JRPP No:	**2012SYE065**
DA No:	**DA12/0476**
LGA:	**Sutherland Shire**
Proposed Development:	**Staged Development - Masterplan Layout of 161 Residential Lots, Remediation and Bulk Earthworks; Stage 1: Development including Initial Development of Three (3) Existing Lots into Six (6) Super Lots, Vegetation Removal, Site Remediation, Bulk Earthworks, Construction of Associated Road and Infrastructure, Augmentation of Existing Wetland Basin Stormwater Treatment Facility, Landscaping and (if required) Installation of Passive Gas Venting System on Part of Don Lucas Reserve**
Site/Street Address:	**Lot 22 DP 226424, Lot C DP 370539, Lot 115 DP 777967, Lot 116 DP 777967 & Lot 7304 DP 1130200 - 15R Bate Bay Road & 452 Captain Cook Drive, Greenhills Beach and 405-417 Captain Cook Drive & 31 Lindum Road, Kurnell**
Applicant:	**Breen Property Pty Ltd**
Submissions:	**11**
Recommendation:	**Deferred Commencement Consent**
Report By:	**Annette Birchall – Environmental Assessment Officer (Planner)** **Sutherland Shire Council**

Assessment Report and Recommendation

1.0 EXECUTIVE SUMMARY

1.1 Reason for Report

Pursuant to the requirements of State Environmental Planning Policy (Major Development) 2005, this application is referred to the Joint Regional Planning Panel (JRPP) as the development has a capital investment of more than $20,000,000. The application submitted to Council nominates the value of the project as $27,040,337.

1.2 Proposal

The application is for the staged development of the above property, including a residential subdivision masterplan as well as Stage 1 development works including remediation, bulk earthworks, creation of six (6) 'superlots', augmentation of an existing stormwater treatment wetland, construction of roads and associated infrastructure and landscaping.

1.3 The Site

The subject site is located off the northern side of Bate Bay Road and also has a small frontage to Captain Cook Drive at its north-western boundary. Cronulla High School forms the remainder of the western boundary. To the north, the site is bounded by a new residential subdivision development by Australand and the Don Lucas Reserve adjoins the eastern boundary. A

portion of the reserve, owned by the NSW Government, forms part of the development site, as does a portion of land owned by Sutherland Shire Council on the western side of Captain Cook Drive, which will be used for stormwater management.

1.4 The Issues

The main issues identified are as follows:

- Extent of imported fill and proposed landform of residential development.
- Internal road layout and treatment.
- Access to and suitability of Lots 101-103.
- Access to lots fronting Bate Bay Road and Trinity Street.
- Interface with Cronulla High School.
- Landscaping.
- Drainage and stormwater infrastructure.

1.5 Conclusion

Following detailed assessment of the proposed development the current application is considered worthy of support as a deferred commencement approval, subject to amendments and conditions.

DESCRIPTION OF PROPOSAL

A development application has been received for a masterplan and staged residential development at the above property. The application seeks in-principle consent for a road and lot layout for 161 residential lots and associated infrastructure (Figure 1).

