

RISK ASSESSMENT EVALUATION

DEVELOPMENT APPLICATION

28A MCPHERSON STREET, BANKSMEADOW

QANSTRUCT (AUST) PTY LTD

PREPARED FOR: Aldo Kersovanic
Principal Town Planner

DOCUMENT NO: 21045-RP-001
REVISION: Rev 1
DATE: 23-May-2016

DOCUMENT REVISION RECORD

Rev	Date	Description	Prepared	Checked	Approved	Method of issue
DRAFT	14-Apr-16	Draft for internal review	F. Wong	-	-	-
A	15-Apr-16	Issued to client for comments	F. Wong	G. Peach	S. Chia	Email pdf
0	13-May-16	Final issue incorporating client comments	F. Wong	G. Peach	G. Peach	Email pdf
1	23-May-16	Updated incorporating client comments	F. Wong	G. Peach	G. Peach	Email pdf

RELIANCE NOTICE

This report is issued pursuant to an Agreement between SHERPA CONSULTING PTY LTD ('Sherpa Consulting') and Qanstruct (Aust) Pty Ltd which agreement sets forth the entire rights, obligations and liabilities of those parties with respect to the content and use of the report.

Reliance by any other party on the contents of the report shall be at its own risk. Sherpa Consulting makes no warranty or representation, expressed or implied, to any other party with respect to the accuracy, completeness, or usefulness of the information contained in this report and assumes no liabilities with respect to any other party's use of or damages resulting from such use of any information, conclusions or recommendations disclosed in this report.

Title: Risk Assessment Evaluation Development Application 28A McPherson Street, Banksmeadow	QA verified: M. Liu
	Date: 23-May-2016

CONTENTS

ABBREVIATIONS.....	5
1. SUMMARY	6
2. INTRODUCTION	8
2.1. Background.....	8
2.2. Planning context	8
2.3. Study objective	9
2.4. Scope.....	9
2.5. Exclusions and assumptions	9
3. LOCATION OF DEVELOPMENT	13
4. METHODOLOGY	16
5. RESULTS & DISCUSSION	17
5.1. SEPP 33 assessment.....	17
5.2. Land use planning risk criteria.....	18
5.3. Risk from the development on surrounding land uses	20
5.4. Risk from surrounding land uses on the development	21
5.5. Impact of the development on societal risk	21
5.6. Safety procedures.....	24
6. CONCLUSIONS	25
APPENDIX A. EXTRACT FROM DEVELOPMENT CONTROL PLAN 33	
APPENDIX B. REFERENCES	

TABLES

Table 5.1: Dangerous good type and quantity stored at development	18
Table 5.2: Potentially hazardous development assessment - storage	18
Table 5.3: NSW fatality risk criteria.....	19
Table 5.4: NSW injury risk criteria	20
Table 5.5: NSW escalation/property damage risk criteria	20

FIGURES

Figure 2.1: Development Control Plan (DCP) 33 – Checklist No. 9 extract.....	8
Figure 2.2: Location of development within the Banksmeadow Industrial Precinct (DCP 33, Ref. 1).....	11
Figure 2.3: Location of development within SEPP Three Ports land zones (Ref. 4)	12
Figure 3.1: Location of the development in relation to surrounding facilities	14
Figure 3.2: Development site layout	15
Figure 4.1: Study methodology.....	16
Figure 5.1: SEPP 33 transportation screening thresholds extract	17
Figure 5.3: Cumulative BIP individual fatality risk (BIP QRA report, Ref. 8)	22
Figure 5.4: Property damage – heat radiation 23 kW/m ² (BIP QRA report, Ref. 8).....	23
Figure 5.5: Property damage – overpressure 14 kPa (BIP QRA report, Ref. 8)	23
Figure 5.6: Societal risk (BIP QRA report, Ref. 8).....	24

ABBREVIATIONS

ALARP	As Low As Reasonably Practicable
AS/NZS	Australian Standards/New Zealand Standards
BIP	Botany Industrial Park
DA	Development Application
DCP	Development Control Plan
DG	Dangerous Goods
DoP	Department of Planning
ERP	Emergency Response Plan
HIPAP	Hazardous Industry Advisory Paper
ISO	International Organization for Standardization
MHF	Major Hazard Facility
NSW	New South Wales
PHA	Preliminary Hazard Analysis
QRA	Quantitative Risk Assessment
SEPP	State Environmental Planning Policy

1. SUMMARY

Qanstruct (Aust) Pty Ltd (Qanstruct) has a project to develop a plot of land located at 28A McPherson street, Banksmeadow, New South Wales (the 'development') into dog boarding kennels and office space.

The development is located in the City of Botany Bay, within the Banksmeadow Industrial Precinct, as shown in Figure 2.2. The Banksmeadow Industrial Precinct (previously under the local Council planning instruments) currently falls under the State Environmental Planning Policy (SEPP) Three Ports 2013 legislation.

The Council requires a 'Risk Assessment Evaluation' in the context of the proximity of the site to existing surrounding hazardous facilities to be prepared as part of the Development Application for Commercial/Industrial New Development.

Qanstruct has commissioned Sherpa Consulting Pty Ltd (Sherpa) to undertake the Risk Assessment Evaluation and prepare a report suitable for submission to Botany Council with the Development Application (DA).

The objectives of the study were to:

- Assess the storage and/or transportation of hazardous substances under SEPP 33 guidelines (Ref. 3).
- Undertake a Risk Assessment Evaluation that determines:
 - The potential for the development to increase the risk to surrounding land uses, with specific emphasis on escalation to adjacent hazardous facilities.
 - The risk that will be imposed on the development by the surrounding land uses.

The Risk Assessment Evaluation is qualitative in nature and followed the requirements of AS/NZS ISO 31000:2009 Risk Management Principles and Guidelines (Ref. 5) and the NSW Department of Planning Hazardous Industry Advisory Paper (HIPAP) No. 4 *Risk Criteria for Land Use Safety Planning* (Ref. 6).

