

Submission for the Port Botany Quayline Equalisation Significant Infrastructure Development SSI-79878464

I strongly oppose the Port Botany Quayline Equalisation Development, not because I object to the concept of the expansion itself, but because I believe the EIS is fundamentally and significantly flawed.

I have two major concerns:

1. The Hazard Analysis report has not assessed the heightened risk of Aircraft crash into ships moored off BLB3. These ships are now close to runway end and the path of aircraft take-off. These ships carry and transfer enormous volumes of highly flammable pressurised liquids and gases such as LPG and Petroleum. They are floating Major Hazard Facilities. However, the danger they face/pose due to their relocation from BLB1 location, has not been assessed. The catastrophic consequences that could result has also not been appropriately modelled. This is a grave concern.
2. Contamination has not been appropriately assessed. Recent sediment investigations, are inadequate, leading to flawed conclusions being drawn. There are known contaminants in Brotherson dock. This is a contaminated site within a highly contaminated surrounding area. Sediment will be disturbed from significant dredging operations in Brotherson dock, as well as piling and demolition operations outside the dock. Contaminated sediment such as PFAS will travel considerable distances away from the project site. This has not been appropriately assessed. Additionally, the two nearest beaches to the project have not been acknowledged as existing, so the potentially hazardous health impacts of contaminated sediments, on swimmers and beach goers, has not been identified, or assessed. No precautionary principles have been applied to protect this group. The potential for future life changing adverse health impacts on beach goers, and other recreational water users nearby, needs to be recognized and fully assessed. A Detailed Site Investigation should have been done.

Major concern 1. Heightened risk of aircraft crash.

I have read the Preliminary Hazard Analysis report (Appendix G in the EIS) and the Aviation Safety Report (Appendix H) but both reports fail to assess and fully report on the most hazardous element of the whole development, the element that has the most potential to cause catastrophic consequences for Port Botany and the surrounding suburbs. The hazardous issue of concern is the relocation of Bulk Liquids Berth 1 (BLB1) to a new more vulnerable position and the increased hazard this places ships using this relocated Bulk Liquids Berth.

The current location of BLB1 mean that ships transferring dangerous goods at BLB1 are berthed a safe distance away from the end of the runway and the flight path. The ships at BLB1 are not subject to aircraft over-flight and they are therefore at almost zero risk of aircraft crash.

The relocation of BLB1, to a new site 750m SW, which is to be called BLB3, places the ships very close to the end of the 3rd runway, adjacent to the current flight path, in an area that is regularly subject to aircraft over-flight. This puts these ships at significantly heightened risk of aircraft crash.

These ships carry flammable compressed gas and fuel (Dangerous Goods class 2.1 & 3) including LPG, Propane and petrol. They are essentially large, floating Major Hazard Facilities, and these ships will be berthed/moored for extended periods of time whilst transferring their dangerous goods.

Although Aircraft crash *appears* to be extensively assessed in the Preliminary Hazard Analysis report (Appendix G in the EIS) and the Aviation Safety Report (Appendix H). It is not.

Aircraft crash is only assessed with relevance to the actual 'construction' phase of the project (specifically referred to as "*the Project*" in the report) and with relevance to 'container operations' at the DP World extended quay after the development is completed (specifically referred to as "*Facilitated container operations scenario*" in the report). The infrastructure at BLB3 has been nominally assessed for hazard risk, but hazard analysis and assessment of the risk of aircraft crash, to large ships using BLB3 to transfer dangerous goods, has been inexplicably omitted from both reports and exempt from assessment. This is a grave omission due to it being the greatest future hazard of the whole development when it becomes operational.

The catastrophic consequences, for the Port and neighbouring suburbs, if a berthed gas and fuel ship was hit by an aircraft and an explosion caused propagation effects and secondary incidents at other Major Hazard facilities at the Port, has also not been fully assessed and highlighted due to the issue of berthed ships at BLB3 not being assessed.

It is unclear why the operational scenario of gas and liquid fuel ships moored off BLB3, whilst transferring dangerous goods, was considered to be outside the scope of the both the Preliminary Hazard Analysis report and the Aviation Safety reports. This should have been clearly explained and highlighted.

I note that SEARS requires '*Risk criteria for Land Use Safety Planning, HIPAP4*' (DoP, 2011) to be addressed in the Preliminary Hazard Analysis report. This guideline sets out risk criteria for industries that are considered potentially hazardous. The ships, carrying and transferring dangerous goods, were not assessed under this legislation, perhaps because it was specified as '*land*' use planning. However, SEARS do not appear to have listed alternative requirements for '*Marine safety*' planning guidelines to be adhered to. This would appear to be a grave omission of SEARS.

I am not familiar with Marine guidelines and legislation, in terms of Safety Planning for location of berthed ships, in regard to aircraft safety, but I presume there must be legislation. The Marine Safety Act 1998 (NSW) regulates some aspects of marine '*transport*' of dangerous goods and hazardous materials, so perhaps it has a section concerning where ships can be safely '*berthed*' with relation to airport runways. If it does, then meeting the requirements of this Act should presumably have been a bare minimum requirement of SEARS, plus any other relevant marine planning guidelines, for safe placement of berths/moorings for ships. It should be remembered that these ships are carrying and transferring flammable dangerous goods when they are in the close vicinity to the end of an airport runway.

When BLB3 is completed and operational, it will presumably fall under the jurisdiction of the Port Authority of NSW and the harbour master, but it is unclear what safety criteria have been applied to this scenario. Safety measures should have been included in the Preliminary Safety Analysis Report and the Aviation safety report. These omissions make this project appear to be deeply flawed from the start, in terms of major hazard assessment and public transparency of measures to protect the public.

Ships/vessels are not considered in the same way as a building, or land based fixtures. As a result they apparently do not fall under "*Australia's National Airport Safeguarding Framework (NASF)*" which guides land use and development planning around airports. Because of this anomaly, the Aviation Safety report does not assess or report on the issue of moored ships at BLB3 despite it being one of the most obvious causes of extreme concern. This appears to be another area where the ships at the end of BLB3 are falling between the cracks in terms of not being required to be assessed, or reported upon. It is concerning that these red flags were not highlighted by the assessors doing the comprehensive hazard analysis and aviation safety investigations.

The major hazard issue of ships carrying dangerous goods moored in close proximity to the 3rd runway needs to be assessed and reported on transparently and openly in the EIS, before this project gets planning approval. These are significant hazard issues that should not, and cannot, be decided behind closed doors without transparency, or public oversight.

This issue should not be relegated to conditions of consent, as that should be reserved for minor, not major, significant issues. It is already concerning that the EIS only includes a '*Preliminary*' hazard analysis report and not a '*Final*' hazard report. Surely, the EIS should have waited for a '*Final*' hazard report so the public were made aware of all issues.

Local communities have a right to know that this issue is being treated appropriately when this major hazard is on their doorstep. This EIS gives the public no faith that appropriate assessment is being completed and that the public will be safe.

A secondary, but significant concern is that the Preliminary Hazard Analysis does not appropriately acknowledge that aircraft over-flights of the area where BLB3 and the gas and liquid fuel ships are to be located, is a regular occurrence. Local residents at La Perouse regularly witness aircraft turning and flying directly over the SW area of Port Botany. It is a current reality of aircraft departing the 3rd runway.

The reports repeatedly assert that "*No flights allowed over Port Botany,*" and "*Rules apply to help ensure no aircrafts taking off or landing over Port Botany.*" If risk evaluation and assessment criteria are being based on this flawed premise that aircraft do not overfly this area, then risk calculations and report conclusions, of the limited issues of aircraft crash that have been covered in the report, have the potential to be significantly incorrect.

I clarify again, that the assessment of issues around aircraft crash that are covered in the report do *NOT* include the risk to ships moored off BLB3 during dangerous goods transfer operations and the potential for them to be subject to aircraft crash, as this issue was exempt from the report and has not been assessed.

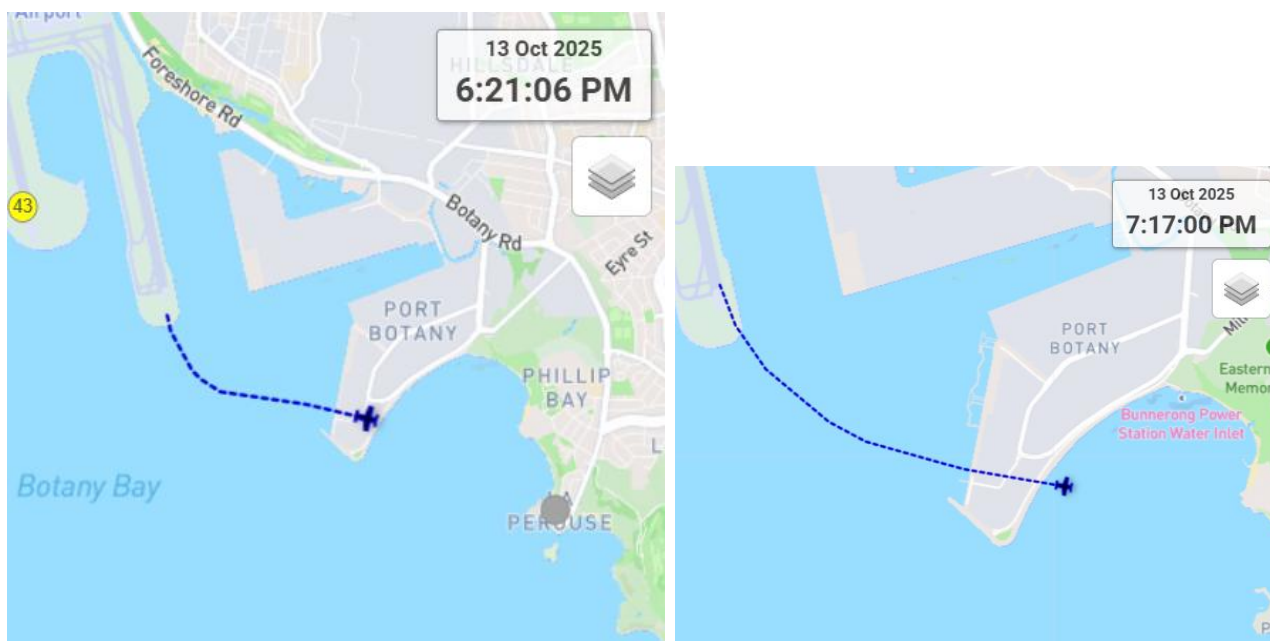
In the past hour that I have been writing this submission, two non-jet aircraft have over-flown the exact spot where BLB3 and the ships will be placed. (Images taken from Webtrak/Airservices publically available tracking system).

