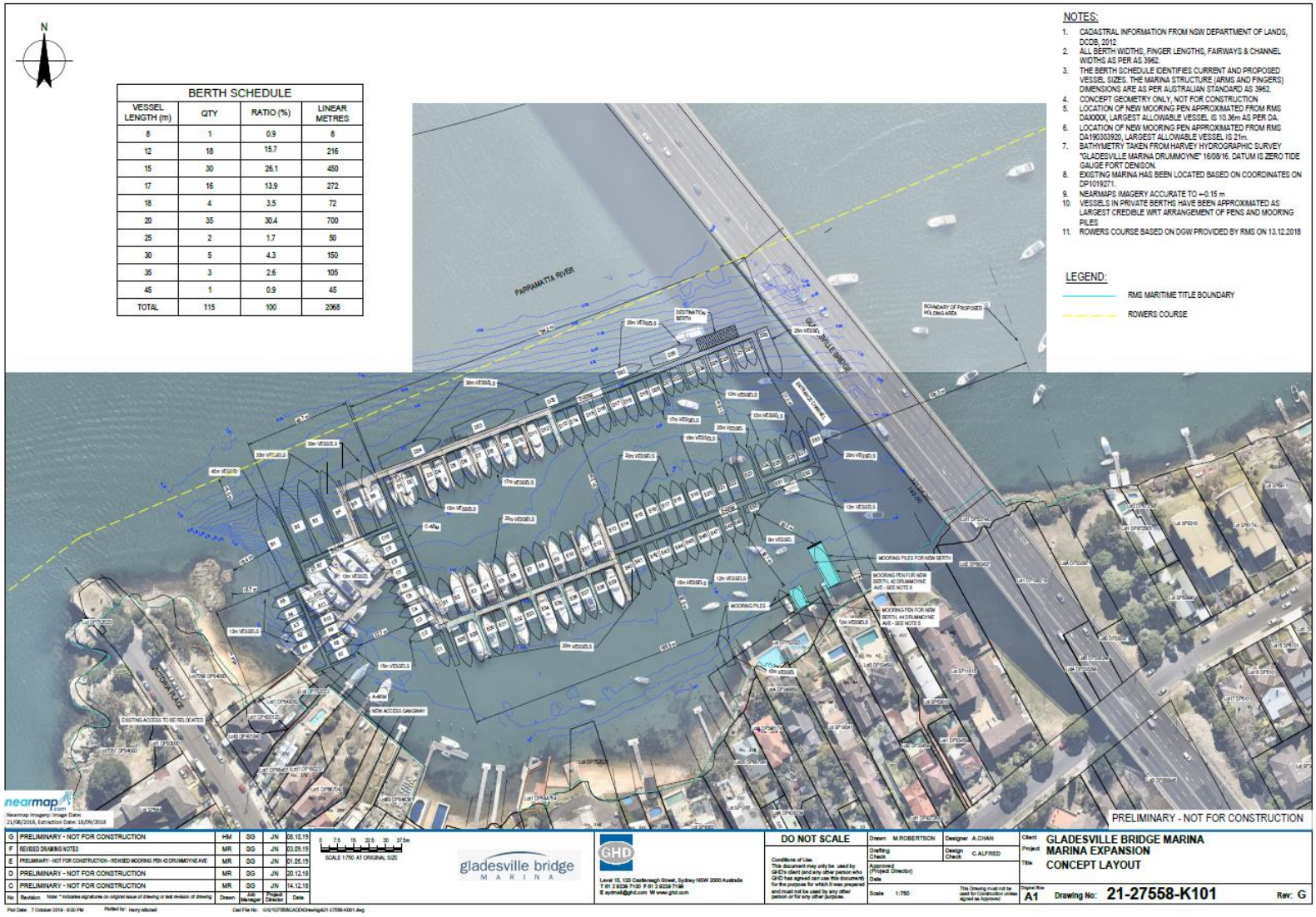
References

- Boating Safety plan, Sydney Harbour and its Tributaries 2014
- Regional Boating Plan, Sydney Harbour Region 2015

