



# ENARES Pty Ltd & Gladesville Bridge Marina

## Gladesville Bridge Marina DA

### SEPP 33 Hazardous and Offensive Development Report

October 2019

# Executive summary

Gladesville Bridge Marina (GBM) is located at the centre of Sydney Harbour in Gladesville / Drummoyne, which is ten minutes from Sydney's central business district by road or water. GBM is proposing to re-develop the existing marina.

GHD Pty Ltd (GHD) was commissioned by GBM to determine if the proposed development is 'potentially hazardous or offensive' as per the State Environment Planning Policy No. 33 - Hazardous and Offensive Development (SEPP 33).

The proposed development constitutes alterations and additions to the marina berth layout to provide an overall storage for 130 vessels comprising 15 swing moorings and 115 floating berths. The works include:

- Removal of 29 existing moorings and retention of 15 existing swing moorings;
- Construction of 65 new floating berth spaces of varying sizes that increase the number of floating berths from 50 to 115;
- Cessation of slipway activities;
- Demolition of the slipway rails and demolition of the internal office mezzanine structure within the covered slipway area; and
- Provision of 8 new valet car parking spaces within the existing slipway area.

This report includes a description of the proposal, summary of dangerous goods (DGs) used on site, preliminary risk screening of DGs as per SEPP 33 and an assessment that reviews potential hazards that may arise during the construction, operation and maintenance of the development.

The results of the DG and transport screening indicate that the proposal does not exceed the SEPP 33 thresholds for the DGs proposed to be stored / used onsite. As a result, the proposal is not deemed a 'potentially hazardous industry'. Therefore, there is no requirement for a Preliminary Hazard Analysis (PHA).

Additionally, as the proposal is predicted to meet the relevant amenity criteria throughout the life of the project, the proposal is not considered to be 'potentially offensive'.

While a PHA was not required, a desktop qualitative hazard identification study was completed as a systematic way to identify any potential offsite impacts. The hazard identification study did not identify any hazards with the potential for significant offsite impact that would not be suitably controlled.

Any changes to the assumptions used in this report should result in a review of the screening process and update as required.

This report is subject to, and must be read in conjunction with the limitations set out in Section 1.3 and the assumptions and qualifications contained throughout the report.

# Table of contents

1.	Introduction.....	1
1.1	The proposal .....	1
1.2	Planning development requirements .....	1
1.3	Scope and limitations .....	1
1.4	Assumptions .....	1
2.	Methodology.....	3
2.1	SEPP 33 screening.....	3
2.2	Hazard identification .....	5
3.	Preliminary Risk Screening .....	7
3.1	Dangerous goods screening .....	7
3.2	Transport screening .....	7
3.3	Summary of risk screening results.....	8
3.4	Summary of emissions.....	8
4.	Hazard Identification and Management .....	9
4.1	Hazard identification .....	9
4.2	Chemical and spill management.....	9
4.3	Fire management.....	9
5.	Conclusion.....	14
6.	Terms and Abbreviations .....	15

# Table index

Table 1 SEPP 33 methodology for potentially hazardous or offensive industries .....	4
Table 2 Summary of Dangerous Goods onsite .....	7
Table 3 SEPP 33 Dangerous Goods threshold figures.....	7
Table 4 SEPP 33 transport screening threshold figures .....	7
Table 5 Hazard identification.....	11

# Figure index

Figure 1 Site location.....	1
Figure 2 SEPP 33 risk screening process.....	5

# 1. Introduction

GHD Pty Ltd (GHD) was commissioned by Gladesville Bridge Marina (GBM) to determine if the proposed development is 'potentially hazardous or offensive' as per the *State Environment Planning Policy No. 33 - Hazardous and Offensive Development* (SEPP 33<sup>1</sup>).

Development consent is required for the development under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and is deemed a designated development under clause 23 of Schedule 3 of the *Environmental Planning and Assessment Regulation 2000*<sup>2</sup>.