Later in this submission I provide a visual example of overflight of a *jet* aircraft. (Image also taken from the same Webtrak/Airservices tracking system).

I have the specific details of all examples I have used, but have left them off this report for Airline privacy reasons. I can affirm the first two aircraft provided as examples, were a SF34, and a DH8D, which are both twin engine turboprops. The jet aircraft mentioned later in this submission was a B738, which is a twin-jet aircraft designed for short to medium haul flights which can carry up to 26,000 litres of fuel.

Whilst overflight of jet aircraft is a less frequent event, over-flight of twin-engine turboprops over the South West area of the port is not an infrequent event and may still have the potential to trigger catastrophic consequences in the event of an aircraft crash into a ship off BLB3 carrying/transferring pressurised dangerous liquids or gas.

The images below of non-jet aircraft flying over the spot where BLB3 and its dangerous goods transfer ships will be located took place on 13 October 2025.



If flights continue to fly according to the same flight procedures as they currently do, then the issue of over-flight and the danger it poses to BLB3 & the ships off BLB3 carrying/transferring dangerous goods, becomes a very significant *NEW* hazard concern for the Port.

Changing the likelihood of over-flight from '*almost zero*' to '*regular occurrence*' due to the relocation of the BLB, must be addressed and reported on. Additionally, because of the size of the ships, in this new aircraft takeoff and overflight prone area, and the surface area obstacle these ships present, so close to runway end, the ships placed at the end of BLB3 have the potential to actually pose an increased hazard to the actual aircraft taking off, including the extremely remote chance they will actually cause an aircraft crash that would not have taken place otherwise.

It should be clearly noted that Aircraft are at their most vulnerable to crash during takeoff and landing. At takeoff, aircraft engines are under maximum stress due to the need for acceleration to gain speed and altitude. This makes them more prone to mechanical fault or engine failure at this time. Aircraft during take-off are particularly vulnerable to the impacts of any variations in wind, or air pressure, which can have significant effect at low altitude. Additionally, there can be pilot, or instrument error which may take place, and the low altitude may not make it possible to remedy the error before a crash takes place. Placing a major hazard facility in the form of ships carrying gas and fuel in an area close to the end of a runway, where aircraft are taking off and required under flight procedures to turn towards the port, in a known over-flight area, would seem to be an extremely dangerous concept. This issue clearly increases risk and needs thorough assessment.

It should also be noted that the current flight procedures for aircraft departing South from the 3rd runway specifically require pilots to turn left at 500ft which means they have to 'bank' which brings a small but additional risk from wind shear and turbulence at takeoff. What it also does is direct aircraft towards Port Botany and BLB3 and the ships moored off BLB3.

There are potential further catastrophic consequences of an aircraft crash into one of these ships. If an explosion occurs when the ship is hit by the aircraft, it could trigger propagation and secondary event at the Vopak facilities, which are now very close to the new BLB3. Additionally, if there was sufficient vibrational impacts from an explosion, to the land nearby, it may have the potential to cause rupture of the Elgas Caverns and this 65,000 tonne gas storage facility could then have the potential to explode. That would be a very big bang indeed. The possibility of an aircraft on full load of fuel crashing and exploding; into a ship carrying 45,000 litres of LPG which then crashes & explodes; then causing fire or explosion at the BLB3 land infrastructure; then causing the nearby Vopak Major Hazard facilities to catch fire and explode; which then causes vibrational issues and the Elgas Cavern and its 65,000 tonnes LGP explodes. This is not an impossible scenario and should have been modelled. Ships off the 3rd runway cause a significantly increased risk factor that was not there before.

- **Significance of distance of BLB relocation.** Bulk Liquids Berth1 (BLB1), which handles highly dangerous flammable liquids and gases, is being relocated **750m South West** of its current position. The location for the new berth, (BLB3), will be much closer to the regular Southerly departure pathway for aircraft from Sydney Airport's 3rd runway and as such will be subject to aircraft over-flight. This dramatically increases the risk of aircraft crash.

Neither the 'Preliminary Hazard Analysis' report, or the 'Aviation Safety' report' records that the Bulk Liquids Berth is to be moved a distance of 750m South West. It is extremely strange that the exact distance of the move is not mentioned when the distance is so significant. It would appear to be an inexplicable omission on the part of the investigators given that it puts it in a position much closer to runway end. It should be clearly and unequivocally highlighted throughout.

Visually understanding the impact of the relocation is important. The first image below is taken from Google maps and it shows the Sydney Airport runways South with relevance to the repositioned BLB1 to BLB3. The approximate locations of each BLB are shown as orange dots. The second image is an excerpt taken from the Preliminary Hazard Analysis report showing the existing BLB1 marked by green circle with letter 1 inside. And the proposed BLB3 marked by a green circle with the letter 3 inside. I include the first image as the 2nd image although it is in the report does not clearly highlight the significance of the move and I have had to enlarge it to try to bring clarity.



- **Significance of SW direction of BLB relocation.** Neither report clearly explains that the existing BLB1 is located at approximately 90° angle to the line of the runway end in an North Westerly direction and was therefore at almost 'zero' risk of over-flight from departing aircraft from the 3rd runway, whilst the replacement BLB3 will be situated at approximately 45° angle to the line of the runway end, and much further South of the runway end. This positions the new BLB beside the current departures flight path for jet aircraft and below the flight path for many non-jet aircraft. This should be clearly and unequivocally highlighted.

This does not meet SEARS in terms of *"The project is described in sufficient detail to enable clear understanding."* Nor does it meet SEARS in terms of *"impact identification and assessment."*

- **BLB3 closer to fuel, gas and diesel storage facilities.** Neither report clearly highlights that the move of BLB1 to BLB3 puts the new BLB3 about ½ km closer to the Vopak fuel, gas and diesel storage facilities (marked as blue circles with B in them on the above map) and neither report clearly highlights the implications of this in terms of an accident, including aircraft crash into a gas or fuel carrying ship at BLB3, causing a loss of containment issue and a propagation causing a secondary issue at the Vopak storage facilities. The issue is referenced but it should be clearly and

unequivocally highlighted. This would again appear not to meet SEARS in terms of “impact identification and assessment”.

- **Elevation of aircraft risk.** The increased frequency of occurrence of aircraft over-flights of fuel carrying ships at BLB3, due to the new position of BLB3, necessarily elevates the risk factor of aircraft crash. This should be clearly and unequivocally highlighted. This also does not meet SEARS in terms of “*The project is described in sufficient detail to enable clear understanding.*” Nor does it meet SEARS in terms of “*impact identification and assessment.*”
- **Aspects of Aircraft Crash excluded from scope of Preliminary Hazard Analysis.** The Hazard Analysis report very briefly states the following issues:
 1. “An aircraft crash onto the Project would be catastrophic.”
 2. “Given the close proximity of the BLB3 to the 3rd runway, there is a potential for impact from aircraft due to a crash landing.”
 3. “An aircraft crash would be extremely serious in itself, both due to the mechanical force from the crash itself and due to the potential to ignite aircraft fuel, particularly for the case if the crash was to occur when the airplane was departing from the airport.” However, the report then goes on to state that:
 4. “These considerations are outside of the scope of this PHA.”
 5. “Within the scope of the PHA is if an aircraft crash could initiate an incident where the consequences exceed those from the crash itself”.

This last declaration of scope however, only considers “The Project” and “the facilitated container operations scenario.” The scope does not include the issue of any aircraft crash into fuel or gas carrying ship moored ship at BLB3 whilst they are transferring dangerous goods, that possibility is considered outside the scope of the report and exempt from being addressed or analysed.

This is deeply, deeply concerning. This is the core element of safety concerns and much of the reports should have been devoted to this issue. This does not meet SEARS in terms of “*impact identification and assessment,*” as the impact has not been assessed, as it should have been, it has been specifically exempt from assessment.

- **Risk from current flight procedures.** Neither report mentions that the majority of aircraft departures South from the 3rd runway (16L) follow Flight procedure Kevin Seven. Precise instructions require pilots to turn left immediately after takeoff when they reach 500ft, in order to head directly towards a set point in the ocean at the entrance to Botany Bay.

Depending on the weight, and make, of the aircraft, they can reach 500ft before they reach the end of the runway, which then impacts when they turn and whether they will overfly where BLB3 and its visiting dangerous goods ships will be situated. Aircraft Flight paths and impacts were not fully addressed in the Risk Analysis, or Aviation Safety reports and this issue was not highlighted. This should be clearly and unequivocally highlighted. This does not meet SEARS in terms of “*impact identification and assessment,*” as the impact of this flight instruction has not been assessed.

- **The reality of where aircraft fly.** Residents at La Perouse can confirm that they regularly see aircraft flying over the part of Port Botany where BLB3 will be situated. However, the Preliminary Hazard Analysis report and the Aviation Safety report do not include data from the past 10 years that show aircraft over-flights of Port Botany, particularly over the end of the peninsula, where BLB3 and the gas fuel ships will be located. The lack of acknowledgement of this issue and the fact that the Preliminary Hazard Analysis report appears to dismiss this as an issue is very concerning.