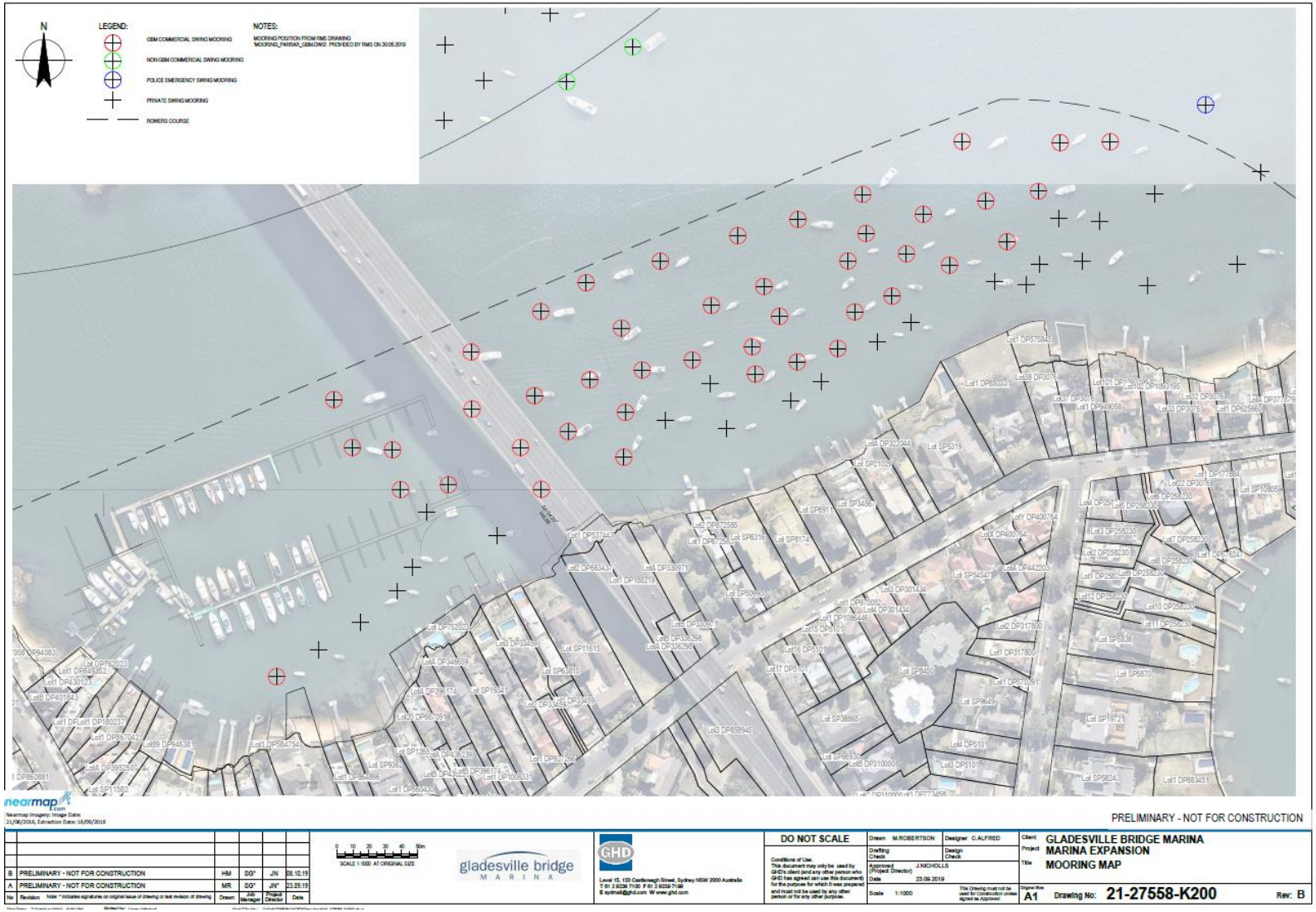
Appendices

- Proposed marina alterations and extensions Rev G **Appendix 1**
- Current mooring field east and west of the bridge **Appendix 2**
- Preliminary Draft revised mooring field for discussion **Appendix 3**
- Safe Operating Procedures (SOPS) **Appendix 4**