This assessment has been prepared to inform an EIS and development application under Part 4 of the EP&A Act. The assessment has been prepared in accordance with relevant statutory considerations.

## 1.1 The proposal

The proposed development constitutes alterations and additions to the marina berth layout to provide an overall storage for 130 vessels comprising 15 swing moorings and 115 floating berths. The works include:

- Removal of 29 existing moorings and retention of 15 existing swing moorings;
- Construction of 65 new floating berth spaces of varying sizes that increase the number of floating berths from 50 to 115;
- Cessation of slipway activities;
- Demolition of the slipway rails and demolition of the internal office mezzanine structure within the covered slipway area; and
- Provision of 8 new valet car parking spaces within the existing slipway area.

No dredging is understood to be required for mooring berth deepening as sufficient water depths exist for the proposed facility. Piles into rock (rock-socketed) are envisaged for the new mooring berths.

Operation of the proposal would not require assistance for vessel movement e.g. tug boats. Approximately twelve employees will be in the building at the marina at any one time during the day.

The development is located at the centre of Sydney Harbour in Drummoyne, which is ten minutes from Sydney's central business district by road or water.

The location of the development is shown in Figure 1.

---

<sup>1</sup> Applying SEPP 33: Hazardous and Offensive Development Application Guidelines, Department of Planning (DoP), NSW, 2011.

<sup>2</sup> Environmental Planning and Assessment Regulation 2000, NSW, 2000



Figure 1 Site location



## 1.2 Planning development requirements

The Secretary's Environmental Assessment Requirements (SEARs) assessment (refer SEAR 1268 received from NSW Planning & Environment, dated 15/11/2018) has requested that the proposal is assessed against SEPP 33. Agency recommendations include a requirement by the EPA to outline details on any potential dangerous goods (DGs) transported, handled or stored on the site.

SEPP 33 presents a systematic approach to planning and assessing proposals for potentially hazardous and offensive development. SEPP 33 applies to any proposals which fall under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'.

For development proposals classified as a 'potentially hazardous or offensive industry' the policy establishes a comprehensive test by way of a Preliminary Hazard Analysis (PHA) to determine the risk to people, property and the environment at the proposed location and in the presence of controls.

## 1.3 Scope and limitations

The purpose of this report is to complete a preliminary risk screening and hazard analysis in accordance with the requirements of SEPP 33, to identify if SEPP 33 applies, and therefore if a preliminary hazard analysis (PHA) is required. The report includes a description of the proposal, identification of DGs expected to be transported, handled and stored on the proposal site, screening of DGs as per SEPP 33 and an assessment that reviews potential hazards and controls that may arise during the construction, operation and maintenance of the development.

Additionally, this report has been prepared by GHD for ENARES Pty Ltd & Gladesville Bridge Marina and may only be used and relied on by ENARES Pty Ltd & Gladesville Bridge Marina for the purpose agreed between GHD and the ENARES Pty Ltd & Gladesville Bridge Marina as set out in Section 1.4 of this report.

GHD otherwise disclaims responsibility to any person other than ENARES Pty Ltd & Gladesville Bridge Marina arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer Section 1.4 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by ENARES Pty Ltd & Gladesville Bridge Marina and others who provided information to GHD (including Government authorities), which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

## 1.4 Assumptions

The following assumptions have been made in the preparation of this report:

- DG quantities provided are true and correct at the time of the screening.

- The chemical data (UN number, DG classification) for DGs are based on available Material Safety Data Sheets (MSDS) and are referenced.
- DGs are stored in accordance with the Australian Dangerous Goods Code (ADG Code), relevant standards and guidelines, even if not a licensable quantity.
- All plant and equipment is installed and operated in accordance with appropriate Australian Standards, codes and guidelines.
- All equipment and systems are designed to be inherently safe.
- All equipment is maintained and operated as designed.
- Other DGs brought to site (not stored onsite) during construction and for routine work are minimal and are therefore not included in the assessment.
- There will be no facilities for boat re-fuelling onsite.
- Storage of large quantities of fuel (petrol) onsite is not expected. GBM will utilise 20 litre containers e.g. jerry-cans, for operational and maintenance purposes.
- The existing petrol tank will be removed.
- The operational slip lane will be removed. Any residual chemicals associated with the slipway will be disposed of once the slipway closes down.
- The marina is an open boundary where vessels and people can enter the marina 24 hours a day (there are no gates).