The investigation reports repeatedly assert that:

“Aircraft safety managed as per aviation standards and no flights allowed over Port Botany.” And “Rules apply to help ensure no aircrafts taking off or landing over Port Botany.”

If risk evaluation and assessment criteria are being based on this flawed premise this is another reason for great concern. It does not meet SEARS in terms of “*impact identification and assessment*”

Over-flights of where BLB3 will be situated is not an unusual occurrence, earlier in this submission I provided two examples of non-jet aircraft over-flights of BLB3 taken from the Webtrak/Airservices aircraft tracking site. Because of the importance of this issue I include them again. The third image below, from the Airservices Webtrak aircraft monitoring site, clearly shows a JET aircraft on 19 August 2025 overflying the spot where BLB3 will be located. There

will be many other incidences since August of Jet aircraft flying over the airport I just haven't captured them on an image.

The three images of individual aircraft clearly show how the current requirement to turn left immediately after takeoff, on reaching 500ft, can point aircraft directly towards the BLB3 location and result in over-flight. As mentioned before, this is an infrequent occurrence for jets but regular occurrence for non-jet aircraft.

The fourth image included below was supplied to me within the last few years by Airservices. It clearly shows very large numbers of jets flying (evidenced by the swathe of green) over the Molineaux Point end of Port Botany, where BLB3 and the ships berthed off BLB3 will be located.

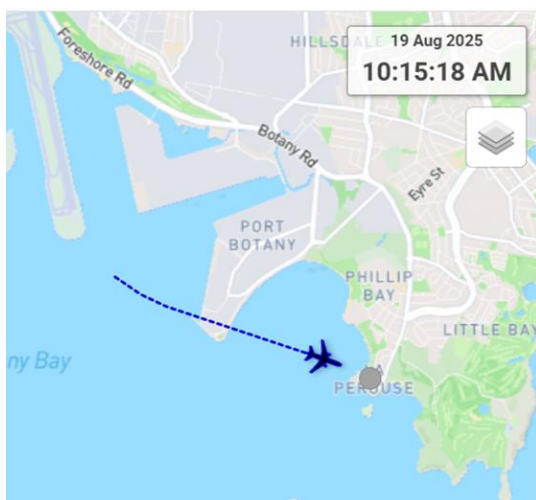
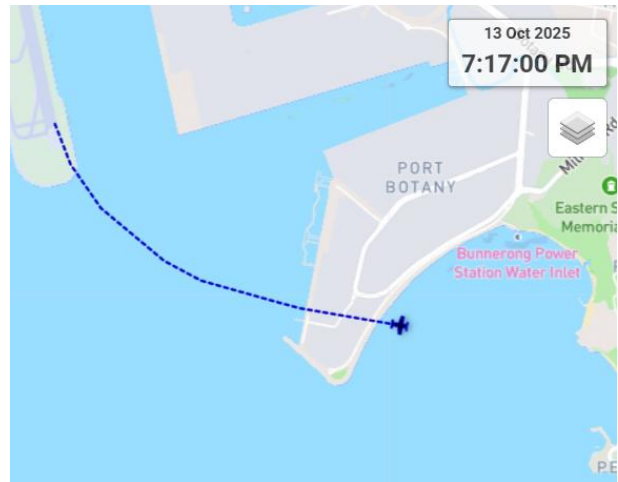
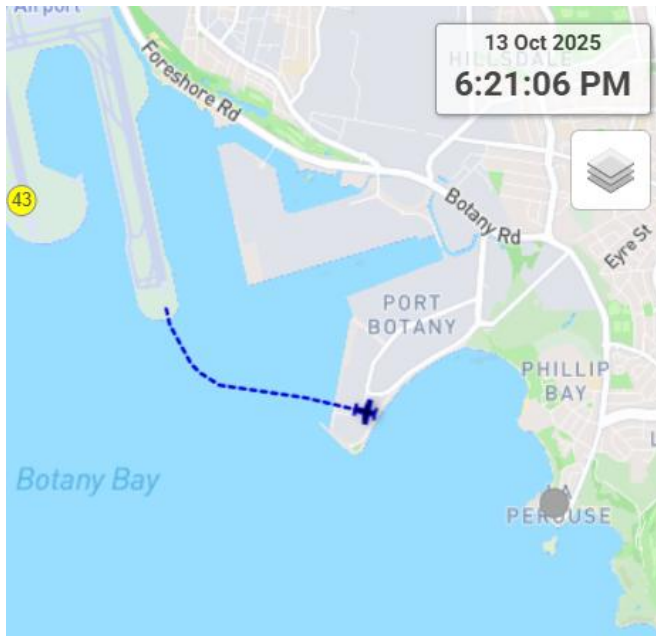


Image 1 & 2 below are excerpts taken from maps on p140 and p141 of 'Sydney Airport Master Plan 2045' document. These images were used by Sydney Airports to show the current flight paths in 2024. As you can see, Sydney Airports are clearly aware of the reality that both jet and non-jet aircraft overfly where BLB3 and its ships will be and they do not suggest that there will be any change before 2045. The third image provided by Airservices, indicates the very latest flight path (Kevin Seven) for a particular very short period of time. During this time very few jet aircraft flew over the BLB3 position, as evidenced by the few green lines, however multiple non-jet flights flew over BLB3 location as evidenced by the pink lines. BLB1 is shown to have zero aircraft over-flights. This confirms increased risk factor of aircraft crash from the BLB relocation.



- Large Liquid & Gas ships mooring in vicinity of runway end.** Additionally, large ships (gas & liquid fuel tankers) will be moored off BLB3 for extended periods of time when offloading their huge volumes of highly flammable liquids and gas, including LPG, Propane and refined fuels such as petrol. These ships will be moored in a much closer vicinity to the end of the runway and the 3rd runway departures flight path than when they moored off BLB1. This makes them subject to over-flight.

Given that these ships are actually floating Dangerous Goods storage tanks, it is a further concern that the issue of ships berthing off BLB3 is barely covered in the report. We do not know from the Preliminary Hazard Analysis report, or the Aviation Safety report the length or height of these proposed ships, or how far the BLB3 infrastructure extends into the bay. It appears to be about 300m. Additionally, the proposed positioning of the ships when they berth to transfer their dangerous goods appears to put them broadside to approaching aircraft. None of this is clearly explained. This lack of detail again does not meet SEARS in terms of *"The project hazards being described in sufficient detail to enable clear understanding."* Nor does it meet SEARS in terms of *"impact identification and assessment."*

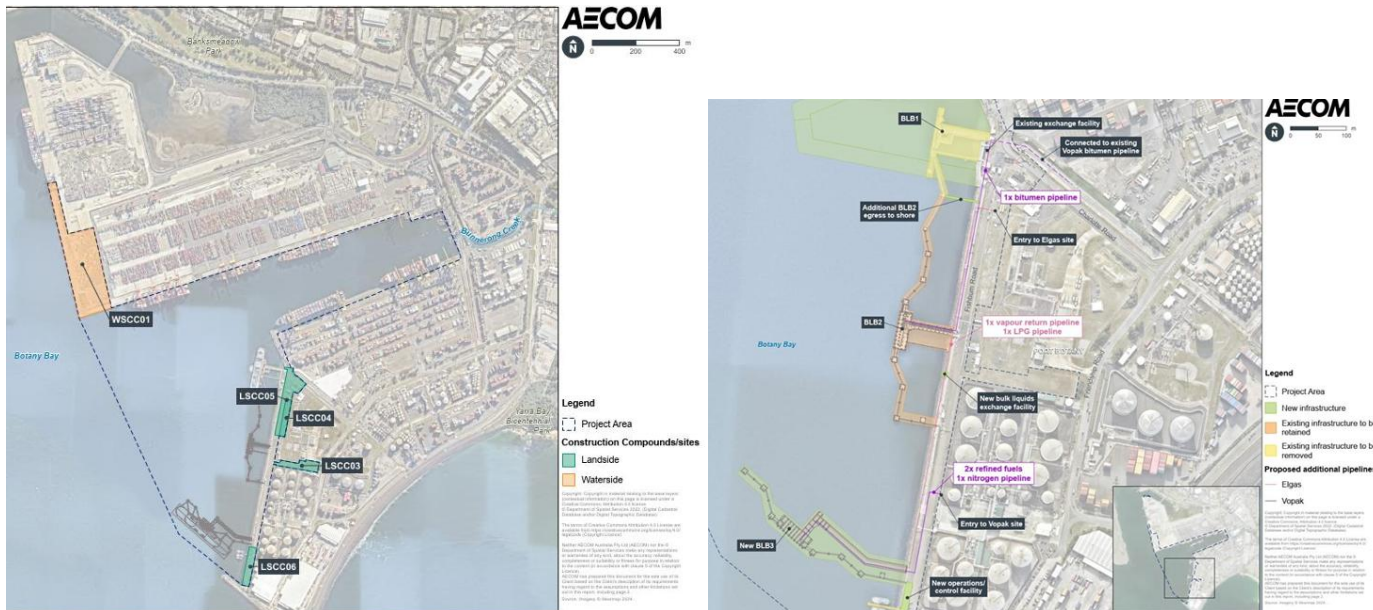
If it was a new land based Major Hazard Facility storage facility of this physical size positioned this close to the runway end, then it would fall under extensive planning controls and scrutiny. The reality is that these tankers provide a significantly larger vertical obstacle for aircraft than the BLB3 structures and therefore their increased crash risk factor needs covering in this report, not just the risk of the BLB3 pipes and wharf infrastructures. The reports need to address this issue fully as the impact of ships carrying dangerous goods stored off the end of the airport runway has not been assessed.

The Preliminary Hazard Analysis report may have, in theory, met its hazard analysis obligations, as specified by SEARS to comply with *"Planning Advisory Paper No. 4, for Risk Criteria for Land Use Safety Planning"*. But the exemption of the ships berthed off BLB3 because they are not *"land use"* clearly shows that the hazard analysis obligations required by SEARS are grossly inadequate. This issue should have been covered not exempt.

