Terminals Bulk Liquids Storage Facility Modification 4

State Significant Development Modification Assessment
(DA246/96-Mod-4)

June 2022

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Title: Terminals Bulk Liquids Storage Facility Modification 4

Cover image: Photo of the existing thermal oxidiser and the marked-up location of the proposed second thermal oxidiser (Source: Terminals Pty Ltd)

Glossary

Abbreviation	Definition
Council	Randwick City Council
Department	Department of Planning and Environment
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	Environmental Planning and Assessment Regulation 2000
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPL	Environment Protection Licence
FRNSW	Fire and Rescue NSW
Minister	Minister for Planning
RMS	Roads and Maritime Services, TfNSW
PB CCC	Port Botany Community Consultative Committee
Planning Secretary	Secretary of the Department of Planning and Environment
SSD	State Significant Development
TfNSW	Transport for NSW

Contents

1 Introduction

This report provides the NSW Department of Planning and Environment's (the Department's) assessment of an application to modify the State significant development (SSD) consent for the Terminals Bulk Liquids Storage Facility in Port Botany (DA246/96, as modified).

The subject facility is used for bulk liquid storage and handling of hazardous and non-hazardous bulk liquids. Liquid waste generated from spills in loading areas, line cleaning operations associated with product storage changes or vessel draining operations to remove accumulated water, is currently collected and transported off-site by Cleanaway for processing at an approved waste management facility. However, the recent unavailability in off-site liquid waste management facilities in NSW presents an operational risk to the subject bulk liquid storage and handling facility.

The modification application seeks consent to:

- install and operate a new thermal oxidiser with the ability to burn liquid waste
- install associated infrastructure
- remove an existing wastewater tank and repurpose an existing tank to store liquid waste.

The application was lodged on 19 November 2021 by Terminals Pty Ltd (the Applicant) pursuant to section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 Background

Since 1979, terminals Pty Ltd (the Applicant) has operated a bulk liquid storage and handling facility in the Port Botany Industrial Area (see **Figure 1**). The subject site of this modification application is located at 45 Friendship Road, Port Botany and is legally described as Lots 16, 17, 18 DP1126332 and Lot 102 DP 1182871.

Port Botany is one of the major ports in NSW with one of the predominant trades being the storage and handling of petroleum products, liquefied petroleum gas, and liquid chemicals. The majority of industries in the Port Botany Industrial Area and surrounding the site are involved in the storage and distribution of these products including Terminals, Qenos Pty Ltd, Origin Energy Pty Ltd and Vopak Terminals Australia Pty Ltd. The closest residential area is located in Phillip Bay which is around 1.5 kilometres (km) east of the site on the opposite side of Yarra Bay. The third runway at Sydney Airport is located 2.2 km west of the site.

Under the existing operations at the subject site, a range of fuels and chemicals (including but not limited to base oils, jet fuel, ethanol, hexene and styrene) are currently received by ship at the nearby Bulk Liquids Berth No. 1 (see **Figure 1** and **Figure 2**) and transported by pipeline to the storage tanks on site before being dispatched by trucks to a range of the Applicant's customers across NSW and Australia. The subject site also includes a bitumen import facility. Hereafter, the chemical storage facility which is the subject of this modification application is referred to as Site A, whereas the bitumen import facility is referred to as Site B.

The subject site operates under a number of Part 4 development consents issued by Randwick City Council (known as Stages 1 to 4), a Part 4 development consent issued by the then Minister for Planning (known as Stage 5) and a number of Part 5 approvals issued by Sydney Ports Corporation and

complying development certificates (CDCs). The Applicant is also the holder of Environment Protection Licence (EPL) No. 1048 which authorises the carrying out of activities at 45 Friendship Road and 51 Friendship Road.