Based on the qualitative Risk Assessment Evaluation, the following conclusions were made:

- Based on the quantity of explosives stored, the development is not potentially hazardous in the context of the SEPP 33 guidelines.
- Due to the quantity of explosives stored, which is in compliance with AS 2187.1-1998 *Explosives – Storage, transport and use* (Ref. 4), the development will not increase the individual fatality risk and the proposed activities will not constitute an increase in existing risk levels in the area.
- From the risk contours presented in Figure 5.2, Figure 5.3 and Figure 5.4, the risk posed to the development from the Botany Industrial Park (BIP) activities is acceptable as defined in the *NSW HIPAP No. 4 – Risk Criteria for Land Use Safety Planning* (Ref. 6).

- There are no hazardous scenarios associated with the groundwater treatment facilities adjacent to the development. Therefore, the risk posed to the development is acceptable.
- The development is unlikely to increase the existing societal risk associated with BIP as the population at the proposed development is likely to be low. Therefore the societal risk is still considered to be As Low As Reasonably Practicable (ALARP).
- The SEPP 33 guidelines require a development that involves the transport of Class 1 dangerous goods to contact the Department of Planning for advice.

It is recommended that:

- The proponent contacts the Department of Planning for advice on the movement of Class 1 materials (refer to Figure 5.1).
- The explosives are stored in compliance with AS 2187.1-1998 *Explosives – Storage, transport and use* (Ref. 4).

Although the risk assessment evaluation determined that the risk associated with the development and risk from surrounding land uses are acceptable, the following are recommended as good industry practice:

- Develop the Emergency Response Plan (ERP) taking into account potential incidents occurring at the BIP.
- Employees at the development are made aware of the neighbouring BIP site and hazardous industries as part of the ERP training.

2. INTRODUCTION

2.1. Background

Qanstruct (Aust) Pty Ltd (Qanstruct) has a project to develop a plot of land located at 28A McPherson street, Banksmeadow, NSW (the 'development') into dog boarding kennels and office space.

The development is located in the City of Botany Bay, within the Banksmeadow Industrial Precinct, as shown in Figure 2.2. The Banksmeadow Industrial Precinct (previously under the local Council planning instruments) currently falls under the State Environmental Planning Policy (SEPP) Three Ports 2013 legislation.

The Council requires a 'Risk Assessment Evaluation' in the context of the proximity of the site to existing surrounding hazardous facilities to be prepared as part of the Development Application for Commercial/Industrial New Development (Checklist No. 9).

Qanstruct has commissioned Sherpa Consulting Pty Ltd (Sherpa) to undertake the Risk Assessment Evaluation and prepare a report suitable for submission with the Development Application (DA).

2.2. Planning context

State Environmental Planning Policy (Three Ports) 2013

The development currently falls within the land under the SEPP Three Ports 2013 legislation, Ref. 1 ('General Industrial IN1' land zone, refer to Figure 2.3). As the development does not fall under 'exempt' or 'complying' development, a development application needs to be submitted to the local Botany Bay Council. The council requires documents to be submitted as listed in Checklist No.9 'Development Application for Commercial/Industrial New Development'.

Development Application for Commercial/Industrial New Development and relation to Development Control Plan (DCP) 33

As a requirement of the Development Application for Commercial/Industrial New Development – Checklist No. 9 (July 2013), a 'Risk Assessment Evaluation' is to be prepared. The items associated with the risk component from the checklist is shown in Figure 2.1.

Figure 2.1: Development Control Plan (DCP) 33 – Checklist No. 9 extract

Risk	4		
(i) Is the proposal located in the Banksmeadow Industrial Precinct?		Yes / No	
If yes , has a Risk Assessment Evaluation been prepared by a qualified risk management professional which takes into account the nature of the proposed business and the proximity of the site to surrounding hazardous facilities (<i>Refer to Section 2.7(4) of DCP 33</i>)		Yes / N/A	
(ii) Does the site front a Dangerous Goods Route (Stephen Road or Denison Street) or will the proposal increase the traffic flow on a road carrying dangerous good?		Yes / No	
If yes , has a Transport Risk Assessment been provided? (<i>Refer to Section 2.7(4) of DCP 33</i>)		Yes / N/A	
SEPP 33 – Hazardous and Offensive Development	4		
Proposals involving the storage and/or transportation of hazardous substances require assessment under SEPP 33 – Hazardous and Offensive Development		Yes / N/A	

Clause (i) under Risk section refers to Section 2.7 (4) of Development Control Plan No. 33 – Industrial Development (Feb 2003). An extract of the requirements relevant to risk (Section 2.7 of DCP 33) is provided in APPENDIX A. This broadly requires that a Risk Assessment Evaluation be undertaken and that safety procedures to be followed are identified (Ref. 2).

The development will also include storage of a small quantity of explosives. Under the SEPP33 section of the checklist, the development is required to be assessed according to the State Environmental Planning Policy (SEPP) 33 guidelines (Ref. 3).

2.3. Study objective

The objectives of the study were to undertake the following activities listed in the DA for Commercial/Industrial New Development – Checklist No. 9:

- Risk assessment evaluation in accordance with guidance from the Local planning instrument (Botany Bay DCP 33).
- Assess the storage and/or transportation of hazardous substances under SEPP 33 guidelines.

The Risk Assessment Evaluation determines:

- The potential for the development to increase the risk to surrounding land uses, with specific emphasis on escalation to adjacent hazardous facilities.
- The risk that will be imposed on the development by the surrounding land uses.

As the development currently falls within the land under the SEPP Three Ports, the study also assessed the hazard and risk associated with the development in compliance with SEPP Three Ports (2013) legislation.