Any changes to the assumptions used in this report will require a review of the screening results and an update as required.

## 2. Methodology

### 2.1 SEPP 33 screening

SEPP 33 applies to any proposal which falls under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'. If not controlled appropriately some activities within these industries may create an offsite risk or offence to people, property or the environment thereby making them potentially hazardous or potentially offensive.

The purpose of this report is to determine if the proposal is potentially hazardous using the SEPP 33 risk screening process or potentially offensive using expected discharge requirements. If the screening indicates that the proposal is potentially hazardous then a PHA is required. The overall risk screening process, as outlined in SEPP 33, is summarised in Figure 2<sup>3</sup>. If the proposal is potentially offensive, after giving consideration for the quantity and nature of any discharges and the significance of the offence likely to be caused and having regard to surrounding land use and the proposed controls, then additional controls are required.

The risk screening process concentrates on the storage of specific DGs classes that have the potential for significant offsite effects. Specifically the assessment involves the identification of classes and quantities of all DGs to be used, stored or produced onsite with an indication of storage locations. Details of the methodology are described in detail within SEPP 33.

For development proposals classified as a 'potentially hazardous industry', a PHA is completed to determine the risk to people, property and the environment at the proposed location and in the presence of controls. Criteria of acceptability are used to determine if the development proposal is classified as a 'hazardous industry'. If this is the case, the development proposal may not be permissible within most industrial zonings in NSW.

If a PHA is required, the methodology is outlined in NSW Department of Planning Hazardous Industry Planning Advisory Paper (HIPAP) publications<sup>4</sup>.

The methodology to determine whether a project would be deemed potentially hazardous or potentially offensive and the required follow up assessments is provided in Table 1.

---

<sup>3</sup> Applying SEPP 33: Hazardous and Offensive Development Application Guidelines, Department of Planning (DoP), NSW, 2011.