Either the berthed ships off BLB should have been assessed under Land Use Safety planning, due to the fact they are connected to the land via pipes during transfer of dangerous goods. Or there should have been alternative guidelines and legislation concerning marine based safety planning that these ships off BLB were assessed under.

Shipping, including the marine transport of dangerous goods and hazardous materials, is regulated separately under the Marine Safety Act 1998 (NSW) by the Port Authority of NSW and Harbour Master. If it is the responsibility of the Harbour Master and Port Authority of NSW to determine the safety of these ships, moored in such close proximity to the airport, then the Preliminary Hazard Analysis report should have included the Port Authority of NSW and Harbour Masters assessment of this matter as a separate section.

Two excerpts from images in the EIS, produced by AECOM, show (at the bottom of the image) the BLB3 berthing structures extending approximately 300m out over water from Port Botany towards the airport runway.



- Aviation risk from windshear and air turbulence.** Due to the size of these ships, even if they don't intrude into the Airports designated Obstacle Limitation Surfaces (OLS), or the PANS-OPS, which are mentioned in the report but not clearly explained, they may have the potential to affect wind and cause windshear and turbulence due to their proximity not just to the end of the runway, but to the departures pathway of aircraft. This issue, which is clearly an extremely dangerous possible impact for aircraft departing South from the 3rd runway (16L), is not addressed.

Images below shows trigger area for windshear and turbulence and PANS-OPS. As ships are not shown moored at the end of BLB3 in the windshear image (which would appear to be a gross oversight), it is not clear whether ships unloading their dangerous cargo at BLB3 could intrude within this area. Certainly, they would be right on the edge of this area if not within. The PANS-OPS image appears to have the BLB3 structures and ships intruding into the PANS-OPS area.

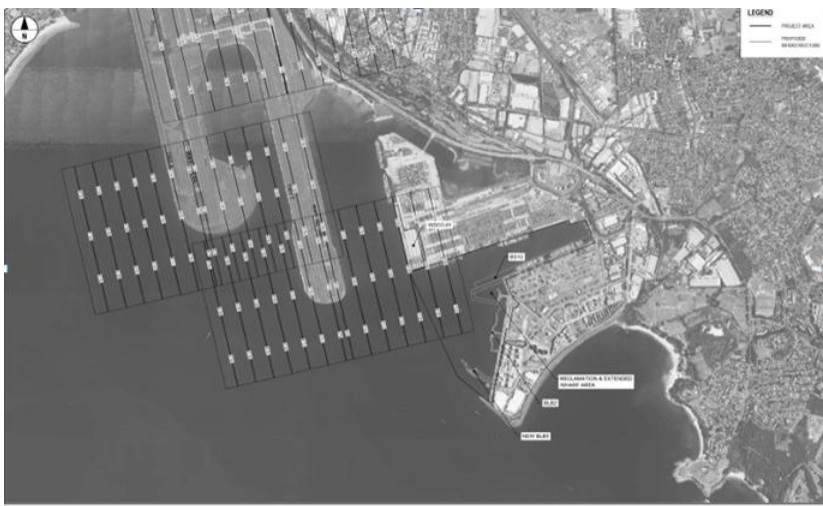


Figure 3-3 Assessment trigger area contours (windshear and turbulence)



Figure 8-9 NASF Guideline F: Procedure for Air Navigation Services – Aircraft Operations (PANS-OPS)

- Windshear & turbulence dangers to aircraft from ships excluded from report.** Although the Aviation Safety report addresses the likelihood of windshear & turbulence from construction activities (*“the project”*) and from the *“Facilitated container operations scenario,”* at Brotherson dock area, neither report appears to have assessed the much more important issue of the presence of large ships moored off BLB3, near the end of the runway, and the issue of how much these ship will cause windshear and adversely affect aircraft. This needs to be appropriately modelled and assessed in both reports as this does not meet SEARS in terms of *“impact identification and assessment”*.

The Aviation Safety report specifically excludes the issue of windshear from ships in their report due to a technicality, where ships/vessels are not considered in the same way as a building, or land based fixtures, as a result they do not fall under *“Australia’s National Airport Safeguarding Framework (NASF)”* which guides land use and planning around airports. Because of this anomaly, the assessors do not report on the issue of moored ships at BLB3 despite it being one of the most obvious causes of extreme concern. They only mention it in the context of limitations of their report. This would appear another grave omission.

The Aviation Safety report, under the section on ‘Limitations’ states, *“The assessment is limited to the aviation constraints and process outlined in the NASF Guidelines.”* It further states, *“Under Section 182 of the Airports Act 1996, vessels are not classified as a “controlled activity,” and as the Act governs only on-ground developments. Therefore, vessels are exempt from assessment against the NASF Guidelines.”*

The report further states, *“This report does not include an assessment of vessels movements (including construction vessels or future shipping activity at the port) as part of the consideration of windshear and turbulence.”*

It also states, *“NSW Ports has included amendments to the Harbour Master’s Directions to account for ship air draft in relation to specific wind directions and speeds. Under such conditions, ship movements are restricted to prevent incursions into the relevant airspace.....”*

It is understandable and appropriate, that the Harbour Master is responsible for directing ship movements within the harbour, and that ship movements would be restricted in specific wind directions and speeds, so as to prevent incursions into the OLS & PANOPS airspace, but it is unclear who approves, in a Planning Development of this size, the decision to allow moored vessels, so close to the 3rd runway end and flight path. This is not defined in the EIS and appears to be getting no scrutiny. This is a huge red flag and needs to be appropriately addressed and assessed in both reports as this does not meet SEARS in terms of *"impact identification and assessment"*.

- **Times of greatest likelihood of aircraft crash.** Takeoff and landing are considered the two most dangerous times for aircraft accidents and crashes accounting for two thirds of fatal accidents. Takeoff and initial climb is the phase that puts the aircraft under maximum stress from high power settings while moving at a slow speed. Potential problems like engine failure become statistically more likely during this initial stress on the engines. Bird strike and windshear add to hazards. During this time, due to the aircraft being at low altitude, pilots have little time to recover from an error or unexpected event. If aircraft are taking off, and then immediately banking, at low altitude, (as per Kevin Seven flight procedure) this adds to the risk factor. During high winds, sudden wind gusts can severely impact aircraft at low altitudes, particularly when they are banking, as required after takeoff from the 3rd runway on Kevin Seven.

This information was not detailed, analysed in the reports, despite this being highly relevant as jet aircraft are climbing and banking at approximately 1000ft altitude when they pass BLB3 location. BLB3 is approximately 1260m from the end of the 3rd runway beside the direct flight path.

Image below shows 1994 aircraft crash into Botany Bay as recorded in the St George and Sutherland Shire Leader. These events although rare do happen.



- **Several aircraft crashes in Botany Bay.** In November 1961 an aircraft took off from Sydney Airport and crashed shortly after takeoff into Botany Bay with the death of 15 people. In February 1980 a flight taking off from Sydney Airport suffered an engine failure and when returning to the airport crashed into a sea wall. In April 1994 an aircraft was also reported to ditch into Botany Bay. These incidents were not detailed in either the Hazard Analysis, or the Aviation Safety report, although they are very relevant events and presumably should have been considered in the Aviation Safety report. This means there is not a 'zero' history of crashes in the vicinity of the port. They should presumably feature as relevant risk factors given the catastrophic consequences if a crash event were to occur.
- **LPG Gas storage facility explosions.** As previously stated there are a large number of Hazard facilities including Major Hazard Facilities such as Vopak, Quantem, and Elgas at Port Botany, as well as the Elgas underground caverns which are the largest LPG gas storage facility in the Southern hemisphere, holding 65,000 tonnes of LPG gas. The cavern is approximately 230m long and its ceiling/crown is 124m below Molineaux point with its floor at 135m below.

In view of this fact, it is surprising that NSW Port's development is significantly increasing risk factor without clearly delineating this increased risk to these major hazard facilities from gas & fuel ships mooring nearby. Any aircraft crash would likely involve a departing plane with full fuel load which means it would be unlikely to be contained. The aircraft impact in terms of vibration and explosion may have an elevation/ propagation risk which would be catastrophic for communities in and around the port. It would be a VERY big bang if a crash into a hazardous goods carrying ship, or a crash into BLB3, then escalated and the Elgas caverns went up.

In August 1987 a 40,000 litre (20.4 tonne) LPG gas storage facility in Cairns caught fire and exploded causing a Boiling Liquid Expanding Vapour Explosion (BLEVE). It was likened to an atomic bomb as a fireball erupted into the sky. The Elgas gas cavern holds 65,000 tonnes of LPG gas, which is 3250 times the size of the Cairns storage facility that exploded.