2.4. Scope

The scope of the study was limited to the use for industrial purposes on the plot of land located at 28A McPherson street, Banksmeadow, NSW.

2.5. Exclusions and assumptions

The study excludes:

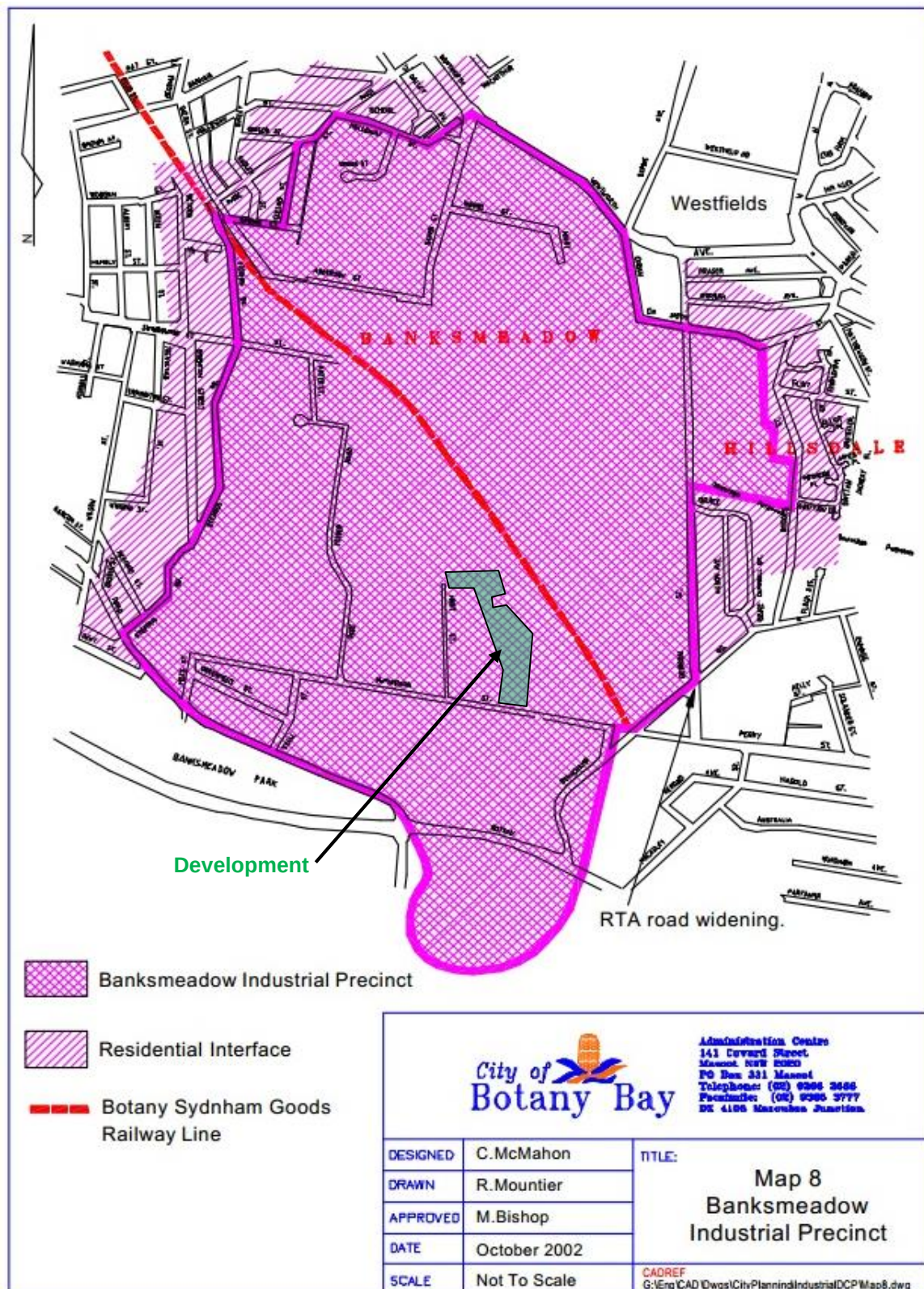
- A transport risk assessment as the site does not front onto Denison Street or Stephen Road (the main Dangerous Goods routes in the area).
- A compliance review of the explosives storage facility with AS 2187.1-1998 *Explosives – Storage, transport and use* (Ref. 4).

It is assumed that the office building on the development excludes any residential or sensitive uses (eg childcare centres located in office buildings).

Based on the proposed land use as dog boarding kennels and office space, there is unlikely to be any significant increase in population density.