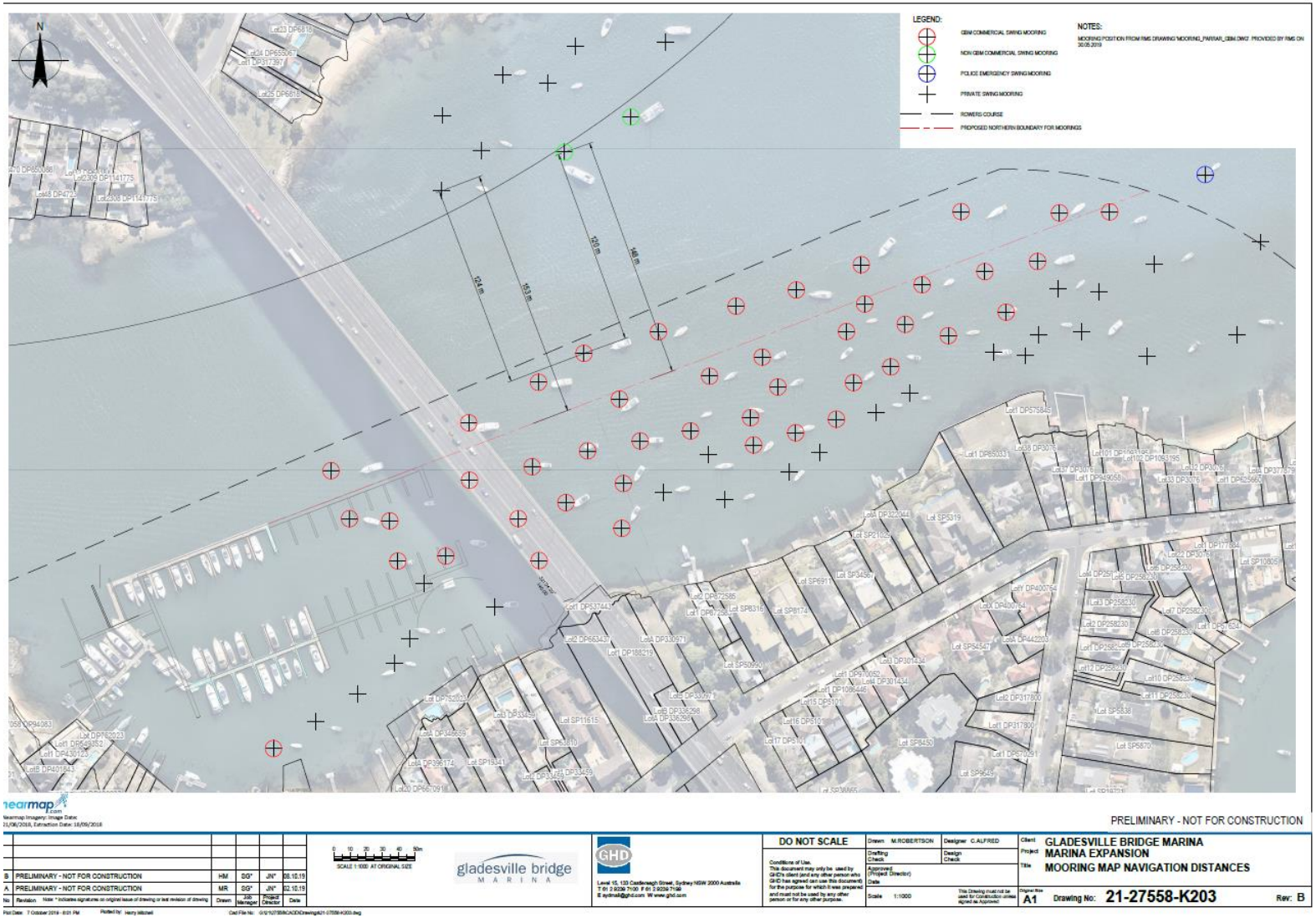
Appendix 1 – PROPOSED MARINA ALTERATIONS AND EXTENSIONS REV G



Appendix 2 – CURRENT MOORING FIELD EAST AND WEST OF THE BRIDGE



Appendix 3 – PRELIMINARY DRAFT REVISED MOORING FIELD FOR DISCUSSION



Appendix 4 – SAFE OPERATING PROCEDURES (SOPs)

PART A:

INTRODUCTION

Safety is our chief concern at Gladesville Bridge Marina (GBM) and so we request you take some time to read these Safe Operating Procedures to familiarise yourself, crew and guests with them.

While safety is our main concern, there are other important operating matters which promote a clean and low noise environment.

GBM is situated in an excellent position for vessel storage with close access to the Harbour but, because of its suburban location, it is paramount that noise be kept to an absolute minimum when operating in the confines of the Marina, exiting and entering the berths and while in the holding area.

Specific legislation applies to vessels and their operators and the main ones are as follows:

- *Marine Safety Regulation 2016* (incorporating the *International Regulations for Preventing Collisions at Sea*, known as the ColRegs);
- In particular ColReg rules 5,6,7 and 8;
- *National System for Domestic Commercial Vessel Safety 2013*; and
- *Protection of the Environment Operations Act 1997* and its Regulations.

GBM management has developed this brochure which establishes key 'headlines' to assist in understanding the operating environment and interaction with river traffic. Refer to the references at the end of this document for further information.

PART B:

PROCEDURES APPLICABLE TO THE MARINA CONFINES AND HOLDING AREA

1. VESSELS

All vessels are to be:

1.1. registered, identified, marked and equipped in accordance with the *Marine Safety Regulation 2016*;

1.2. comprehensively insured; and

1.3. seaworthy and capable of undertaking a voyage under the *Marine Safety Regulation*.