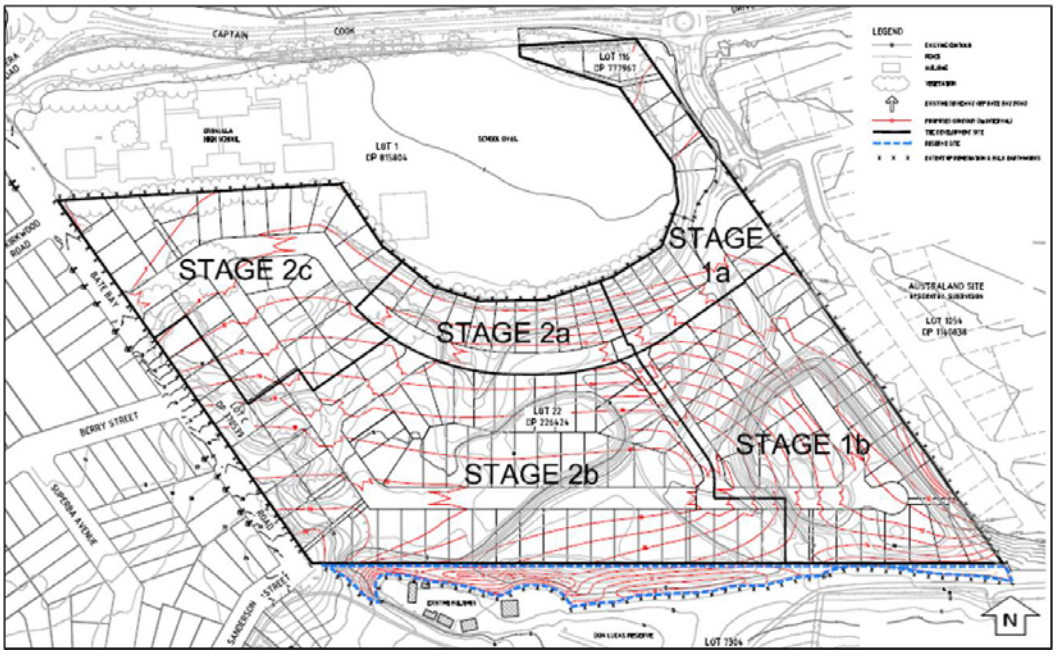

Figure 1: Masterplan

Development consent is also sought for Stage 1 of the development (Figure 2) which includes:

- Initial 'paper' lot subdivision of the site into six 'superlots.
- Demolition of existing buildings in the 'gully' portion of Don Lucas Reserve.
- Remediation and bulk earthworks of the whole of the development site to finished design levels.
- Stage 1 subdivision of proposed 'superlots' 1, 2 and 3 into 99 residential lots and two bio-retention lots.
- Construction of roads and infrastructure for the Stage 1 subdivision.
- Landscaping.

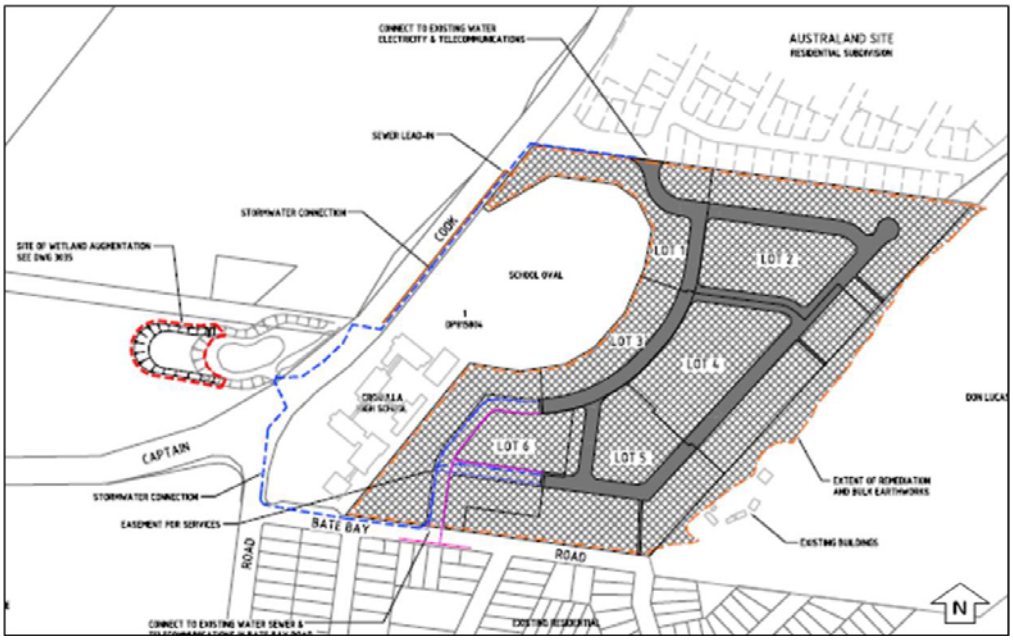

Figure 2: Stage 1 works

2.0 SITE DESCRIPTION AND LOCALITY

The development site is located within the south-western portion of the Kurnell Peninsula. It is within the newly created suburb of Greenhills Beach and is approximately 2.0km north of Cronulla train station (Figure 3).