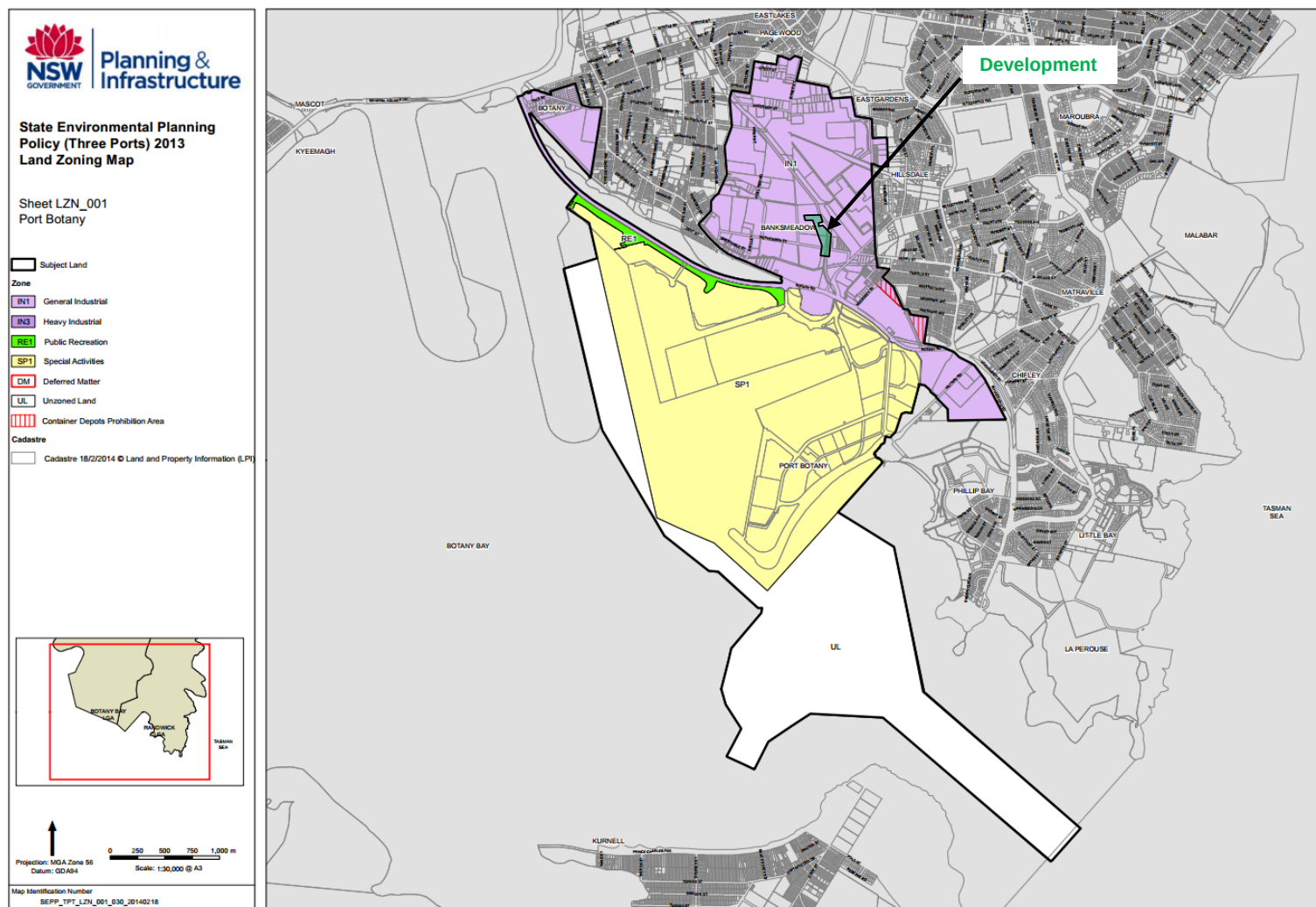
It is assumed that the BIP Quantitative Risk Assessment (QRA) (Ref. 7) provides the current risk profile for the development area.

**Figure 2.2: Location of development within the Banksmeadow Industrial Precinct
(DCP 33, Ref. 2)**



Note: The development boundary shown on the map is indicative only.

Figure 2.3: Location of development within SEPP Three Ports land zones (Ref. 1)



Note: The development boundary shown on the map is indicative only.

3. LOCATION OF DEVELOPMENT

A map showing the location of the development in relation to surrounding hazardous facilities, ie the Botany Industrial Park (BIP), is provided in Figure 3.1. There are a number of Major Hazards Facilities (MHF) on the BIP, operated by Orica, Huntsman and Qenos. The closest potentially hazardous operations to the development boundary are from Qenos' tank farm located on Nant St (shown in Figure 3.1). The development is also in the vicinity of the following plants located within the BIP site:

- Orica's chloralkali plant
- Huntsman's surfactants/ethylene oxide plant
- Site utilities plant.

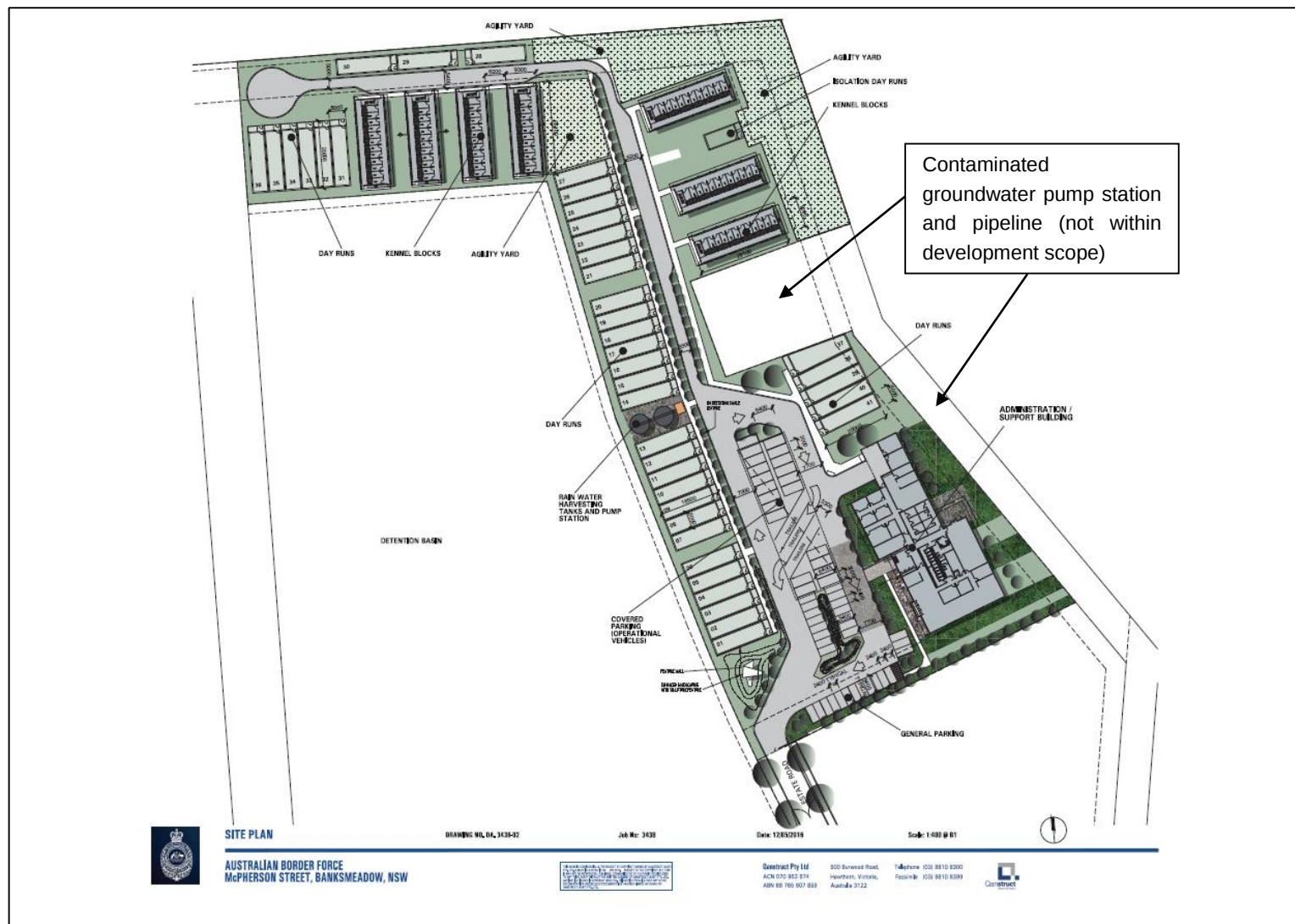
There is a contaminated groundwater pumping station and pipeline operating immediately east of the development. Figure 3.2 shows the location of the pumping station and pipeline and the development site layout including the location of the kennel blocks, day runs and admin building. The explosives will be stored inside the administration building in accordance with AS 2187.1:1998 *Explosives – Storage, transport and use* (Ref. 4). The number of people for this type of development will be small.