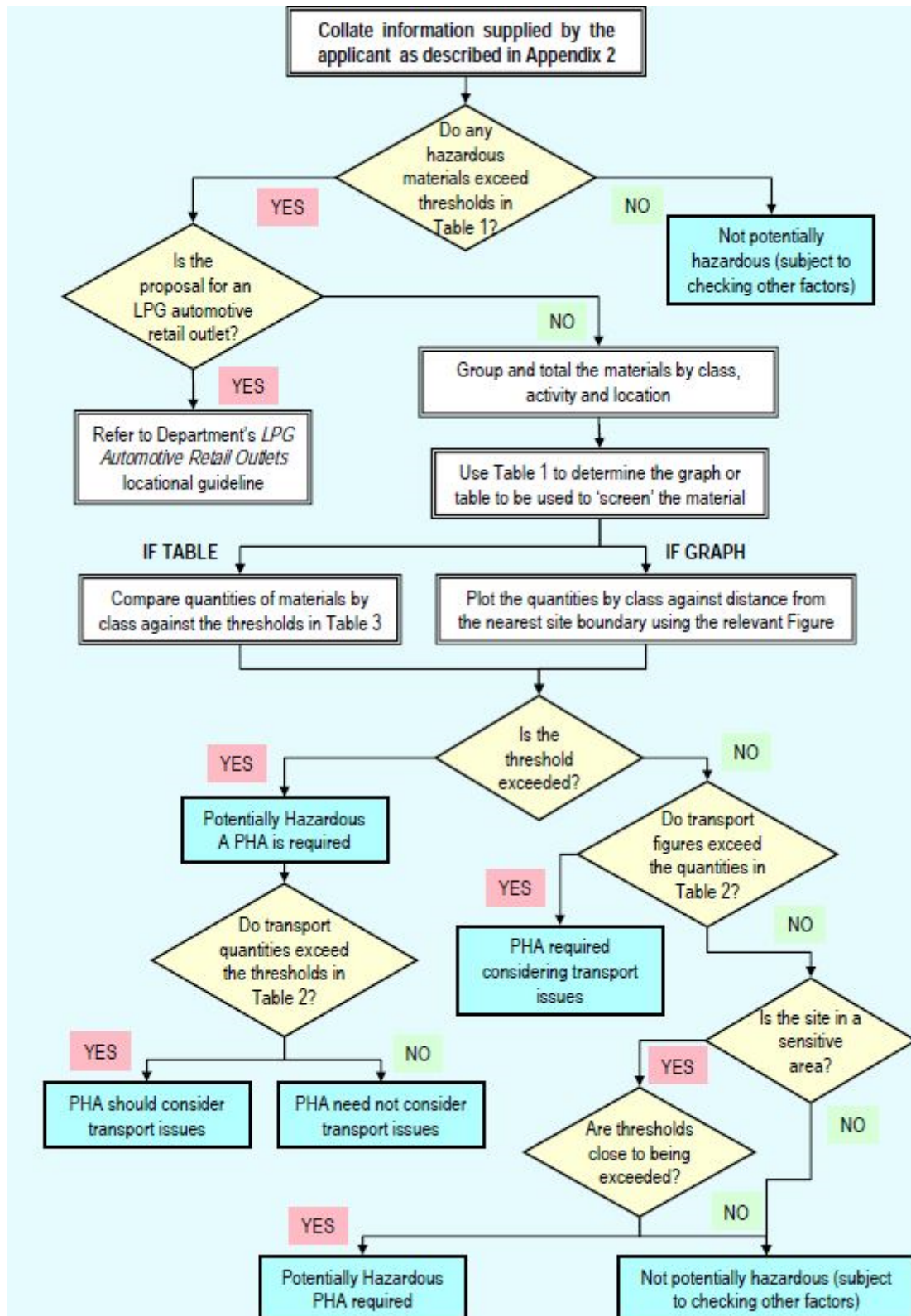
<sup>4</sup> Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning, Department of Planning (DoP), NSW, 2011. Hazardous Industry Planning Advisory Paper No 6 – Guidelines for Hazard Analysis, Department of Planning (DoP), NSW, 2011.



Table 1 SEPP 33 methodology for potentially hazardous or offensive industries

Issue	Methodology to determine if potentially hazardous / offensive	Follow up assessment if confirmed as potentially hazardous / offensive industry
Potentially hazardous industry	SEPP 33 risk screening process	Preliminary Hazard Analysis (PHA) required
Potentially offensive industry	Review of potential impacts to the amenity of the site or discharges, such as emissions (e.g. noise, air)	Meeting any licencing requirements issued by the Department of Environment, Climate Change and Water (DECCW) or other relevant authorities (e.g. EPA) is required

Figure 2 SEPP 33 risk screening process



## 2.2 Hazard identification

Following screening and during the final assessment of the proposal, determination if the proposal poses significant risk or offence is required. Hazard identification highlights any risks associated with the interaction of the project (as a whole) with the surrounding environment i.e. a systematic process to identify any potential offsite impacts. The aim of the hazard identification process is to show the proposal does not pose any significant risk or offence.

Hazard identification is a desktop qualitative risk assessment and involves documenting possible events that could lead to a hazardous incident. It is a systematic process listing potential causes and health, safety and environmental consequences (in qualitative terms). Reference is also made to proposed operational and organisational safeguards that would:

- Prevent such hazardous events from occurring or,
- Should they occur, would mitigate the impact on the plant, its equipment, people and the surrounding environment.