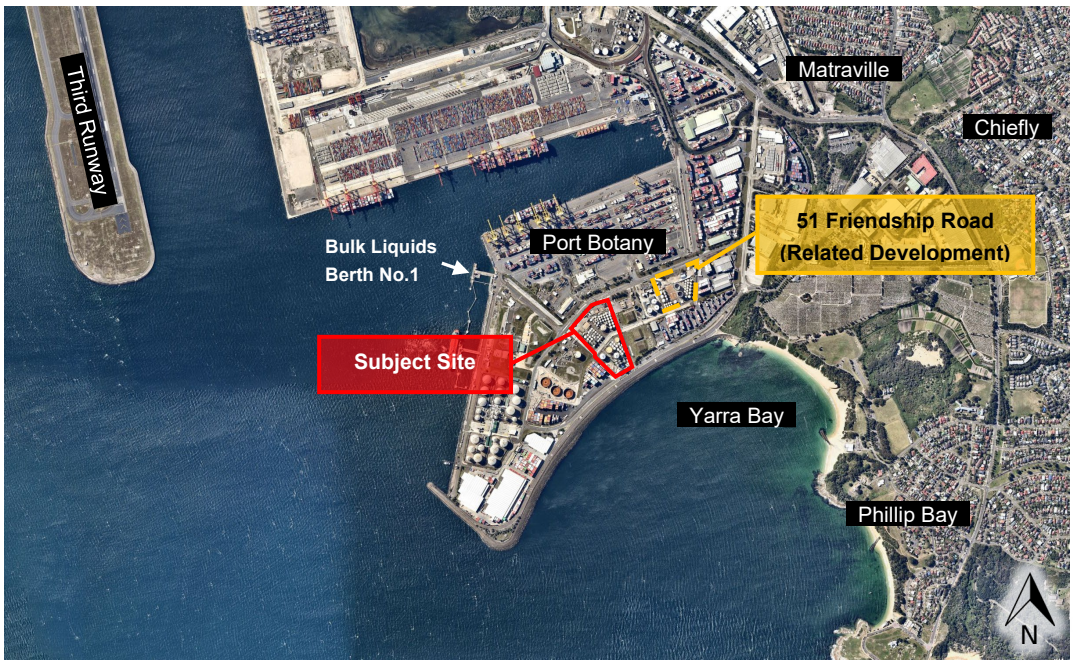

Figure 1 | Site and immediate surrounds

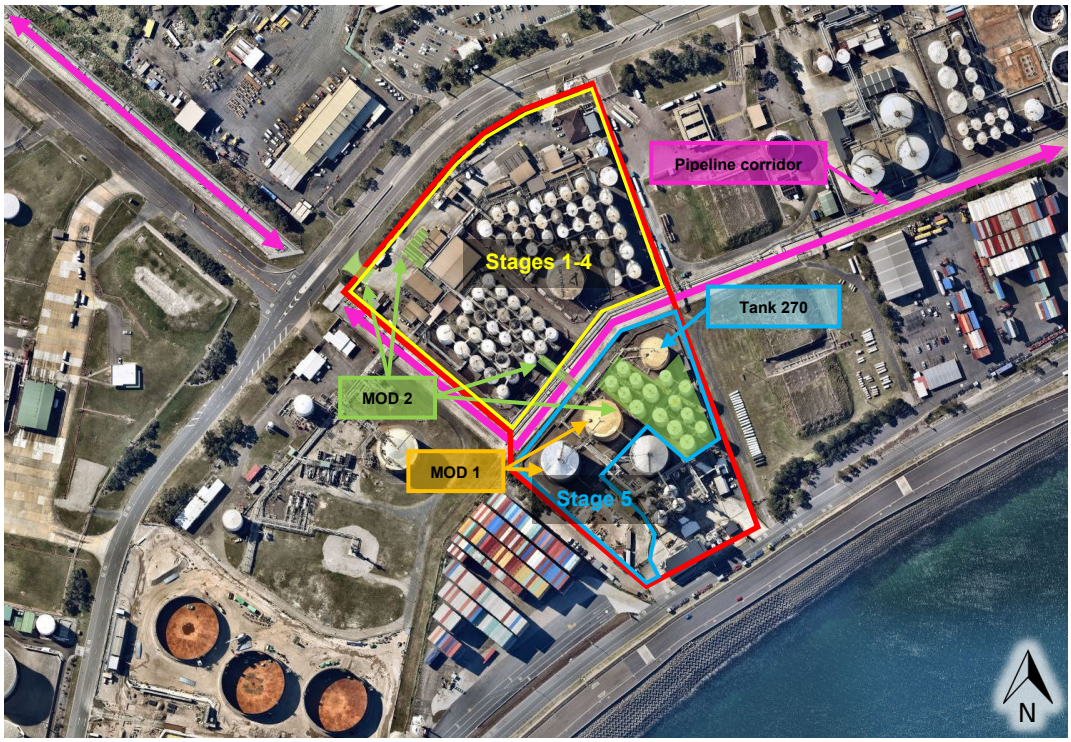

Figure 2 | Overview of the subject site (45 Friendship Road)

1.2 Related Development

51 Friendship Road (legally described as Lot 104 DP1182871) is a property located to the east of the subject site as shown in **Figure 1,** formerly operated by Vopak Terminals Sydney Pty Ltd under a number of consents issued by Randwick City Council to store and handle chemicals. This property was acquired by the Applicant through a sales and purchase agreement following its closure in 2014. In 2016, the Applicant applied to the Environment Protection Authority (EPA) for the variation of its licence to include 51 Friendship Road in EPL No. 1048 to reflect the change in ownership. Following the change of ownership, the Applicant has also converted the existing oil/chemical storage and handling facility to petroleum/diesel via the complying development pathway (CDC/353/2016).

On 18 December 2020, the Applicant applied for a CDC under the *State Environmental Planning Policy (Three Ports) 2013* to enable further works to 51 Friendship Road and to establish connecting works between 45 Friendship Road and 51 Friendship Road. In particular, the envisaged connecting works involves the repurposing of existing pipes within the pipeline corridor for waste transfer from 51 to 45 Friendship Road. However, this CDC application was withdrawn on 3 November 2021.

1.3 Approval history

On 14 January 1997, development consent was granted by the then Minister for Urban Affairs and Planning for the expansion of an existing bulk liquid storage facility (known as Stages 1 to 4) into the southern portion of the site and development of associated infrastructure, comprising loading/unloading facilities, pipelines, safety systems, landscaping and fencing. The development consent permitted the construction of 12 bulk liquid storage tanks for various fuels and chemicals totalling a capacity of 20,250 m^3 and is known as the Stage 5 expansion.

The development consent has been modified on two occasions and one modification application was withdrawn by the Applicant prior to a determination being made (MOD 3) (see **Table 1**).

Table 1 | Summary of Modifications

Mod No.	Summary of Modifications	Approval Authority	Type	Approval Date
MOD 1	Modification to allow two larger storage tanks instead of the remaining 11 unconstructed tanks	Minister	s96(2)	6 September 2009
MOD 2	Modification to add 12 tanks, supporting infrastructure and increase the approved total bulk liquids storage capacity of the facility	Minister	s75W	31 October 2013
MOD 3	Modification to install a second thermal oxidiser, install supporting infrastructure, repurpose a storage tank and remove a wastewater tank	Minister	s4.55(1A)	Withdrawn

Note that the Applicant constructed only one of the 12 storage tanks from Stage 5 (Tank No. 270), with a storage capacity of 5,000 m^3. Subsequently, DA246/96 MOD 1, known as Stage 5A, permitted the expansion of the existing bulk liquids storage facility with supporting infrastructure to cater for increased demand for larger deliveries. This allowed two larger storage tanks to be built in lieu of the 11 unconstructed tanks from Stage 5.

The approved total storage capacity of the DA246/96 was subsequently increased under MOD 2 from 20,250 m^3 to 25,000 m^3 and included the following further works:

- 12 additional tanks to increase the total storage capacity to 39,500 m3 within the Stage 5 area
- two interconnecting pipelines to the existing docklines exchange pit located in the Stage 1 to 4 area to allow the transfer of liquids to the additional tanks
- extension of the existing Stage 3 loading bay from two to three gantries for filling of road tankers
- modification to the exit driveway at the Friendship Road frontage.

The approved works have been carried out by the Applicant and an overview of the subject site is shown in **Figure 2**.