Cairns LPG explosion 30 years ago is Australia's biggest LPG disaster

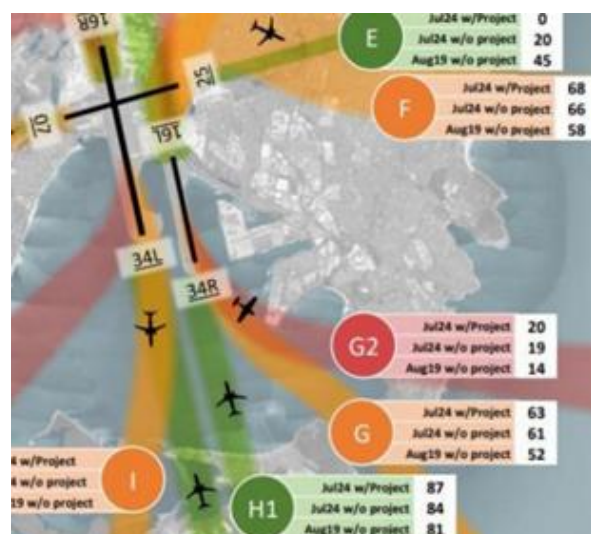
By Brendan Moulder

ABC report Thursday 17 August 2017



"It was like an atomic bomb that you see in a movie." - Peter Brkic reflects on a once in a life time shot. (Supplied: Peter Brkic)

- Information that misleads.** Of great concern was the frequent referencing in the Preliminary Hazard Analysis report and the Aviation Safety reports that the new BLB3 would be "200m closer to the airport runway than BLB1". This figure was unimportant compared to the omitted 750m figure of the distance the BLB was to be moved, but the 200m figure was one of the few distances repeatedly mentioned, it had the effect of giving the impression that the BLB was only being moved a distance of 200m closer to the airport and that there was therefore little increased risk factor from the move. Surprisingly, although the 750m move of the BLB was not mentioned in either of the Preliminary Hazard Analysis, or Aviation Safety reports, it was actually referenced in the EIS Executive summary, in a seemingly obscure place under 'Air Quality'. This is how I managed to confirm the extent of the distance of the move and started thinking about the implications of that move. It was however, fortuitous that I came across this figure; it should have been front and centre of the Preliminary Hazard analysis report and the Aviation Safety report.
- Airservices & Sydney Airport information.** Airservices have recently shown on their Webtrak My Neighbourhood website a visual showing where flights fly (see image with house with aircraft clearly tracking over BLB3). Sydney Airport has also produced a map showing where jet and non jet aircraft will track in 2039 and beyond. This image also shows aircraft overflying where BLB3 will be situated.



A couple of years ago I expressed my extreme concerns about witnessing multiple aircraft flying close/over major hazard facilities at Port Botany. When I did not receive an adequate initial response from Airservices, who responded to me that it was not the airports issue, but the Major Hazard Facilities issue, I addressed my concerns to Senator Bridget McKenzie who included my question as a Supplementary question in Federal Senate Estimates. The response

from Airservices/the Department did little to quell my fears as they appear to conclude there is no safety hazard from aircraft flying over Port Botany. Safeguards do not appear to be in place, or are inadequate, to prevent flights over Port Botany. See Senate Estimates Question and response below.

Question: Q273 *Recently, increasing numbers of aircraft taking off from 16L are being required to turn sharply to the left at 500ft and can be seen flying extremely close/over major hazard facilities at Port Botany. As these aircraft are often only at an altitude of 1000ft, this would appear to be a particularly dangerous procedure to be following. Are there protocols that are being adhered to regarding distance of aircraft taking off over/near major hazard facilities?*

Answer: *There are no safety hazards resulting from current or proposed procedures, which are consistent with the International Civil Aviation Organization's Procedures for Air Navigation Services (PANS) – Aircraft Operations – Volume II – Construction of Visual and Instrument Flight Procedures (Document 8168) which includes obstacle clearance requirements.*

Airservices response does not appear to address, or be concerned about the potential hazard, they appear to merely quote rules.

- **SEARS not met as major dangerous issues not assessed.** Not addressing and evaluating significant issues of concern is contrary to the essential purpose of the EIS and as such does not meet SEARS regarding transparency and full disclosure of project issues and impacts.
 1. The issue of moving the BLB 750m closer to runway end and the significance of it being closer to the existing flight path from the 3rd runway, and the elevated risk this brings, is not assessed and reported.
 2. The placement of ships carrying dangerous highly flammable gas and fuel being berthed off BLB3, near the end of the runway and beside/under the current flight path, and the elevated risk of aircraft crash that this brings, has not only been assessed and reported. Indeed concerning issues on aircraft crash AND the elevated risk from ships mooring off BLB3 have been specifically excluded from the scope of both reports.
 3. The issue of possible windshear and turbulence impacts on aircraft from the ships moored off BLB3 which could increase crash risk has not been assessed and reported and was instead was also excluded from the scope of both reports.
 4. Although 'Risk criteria for Land Use Safety Planning, HIPAP4' (DoP, 2011), was used for addressing hazard issues, vessels berthing off BLB3, at risk of aircraft crash whilst carrying/transferring dangerous cargoes, were not considered 'land' based and so were exempt from consideration in both reports assessment.
 5. Although "Australia's National Airport Safeguarding Framework (NASF)" was used for addressing and assessing hazard issues, vessels berthing off BLB3, at risk of aircraft crash whilst carrying/transferring dangerous cargoes, were not considered 'a controlled activity' so were exempt from consideration in both reports assessment.
 6. The fact that BLB3 and ships off BLB3 will be positioned closer to the Major Hazard Facility Vopak liquid fuel and gas storage facilities and the possible propagation effect in the event of an aircraft crash, is not fully assessed.
 7. The issue of existing flight procedures contributing to the infrequent but regular aircraft overflight of BLB3, is not addressed. The data over the past 10 years showing regular overflights is not addressed.
 8. The consideration of take-off being a time of increased risk of crash and the need for aircraft to bank immediately after takeoff, due to the Kevin Seven flight procedure, in the vicinity of ships off BLB3, also increases crash risk. This has not been addressed.
 9. The nature of the highly flammable cargo of ships moored at BLB3 and the catastrophic consequences of an aircraft strike in terms of a major fire and/or explosion including possible Vapour Cloud explosion has not been adequately addressed.
 10. The possible subsequent propagation effect causing a secondary incident has not been clearly and adequately addressed. Given the existence of so many Major Hazard Facilities and Dangerous goods storage facilities in the immediate vicinity this is surprising. These dangers include the Vopak liquid fuel and gas storage facilities, the Quantem petroleum, chemical and oil storage facilities AND the 65,000 tonne LPG storage facility beneath Molineaux Point.
- **Catastrophic impacts of an aircraft crash into a ship moored off BLB3 then escalating to other gas and fuel storage facilities in the Port not provided.** The existence of so many Major Hazard Facilities and Dangerous goods storage facilities, in the immediate vicinity of BLB3 poses significant escalation/propagation hazards. Major Hazard Facilities include Vopak liquid fuel and gas storage facilities, the Quantem petroleum, chemical and oil storage facilities AND the 65,000 tonne LPG storage facility beneath Molineaux Point. The possible consequences of any aircraft crash, if you factor in escalation/propagation, could be catastrophic for the Port, the Airport and for neighbouring districts. It

would be a VERY big bang if a crash into a hazardous goods carrying ship, or a crash into BLB3, then escalated and the Elgas underground LPG caverns went up with their 65,000 tonnes of LPG.

Given there is an increased risk factor of aircraft crash due to the move of BLB3 to a more vulnerable position closer to runway end and flight path and closer to the Vopak jet fuel and gasoline storage facilities plus the fact that gas and fuel ships will be moored off BLB3 this is another surprising omission.

Major issue 2. Contamination.

Project surrounded by highly contaminated sites. As recognized in the Preliminary Site Investigation (PSI) this project is surrounded by highly contaminated sites. These sites are known to have caused contamination in the past and to be continuing to cause contamination in Botany Bay. Contaminants are often still present in the soil and sediment, they can leach into the ground water, and then into the Botany Sands aquifer which then releases into the bay.

According to the PSI there are 12 contaminated sites, relevant to the Project Area, notified to the EPA. Additionally, there are a further 2 sites with previous NSW EPA records of notice and 28 licensed activities under the POEO Act within one kilometre of the Project Area. This indicates serious contamination exposure in the area. Due to the projects very close proximity to these sites, many contaminants of potential concern (COPC) are very likely to be present in the sediment that is to be dredged at Brotherson Dock. The PSI should have included a thorough assessment of sediment in Brotherson dock which is to be deeply dredged an additional 4.5 metres below the current seabed level. However, the PSI and the sediment investigations of 2024 were extremely limited. I have concerns about adequacy of this PSI. A Detailed Site Investigation is needed.

Lack of clarity around which Contamination investigations used for final assessment. In 2020, two detailed sediment characterisation reports for sediment in Brotherson dock were done by Geochemical Assessments Pty Ltd. They included sampling and testing for CoPC. The results from these tests should have triggered a Detailed Site Investigation. However, they didn't. It is not clear why.

Instead, in 2024, two further sediment investigations were done in the project area by AECOM. The sampling was so limited in Brotherson dock, that the data could not be considered representative, or useful. The 2024 investigations did nothing to further understanding of CoPC's in Brotherson Dock. It is clearly not appropriate if conclusions are based on the AECOM reports of 2024 rather than the more extensive Geochemical Assessments of 2020.

The Geochemical Assessments of 2020 are frequently referenced in the PSI. However, it appears that the PSI bases many conclusions on the 2024 AECOM sediment investigations.

When considering '*known CoPC in sediments in Brotherson Dock*', the PSI frequently states that '*conclusions are based on analytical data from recent sediment investigations (AECOM 2024)*'.

Results from a 2020 Sediment characterisation report by Geochemical Assessments Pty Ltd, 2020a show elevated levels of CoPC. The Sediment characterisation report by Geochemical Assessments 2020a collected sediment samples from twenty locations in Brotherson Dock (samples A1-A20). Samples were analysed for a suite of Contaminants of Concern. Results were then compared to the National Assessment Guidelines for Dredging (NAGD 2009) screening levels. The investigation concluded that: "*sediments from Brotherson dock were characterised by elevated concentrations of TBT, mercury, Chlordane, DDE and some trace metals warranting further assessments to evaluate the bioavailability of contaminants and the potential for their release during dredging activities*".

Results from a second Sediment characterisation report by Geochemical Assessments Pty Ltd, 2020b shows concerning exceedences. The Sediment characterisation report by Geochemical Assessments 2020b, collected sediment samples from eight locations in the South Eastern end of Brotherson Dock, close to the ship lift area (samples A21 to A28). Samples were analysed for a suite of Contaminants of Concern. Results were then compared to the National Assessment Guidelines for Dredging (NAGD 2009) screening levels. Concentrations of TPH, TBT, total Chlordane, DDE, total DDT, lead, mercury and zinc **exceeded their respective NAGD screening levels. The 95% Upper Confidence Limit (95% UCL) also exceeded their respective screening levels.** These reports should have triggered a Detailed (Targeted Site) Investigation. But they didn't.