This process enables the establishment of the adequacy and relevancy of proposed safeguards.

## 3. Preliminary Risk Screening

### 3.1 Dangerous goods screening

The only DG that is proposed to be handled and/or stored onsite as a result of the proposed and ongoing operation of the marina is fuel (petrol). The petrol will be used for GBM's work boat, as well as small amounts for emergency and maintenance equipment (e.g. for fire pumps). The details are shown in Table 2. The petrol will be stored in a fully bunded and approved DG safety cabinet. This safety cabinet is against a brick retaining wall (about 8 metres in height) and concrete slab (garage and base of unit) belonging to the adjacent property. The water entrance to the marina is an open boundary where vessels can freely enter and exit the marina 24 hours a day.

Class 3 DGs such as gasoline (petrol) are flammable liquids. Packing group II liquids have an initial boiling point greater than 35 °C at an absolute pressure of 101.3 kPa and a flash point less than 23 °C.

The screening thresholds for onsite storage of petrol are shown in Table 3. The transport of DGs is currently done by courier, on a delivery by demand basis. Any unused product is stored in the DG safety cabinet. This process will continue under the proposal. The SEPP 33 screening indicates that no storage thresholds are exceeded.

Table 2 Summary of Dangerous Goods onsite

Chemical / product	UN #	DG class	Packing group	Maximum storage quantity
Petrol <sup>5</sup>	1203	3	II	40 L = 0.04 kL = 0.03 tonnes

Table 3 SEPP 33 Dangerous Goods threshold figures

DG class	Combined storage threshold (tonnes)	Combined quantity (tonne)	Exceedance of SEPP 33 threshold
3 - III	Greater than 5	0.18	Pass (does not exceed)

Note, if any additional DGs or chemicals are to be stored onsite or minor changes to the quantities occur, the combined quantity is likely to remain under the SEPP 33 threshold, as the current storage quantities are well below the threshold.

### 3.2 Transport screening

The transport screening thresholds for onsite storage of petrol and the expected transport movements are shown in Table 4.

Table 4 SEPP 33 transport screening threshold figures

DG class	Chemical / product	Combined storage threshold (tonnes)	Transport movements threshold (weekly peak)	Transport movements threshold (annual)	Combined transport movements (annual)	Exceedance of SEPP 33 threshold
3 - II	Petrol, thinner, primers	Greater than 5*	> 45	> 750	52#	Pass (does not exceed)

\*Under 5 tonnes storage, there is no restrictions for distance to the boundary i.e. it is considered not to be potentially hazardous at all.

<sup>5</sup> BP, BP Premium Unleaded Petrol, product code 0000002734, issue date 26 April 2012, version 3. Specific gravity is 0.75 g/cm<sup>3</sup>. Storage quantity of 40 L provided.

#Assumed one delivery of the petrol once per week. Note, if delivery is increased to twice a week, the combined transport movements still remains within the threshold.

### 3.3 Summary of risk screening results

According to SEPP 33, if any of the screening thresholds are exceeded then the proposed development should be considered a 'potentially hazardous industry' and a PHA is required.

The results of the DG screening indicate that the proposal does not exceed any of the thresholds. As a result, the proposal is not considered to be 'potentially hazardous' and a PHA is not required.

If changes occur to the inventories or types of DGs to be stored onsite, it is recommended that the screening process be reviewed to determine if the changes exceed the threshold and required a PHA.

It is considered that the transport of DGs to and from the marina is not potentially hazardous and therefore does not require a route evaluation. However, if changes occur in the transport of DGs, it is recommended that the screening process be repeated in order to determine if a route evaluation is required.

### 3.4 Summary of emissions

An assessment of the air quality and odour, noise and vibration and visual impacts of the proposal has been completed through the EIS. The current and future operation meets the relevant amenity criteria. As a result, the proposal is not considered to be 'potentially offensive'.