2 Proposed modification

On 19 November 2021, the Applicant lodged a modification application under section 4.55(2) of the EP&A Act to modify development consent DA246/96. The modification seeks to:

- construct and operate a thermal oxidiser with liquid waste burning capability (classified as a group 6 treatment plant under the Protection of the Environment Operations (Clean Air) Regulation 2021)
- construct and operate associated servicing and infrastructure adjacent to the existing combustor
- demolish and remove waste tank 1 (WT1)
- repurpose existing tank T-261 as a new waste tank (that is, a 200 m3 capacity fixed-roof tank with redundant high-level protection and fire protection).

The modification is depicted in **Figure 3** and **Figure 4** and described in full in the Modification Report referenced in **Appendix A**.

A group 6 thermal oxidiser is essentially an afterburner that breaks down hazardous gases and contaminated combustible liquids at high temperature (more than 980 degrees Celsius if the air impurities originate from material containing any principal toxic pollutant, or 760 degrees Celsius in any other case), to produce carbon dioxide and water.

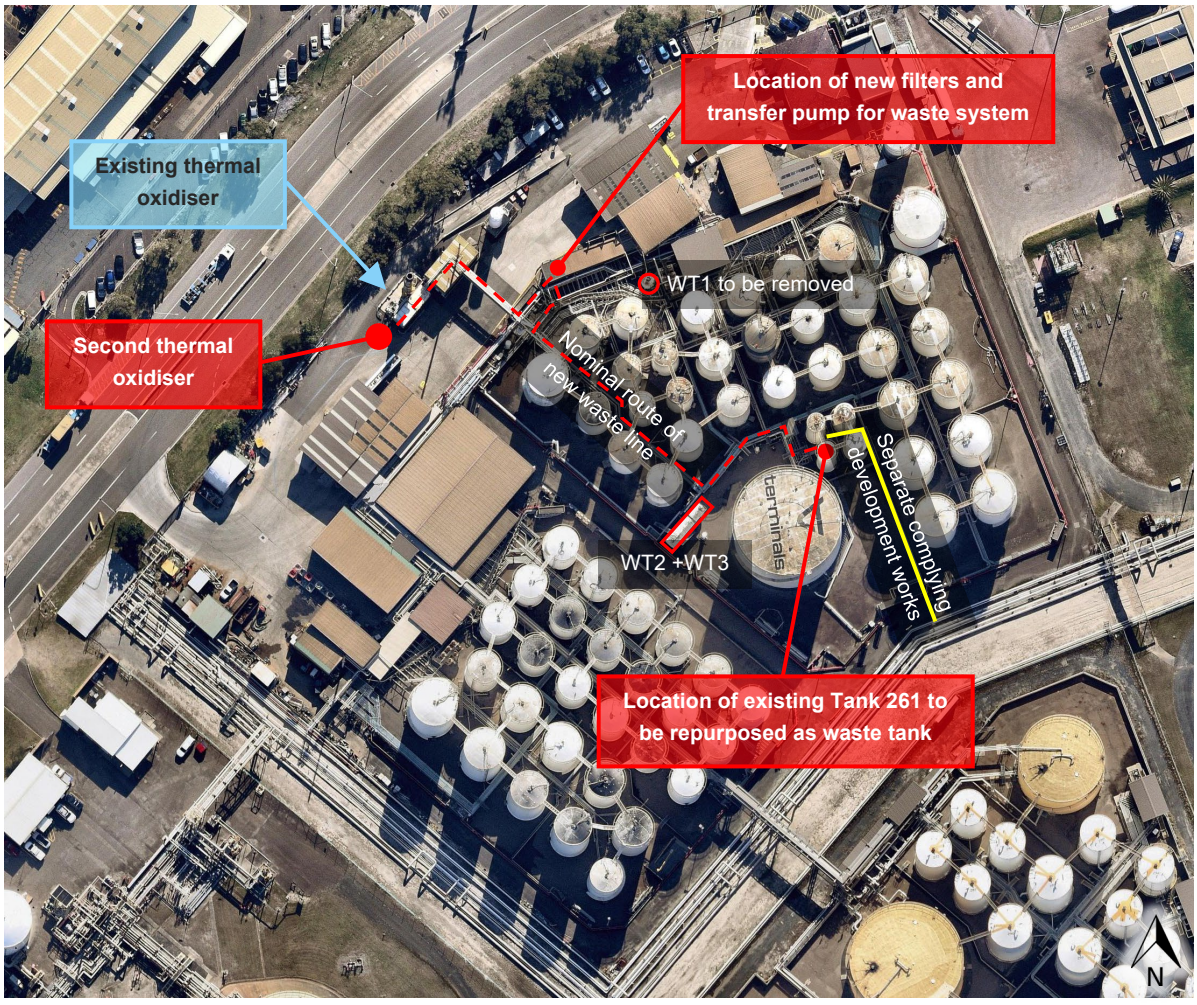

Figure 3 | Proposed modification

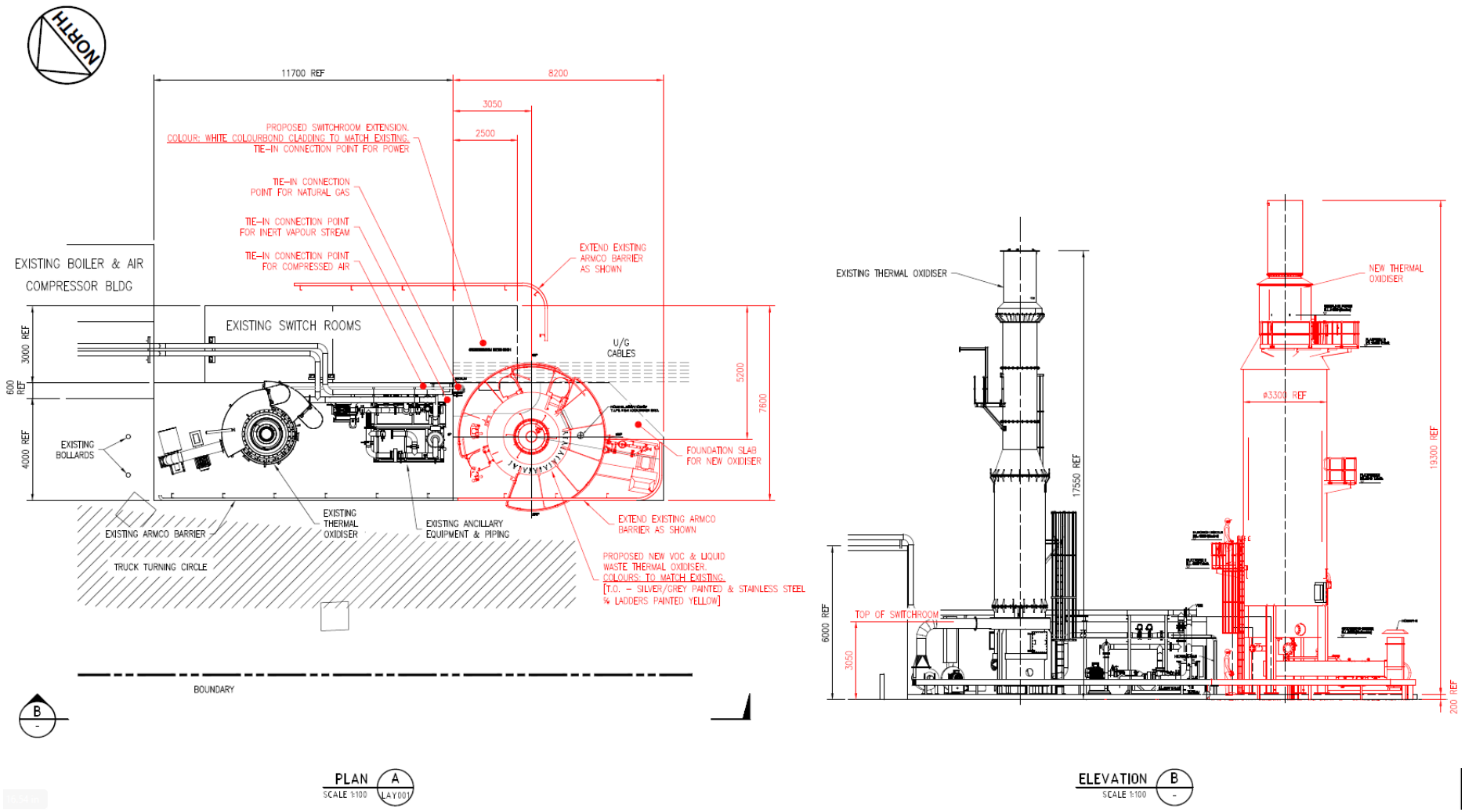

Figure 4 | Plan and elevation views of the existing (shown in black) and proposed (shown in red) Thermal Oxidisers

2.1 Treatment of Liquid Waste Stream

Liquid waste generated by Site A (Stages 1 to 5) is in the range of 0.32% to 0.36% of its annual product throughput (up to 1,000 m^3 of liquid waste per annum), and in most cases can be separated into a hydrocarbon component and an aqueous solution (typically comprising 60 to 80% water). The composition of liquid waste is highly variable due to the following waste generating processes:

- waste from environmental events – stormwater can be contaminated with minor quantities of product that has gathered on pavement in the gantry bays
- waste from routine operations – primarily from line cleaning and line changeover operations for different chemical products, noting that a variety of solvents (including Methyl Ethyl Ketone, Acetone and iso-propyl alcohol) and cleaning methods and sequence are utilised to maintain product integrity
- waste from routine and planned maintenance – pipeline, equipment maintenance and tank inspections generate quantities of mixed hydrocarbon and water wastes. Note all storage tanks are regularly inspected while larger tanks are emptied and internally inspected at least once every 10 years for which the cleaning process generates a mixed solution comprising flammable base solvents, cleaning solvents, water, degreasers, scale and general heavy sludge from the tank base.