Figure 3.1: Location of the development in relation to surrounding facilities



Note: The boundaries shown on the map are indicative only.

Figure 3.2: Development site layout



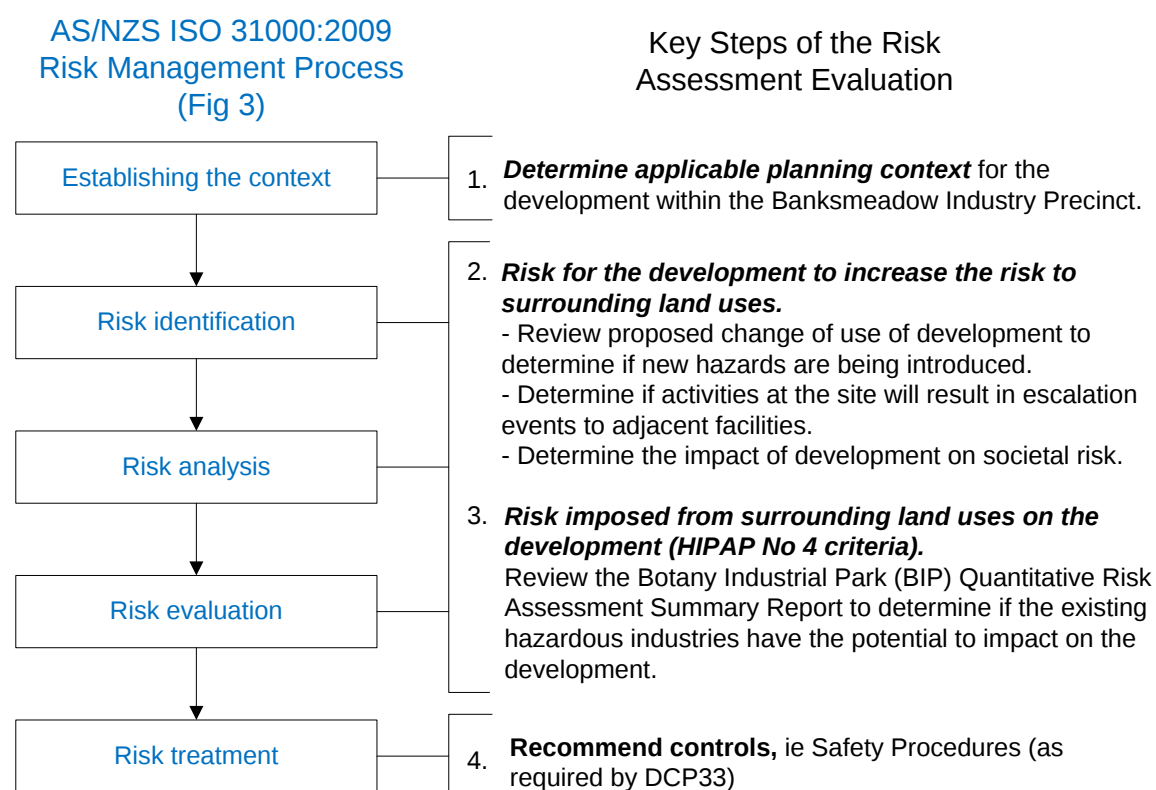
4. METHODOLOGY

The Risk Assessment Evaluation is qualitative in nature and followed the requirements of AS/NZS ISO 31000:2009 *Risk Management Principles and Guidelines* (Ref. 5) and the NSW Department of Planning Hazardous Industry Advisory Paper *HIPAP No. 4 Risk Criteria for Land Use Planning* (Ref. 6).

The key steps of the Risk Assessment Evaluation are shown in Figure 4.1. This approach is based on the risk management process outlined in AS/NZS ISO 31000:2009.

Section 5 discusses the results of the Risk Assessment Evaluation.