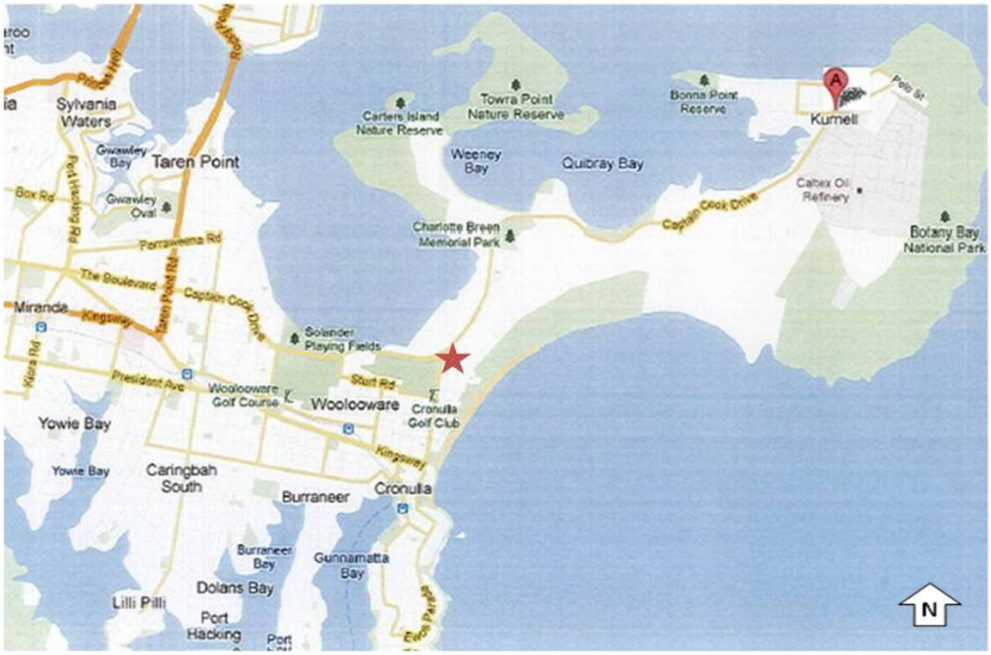

Figure 3: The site ★

The residentially zoned portion of the site is to be known as Shearwater Landing (Residential site). It comprises of three (3) lots located off the northern side of Bate Bay Road and has a small frontage off the eastern side of Captain Cook Drive. These three (3) lots have a combined area of approximately 13.04ha and are within Zone E4 Environmental Living under State Environmental Planning Policy (Kurnell Peninsula) 1989 (Kurnell SEPP).

The development site also consists of a 1.43ha portion of the Don Lucas Reserve (addressed as 31 Lindum Road) and a small portion of Council owned land at 405-417 Captain Cook Drive referred to as the Wetland Basin site. These are both within Zone 6(a) – Public Recreation (Existing) under the Kurnell SEPP (Figure 4).

Figure 4: Aerial photograph of the site and immediate surroundings

The residential site forms part of an extensive area that had been the subject of sand mining for many years. The sand mining has long ceased and the site has since received large quantities of excavated material, mostly through the early 1990s. The result is an irregular landform including two large mounds over the eastern portion of the site.

Immediately north of the residential site is a 236 residential lot subdivision currently being developed by Australand Kurnell Pty Ltd. Immediately south of the site, on the opposite side of Bate Bay Road, is the suburb of Cronulla. The adjoining portion of Cronulla consists largely of low density residential dwellings.

Directly west of the site and on the eastern side of Captain Cook Drive are the buildings and oval of Cronulla High School. On the western side of Captain Cook Drive and opposite the school are Council managed wetlands that form part of the development area. Directly adjacent north of this is the Towra Point Nature Reserve. This reserve was listed as a Ramsar site in 1984, reflecting the ecological importance of the Towra Point wetlands.

The portion of Don Lucas Reserve included for development forms the eastern boundary of the residential site and consists of a deep vegetated gully and buildings that belong to NSW Soil and Conservation and Sutherland Shire Council. The Reserve extends to Wanda Beach at its eastern edge and extensively north where it forms part of the 'Cronulla Sand Dune and Wanda Beach Reserve', which is listed as a State Heritage Item under the *Heritage Act 1977*.

3.0 BACKGROUND

Following rezoning of the site to permit residential use, a history of the development proposal is as follows:

- A pre-application discussion (PAD) was held on 3 February 2011. This meeting included representatives from various departments within Council including environmental science, engineering, civil assets and environmental planning. A copy of Council's correspondence arising from that meeting is contained within **Appendix B** of this report. The main points contained in this letter are as follows:
  - Consideration is to be giving to internal road design. Specific consideration to be given to preventing Road 1 becoming a 'rat run' and preventing excessive speeds on Road 2.
  - Lots fronting Captain Cook Drive are unacceptable in terms of amenity, accessibility and safety.
  - Council is strongly opposed to the filling of the gully.
  - Quality of material on site, and therefore that to be used as part of capping, is to be maximised and quantified prior to submitting a DA.
  - The use of the Council wetlands for stormwater treatment and conveyance is acceptable in principle.
  - Groundwater recharge is to be given careful consideration.
  - Address flooding and sea level rise.
- A development application was received on 2 September 2011. Following the identification of several significant issues, the application was withdrawn on 23 November 2011.
- The current application was received on 8 June 2012.
- The application was placed on public exhibition from 11 July until 10 August 2012. Eleven (11) submissions were received.
- The proposal constitutes Nominated Integrated Development as it requires approval under the *Heritage Act 1977* and the *Protection of the Environment Operations Act 1997.* Accordingly, the relevant agencies had until 7 September to provide comments/General Terms of Approval.
- An information session for the public was held on 24 July 2012. Eight (8) people attended.
- A letter from Council dated 16 July 2012 was sent to the applicant advising that a preliminary assessment of the application had revealed several issues of concern. Issues raised included location of stormwater infrastructure, stormwater management, detail of reserve works and landscaping.
- A meeting was held 19 July 2012 to generally discuss the above noted issues. Further issues raised included the proposed retaining walls along the north-eastern boundary, proposed lots on Captain Cook Drive and the interface with the school.
- The JRPP was briefed on the application on 1 August 2012.
- On 8 August a letter was sent to the application informing them that the Panel were concerned with the proposed volume of fill to be imported and the impact the proposed landform has on several of the boundaries.