Under the current approval, the liquid waste generated by the operation of Site A is stored in existing waste tanks and other storage tanks as required for back-up capacity. The liquid waste stream is then collected and transported off site by Cleanaway using a vacuum loading truck to be treated and disposed of at a facility that can lawfully accept the waste. Solids are removed by gravity settlement, skimming or course filtration, and disposed of to landfill. The remaining liquid component is further processed via gravity settlement to remove hydrocarbons that are not soluble in water (known as non-aqueous phase hydrocarbons) from those hydrocarbons that are, such as Ethanol, Methyl Ethyl Ketone and Acetone. The separated non-aqueous phase hydrocarbon component is subsequently transported to either Victoria or Queensland by truck, where it is combusted for useful heat in a cement kiln. In contrast, the separated liquid component is treated biologically and disposed of into the municipal sewer system once it meets acceptable standards, whereas sludge is disposed of to landfill.

The Applicant is now seeking to treat the liquid waste on site using a new thermal oxidiser to remove the need for sending liquid waste off site. Under the proposed waste management process, liquid waste will be sourced from Waste Tanks WT2 and WT3 and pumped from tank T-261 (currently being used to store liquid waste for additional capacity) to the proposed second thermal oxidiser for treatment, with essentially complete oxidation to form carbon dioxide, water and other inorganic compounds.

2.2 Treatment of Gaseous Waste Stream

The existing group 5 thermal oxidiser (without liquid waste burning capability) was installed at Site A towards the end of 2012 to replace the less effective activated carbon beds as the primary vapour emission control system for Stages 1 to 5. The Applicant advised there is currently no vapour destruction redundancy on site and the existing thermal oxidiser is operating near its design capacity. If the modification is approved, the proposed second thermal oxidiser will be used in typical operating scenarios with the existing thermal oxidiser remaining as the back-up. Under peak load scenarios, both thermal oxidisers at Site A will be used together to manage the existing vapour waste stream.

2.3 Applicant's Justification for the Proposed Modification

Owing to changes in the waste management market, the Applicant is now seeking to treat the liquid waste on site using a new thermal oxidiser. The Applicant states the proposed liquid waste management process provides a broadly equivalent liquid waste destruction method to offsite fuel burning (such as in kilns) and will provide greater assurance that waste can be disposed of in a timely manner without relying on customer product storage tanks for waste storage. The proposed liquid waste management process will also eliminate the residual sludge which is currently disposed of to landfill.