## 4. Hazard Identification and Management

### 4.1 Hazard identification

The results of the hazard identification are provided in Table 5. The hazard identification was conducted as a desktop study and focussed specifically on the operational activities as a result of the proposal. Safeguards are also outlined in Table 5 and are required to ensure the risk scenarios that were identified are contained or at least controlled to an acceptable level.

The study identified that the only credible scenario to have an offsite impact are ones resulting in environmental damage. However, the likelihood of a scenario with this consequence is estimated to be low due to the safeguards in place to manage the risk and the minimal quantity of chemicals on site.

### 4.2 Chemical and spill management

There will be small quantities of fuel (petrol) onsite. These chemicals should be stored in accordance with Australian Standards. It is recommended that each chemical have appropriate labelling, separation where necessary and disposal in accordance with Australian Standards. Emergency services require access to the material safety data sheet (MSDS) register of all chemicals that are located on site.

Additionally, appropriate safe work procedures should be implemented for the handling of all chemicals including transfer, storage, spill prevention and clean up requirements.

### 4.3 Fire management

#### 4.3.1 Boat fires

In the event of a fire on a berthed mooring, radiated heat or explosions could cause a domino effect, resulting in a potential spread of fire beyond the original incident.

The typical fire scenario expected on boats would be as a result of fuels (Class 2 flammable gases or Class 3 flammable liquids). The expected result would be the formation of pool fires if there is a liquid spill or jet fire if there is a vapour ignition. Propagation of the fire between moored boats can be minimised by a fire protection system and appropriate emergency management.

#### 4.3.2 Fire prevention and protection

The requirements for fire protection could include:

- Portable powder type fire extinguishers suitably located
- Fire hose reels
- Fire hydrants
- Emergency stop equipment suitably located.

It is also recommended that the fire systems are integrated into the design and management of the facility in accordance with AS3962-2001 (Guidelines for design of marinas) with an emphasis on fire prevention rather than mitigation.

Example fire prevention and management strategies that should also be considered are detailed in the NSW Department of Planning HIPAP 2 Fire Safety Study<sup>6</sup>. These strategies include:

- Building design and compliance with building regulations
- Minimisation of hazardous materials in storage or in process
- Elimination of ignition sources
- Bund design, construction and capacity
- Type of medium suitable for the hazard (for example, minimising use of firefighting water)
- Division of large quantities of flammable materials
- Separation of incompatible materials
- Training
- Housekeeping.

---

<sup>6</sup> Hazardous Industry Planning Advisory Paper No 2 – Fire Safety Study Guidelines, Department of Planning (DoP), NSW 2011

Table 5 Hazard identification

Hazard scenario	Causes	Consequence	Potential for offsite impacts	Identified / recommended safeguards
Collision of vessel onto pontoon or another vessel	Human error	Personal injury Asset damage (pontoon and/or vessels)	No	Marina and pontoon designed to appropriate codes and standards Vessel speed limits Boat licence Lighting & signage
Natural hazards	Flooding, lightning, king tide, storm surge	Personal injury Possible fire Asset damage	No	Marina and pontoon designed to appropriate codes and standards Housekeeping standards Fire protection systems
Fire or explosion on-board moored vessel	Human error Poor maintenance of fuel tank / engine	Asset damage (pontoon, vessel and/or adjoining vessel)	No	Fire protection systems Marine designed to Standard (AS3692-2001) Pontoon housekeeping standards Pontoon inspection and maintenance regime GBM emergency procedures Boat licence