- A meeting was held on 29 August to discuss the issue of contamination, fill requirements and proposed contours.
- On 7 September Council's Environmental Scientist met with the applicant's scientist with regards to quantifying the amount of existing fill that is suitable for use in the 'cap'. Revised contour plans were received on 25 September 2012.
- Additional information addressing Office of Environment and Heritage concerns regarding the Flora and Fauna Assessment was received on 29 September 2012.

4.0 ADEQUACY OF APPLICANT'S SUBMISSION

In relation to the Statement of Environmental Effects, plans and other documentation submitted with the application or after a request from Council, the applicant has provided adequate information in order to enable an assessment of the application.

5.0 PUBLIC PARTICIPATION

The application was advertised in accordance with the provisions of the Environmental Planning and Assessment Regulation 2000 as it pertains to Nominated Integrated Development. The application was publically exhibited until 10 August 2012. In addition, Council conducted a public information session, which was attended by eight (8) neighbouring residents including representatives from the Cronulla High School and Department of Education & Communities.

Fifty six (56) adjoining or affected owners were notified of the proposal and eleven (11) submissions were received.

A full list of the locations of those who made submissions, the dates of their letters and the issues raised is contained within **Appendix C** of this report.

The issues raised in these submissions are summarised as follows:

5.1 Issue 1 – Parking and traffic impacts

All objections noted traffic as an issue of concern. This is largely related to vehicle and pedestrian safety associated with the additional driveways and with access to the development from Bate Bay Road.

The loss of parking along Bate Bay Road was also noted as a concern.

Comment:

These matters are addressed in detail in the "Assessment" section of this report and conditions of consent have been recommended to address concerns.

5.2 Issue 2 – Loss of public and private views

Residents are concerned with view loss. Generally the concern is regarding public and private view loss from the top of Bate Bay Road area once houses are constructed. Concern was also raised in relation to street trees impacting on views.

Comment:

These matters are addressed in detail in the "Assessment" section of this report.

5.3 Issue 3 – Filling of the site

The proposed amount of imported fill to raise the level of the site is considered unnecessary and unacceptable. There is also concern regarding the difference of levels on the boundary with the Australand residential subdivision.

Filling of the gully was seen by some residents as a positive step as it provides additional useable open space to the public. Others oppose this in order to maintain visual amenity.

Comment:

This matter and that of the proposed site contours are addressed below in the "Assessment" section of this report.

5.4 Issue 4 – Loss of privacy

An objection was received on the grounds of loss of privacy as a result of an increase in pedestrian traffic along Bate Bay Road, the connection path leading from the development to the corner of Bate Bay Road and Sanderson Street and the potential for three (3) storey dwellings.

Comment:

Bate Bay Road leads to a public reserve, children's play area, the beach and walking tracks to the sand dunes. While the development will result in the increase of pedestrians using Bate Bay Road, the impact of this is considered acceptable for a residential area.

The separation between any new dwellings off the northern side of Bate Bay Road and the existing residential area off the southern side of Bate Bay Road is considered sufficient to provide acceptable levels of privacy.

5.5 Issue 5 – Conflict with existing cycleway and pedestrian walk

The creation of the new driveways along Bate Bay Road will sever the existing cycleway/ pedestrian path. It was suggested that the proposed internal bike path be relocated to Bate Bay Road.

Comment:

The new development will reinstate a pavement along Bate Bay Road, which will include several driveway crossings. A shared pavement will be constructed within the new development as this is considered more suitable

for those who use an off road bike path as it is not as steep as Bate Bay Road.

5.6 Issue 6 – Lots adjacent to Captain Cook Drive and fronting Trinity St
Australand is concerned with the safety implications of the proposed ROW access (between Lots 202 and 203) off Trinity Street so close to the roundabout with Captain Cook Drive, as well as the impact on landscaping and the general appearance.

Comment:
These matters are addressed in detail in the "Assessment" section of this report.

5.7 Issue 7 – Remediation and construction impacts
Many objectors voiced concerns relating to remediation and construction works. These include:

- Noise.
- Vibration and potential structural damage.
- Dust, both in terms of health implications and amenity.
- Potential air borne contaminants during the remediation process.
- Conflict of construction traffic with future residents of Australand.
- Use of Bate Bay Road for construction traffic.