Further, the Applicant is seeking to build in redundancy into its operations to ensure vapour emission, particularly benzene, can be controlled effectively. In the current situation, the back-up carbon beds are significantly less effective if called upon to operate in lieu of the existing thermal oxidiser. The proposed thermal oxidiser is anticipated to be used in normal operating conditions with the existing thermal oxidiser remaining as the back-up.

3 Statutory context

3.1 Scope of modifications

The Department has reviewed the scope of the modification application and considers that the application can be characterised as a modification as it:

- is substantially the same development as last approved under section 75W (as discussed in the Assessment section of this report)
- would not involve any further disturbance outside the already approved disturbance areas for the development.
- is of a scale that warrants the use of section 4.55(2) of the EP&A Act

The Department has considered the introduction of thermal oxidation to treat liquid waste and is satisfied the proposed modification is within the scope of section 4.55(2) of the EP&A Act and does not constitute a new development application. Accordingly, the Department considers that the application should be assessed and determined under section 4.55(2) of the EP&A Act rather than requiring a new development application to be lodged.

3.2 Consent authority

The Minister for Planning (Minister) is the consent authority for the application under section 4.5(a) of the EP&A Act. Under the Minister's delegation of 9 March 2022, the Director, Industry Assessments, may determine the application under delegation as:

- the application has not been made by a person who has disclosed a reportable political donation under section 10.4 of the EP&A Act
- there are less than 15 public submissions (other than a council) in the nature of objections, and
- Council has made a submission by way of objection outside the statutory timeframe for community participation listed under Schedule 1 of the EP&A Act.

3.3 Mandatory matters for consideration

The Department undertook a comprehensive assessment of the application against the mandatory matters for consideration as part of the original assessment of DA246/96 (under section 79C of the EP&A Act, as in force at the time). This modification application does not result in significant changes that would alter the Department's consideration of the mandatory matters for consideration under section 4.15(1) of the EP&A Act and conclusions made as part of the original assessment.

3.4 Biodiversity Conservation Act 2016

Clause 30A(2)(c) of the Biodiversity Conservation (Savings and Transitional) Regulation 2017 specifies that if the determining authority is satisfied a modification will not increase the impact on biodiversity values, a biodiversity development assessment report (BDAR) is not required.

The Department is satisfied there is no presence of trees on the site and the new thermal oxidiser is proposed on land that is hardstand. Accordingly, the Department's assessment concludes a BDAR is not necessary for the proposed modification.

4 Engagement

4.1 Department's engagement

In accordance with clause 10 of Schedule 1 to the EP&A Act and clause 118 of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation), the Department exhibited the application for 14 days from **Tuesday 30 November 2021** to **Monday 13 December 2021** on the Department's website.

Previous submitters were notified of the modification application and invited to make a submission. The modification application was also referred to Randwick City Council, EPA, Transport for NSW, Fire and Rescue NSW (FRNSW) and the Port Botany Community Consultative Committee (PB CCC).

4.2 Key issues raised in submissions

During the exhibition period, the Department received one unique submission from a member of the community who commented on the proposal. Key issues raised by the public relates to cumulative environmental impacts and a lack of community engagement.

4.3 Government Advice

Advice was received from three State government authorities and two local government authorities, corresponding to Randwick City Council and Bayside Council (who is informed of this modification application by the PB CCC).

Randwick City Council does not support the modification application on grounds that the introduction of the proposed group 6 thermal oxidiser and repurposing of tank T-261 as a new waste tank are significant changes that goes beyond the size, scale, capacity and nature of the development originally approved. Randwick City Council noted deficiencies in the air quality impact assessment and requested any potential shortcomings associated with the operation of a group 6 treatment plant be comprehensively evaluated. Randwick City Council also noted that the visibility of emissions arising from any proposal involving the burning of waste is considered imperative to abating community concerns.

Bayside Council raised concerns regarding the adequacy of information provided in relation to hazards and risk, waste management, greenhouse gas emissions and operational noise. Bayside Council also noted concerns in relation to the statutory process and the need for ongoing consultation to ensure adequate input is provided.

The **EPA** advised there is insufficient information in the modification application to demonstrate the proposed waste treatment process is suitable for all waste streams generated (specifically solids which are currently disposed of to landfill once separated from the liquid waste by a licenced waste management operator). Further, the EPA requested a further review of the proposed waste treatment process be undertaken to ensure it is fit-for-purpose and waste avoidance is maximised. The EPA also requested additional information to clarify model input parameters and predicted air pollution and greenhouse gas emission. The EPA did not have any concerns in relation to noise.

Transport for NSW advised it has no specific comments on the modification application.

Fire and Rescue NSW (FRNSW) recommended a comprehensive fire safety study and a site-wide preliminary hazards analysis be undertaken given that potential incidents on this site requiring intervention present unique risks to firefighters.

4.4 Response to submissions

On 21 March 2022, the Applicant submitted a Response to Submissions (RTS) addressing issues raised during the exhibition period (see **Appendix A**). The RTS provided further information regarding the waste management process, air pollution emission parameters, fire safety and the use of the proposed thermal oxidiser at 45 Friendship Road. Issues raised regarding these matters are discussed further in the Assessment section of this report.

In response to Randwick City Council's concern on potential visual impact, the Applicant noted in the RTS that the second thermal oxidiser will not create any visible emissions as viewed from the distant residential areas.

The RTS was made publicly available on the Department's website and provided to Randwick City Council, Bayside City Council, EPA and FRNSW for consideration.

Given the technical complexity of the proposed modification, the EPA critically reviewed the RTS and subsequently prepared a comprehensive set of recommended conditions consent for the Department's consideration.

On 4 May 2022, the EPA's advice on recommended conditions regarding air quality and waste management was received by the Department.

5 Assessment

The Department has assessed the merits of the proposed modification. During this assessment, the Department has considered the:

- Modification report provided to support the proposed modification
- submissions from the public
- advice from State and Local government authorities
- RTS and additional information provided by the Applicant
- the original development application and subsequent modification application, their accompanying documents and the corresponding assessment reports
- relevant environmental planning instruments, policies and guidelines
- requirements of the EP&A Act, including the objects of the EP&A Act.