Figure 4.1: Study methodology



5. RESULTS & DISCUSSION

5.1. SEPP 33 assessment

The assessment of the development according to SEPP 33 guidelines comprise the following components:

- Review for potentially hazardous development based on the maximum quantity of dangerous goods stored.
- Review for potentially hazardous development with respect to transportation of dangerous goods based on the minimum quantity per load and weekly vehicle movements. Figure 5.1 is an extract of the SEPP 33 transport screening thresholds for Class 1 and 5 materials. As the number of traffic movements and quantities of Class 5 materials would be lower than the transportation screening threshold, the SEPP 33 guideline recognises that the risk is unlikely to be significant. For the movement of Class 1 materials, the Department of Planning needs to be contacted for advice.
- Review for potentially offensive based on quantity and nature of any discharges from the development. This study does not include assessment of the development for potentially offensive as it is primarily used for commercial activities.

Figure 5.1: SEPP 33 transportation screening thresholds extract

Class	Vehicle Movements		Minimum quantity*	
	Cumulative Annual	Peak or Weekly	per load (tonne)	
			Bulk	Packages
1	see note	see note	see note	
5	>500	>30	2	5

Note: Where proposals include materials of class 1, 6.2 or 7, the Department of Planning should be contacted for advice. Classes used are those referred to in the Dangerous Goods Code and are explained in Appendix 7.

* If quantities are below this level, the potential risk is unlikely to be significant unless the number of traffic movements is high.

The types and quantity of dangerous goods that will be stored at the development was provided by Qanstruct and presented in Table 5.1. The assessment shown in Table 5.2 indicates that the storage of dangerous goods on the development does not make it a potentially hazardous development. Since the development is not considered to be potentially hazardous, a Preliminary Hazard Analysis (PHA) would not be required.

Table 5.1: Dangerous goods type and quantity stored at development

Explosive Type	Quantity	Total Weight	DG Class
ANFO	1 kg	1 000 g	1.1D
Ammonium Nitrate	1 kg	1 000 g	5.1
PE4	10 carts	2 300 g	1.1D
Powergel	10 sticks	1 100 g	1.1D
Primasheet 1000	1 roll (90 cm)	1 000 g ¹	1.1D
Det-cord	10 metres @ 10g/m	100 g	1.1D
Det-cord	1 000 metres	10 000 g	1.1D
Black Powder	1	500 g	1.1D
Smokeless powder	1	5 000 g	1.3D
TNT Flake	1	500 g	1.1D
Note: 1. The data provided by Qanstruct did not state the weight of 1 roll of Primasheet 1000. Based on the quantities of the other explosive types stored, the weight was assumed to be a maximum of 1 kg.			

Table 5.2: Potentially hazardous development assessment - storage

DG Class	Maximum quantity	SEPP 33 guideline (Ref. 1)		Exceeds threshold?
		Threshold quantity	Reference in guideline	
1.1	17.5 kg	0.1 tonne ¹	Figure 5	No
1.3	5 kg	10 tonne	Table 3	No
5.1	1 kg	5 tonne	Table 3	No
Note: 1. The threshold quantity of Class 1.1 explosives depends on the distance from the storage location to commercial or sensitive land uses. The threshold quantity is 0.1 tonne at 10 m distance from land uses. There is no threshold quantity for distances less than 10 m.				

5.2. Land use planning risk criteria

Land use planning risk criteria are given in the Australian NSW Department of Planning (DoP) guidelines Hazardous Industry Planning Advisory Paper (HIPAP) No 4 *Risk Criteria for Land Use Safety Planning* (Ref. 6).

Table 5.3, Table 5.4 and Table 5.5 presents the fatality, injury and escalation/property damage risk criteria. The criteria which are associated with the development are highlighted in blue bold. The other criteria are for land uses that are not applicable for the development.

The land uses around the development are zoned as 'industrial' in the context of the HIPAP 4 categories. The nearest residential, sensitive and commercial land uses are at

least 500 m from the development site boundary located on Denison St. Recreational land uses are on Foreshore Rd at least 500 m from the site boundary.

The HIPAP 4 descriptor of a commercial area in Table 5.3 is not necessarily equivalent to similar descriptors in planning instruments. There is no definition of 'commercial land use' provided in the HIPAP guidelines although it is generally interpreted in risk assessment work as applicable to land uses that may have a public access component (eg retail showrooms or warehouses, such as car-yards) or a large population density (eg commercial offices, call centres, shopping malls, entertainment complexes) that may result in a significant societal risk increase or introduction of large numbers of the general public. Therefore, the land use associated with the development is similar to an industrial site.

Table 5.3: NSW fatality risk criteria

Description	Risk criteria (per year)	HIPAP No 4 interpretation
Fatality risk to sensitive uses – ie hospitals, schools, child-care facilities and old age housing	0.5×10^{-6}	The half in a million per year individual fatality risk level is an appropriate criterion above which no intensification of sensitive use development should take place
Fatality risk to residential and hotels, motels and tourist resorts	1.0×10^{-6}	The one in a million per year individual fatality risk level is an appropriate criterion above which no intensification of residential development should take place.
Fatality risk to commercial areas, including offices, retail centres and entertainment centres	5.0×10^{-6}	Commercial development would not be appropriate above an individual risk level of 5 in a million per year individual fatality risk level.
Fatality risk to sporting complexes and active open spaces	10×10^{-6}	Development of sporting complexes or active open space would not be appropriate above an individual risk level of 10 in a million per year individual fatality risk level.
Fatality risk to be contained within the boundary of an industrial site.	50×10^{-6}	Individual fatality risk levels for industrial sites at levels of 50 in a million per year should, as a target, be contained within the boundaries of the site where applicable.