Comment:
The submitted Air Quality Assessment & Air Quality Management Plan, Asbestos Management Plan and Noise and Vibration Assessment, Monitoring & Management Plan have all been assessed by Council's Environmental Health officers as being suitable to adequately manage the proposed works.

Furthermore, the applicant has committed to reducing the impacts of dust and noise levels at the adjacent school through various management measures, as well as implementing a monitoring program for this area.

Standard conditions of consent have been recommended to manage construction impacts. General Terms of Approval issued by the EPA also address these concerns.

5.8 Issue 8 – Sheds on the reserve site
One submission requested that Council reconsider the removal of the sheds on Don Lucas Reserve.

Comment:
Some of these are used by the Department of Soil Conservation and could potentially be relocated. However, others are owned by Council and are used to store beach cleaning equipment. At this stage there is no other suitable location that will allow suitable access to the beach for this equipment.

5.9 Issue 9 – Dilapidation reports

Several submissions have requested that dilapidation reports be prepared for all properties potentially affected by the works.

Comment:

A dilapidation report is a common requirement for many forms of development involving major earthworks. While the applicant has committed to preparing these, this has also been included as a recommended condition of consent.

5.10 Issue 10 – Privacy and security of the school

The Cronulla High School P&C has noted concern regarding privacy and security issues resulting from lots backing onto the school.

Comment:

These matters are addressed in detail in the "Assessment" section of this report.

5.11 Issue 11: Overdevelopment

This development adds to the overdevelopment of this area of Cronulla and Kurnell.

Comment:

The site is zoned for residential purposes with a required minimum lot size of 550m^2. The majority of lots within the proposed subdivision are over 600m^2, with several around 700m^2. The site is therefore being developed within the density controls for the site.

6.0 STATUTORY CONSIDERATIONS

Lot 2 DP 370539, Lot 22 DP 226424 and Lot 116 DP 777967 make up the residential site, which is located within Zone E4 - Environmental Living under the provisions of State Environmental Planning Policy (Kurnell Peninsula) 1989 (Kurnell Peninsula SEPP). Subdivision is permissible with development consent.

Lot 7304 DP 1130200 is within Zone 6(a) - Public Recreation (Existing) under the provisions of the Kurnell Peninsula SEPP. All development within this zone requires consent.

The following Environmental Planning Instruments are relevant to this application:

- State Environmental Planning Policy No. 55 – Remediation of Land (SEPP 55)
- State Environmental Planning Policy No. 71 – Coastal Protection (SEPP 71)
- State Environmental Planning Policy (Kurnell Peninsula) 1989
- Residential Subdivision Development Control Plan Edition 10

7.0 STATEMENT OF COMPLIANCE

The compliance table below contains a summary of applicable development standards and controls and a compliance checklist relative to these:

Standard/Control	Required	Proposed	Complies? (% Variation)
Clause 20A Lot size	550 m^2 (min)	550 m^2 (min)	Yes
Clause 20F Groundwater	Avoid adverse impact on groundwater	Maintains current groundwater infiltration rates	Yes
Clause 21 Protection of wetlands	Prevent adverse impacts on wetland areas	Remediation of groundwater and treatment of stormwater	Yes

8.0 SPECIALIST COMMENTS AND EXTERNAL REFERRALS

The application was referred to the following internal and external specialists for assessment and the following comments were received:

8.1 Department of Lands

No comments had been received by Council at the time of reporting.

8.2 Department of Education and Communities

The Department considers that the traffic assessment does not adequately assess all potential impacts of the development on the school such as parent parking; pedestrian and cycle access; and general safety around the school.

The Department is concerned that the construction management plans (such as the noise report) are not adequately comprehensive.

Measures should be identified to mitigate for the loss of privacy and security for school students. This includes amending the Kurnell SEPP and Greenhills Beach Development Control Code.

The Department requests the applicant to continue to communicate with and work with the school throughout the process.

8.3 Department of Planning and Infrastructure

The Department has advised that a masterplan is not required under SEPP 71 for this development as the application is made seeking staged development consent. There are no other issues regarding SEPP 71.

8.4 National Parks and Wildlife, Office of Environment and Heritage (OEH)

Towra Point Nature Reserve

The OEH supports the proposal to maintain groundwater flow through recharge measures. However, they note that the effectiveness of these

measures needs to be monitored and that this will require good baseline data. With regards to the remediation of the site, they note that these activities have the potential to mobilise contaminants that can move off-site. The monitoring program discussed within the submitted Remediation Action Plan (RAP) must be comprehensive and include contingency measures to prevent any adverse impacts on sensitive receptors.