The Department's assessment of the modification application is provided in **Table 2** below.

Table 2 | Assessment of the modification application

Assessment	Recommendations
Substantially the same development	
• The proposed modification to eliminate the need for off-site liquid waste management by thermally destructing liquid waste on site using a thermal oxidiser will expand the range of operational activities. Given the use of the land consented to relates to bulk liquid storage handling and storage, Randwick City Council recommended the Department carefully consider whether the proposed modification can be considered substantially the same development as approved. • The Department has subsequently undertaken a quantitative and qualitative comparison of the proposed modification and the approved development within their respective contexts. <u>Quantitative comparison</u> • The before and after comparison of quantitative parameters in the context of this proposed modification is mainly associated with the variation in air pollutant emissions. The amount of liquid waste generated on site would remain unchanged following the modification. • The Department has undertaken a comprehensive assessment of the potential air quality impacts associated with the proposed modification (see below) and is satisfied it would not significantly increase the ground level concentrations of air pollutants. • Consequently, the Department is satisfied the proposed modification would not result in a 'radical transformation' from a quantitative perspective, when compared to the approved development.	New condition (6A) to prohibit the proposed Group 6 treatment plant from treating liquid waste that is not generated on the site.

Assessment	Recommendations

Qualitative comparison

- Given the use of the land consented to is for bulk liquid storage, the development as originally approved did not include liquid waste disposal on site. The approved liquid waste management plan requires liquid waste (contaminated or potentially containing chemicals) to be collected and removed from the site for processing at an EPA approved aqueous waste management facility. In contrast. the Applicant is now seeking to treat the liquid waste on site using a new thermal oxidiser.
- The Department has considered the Applicant's assessment and is satisfied the intended use of a thermal oxidiser to treat on-site liquid waste is ancillary to the dominant use of the land, noting that gaseous vapours from the tanks are currently treated on the site.
- Further, the Department is satisfied the proposed thermal oxidiser (including a new waste line from tank T-261, for which T-261 is already being used to accommodate for additional storage capacity for liquid effluent) would form part of the shared infrastructure on the site to support the holistic operation of Stages 1 to 5.
- The Department is satisfied the proposed modification would not result in a 'radical transformation' from a qualitative perspective and can be considered 'substantially the same development' as that which was approved under DA246/96.

Conclusion

- The Department has reviewed the proposal from both a quantitative and qualitative standpoint and is satisfied the modification can be categorised as 'substantially the same development'.
- However, the Department considers the potential for liquid waste generated by other facilities (that is, those facilities not on land to which this consent applies) to be thermally treated at the subject site could introduce an additional and distinct use – that of a waste management facility - for which approval was not given.
- In order to ensure the proposed thermal oxidiser and the alternative waste treatment process remains intrinsically linked to the subject site, the Department has recommended a new condition which prohibits the thermal oxidiser from treating liquid waste that is not generated on the site.
- The Department's assessment concludes the modification is within the scope of section 4.55(2) of the EP&A Act and would not significantly increase the environmental impacts of the development as approved, subject to the recommended conditions of consent.

Assessment	Recommendations
Liquid Waste Management Technique	

• The proposed modification to remove the need for sending liquid waste off site by treating liquid waste on site using a thermal oxidiser requires the consideration of best available technology and all practicable design and management options to maximise waste avoidance.
• The modification application included a waste management impact assessment which evaluated the current and proposed approaches for managing liquid waste (see **Section 2.1** of this assessment report for a summary of the waste generation and management processes).
• The Applicant advised the thermal treatment of liquid waste on site will effectively minimise the disposal of residue waste to landfill or Sydney Water sewer. Furthermore, the current waste management strategy involves a series of off-site processes, including thermally destructing a portion of the waste in a cement kiln which provides for the displacement of another fuel source with no added heat recovery. The Applicant further noted the proposed thermal treatment method provides a broadly equivalent waste destruction method of the insoluble flammables in comparison to fuel burning in kilns.
• To demonstrate due consideration has been given to the preferred approach of waste avoidance in accordance with the *Waste Avoidance and Resource Recovery Act 2001*, the Applicant provided a waste minimisation plan as part of the application, describing measures that have been implemented, including the following:
  ○ installation of rollover kerb and/or roof extension to minimise rainwater from entering gantry bays and hose exchanger pits
  ○ optimisation of line cleaning operation to reduce excess cleaning liquid
  ○ optimisation of shipping operation to recycle waste oil
  ○ upgrade to the vapour emission control system.
• The waste minimisation plan noted the use of filtration bag and activated carbon filter was not effective at removing or separating flammable solvents from wastewater due to the high miscibility of solvents and the regeneration or disposal of carbon beds being cost prohibitive. Energy recovery was also considered by the Applicant but deemed to be not feasible due to the variability in the operation of the thermal oxidiser. The Applicant advised the implementation of the aforementioned measures have collectively reduced the amount of liquid waste by approximately 25%.
• During the exhibition period, the EPA requested further information to demonstrate thermal oxidation is a suitable technology to treat the existing liquid waste stream, all potential waste minimisation options have been considered, and clarify assumptions used to estimate
	New condition enabling the Applicant to treat liquid waste generated on site using the proposed Group 6 treatment plant
	
	New and amended conditions requiring the Applicant to prepare waste management plan and ensure best-available management options are implemented