Extremely limited Sediment investigation, AECOM 2024a, results in false conclusion by investigator that there will be no risk to human health and no further investigations or remediation of sediments is required. In 2024 sediment assessment for '*Maintenance dredging purposes*' was conducted by AECOM. The sediment sampling was extremely limited and took place at only two locations (NF1 & NF2). These locations were both west of Brotherson Dock, so although NF1 was within the

project area it was not within the immediate Brotherson dock area to be dredged for the PBQE project. The samples taken were up to a maximum depth of only 0.2 metres.

There was a clear failure to take sediment samples from a sufficient number of locations and depths in order to generate meaningful data. As this is a highly contaminated area, multiple locations, not just two should have been sampled. These locations should have been within Brotherson Dock, not outside of it. Also, deeper depths should have been sampled, as 4.5m of the seabed in Brotherson dock for this project is to be dredged and removed. The sampling should not just have been limited to up to 0.2metres. This data is too limited to be considered representative.

The AECOM 2024a report concluded that concentrations of arsenic and mercury across the '*larger data*' set reported a 95% UCL exceedance of the NAGD screening levels.

The report then stated that "*the non-exceedances of metals in elutriate analysis indicated effects on organisms in the water column would not be expected during maintenance dredging.*" It is not clear how many elutriate samples were done, but the sampling appears to be too limited to make this assertion valid.

Additionally, and very importantly, the dredging at Brotherson Dock, for the Port Botany Quayline Equalisation project, is not '*maintenance dredging.*' The scale of disturbance of the sea floor will be significant. Brotherson dock is to be dredged a further 4.5m below the existing seabed levels. This sediment is to be removed from Brotherson dock as part of the construction project which will potentially disturb and mobilise contaminants of potential concern currently sitting dormant at the site. This is another reason why the two samples taken at 0.2m sampling depth is clearly inadequate and the data irrelevant for consideration for the PBQE project.

The assertion that "*effects on organisms in the water column would not be expected during maintenance dredging*" would appear to be irrelevant in terms of applying this statement to the PBQE project, which is a very different project. The major disturbance of 4.5m of sediment has not been appropriately assessed only minor '*maintenance dredging*' has been assessed.

The report further stated: "*Maintenance dredging across the proposed dredging footprint within Brotherson Dock was considered to pose little to no risk to human health and/or environment and no further investigations or remediation of sediments was required*". The sampling and data this is based on, did not even come from samples from within the area to be dredged within Brotherson dock, so again this assertion would appear to be based on flawed premise. Also, the investigator basis "*no risk to human health and/or the environment*" on 0.2m samples for a low level disturbance event, rather than "*risk to human health and/or the environment*" from a high level disturbance event with 4.5m of seabed being disturbed.

The conclusion that "*no further investigations or remediation of sediments was required,*" may be valid and appropriate for the limited disturbance event of '*maintenance dredging*', but it cannot just be transferred to apply to a situation of major disturbance for the significant PBQE project. This sediment investigation and its conclusions appear to be deeply flawed.

The PSI has already acknowledged there is likely to be a visible water plume as a result of the significant increase in Total Suspended Solids in the water (TSS). This water plume has the potential to carry contaminated sediment out of the Brotherson dock area and impact recreational users of Botany Bay.

It is inexplicable why such extremely limited and inadequate sampling should take place and be used in this PSI. It is also deeply concerning that based on this sediment investigation, the report concludes that CoPCs are absent from Brotherson dock area. It is further concerning that risks to human health and the environment are then being inappropriately dismissed based on a '*maintenance dredging*' scenario rather the major dredging of 4.5m of sediment from the seafloor. A Detailed Site Investigation is needed. This sampling and the flawed conclusions of the sampling is grossly inadequate.

AECOM Sediment investigation 2024b also extremely limited. A second sediment investigation was conducted in 2024 by AECOM. This investigation was to establish a pre-construction and operational baseline contamination dataset and to evaluate potential impacts of construction activities on the disturbance of sediments within the project area. It also provided very limited sampling data.

Only five sampling locations were chosen across 1km range, (BBH101, RBH102, RBH103, DF101, DF102), three of those were situated outside Brotherson dock, at locations off BLB1 and BLB3. The other two locations were very close to each other at the end of the DP World terminal near BLB1. As only two locations were therefore sampled in Brotherson dock, and they were in very close proximity to each other, the relevance and usefulness of this data is again limited in terms of representativeness of the existence of contaminated sediment in Brotherson dock where major dredging event is to take place. Sampling just two locations is not sufficient data to conclude that COPC's are absent from the Brotherson dock area. More sediment investigations should have been completed. A Detailed Site Investigation is needed.

Concentrations of CoPCs in this sampling report were all below the adopted assessment criteria and/or the Laboratory PQL except for low-level arsenic and mercury exceedances above the ANZECC (2000) and SCIRO (2013) low trigger values at four of five sample locations between the sediment surface and 2.0m below sediment surface.

“The report concluded that low-level metal exceedances would pose little to no risk to human health or the environment and are likely attributed to background concentrations of metals in Port Botany/Botany Bay”. Again, it is inexplicable that sampling in just 2 locations in Brotherson dock could result in the investigator deciding that there is *“little to no risk to human health or the environment”*. A Detailed Site Investigation is urgently needed.

The investigation was done concurrently with Geotechnical investigations. The PSI fails to report the impacts of it being done concurrently with the Geotechnical investigations, in terms of depths sampled, numbers of samples, whether the person who collected the data was qualified etc. This should be included in this report.

Known sites of contamination nearby. Known sites of significant contamination in close proximity include: Sydney Airports former fire-fighting training ground; the former Orica site; the current and former Ampol Caltex sites; the Vopak sites; & Botany Industrial Park. These sites are all under one or several of the following: regulation; remediation; management; investigation. Full details of the extent of some of the contaminated sites (such as PFAS at Sydney Airport) have not yet been publically revealed.

Concern about whether Areas of Environmental Interest are being appropriately reported upon. Although the PSI has clearly identified most major sources of historical, or current contamination, it is not clear that they are all being considered fully. The PSI identifies the ORICA site and the former Fire-fighting training ground at Sydney Airport. However, the PSI also states that *“Only sources or activities adjacent, or topographically up-gradient and within 500m of the project area have been considered as Areas of Environmental Interest (AEIs)”*. Neither ORICA or the former Fire-fighting training ground at Sydney Airport are within 500m of the Project Area, so although Sydney Airport is listed at AEI13, it is not clear if the PFAS contamination from the former fire-fighting training ground which is 1120m away is being considered appropriately. The highly contaminated Botany Sands Aquifer that currently feeds into multiple spots in Botany Bay is not *‘up-gradient’* so it is not clear if that is also excluded. It is an ongoing source of PFAS and other contamination. This report is not transparent in what it includes and excludes.

Contaminants of Potential Concern (COPC). COPC include: PFAS; TBT; TPH; TRH; BTEXN; VOC's; SVOCs; PAHs; Phenols; OCPs; PCBs; CHC; EDC; HCB; heavy metals such as mercury. Many of these are linked to legacy industrial processes due to a century of industry around Botany Bay. PFAS is linked to use of aqueous film forming foam (AFFF) at Sydney Airports former fire-fighting training ground and also from Botany Industrial Park. Mercury, CHC, EDC, HCB is linked to the former Orica site. BTEXN refers to a group of contaminants associated to Petroleum products and is linked to the Ampol Caltex and Vopak sites. All are CoPC because they can have serious future impacts on human health and the environment. It may not be seen immediately but exposure to any one of these contaminants can be life altering.

Health impacts being inadequately assessed. The PSI notes that known impacted sediments in Brotherson dock (where the dredging is to take place) include TBT, total TPH, arsenic, lead, mercury, zinc and organochlorine pesticides. But then states that *“although risk to receivers is considered to be low, the proposed dredging activities may increase the likelihood of human health and ecological receivers being exposed to potentially impacted sediments”*. Employment of mitigation measures detailed within the CEMP is proposed to manage potential contamination impacts during dredging activities. However, the CEMP is not available for scrutiny, it will no doubt protect workers at the construction site, but will it protect swimmers at the beaches nearby, other recreational water users, and will it contain measures to protect people eating fish with heightened levels of contaminants as a result of increased TSS carrying CoPCs? Does a CEMP protect them? Precautionary principles should apply and everyone should be protected.

PFAS not analysed in the Geochemical sediment investigations. PFAS was not a recognized Contaminant of Concern in 2009 so it does not form part of National Assessment Guidelines for Dredging 2009. It was therefore not included for assessment under these guidelines. Although it is identified as a CoPC and frequently referenced, it is not therefore always reported upon. The Geochemical sediment investigations of 2020 did not mention it as a Contaminant of Potential concern that was being assessed. It appears to only have had a chance to be assessed by AECOM in two locations in the Brotherson Dock area to be dredged in AECOM 2024. Based on such limited reporting, there is clearly not enough data to conclude that it is not present in the sediment of Brotherson Dock and will not be disturbed during dredging.

As PFAS can travel easily and great distances in water. This is the reason for concern if PFAS is mobilised from the sediment during the dredging of Brotherson Dock.

Given the close vicinity of Sydney Airport former fire-fighting training ground, a known extremely contaminated site due to its Aqueous Film Forming Foams (AFFF) containing PFAS, this is extremely concerning. PFAS is known to have contaminated the waters nearby to the Port from land runoff and it is known to have permeated into the Botany Sands Aquifer and into Botany Bay, so there is a high likelihood of it being present in Brotherson dock.