Any wetlands constructed as part of the on-site stormwater should be Green and Golden Bell Frog 'friendly' so as to provide habitat for this species. These measures should be stipulated in the conditions of consent, should the proposal be approved. A condition of consent has been recommended for this requirement.

Flora and Fauna Assessment Report
The OEH considers the report to be inadequate in both coverage and methodology. This is discussed in the 'Assessment' section of t his report.

Aboriginal Heritage
The Office of Environment and Heritage is supportive of the recommendation for testing and recommends that any testing program be discussed with OEH prior to the lodgement of any Aboriginal Heritage Impact Permit.

Flooding
The Worsley Parsons Report prepared for the rezoning of the Australand and Breen lands identifies the need for a detailed flood assessment in future applications for development. The OEH considers that such an assessment should be undertaken at this stage of the process to determine what impact the development has on neighbouring properties, Captain Cook Drive and the nature reserve.

Council is satisfied that flooding issues have been adequately addressed in the proposed stormwater measures.

8.5 Rural Fire Service (RFS)
The RFS has provided general terms of approval (GTAs). The RFS has noted that the approval is for the subdivision of the land only and that further development applications for dwellings may be subject to separate applications/referrals to the RFS.

8.6 NSW Office Of Water
The NSW Office of Water has noted that it will have requirements that will need to be addressed'. However, it is unable to provide these details at this stage as it is unclear how the new Aquifer Interference Policy will be applied or how the Policy and the SEPP for Kurnell are likely to interact with regard to groundwater.

8.7 Roads and Maritime Services (RMS)
The RMS noted that this application did not need to be re-assessed as the development has not significantly changed from the previous withdrawn scheme on which RMS provided comments.

As such, the following comments provided for the previous application are still relevant:

> *'The RMS advises that development should be designed such that road traffic noise from Captain Cook Drive is mitigated in accordance with EPA criteria for new land use development. They also note that a Road Occupancy Licence should be obtained for any works that impact on traffic flows on Captain Cook Drive during construction activities.'*

8.8 Heritage Office, OEH

The Heritage Office has granted General Terms of Approval for the proposed development.

8.9 Environment Protection Authority (EPA)

The EPA has granted General Terms of Approval for the proposed development.

The EPA expressed further concerns regarding other potential contamination issues on the site and Don Lucas Reserve as well as the reuse of fill material within the cap layer. A condition of consent has been recommended requiring any reused material to be used in the lower section of the cap so as at least the top 600mm of fill is clean fill imported onto the site. Council is confident that the site auditor will verify the suitability of the site for residential use, taking into consideration all aspects of contamination.

The EPA also noted concern regarding the proposed landfill gas venting system for the Don Lucas Reserve. The conditions of consent clearly note that the approval does not grant permission for the construction of any gas venting system. If this is found to be required, a further development application will be required so the impacts of this proposed can be assessed.

Internal Referrals

8.10 Engineering

Council's development engineer has advised that the proposal can be supported, subject to conditions.

8.11 Stormwater

Council's stormwater engineer has undertaken an assessment of the application and advised that the proposal can be supported, subject to obtaining more detailed information regarding the location of services within Captain Cook Drive and Bate Bay Road and some redesign and relocation of parts of the system.

8.12 Traffic Engineer

Council's traffic engineer is supportive of the proposal upon the inclusion of several conditions of consent that seek to ensure an efficient and safe development.

8.13 Environmental Planning

Council's Environmental Planning Unit is now generally satisfied with the treatment of the 'gully' on Don Lucas Reserve. With regards to the interface with Cronulla High School, it is noted that lots backing onto a school are not uncommon in urban areas and can be beneficial in terms of security.

8.14 Communities Unit

Council's Communities Unit has assessed the application in terms of 'safer by design' principles. They concur with Environmental Planning's opinion that lots backing onto a school are beneficial in terms of security and do not regard this as being a privacy concern.

They recommend that fencing along the pedestrian access points to the reserve should be designed to be graffiti resistant and well lit. They also recommend combining the two northern paths to form one larger path, which will provide a greater feeling of security and allow some planting to deter graffiti.

8.15 Environmental Scientist

Council's Principal Environmental Scientist is satisfied that the RAP is adequate in remediating the site for use as a residential development, however, he has advised that a revised RAP detailing processing methods to obtain a greater percentage of fill for reuse would also adequately remediate the site.

With regards to the groundwater recharge system, it is preferred that this is a natural wetland or swale type system, however, Council's Environmental Scientist is satisfied that the groundwater recharge required to mitigate infiltration lost through the development can be achieved.

The proposal to use Council's existing wetland to treat and manage the site's stormwater flows is supported, as is the proposed system that drains the eastern most dwellings' roof water into the 'gully. The environmental impact of enlarging Council's wetland has been satisfactorily addressed in consultation with Council.