Table 5.4: NSW injury risk criteria

Description	Risk Criteria (per year)	Comments
Fire injury risk incident heat flux radiation at residential or sensitive areas should not exceed 4.7 kW/m ² at frequencies of more than 50 chances in a million per year.	50 x 10 ⁻⁶	Not relevant. No residential / sensitive land use anticipated.
Explosion injury risk incident explosion overpressure at residential or sensitive areas should not exceed 7 kPa at frequencies of more than 50 chances in a million per year.	50 x 10 ⁻⁶	Not relevant. No residential / sensitive land use anticipated.
Toxic injury - Toxic concentrations in residential (and sensitive use) areas should not exceed a level which would be seriously injurious to sensitive members of the community following a relatively short period of exposure at a maximum frequency of 10 in a million per year.	10 x 10 ⁻⁶	Not relevant. No residential / sensitive land use anticipated.
Toxic irritation - Toxic concentrations in residential areas should not cause irritation to eyes, or throat, coughing or other acute physiological responses in sensitive members of the community over a maximum frequency of 50 in a million per year.	50 x 10 ⁻⁶	Not relevant. No residential / sensitive land use anticipated.

Table 5.5: NSW escalation/property damage risk criteria

Description	Risk Criteria (per year)
Fires: Incident heat flux radiation at neighbouring potentially hazardous installations or land zoned to accommodate such use should not exceed a risk of 50 per million per year for the 23 kW/m² heat flux contour.	50 x 10 ⁻⁶
Explosions: Overpressure at neighbouring potentially hazardous installations or the nearest public building should not exceed a risk of 50 per million per year for the 14 kPa overpressure contour.	50 x 10 ⁻⁶

5.3. Risk from the development on surrounding land uses

The proposed change of use of the development is to utilise the site for dog boarding kennels and office space. This change of land use introduces storage of small amounts of dangerous goods in the form of explosives on the site. The storage location of the explosives will be in the administration building.

The explosives will be stored in compliance with AS 2187.1-1998 *Explosives – Storage, transport and use* (Ref. 4). The total maximum storage quantity of explosives will be less than 25 kg (refer to Table 5.1) and will only be used for dog training purposes. In addition, the separation distance between the magazine and the closest tank on Nant St (north of the development) is at least 180 m. Given there is only a small quantity of explosives stored which will be AS 2187.1 compliant, this development will not significantly increase

the fatality risk in this area and does not present an escalation risk to the surrounding area.

5.4. Risk from surrounding land uses on the development

A QRA for the BIP was prepared for the NSW Department of Planning (Ref. 7). The results from the QRA Summary Report were used to determine the risk levels imposed on the development by surrounding land uses. It is assumed that the QRA provides the current risk profile.

The cumulative BIP individual risk contours are shown in Figure 5.2. This gives the likelihood of fatality to notional individuals at locations around the site, as a result of the defined fire/explosion and toxic gas release scenarios.

Escalation/property damage contours from heat radiation and overpressure are shown in Figure 5.3 and Figure 5.4. These figures show the likelihood of property damage occurring to surrounding facilities as a result of exceeding threshold levels of heat radiation or overpressure.

The BIP risk contours indicate the following:

- Cumulative 50×10^{-6} individual risk fatality contour does not reach the development.
- The other cumulative individual risk fatality contours reach the development but there are no sensitive, residential, commercial¹ and recreational land uses located on the development.
- Escalation risk contours from either heat radiation (23 kW/m^2) or explosion overpressure (14 kPa) do not reach the development.

Therefore, the risk from activities on the BIP on the development is acceptable.

There are no fire, explosion or toxic scenarios associated with the contaminated groundwater treatment pump station and pipeline located east of the development. Therefore, the risk from this operation on the development is acceptable.

5.5. Impact of the development on societal risk

Societal risk takes into account the number of people exposed to risk. The societal risk due to the BIP is broadly in the ALARP zone, as reported in the BIP QRA report (Ref. 7). It does not encroach into the intolerable zone (See Figure 5.5).

The BIP QRA report states that 'while increases in population data would increase the societal risk, this effect would be relatively small' and that 'the key driver for societal risk is populations located outside during the night'.

¹ Refer to Section 5.2 for a discussion of 'commercial' land use in the context of the HIPAP risk assessment.

As the nature of land use at the development is industrial, the population density at the development is expected to be low and not significant enough to increase the societal risk. The new land use of the development would not result in additional night time population.

Figure 5.2: Cumulative BIP individual fatality risk (BIP QRA report, Ref. 7)



Note: The development boundary shown on the map is indicative only.

Figure 5.3: Property damage – heat radiation 23 kW/m² (BIP QRA report, Ref. 7)

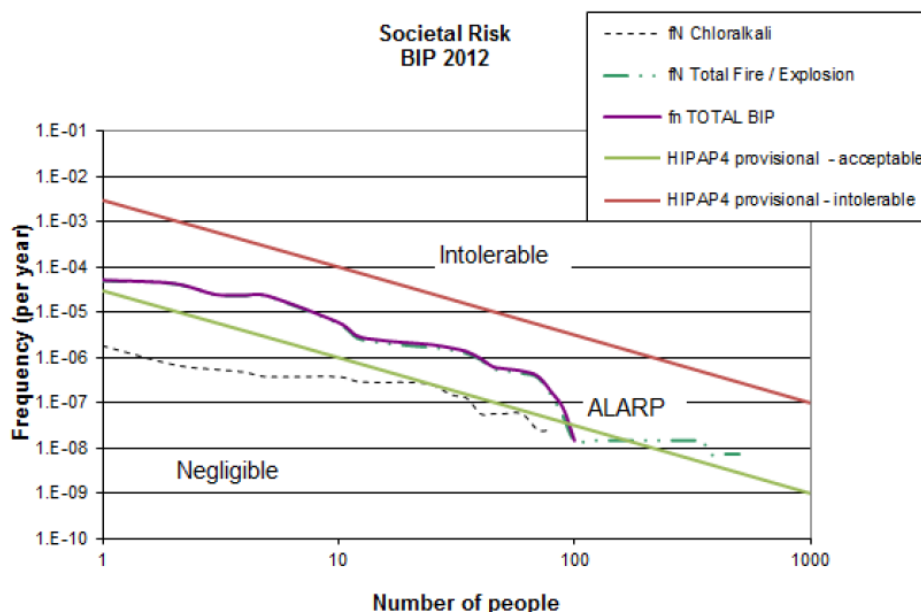


Figure 5.4: Property damage – overpressure 14 kPa (BIP QRA report, Ref. 7)



Note: The development boundary shown on the maps is indicative only.