Hazard scenario	Causes	Consequence	Potential for offsite impacts	Identified / recommended safeguards
Loss of containment of chemicals, including DGs (e.g. fuel) <sup>7</sup>	Damage to storage containers e.g. due to external impact or wear / corrosion Human error	Environmental damage (water pollution)	Yes, but considered to be minor due to the small quantities involved	Storage of chemicals to appropriate standards Chemical storage inspection and maintenance regime GBM emergency procedures Spill kits Bunded area Purpose designed delivery process
Ignition of spilled fuel	Nearby fire / ignition source Deliberate act Electrical fault	Asset damage Personal injury / fatality	No	No re-fuelling facilities for vessels at the marina Storage of DGs to appropriate standards Intrinsically safe hazardous area classification for storage area Fire protection systems Pontoon housekeeping standards Chemical storage inspection and maintenance regime
Contact with DGs (e.g. petrol)	Maintenance of chemical storage Human error	Personal injury	No	Chemical handling procedures Appropriate PPE Access to material safety data sheets (MSDS)

<sup>7</sup> Petrol is a mixture of volatile, flammable liquid hydrocarbons, therefore it will evaporate quickly into the atmosphere and not cause significant environmental pollution into the marina. This is a credible scenario, however the consequence would be low.

Hazard scenario	Causes	Consequence	Potential for offsite impacts	Identified / recommended safeguards
Improper disposal of waste into Sydney Harbour	Deliberate / malicious act Human error	Environmental damage (water pollution)	Yes, and considered to be moderate but manageable	Designated waste disposal areas on shore Marina staff present 24 hours a day, seven days a week
Electrocution from pontoon electrical services	Electrical fault Human error	Personal injury / fatality	No	Installation of circuit breakers to appropriate standards Electrical equipment inspection and maintenance regime



## 5. Conclusion

This report involved a preliminary risk screening of the proposal in accordance with the requirements of SEPP 33. The results indicate that the screening thresholds for DG storage and transportation are not exceeded by any of the DGs proposed to be stored as a result of the proposal. Therefore, the proposal is not deemed a 'potentially hazardous industry' and there is no requirement for a PHA.

Additionally, as the proposal is predicted to meet the relevant amenity criteria throughout the life of the project, the proposal is not considered to be 'potentially offensive'.

While a PHA is not required, a desktop qualitative hazard identification study was completed as a systematic way to identify any potential offsite impacts. The hazard identification study did not identify any hazards with the potential for significant offsite impact that would not be suitably controlled. Safeguards (as defined in Table 5) are required to ensure the risk scenarios that were identified are controlled to an acceptable level.

Any changes to the assumptions used in this report should result in a review of the screening process and update as required.

## 6. Terms and Abbreviations

Abbreviation	Description
°C	Degrees Celsius
ADG	Australian Dangerous Goods Code
AS	Australian Standard
cm <sup>3</sup>	Cubic centimetre
DECCW	Department of Environment, Climate Change and Water
DG	Dangerous Good
DoP	Department of Planning
EIS	Environmental Impact Statement
EP&A	Environmental Planning and Assessment
EPA	Environment Protection Authority NSW
g	Grams
GBM	Gladesville Bridge Marina
GHD	GHD Pty Ltd
HIPAP	Hazardous Industry Planning Advisory Paper
kg	Kilograms
kL	Kilolitre
kPa	Kilopascals
L	Litre
MSDS	Material Safety Data Sheets
NSW	New South Wales
PHA	Preliminary Hazard Analysis
SEARs	Secretary's Environmental Assessment Requirements
SEPP 33	State Environment Planning Policy Number 33
SWMS	Safe Work Method Statement
UN	United Nations



GHD

Level 18 180 Lonsdale Street  
Melbourne VIC 3000

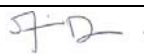
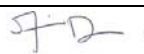
T: 61 3 8687 8000 F: 61 3 8687 8111 E: melmail@ghd.com

© GHD 2019

This document is and shall remain the property of GHD. The document may only be used for the purpose for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

2127558-18220/N:\AU\Sydney\Projects\21\27558\GHD Subprojects\SEPP 33\Report\2127558-REP-0\_SEPP 33 Hazardous and Offensive Development Report.docx

Document Status: Issued for Use

Revision	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	E. Killoran	F. Duncan		F. Duncan		8/10/19

[www.ghd.com](http://www.ghd.com)