2. NAVIGATIONAL SAFETY AND MANOEUVRING OPERATIONS

All vessels and vessel operators, as applicable, should:

2.1 proceed at a safe speed and no more than 4 knots;

2.2 operate so as to produce 'low wash'; and

2.3 ensure that, when manoeuvring vessels of 20m or more in length into/out of the 'B' arm, there is a person on the bow to act as lookout.

While not mandatory for smaller vessels, precaution 2.3 is recommended.

> **NB:** GBM management also strongly recommends that children under 12, poor or non swimmers and the elderly wear lifejackets when they are within the confines of the Marina.

3. BERTHING ARRANGEMENTS

3.1 GBM management has authority over the berthing and manoeuvring of all vessels at all times;

3.2 GBM management is responsible for directing all vessel berthing and mooring allocations;

3.3 berthing and mooring allocations may change at any time at the discretion of GBM management; and

3.4 charter vessel passenger pick-up and drop off operations are prohibited at the Marina.

4. POOR WEATHER CONDITIONS

4.1 in severe storms and other adverse weather conditions, operators may temporarily tie up alongside the section of the Marina which is normally set aside for pick up/set down operations.

PART C:

PROCEDURES APPLICABLE TO NAVIGATION IN THE VICINITY OF THE MARINA

To promote safe interaction between traffic leaving and/or approaching the Marina, and other vessels in the navigation channel, the following procedures apply:

5.1 under the Gladesville Bridge, a **T** intersection is formed by the Marina on the western side and the mooring area on the eastern side, with the Marina's holding area situated at the centre of the **T.** The holding area allows for the safe manoeuvring of vessels to observe the channel at the **T** intersection prior to heading east or west;

5.2 once heading east or west in the channel, vessel operators are to comply with the ColRegs, in particular:

- operate in accordance with the conditions;
- keep a good lookout, especially if crossing the channel;
- keep to the right of the channel;
- give way to all unpowered vessels and ferries;
- maintain channel separation; and
- obey all speed and low wash zone requirements; and

5.3 respect the aquatic licence course (the yellow line across the northern face of the Marina) which facilitates safe rowing activities in the area.

PART D:

ENVIRONMENTAL CONSIDERATIONS

6. NOISE GENERATION

6.1 any noise emanating from vessels, vessel operators or their guests should be kept to an absolute minimum;

6.2 engine or generator start up operations should be completed at idle, or as near as possible, allowing for cold start mechanisms to operate. There should not be excessive revving of engines;

6.3 all equipment should be stowed and secured to ensure noise is not generated from vessels. This particularly relates to halyards and air drafted vessel rigging which is not secured; and

6.4 any security alarm is to be set to cut out 10 minutes after activation.

7. WATER QUALITY AND VISUAL AMENITY

7.1 no substance (including material, fluid, solid or chemical) is to enter the water, including oyster shells, prawn shells, cigarette butts and the like;

7.2 the Marina has a pump-out facility for use by its patrons;

7.3 all bilges should be clean and free from oil or other pollutants;

7.4 in the event of an oil spill, notify GBM management immediately;

7.5 decks and Marina pontoons are to be free of debris, bottles, papers, garbage and the like;

7.6 all garbage is to be collected, brought ashore and placed into the skips available at the Marina; and

7.7 vessel maintenance operations (including hull cleaning/scraping activities and the use of boat baths/bags) are not permitted within the confines of the Marina.

PART E:

MISCELLANEOUS PROCEDURES

8.1 due to the risks of prop strike and/or other collision with a vessel, swimming and diving are not permitted. Additionally the area is a known habitat of bull sharks; and

8.2 fishing is not permitted within the confines of the Marina or the holding area.

PART F:

REFERENCES

https://www.rms.nsw.gov.au/maritime/licence/documents-forms.html#BoatingHandbook

https://www.legislation.nsw.gov.au/#/browse

A general note on wash:

All vessels being propelled through the water will generate some wash.

Some typical situations are:

- *A fast planing hull, at speed, will be sitting on top of the water, generating some wash as it passes.*
  Should the same vessel slow down to a moderate displacement speed where the hull is moving in the water, rather than on top, this vessel will generate a much larger wash than when it was on the plane.

- *A large displacement cruiser, and a semi-displacement hull, at speed will generate a significant amount of wash.*

In areas with speed AND low wash restrictions, care must be taken to comply with both provisions. This means neither speed nor planing are options. In both situations, vessel operators can reduce wash by simply slowing down.