Figure 5.5: Societal risk (BIP QRA report, Ref. 7)



5.6. Safety procedures

The DCP33 requires that the Risk Assessment Evaluation recommend 'safety procedures' to be followed (Ref. 2). This is interpreted to mean ERP requirements for the development.

Whilst the development activities do not increase the risk to surrounding land use or constitute an escalation of existing hazards and the risk contours from surrounding land uses do not reach the development, the following are recommended as good industry practice:

- Develop the ERP taking into account potential incidents occurring at the BIP.
- Employees at the development are made aware of the neighbouring BIP site and hazardous industries as part of the ERP training.

6. CONCLUSIONS

Based on the qualitative Risk Assessment Evaluation, the following conclusions were made:

- Based on the quantity of explosives stored, the development is not potentially hazardous in the context of the SEPP 33 guidelines.
- Due to the quantity of explosives (less than 25 kg) which will be stored in compliance with AS 2187.1-1998 *Explosives – Storage, transport and use*, the development will not increase the individual fatality risk and the proposed activities will not constitute an increase in existing risk levels in the area.
- From the risk contours presented in Figure 5.2, Figure 5.3 and Figure 5.4, the risk posed to the development from the BIP activities is acceptable as defined in the *NSW HIPAP No. 4 – Risk Criteria for Land Use Safety Planning*.
- There are no hazardous scenarios associated with the groundwater treatment facilities adjacent to the development. Therefore, the risk posed to the development is acceptable.
- The development is unlikely to increase the existing societal risk associated with BIP as the population at the proposed development is likely to be low. Therefore the societal risk is still considered to be ALARP.
- The SEPP 33 guidelines require a development that involves the transport of Class 1 dangerous goods to contact the Department of Planning for advice.

It is recommended that:

- The proponent contacts the Department of Planning for advice on the movement of Class 1 materials (refer to Figure 5.1).
- The explosives are stored in compliance with AS 2187.1-1998 *Explosives – Storage, transport and use* (Ref. 4).

Although the risk assessment evaluation determined that the risk associated with the development and risk from surrounding land uses are acceptable, the following are recommended as good industry practice:

- Develop the ERP taking into account potential incidents occurring at the BIP.
- Employees at the development are made aware of the neighbouring BIP site and hazardous industries as part of the ERP training.

APPENDIX A. EXTRACT FROM DEVELOPMENT CONTROL PLAN 33

What do you need to do?

In order to address the above recommendations Council will require a Risk Assessment Evaluation to accompany all applications for sites:-

- (a) within the study area of the **Botany/Randwick Industrial Area Land Use Safety Study – 2001**; and/or
- (b) affected by the recommendations of the **Port Botany Land Use Safety Study Overview Report - 1996**.

The **Risk Assessment Evaluation** to Council should be completed by qualified risk management professionals and take into account the nature of the proposed business, and the proximity of the site to surrounding hazardous facilities. The report is to recommend safety procedures to be followed. The report needs to conclude whether or not the activities proposed for the premises constitute an escalation of existing hazards, and that the risk posed by neighbouring uses in the exposure of hazards to the site is acceptable as defined by the DUAP Risk Assessment Guidelines including Hazardous Industry Advisory Paper N° 6: Guidelines for Hazard Analysis the 'Hazardous Industry Planning Advisory Paper N° 4: Risk Criteria for Land Use Safety Planning'.

If a site fronts **Stephen Road or Denison Street** a **Transport Risk Assessment Report** is required to be lodged with Council. The assessment report to Council should be completed by qualified risk management professionals and address the hazard analysis methodology outlined within the *Hazardous Industry Advisory Paper N° 6: Guidelines for Hazard Analysis*. The areas of assessment should include:-

- Identification of potential release scenarios, including analysis of the hazards associated with transport of potentially hazardous materials.
- Estimation of release frequencies, using information available from such sources as Botany Bay City Council, the Bureau of Statistics and from the Roads and Traffic Authority, NSW.
- Assessment of consequences in terms of effect zones following the ignition or dispersion of a release, including the assessment of the evaporation and permeation of a spill and of the resulting heat radiation in case of ignition.
- Estimation of risk by combining release frequencies, consequences, and population distribution for the particular route under survey.
- Comparing the estimated risk with relevant tolerability criteria and guidelines.

Results from traffic hazard analysis should be assessed on the basis of generally accepted land use safety guidelines provided in the *Hazardous Industry Planning Advisory Paper N° 4: Risk Criteria for Land Use Safety Planning* published by Planning NSW in 1992.

APPENDIX B. REFERENCES

1. New South Wales (2013): State Environmental Planning Policy (Three Ports).
2. City of Botany Bay (Feb 2003): Development Control Plan No. 33 – Industrial Development, Version 4.
3. New South Wales Department of Planning (Jan 2011): Hazardous and Offensive Development Application Guidelines - Applying SEPP 33
4. Standards Australia (1998): AS 2187.1 Explosives – Storage, transport and use Part 1 Storage
5. Australian/New Zealand Standards (Nov 2009): AS/NZS ISO 31000 Risk Management – Principles and Guidelines.
6. NSW Department of Planning (Jan 2011): Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning.
7. Sherpa Consulting (Sept 2012): Botany Industrial Park – Quantitative Risk Assessment Summary Report, Doc No: 20613-001, Rev 1.