8.16 Property

Council's Property Manager is supportive of the proposal as it does not impact on the existing Council buildings within the reserve.

8.17 Environmental Health

The submitted Air Quality Assessment & Air Quality Management Plan, Asbestos Management Plan, Noise & Vibration Assessment, Monitoring & Management Plan and Supplementary Acoustic Report have all been assessed by Council's Environmental Health Division. The proposal is supported provided these plans are implemented.

9.0 ASSESSMENT

Following a detailed assessment of the application having regard to the Heads of Consideration under Section 79C(1) of the Environmental Planning and Assessment Act 1979 and the provisions of relevant environmental planning instruments, development control plans, codes and policies, the following matters are considered important to this application.

9.1 Traffic and Access

The proposed development will generate traffic from an additional 161 residential allotments and this will impact upon the existing road networks. Access to the site will be via Trinity Street to the north and via a new access point onto Bate Bay Road to the south. Trinity Street is to be accessed from the existing roundabout on Captain Cook Drive.

The traffic study undertaken by Colston Budd Hunt & Kafes considered both the proposed development and the approved Australand development and confirmed that the surrounding road network will be able to cater for the traffic generated.

9.1.1 Road access to Bate Bay Road

Most of the public submissions received in regard to the proposal were concerned with the safety implications of additional access points on Bate Bay Road. These access points include one new road (Road 2) as well as driveways to 12 residential lots. Residents' concerns arise due to the steep incline of Bate Bay Road and the proximity to the high school located to the west.

A second access point to the site from Bate Bay Road is considered appropriate and desirable so as to integrate the new subdivision into the adjoining existing residential area. Providing just one access into both this site and the Australand site would effectively result in Greenhills Beach becoming a 'gated' community, separated from the adjoining residential areas. This is not a desirable outcome for a new subdivision.

An additional access point also provides for more efficient movement of emergency vehicles and an alternative evacuation route should the need arise. The proposed connection to Bate Bay Road is not considered likely to encourage high volumes of through traffic as there would not be many residents wishing to travel in this direction.

The location of this intersection is appropriate when considering sight lines to the west and east, as well as the distance to the school drop off/pick up zone.

9.1.2 Driveway access to Bate Bay Road

Additional driveways onto Bate Bay Road are generally considered appropriate for the western most lots around the base of the hill. Rear access via a right of carriageway has been provided to Lots 266, 267 and 268 due to

safety concerns associated with their location near the corner with Sanderson Street.

Lots accessing the steeper sections of Bate Bay Road may be able achieve required sight distances in ideal conditions, however, as noted in the public submissions, this section of road is heavily used during warmer months and school events for on street parking. Bate Bay Road is also a popular route for cyclists and pedestrians. It is considered that the crest of the road, speed of vehicles and restricted sight distances resulting from parked vehicles will make egress from these driveways unsafe and inconvenient, particularly during peak parking demand times.

Council's Traffic and Transport Manager recommends that access to proposed Lots 269-274 be via the internal road system only.

Right of carriageway (ROC) access to all of these lots, as is provided to Lots 267 and 268, is not considered to be a desirable planning outcome. The need to accommodate car spaces and turning circles at the rear of these lots would remove a large section of their private, north facing open space. A system of 'rear lanes' may also raise safety and security issues.

To address this issue, Deferred Commencement Condition (DCC) 2.b) is recommended seeking to re-orientate a number of lots and alter the road layout. Essentially, the condition calls for the creation of a short cul-de-sac running at a right angle off Road 1 toward Berry Street. There would be a pedestrian connection to Bate Bay Road from the head of the cul-de-sac. The section of Road 1 between the new cul-de-sac and Road 2 would be redundant.

Lots east of Road 2 would be reorientated to run east-west so that they have frontage and vehicular access to either Road 2 or the new cul-de-sac rather than Bate Bay Road. With careful redesign, it is expected that the lot yield will not be affected as there is a small net reduction in the amount of road required.

This is not considered to have a negative impact on the integration of the new subdivision with the existing residential area. On the contrary, it is considered that east-west oriented lots along the steep section of Bate Bay Road work better with the proposed contouring of the land, would mimic the orientation of lots opposite off the southern side of Bate Bay Road and the additional road would provide more pedestrian permeability between the subdivision, the existing residential areas and Wanda Beach.

Several submissions were also concerned with the loss of street parking through the addition of driveways onto Bate Bay Road as well as the severing of the footpath along that frontage, which is heavily used by cyclists, pedestrians and training groups. The proposed amendment would also address those concerns.