The nearest beaches to the site not acknowledged as beaches. Beach goers not therefore assessed for risks from contamination from the project. La Pouse Frenchmans bay beach, and Yarra Bay beach are well known, and popular beaches and they are the nearest beaches to the dredging and piling operations, just a couple of kilometres away from the site. However, they were inexplicably omitted from maps concerned with impacts of water quality on beaches and beachgoers. The maps specifically have the overlaid names of all the other beaches around Botany Bay, just not the two in the proximal area (ie closest and with greatest impacts from the project).

This omission means that although the beaches were within the study area, their function as a beach, has not been recognized, or assessed and the risk to the thousands of people swimming in water that may be contaminated from sediment dispersal from the dredging operations at Brotherson dock has not been assessed. This is a grave omission. This does not meet SEARS in terms of identifying a major group that will be significantly impacted and then appropriately assessing the group for risk.

Image below shows the water quality map with names of beaches overlaid. However, it omits the closest and most relevant beaches to the project, La Pouse beach at Frenchmans Bay and Yarra Bay Beach. Please note that La Pouse has been wrongly located on the map, which causes further confusion. La Pouse is a very small community and it is located on Frenchmans Bay not out at Cape Banks.



Figure 6-4 Marine water quality study area and existing environment

Health hazards of contaminants for beach goers swimming in water omitted. Additionally, impacts of contaminated sediment in water, in terms of possible detrimental health effects, have not been appropriately assessed. The Department of Planning and the EPA would have been well aware of the existence of these very popular swimming beaches given public concern about them not being recognized in the Kamay Ferry Wharves SSI. The outcome of that SSI was that beachgoers were *never* protected from exposure to possible contamination from that project. Precautionary principle did not apply. It is inconceivable that the DOP may again allow beach goers to be exposed to contaminants through the simple fact of allowing the proponent to ignore the existence of the beaches. Exposure of beach users/swimmers should have been a primary issue of concern in the EIS and should have been clearly identified in SEARS.

Additional hazard as beaches used by vulnerable people. La Pouse and Yarra Bay beaches are calm water beaches, so they attract a high proportion of families. The people at risk which have been omitted from the impact assessment include some of the most vulnerable people in our society: children, pregnant mothers, babies, First Nations People and other

adults. Thousands of people swim at these beaches all through the year, but particularly in summer. By not acknowledging the existence of the beach, the assessor is not obliged to assess the adverse potential health risks to the thousands of people using the beach. Vulnerable people are a sector that is identified for specific assessment but this does not appear to be the reality for this project. This does not meet SEARs.

Image of La Perouse beach in summer showing its popularity and use.



Proponent aware of the existence of the beaches even if not included in assessment. The assessors are clearly very aware of the La Perouse and Yarra Bay beaches, even if they do not name them. The report notes that La Perouse and Yarra Bay beaches are as some of the worst beaches in Sydney for faecal water quality, particularly after storms, due to them being subject to large quantities of land runoff water from St Georges River. Biological, faecal pollution, after significant rain events, mean that the public can get ear infections and stomach aches or vomiting.

Chemical contaminants, from CoPC being mobilised in the water, have the potential to have serious cell altering properties to cause cancer, and a host of other life changing serious diseases. This is the danger from contaminated sediments being disturbed. The public have the right to full disclosure on this issue, and to have their risk of exposure appropriately assessed, but for reasons listed above, the public are not getting full disclosure or protection if the existence of a beach and beach goers at La Perouse and Yarra Bay beaches are omitted from the report.

Incorrect location of La Perouse on maps. Just to further concerns regarding this report, the water quality map produced by AECOM has La Perouse incorrectly located out near Cape Banks rather than on Frenchmans Bay. This error unfortunately frequently occurs in maps generate by AECOM. This causes a serious issue of misrepresentation in the reports as it makes it look as if the cove beside the wrongly overlaid La Perouse name is actually La Perouse beach and people could therefore be forgiven for mistakenly thinking La Perouse beach was much further away from the project than it is in reality and that it was outside the study area. This error is repeated in multiple maps including making the community of La Perouse appear further away from noise, air borne particulate matter, etc.

A map of the Port Botany area. The map shows several bays and a reserve. Yarra Bay is at the top left, Frenchmans Bay is below it, Phillip Bay is to the right of Frenchmans Bay, and Little Bay is further right. Laperouse is a peninsula at the bottom right. The Port Botany Aquatic Reserve is a blue-shaded area at the bottom right, near Laperouse. A red line outlines the coastline. A dashed line indicates a path or boundary. Labels include 'Person Dock', 'PORT BOTANY', 'Yarra Bay', 'Frenchmans Bay', 'PHILLIP BAY', 'LITTLE BAY', 'LAPEROUSE', 'Kamay Botany Bay National Park', and 'Port Botany Aquatic Reserve'.

Risk factor from identified CoPC in Brotherson dock. The report then states there is low to moderate risk “*based on analytical data from recent sediment investigations. (AECOM, 2024)*”. As mentioned earlier, the AECOM 2024 reports provide very little sampling with only 2 sampling locations in the Brotherson dock location.

Later in the report it recognizes the risk factor and goes on to state “*the proposed dredging activities may increase the likelihood of human health and ecological receivers being exposed to potentially impacted sediments.*”

Table 6.1 regarding Source-pathway-receiver linkages and risk ratings reported a ‘medium’ risk rating for AE14 for sediments in Brotherson Dock. It mentions recreational users of surface water bodies as well as aquatic flora and fauna may be impacted.

Although mitigation measures are in place to protect project workers who may be minimally exposed, it is not clear how recreational users of surface water will be protected from: all over dermal contact through swimming; or ingestion of fish caught nearby which have been subject to increased exposure; and aspiration of spray when jet skiing, foil boarding, dinghy sailing or travelling at speed on a motor boat.

The table notes for these source-pathway-receiver linkages these sediments are below the adopted investigation levels (ILs) (CDDEEW, 2009) but receivers would still have the potential to be directly exposed to elevated concentrations of metal, TPH and TBT during dredging activities. The risk rating is medium. I am concerned that if the assessment of COPCs in Brotherson Dock then all later assumptions become flawed.

Known Acid Sulphate Soils (ASS) but no testing of this CoPC. The PSI report states table 3-2 in AE15 that “*Unknown extent of PASS (acid sulphate soils) in sediments in Brotherson Dock*” and that this is based on desktop information that there would be high probability of ASS occurrence based on geological conditions. In table 3-3 for Source-pathway-receiver linkages and risk ratings (without mitigation) under AE15 risk is listed as High. Why has this not been tested and reported in the PSI?

Protection of workers but not recreational users in Botany Bay. Table 7-1 Mitigation and management measures – contamination and soils. This table repeatedly states that an unexpected finds procedure will be developed and implemented as part of the Construction Environmental Management Plan. This CEMP has mitigation measures to help protect workers at the construction site from exposure, but not recreational users in the waters anywhere nearby if contaminants travel. They have not been considered or protected.

More testing proposed but not included in EIS. It is unclear why the PSI states “*Further sampling and elutriate analysis of seabed sediments would be carried out prior to construction to confirm existing findings*”. The job of the EIS is to supply these findings. This EIS does not therefore provide a full and transparent report of the issue to the public. The public do not have the information for SEARS to be met in terms of a full and comprehensive account. This is of grave concern. The PSI also states a sampling Analytical Quality Plan (SAQP) will be prepared for the sampling and analysis. Why has further testing not been done and why is the SAQP not available with this PSI.

AECOM study at Sydney Airport in 2012 found extremely high levels of PFAS.

According to a SMH article by Carrie Fellner, in 2018, multiple PFAS investigations at Sydney Airport have been done between 2005 to present but have never been publicly released. According to the SMH article, AECOM conducted a PFAS site investigation and human health risk assessment at Sydney Airport in 2012 and found extremely high levels of PFAS in the groundwater underneath the former fire training ground. According to the reporter, maximum reading for PFOS was 2820 micrograms per litre, thousands of times over the safe level for the chemical in drinking and recreation water. AECOM would not therefore be unaware of the risk of PFAS travelling to the Brotherson Dock project area 1200m away and they would not be unaware of the high likelihood of PFAS being found in the sediment of Brotherson Dock.

Known contaminants of concern will be disturbed by dredging process. As acknowledged by the proponent, dredging of the seabed, to increase water depth by 4.5m plus piling at Brotherson dock during this project will disturb and mobilise contaminants known to exist in Botany Bay due to decades of former use by heavy contaminating industry operating in this area.

Areas of Environmental Interest (AEI) identified but then excluded. AEI’s are areas where potential sources of Chemicals of Potential Concern (CoPCs) are known to exist (or suspected to exist) and may pose a risk to human health or the environment if present at sufficient concentrations. The Contamination report states that AEIs and CoPCs have been assessed concurrently for the project area for the development of the Preliminary Conceptual Site Model (CSM). Major sites of historical contamination nearby were comprehensively listed in a map. These included the Orica site (mercury, CHC, EDC & HCB, PFAS contamination) and the Sydney Airport former fire training site (PFAS contamination). However, although they

were identified they appear to have then been excluded from assessment as AELs because they were more than 500m distance.

PFAS from Sydney Airport. Additionally, Brotherson dock is very close to the water runoff area from the old fire training grounds of Sydney airport, probably one of the worst sites in the whole of Australia for PFAS contamination due to its regular use for decades for fire fighting training using Aqueous Film Forming Foam containing PFAS. PFAS will be in sediment at the Port and will be disturbed by dredging and piling.