Assessment	Recommendations
greenhouse gas emissions for the comparative assessment of waste management strategies. • In response, the Applicant advised that dissolved inorganic chemicals are not anticipated in the waste stream and solids would be prevented from entering the thermal oxidation system by transfer pump strainers. • The RTS also included a comparative assessment which indicated the proposed thermal oxidation method is the most appropriate technology to treat liquid waste compared to other accepted best available techniques, including air stripping, distillation, hydro-cyclone (centrifuge separation), nano filtration and reverse osmosis, wet air oxidation, and biological treatment. The updated waste management assessment submitted as part of the RTS also reported the estimated greenhouse gas emission to be generally consistent with the existing process. • The EPA had no further comments and recommended the Department consider a set of robust conditions to ensure the thermal oxidiser must only be used to treat waste generated on the site and require the Applicant to prepare a waste management plan. • The Department has reviewed the modification application and the advice provided by EPA, and considers the management of liquid waste to be an on-going challenge in NSW and that the waste management systems on the site need to be regularly monitored and reviewed to ensure best-available waste management options are implemented where feasible and reasonable. • The Department concludes that liquid waste generated on the site can be treated by the proposed thermal oxidiser and recommended conditions of consent in line with EPA's advice.	
Air Quality	
• The proposed modification to treat liquid waste using a thermal oxidiser has the potential to result in air quality impacts to surrounding sensitive receivers. • The modification application included an air quality impact assessment which assessed the cumulative air pollutant emissions associated with the operation of 45 Friendship Road (subject site) and 51 Friendship Road. The sources of emission considered in the AQIA consist of activated carbon beds, a thermal oxidiser and the proposed thermal oxidiser (with the added ability to treat liquid waste) at Site A and a thermal oxidiser for the bitumen plant at Site B of 45 Friendship Road. Additionally, a vapour recovery unit at 51 Friendship Road was also included.	New condition requiring the development be carried out in accordance with the documentation submitted with the modification application New condition (25A) requiring the Applicant to carry out an air quality verification study

Assessment	Recommendations

- The existing process of utilising natural gas to thermally combust volatile organic compounds (VOCs) that exist as vapour within the airspace of tanks converts potentially harmful emissions into carbon dioxide and water vapour. The air quality assessment indicated the modified operation is anticipated to emit approximately an additional 70 kg of VOCs compared with approximately 10,000 kg emitted in the 2019-20 period.
- As the oxidation process involves combustion, there is also some generation of other combustion products such as benzene, carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter (PM) and sulfur dioxide (SO_2). The proposed waste management process of using a thermal oxidiser to treat liquid waste containing hydrocarbon chemicals will further increase air emissions.
- During the exhibition period, Councils and EPA sought further information from the Applicant regarding air pollution emission assumptions to provide greater certainty that potential air quality impacts have been addressed.
- In response, the Applicant provided an updated air quality impact assessment for the site and advised the anticipated increases in emission rates are approximately 30% for benzene, 71% for CO, 154% for NO_2, 121% for PM_{10}, and 100% for SO_2 under the worst-case assessment scenario with both thermal oxidisers at Site A, bitumen combustor at Site B and the vapour recovery unit operating simultaneously at maximum capacity.
- Notwithstanding, the predicted ground level concentrations at surrounding sensitive receptors were shown in the updated air quality impact assessment to be well below the criteria established in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (EPA, 2016) for all pollutants considered. For the pollutant with the greatest increase in emission rate, the Applicant advised the predicted ground level concentration would contribute up to 5% of the NO_2 criterion (which is 246 $\mu g/m^3$) at the most-affected receiver in Little Bay and is almost seven times less than the background concentration level in Randwick.
- Accordingly, the updated air quality assessment concluded the proposed modification is unlikely to cause a material increase to the total air pollution levels in the receiving environment.
- The EPA considered this further information and advised it had no further concerns in relation to air quality impacts and recommended the following conditions:
    - the vent stack of the thermal oxidiser be built to a height of at least 17.5 m above ground

Assessment	Recommendations
○ the thermal oxidiser be fitted with sampling ports to enable ongoing emission testing to be undertaken. • The Department has considered the findings of the updated air quality assessment and the advice provided by EPA and is satisfied the proposed modification would not significantly increase ground level concentrations of air pollutants. The termination height of the proposed thermal oxidiser vent stack is 19.3 m above ground (see **Figure 4**) and would help to minimise air quality impacts to surrounding receivers. • The Department is satisfied the existing conditions requiring the Applicant to carry out the development in accordance with the Applicant's modification assessments is sufficient in addressing the EPA's recommended height requirement. To ensure the thermal oxidiser is operated in a manner that is consistent with predicted impacts, the Department has recommended a condition requiring the Applicant to submit an air quality verification study utilising data collected by the sampling ports to verify modelled emission parameters. Should any unforeseen impacts be identified during the verification study, the Applicant would be required to implement additional mitigation measures to address the issue. • The Department's assessment concludes the proposed modification would not materially increase air emissions of the development as approved and air emissions would be appropriately managed through the implementation of the existing and recommended conditions of consent and the site's EPL.	
Hazards and Fire Safety	
• The proposed modification to install and operate a thermal oxidiser to treat liquid waste through thermal combustion has the potential to result in hazard and risk impacts. Failures associated with the natural gas feed line to the proposed thermal oxidiser will release natural gas to atmosphere, and hence the possibility of ignition. • The modification application included a Preliminary Hazard Analysis (PHA) which indicated the risk levels associated with the proposed thermal oxidiser would comply with all risk criteria for land use safety planning. The Applicant advised the primary reasons for the low risk levels are that significant levels of radiant heat from potential fires would be contained on-site in a separated area away from the main storage and the likelihood of catastrophic equipment failures is acceptably low. • In its submission on the modification application, FRNSW noted potential incidents at a bulk liquid storage facility requiring intervention present unique risks to firefighters and requested the Applicant	New condition (12A) requiring the Applicant to provide the updated emergency response plan and emergency services information package to FRNSW

Assessment	Recommendations
provide a comprehensive fire safety study and a site-wide preliminary hazards analysis. • The Applicant subsequently provided a fire safety study which identified fire prevention, detection, protection and fighting measures for the specific fire hazards on site. Furthermore, the Applicant maintained that a site-wide preliminary hazards analysis is not required on the basis the proposed thermal oxidiser is to be located in an area separated from the main storage and handling equipment, and risk analysis indicated acceptably low propagation risk. • FRNSW advised it had no further concerns in relation to hazards and fire safety and recommended the emergency response plan and emergency services information package be updated and submitted to FRNSW during detailed design and prior to the operation of the new thermal oxidiser. • The Department has considered the findings of the PHA and fire safety study and is satisfied the proposed modification would not significantly increase the level of risks from Site A. To ensure the Applicant satisfies its obligations with regard to emergency planning considerations, the Department has recommended a new condition in line with FRNSW's recommendation of requiring the updated emergency response plan and service information package be submitted to the primary emergency service organisation. • The Department's assessment concludes the proposed modification would not materially increase hazards and fire safety risk of the development as approved and risks would be appropriately managed through the implementation of the existing and recommended conditions of consent.	