PFAS report data from multiple Sydney airport reports not released. An unfortunate issue with legacy PFAS contamination from the fire fighting grounds is that Sydney Airport/Airservices has not released the data of its many PFAS studies conducted since 2011, so the data confirming the scale of this contamination issue is not publically available. This means the seriousness of the PFAS issue in this area is being minimised and not being appropriately assessed. Sydney Airport is on Federal Government leased land and Airservices, who have organised many of the reports, is a Government controlled entity, so the Federal Government is well aware of the issues. Indeed the NSW EPA has seen some of the reports so SEARS should have required that data from these reports concerning the airport is used and not omitted from full assessment in the report. Clearly, omitting such critical data is a grave omission which does not appropriately detail risk. Sydney Ports needs to include this data in order to transparently assess and report on risk. Again, SEARS is not met as this report is not an open and transparent assessment of risk.

PFAS travels well in water when disturbed. Another unfortunate issue is, PFAS is highly mobile and has the potential to travel easily in water when disturbed and will disperse considerable distances.

Mitigation measures reduce impacts but also reduce reporting. The proponent's decision to use a trailer suction hopper dredger in the dredging process would appear to help to minimise impacts associated with seabed disturbance. Hydraulically pumping dredged material into the bund wall reclamation area avoids the need to handle and deal with disposal of contaminated sediment, but it also means that the sediment may not therefore be subject to the same stringent testing procedures as it would be subject to if was being disposed of as licensed landfill, or taken out and dumped in the ocean, when it would need to be more fully assessed and reported upon. It also reduces the chance of unexpected finds and the reporting that would go with those finds.

Focus on acid sulphate contamination deemphasizes importance of other contaminants present. There is detail on management of acid sulphate contamination which shifts focus from other contaminants present such as the mobilisation of PFAS.

Focus on turbidity not contaminants. The proponent admits there will be an increase in Total Suspended Solids (TSS) into the water of Botany Bay and likely a visible sediment plume as a result of dredging activities. The significance of this 'plume' is de-emphasized. Public concern is not that it will 'muddy' up the water, making it less visibly attractive to swim in these muddy waters, but rather the fact that the TSS will contain contaminants of concern due to the dredged area being a place of significant historical contamination. It is the contaminants of the concern that should be the focus not the lack of clear water as a result of TSS.

Minor activities to also cause mobilisation of contaminants. Dredging is clearly the major activity to cause mobilisation of contaminants. This will likely take place over a short period of time over a matter of weeks. However, other construction activities will disturb the seabed and have the potential to mobilise contaminated sediments and impact the waters of Botany Bay. These activities include the removal of BLB1 infrastructure and installation of piles and placement of the rock bund using jack-up barges. Although the extent of these activities will be significantly less than those caused by dredging, there is the potential for duration over a much longer period of time. They pose potential risk to dinghy sailors, fisherman off Molineaux Point and beach goers.

No water quality sampling location in Yarra Bay. Given the proximity of La Perouse and Yarra Bay beaches, it would have seemed a critical consideration to place a water sampling and monitoring location near these beaches to ensure water contaminant monitoring and to make the results of that monitoring available for the public to provide assurances of protection for swimmers. This has not been done.

Assessment of magnitude in the report is concerning.

As previously mentioned, the sediment in the area around the port is known to be highly contaminated from legacy industrial processes including PFAS from the nearby former fire-fighting training ground. The proponent has confirmed that contaminants of concern have been found in multiple test investigations in the area. They have also said that they are likely to be mobilised during the dredging and piling process.

The proponent has suggested that the extent of disturbance means that Total Suspended Solids (TSS) will likely form a visible plume. Even if the plume disperses, contaminants will continue to be carried anywhere in the immediate vicinity by tide and other coastal processes. PFAS is known to travel easily in water and disperse considerable distances.

As previously mentioned, thousands of people, including those who are vulnerable, (pregnant women, children, babies, First Nations people) swim regularly at La Perouse and Yarra Bay beaches, which are situated just a few kilometres away from the dredging and piling site in the direction of the ocean. These people have the potential for complete dermal exposure plus ingestion of these contaminants of concern through the activity of swimming.

Assessment of magnitude of impact of contamination can be minimal, minor, moderate, major, or transformational. Transformational is when many people are affected, in quite a widespread area, and the change has the potential to impact the health or wellbeing of these people.

Thousands of vulnerable people swimming at La Perouse and Yarra Bay beaches have the ‘possible’ risk for multiple exposures to contaminants of concern over several weeks of dredging. They will also have much lower levels of potential exposure during other piling and marine construction activities over the duration of the project. These contaminants of concern have the potential to cause ‘severe’ long term adverse health outcomes such as cancer. This indicates that magnitude should be deemed ‘Transformational’ and as the likelihood is ‘possible’ the overall Impact significance matrix (DPIE 2023b) would place them at ‘High’ magnitude.

Concerningly, it appears that this ‘at risk’ group has not been addressed or assessed, as the beach has not been recognized as a beach in this report. This is deeply concerning and a major omission and doesn’t meet SEARS in terms of assessment of risk.

It should be noted that the social locality of the ‘proximal area’ (area closest to and most likely to experience strongest and greatest impacts) from the project has not been appropriately identified in the text devoted to this matter. The locality of Phillip Bay (which includes the beach users of Yarra Bay), which is the area closest to the project has not been identified in the written identification of areas in the ‘proximal area.’ This would seem to be a considerable omission. Instead, Botany, Banksmeadow, Malabar, La Perouse, Matraville and Chifley are identified. In the map showing social locality applied to the assessment of the project, the community of La Perouse is inaccurately placed out at Cape Banks not on the shores of Frenchmans Bay where it should accurately be located. This is extremely misleading particularly in a map where you are considering local communities affected!

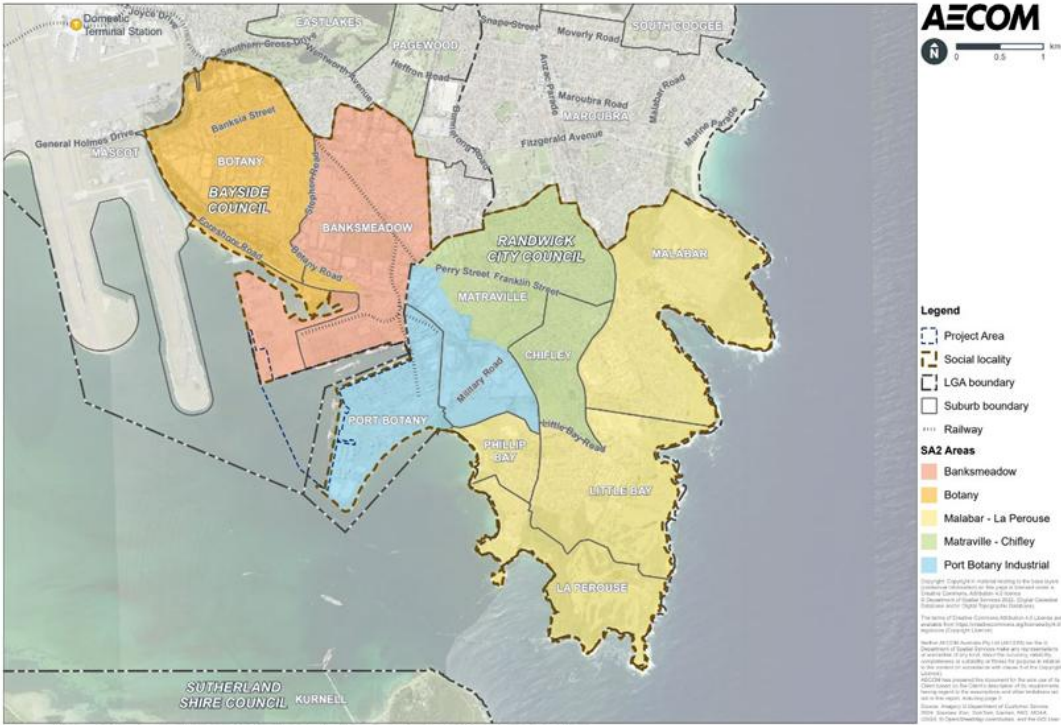


Figure 13-1 Social locality applied to the assessment of the Project

Site auditor report based on assertions claimed in contamination reports and PSI. These assertions are often based on flawed premises. The EIS is over 2700 pages. The site auditor cannot be expected to assess the full content of complicated and intricate reports, so they must rely instead on ensuring aspects such Methodology Sampling and Analysis plans are thorough. They cannot then check to make sure all details have been completed and accurately reported. The auditor must rely on the veracity of statements by investigators and take them at face value. The auditor therefore will not always be able

to assess the project appropriately. I believe this report has some concerning flaws that are not glaring but they are significant. It is concerning that site auditors do not have more interaction with the public regarding anomalies that need addressing.

Background

I am a local resident from La Perouse and have lived here for over 30 years. During that time I have seen the significant expansion of both Port Botany and Sydney Airport and have experienced the accompanying increase in noise, air pollution, and detrimental environmental issues that those expansions unfortunately bring. However, I fully recognise the necessity for progress and the importance of both organisations and the significant beneficial contributions they make to the NSW and the Australian economy and I fully accept the necessity of expansions taking place, so long as genuine issues are appropriately addressed.

I am not an expert in aviation, risk assessment, dangerous goods, or contamination and I struggle to understand all the technical detail. I apologise if I have missed information, misconstrued, or misunderstood elements of any of the reports. It is not my intention. I am merely a member of the public trying to understand the issues and dangers posed by this project. I have engaged with this submissions process to highlight anomalies and serious omissions and to question why serious potential dangers are not being fully and transparently addressed.

Community engagement comment

Although 4 weeks is a normal time for an EIS exhibition period, the Port Botany Quayline Equalisation project has a number of very serious potential issues and the reality of trying to read and understand the implications of proposed changes and process the information in the technical reports in the *2700 page EIS* (and its accompanying appendices) is clearly an impossible task for an individual in a 4 week time frame. This means that individuals, such as me, can only refer to concerns without always having the time and expert resources to fully backup those concerns. I hope that the proponent, together with relevant expert agencies, assess and respond to concerns in sufficient depth, to assure the public that the concerns highlighted are truly being understood and taken seriously.