6 Evaluation

The Department has reviewed the Modification Report, RTS, and all advice from Government authorities and Councils, taking into consideration the relevant matters under section 4.15 of the EP&A Act and the objects of the EP&A Act.

The Applicant is proposing to modify the consent to install a thermal oxidiser to provide redundancy for the current vapour emission control process, and to eliminate the need to dispose of liquid waste to an EPA approved aqueous waste management facility by combusting liquid waste on site. The operation of another thermal oxidiser on the site would ensure vapour emissions, particularly principal toxic air pollutants such as benzene, can be controlled effectively at all times. Advice provided on the modification application by Randwick City Council and EPA include matters relating to air quality, best available techniques for liquid waste management and the use of the proposed thermal oxidiser in the context of the development as approved.

The Department's assessment considered the question of 'substantially the same development' and potential air quality impacts to be the key matters for consideration.

The Department's assessment concludes the modification is appropriate on the basis that:

- the proposed modification would not significantly increase the environmental impacts beyond those assessed under the development as last modified under the former section 75W of the EP&A Act and is substantially the same development
- the modification to the liquid waste management process would improve operational efficiency and reduce operational risk to the subject bulk liquid storage and handling facility.

Consequently, the Department is satisfied that the modification should be approved, subject to the recommended modifying conditions of consent.

7 Recommendation

It is recommended that the Director, Industry Assessments, as delegate of the Minister for Planning:

- **considers** the findings and recommendations of this report
- **determines** that the application DA246/96-Mod-4 falls within the scope of section 4.55(2) of the EP&A Act
- clause 30A(2)(c) of the Biodiversity Conservation (Savings and Transitional) Regulation 2017 that a BDAR is not required to be submitted with this application as the application will not increase the impact on biodiversity values on the site
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to approve the modification
- **agrees** with the key reasons for approval listed in the draft notice of decision
- **modify** the consent DA246/96
- **signs** the attached approval of the modification (**Appendix C**).

Recommended by:

20 June 2022

Jeffrey Peng
Senior Environmental Assessment Officer
Industry Assessments

Recommended by:

28 June 2022

Joanna Bakopanos
Team Leader
Industry Assessments

8 Determination

The recommendation is **Adopted** by:

7 July 2022

Chris Ritchie
Director
Industry Assessments

as delegate of the Minister for Planning

Appendices

Appendix A – List of referenced documents

The Department has relied upon the following key documents during its assessment of the proposed development:

Modification Application

- 'Statement of Environmental Effects – Section 4.55(2) to DA246/96 Second Combustor – Terminals, Port Botany' prepared by Urbis Pty Ltd dated 18 November 2022

Submissions and Advice

- Submissions received from Council and the relevant public authorities and the general public

Response to Submissions

- 'DA246/96-Mod-4 RTS Public Submission' prepared by Quantem dated 28 February 2022
- 'DA246/96-Mod-4 RTS Fire and Rescue' prepared by Quantem dated 28 February 2022
- 'DA246/96-Mod-4 RTS Bayside City Council' prepared by Quantem dated 28 February 2022
- 'DA246/96-Mod-4 RTS Randwick City Council' prepared by Quantem dated 4 March 2022
- 'DA246/96-Mod-4 RTS EPA Air Quality' prepared by Quantem dated 4 March 2022
- 'DA246/96-Mod-4 RTS EPA Waste' prepared by Quantem dated 21 March 2022

All documents relied upon by the Department during its assessment of the application may be viewed at https://www.planningportal.nsw.gov.au/major-projects/projects/mod-4-second-thermal-oxidiser

Appendix B – Community Views for Draft Notice of Decision

The Department publicly exhibited the modification application from 30 November 2021 until 13 December 2021 (14 days). The Department received six submissions on the modification during the exhibition period. Council does not support the modification. The issues raised by Council and the general public and a summary of how each issue has been addressed is provided in **Table 3** below.

Table 3 | The Department's response to issues raised in public submissions

Issue	Consideration
Substantially the same development Concerns relating to whether the addition of a thermal oxidiser to allow the treatment of liquid waste on the site can be considered 'substantially the same development'	A detailed assessment of whether the proposed modification can be considered 'substantially the same development' is provided in **Section 5** of this report. The Department has reviewed the proposal from both a quantitative and qualitative standpoint and is subsequently satisfied that the modification can be categorised as 'substantially the same' development and is within the scope of section 4.55(2) of the EP&A Act. The Department has recommended a condition of consent to ensure the proposed thermal oxidiser and the alternative waste treatment process remains intrinsically linked to the subject site by prohibiting the thermal oxidiser from treating liquid waste that is not generated on the site.
Air quality Concerns relating to the potential air quality impacts caused by the use of the proposed thermal oxidiser	A detailed assessment of the impacts of air quality is provided in **Section 5** of this report. The Applicant air quality impact assessment noted the proposed thermal oxidiser has an expected destruction efficiency for air impurities of more than 99.99%. In addition, the Applicant's RTS clarified that the predicted cumulative ground level concentrations at surrounding sensitive receptors were shown to be less than the background concentration level in Randwick and well below the criteria for all pollutants considered. The Department has consulted closely with the Environment Protection Authority throughout the assessment process for this modification application. The Department is satisfied the Applicant has made attempts to avoid and minimise air quality impact by adopting a thermal treatment plant with acceptable destruction efficiency for air impurities. The Department has recommended a condition requiring the Applicant to submit an air quality verification study. Should any unforeseen impacts be identified during the verification study, the Applicant would be required to implement additional mitigation measures to address the issue.

Appendix C – Notice of Modification

The recommended modification instrument for DA246/96-Mod-4 can be found on the Department's website at https://www.planningportal.nsw.gov.au/major-projects/projects/mod-4-second-thermal-oxidiser.

Appendix D – Consolidated Consent