9.1.3 Access to Lots 101–108

Lots 101-104, at the north-western corner of the site adjacent to Captain Cook Drive, are proposed to be accessed via a right of carriageway from Trinity Street immediately east of the roundabout to Captain Cook Drive. Both Council's engineers and Australand are opposed to the location of this ROC given its proximity to the roundabout and given that it services four properties.

For reasons other than vehicular access, Lots 101-103 are recommended for deletion as residential properties (see Section 9.3.1) and therefore the ROC providing access to these lots is also recommended for deletion.

Considering its proximity to the roundabout in Trinity Street, direct access from Lot 107 to Trinity Street is considered unsatisfactory in terms of safety. Likewise, the proximity of Lots 104 to 106 to both roundabouts and the fact that access off this section of Trinity Street was denied to Australand (apart from one lot approximately opposite Lot 106), direct access to these from Trinity Street is also not considered suitable in terms of vehicle safety.

Deferred Commencement Condition No 2.b) includes the requirements that:

- Lot 108 to be accessed from its southernmost end.
- Lots 104, 105, 106 and 107 to be serviced via a right of carriageway from Road 1.

9.1.4 Road layout and design

As seen in Figure 5, the internal road system consists of five roads. Road 2 provides access to the site from the south and runs along the western side of the site linking to Road 1 at the north. Road 1 provides access from the north and runs along the eastern side of site, linking with Road 2 at the south. Roads 3 and 4 provide internal linkages between Roads 1 and 2. The irregular shape of the site has resulted in several reflex angle intersections and the need for a small cul-de-sac (Road 5) to access the north-eastern corner allotments and a ROC to access the south-western corner allotments.

Figure 5: Road layout and treatments

Various safety concerns have been raised with the applicant both through the pre application discussion (PAD) and the previous application that was later withdrawn.

While the road layout has not changed since the previous application, various modifications have been included in this scheme to overcome the above concerns. Council's concerns and the mitigation measures proposed to overcome these are detailed in Table 1 below:

Table 1: Road design

Traffic concern	**Location (refer to Fig 5)**	**Mitigation measure**
The potential of Road 2 to become a 'rat run' shortcut for through traffic..	**1a**	Priority has been given to the east-west road so that Road 1 now continues east and Road 2 forms a T-intersection at this location. A road narrowing has also been proposed on Road 2 at this location.
	1b	One-way slow point with contrasting pavement.
	1c	Blister and raised threshold with contrasting pavement.
Potential for excessive speeds along Road 1.	**2a**	Blister on Road 1 at intersection with Road 4.
	2b	One-way slow point with contrasting pavement.

Conflict between vehicles travelling in opposite directions at a number of horizontal curves in Roads 1 and 2.	**3** **1a** **1c**	Realignment of this section of Road 1 and creation of Road 5 to create a more traditional T-intersection. Change of priority to form standard T-intersection. Blister and raised threshold with contrasting pavement so that intersection of Road 1 and 2 comply with required sight lines.
Pedestrian safety at the Road 2 intersection with Bate Bay Road due to its proximity to the school.	**4**	Raised, paved threshold to give priority to pedestrians as well as visual deterrent.

Considering the irregular shape of the site, the internal road layout and design is now generally considered to be acceptable following the design changes as discussed in Section 9.1.2. Minor design changes to the proposed mitigation measures as detailed above will further improve the safety aspects of these.

These design changes have been included within DCC 2(a) to ensure these changes are to Council's requirements and suitably integrate with other required design changes.

9.2 Remediation and Proposed Landform

9.2.1 Remediation works

Site inspections carried out by Coffey Geotechnics in 2008, as well as Consulting Earth Scientists (CES) in 2009, found contamination of varying types and in various locations.

Consulting Earth Scientists, in their report "Environmental Site Assessment' (October 2009), identified four main areas of contamination:

1. Hydrocarbons within the south-western portion of the site associated with residual impacts from former uses.
2. Asbestos in the central and north-eastern fill mounds. (Asbestos was found in sampling undertaken by Coffey (2008) but no asbestos was found by sampling conducted later.)
3. A thin layer of copper slag on the surface of approximately a 500m^2 area within the south-western portion of the site.
4. Hydrocarbon contamination within the groundwater.

The site was determined to be unsuitable for residential development without remediation and the Remedial Action Plan (RAP) '*On-Site Containment of Fill Material and Removal of Copper Slag, CES, 11 May 2010'* was consequently prepared and submitted.

An application has since been approved for the remediation of the copper slag and hydrocarbon contaminated soil and groundwater in the south-western corner of the residential site. This approval will remediate three (3) of the four (4) types of contamination identified in the Environmental Site Assessment and results in only the 'On-site containment' section of the RAP being relevant to this application.

Although the material in the fill mounds is described as 'contaminated', material referred to includes:

- Building materials such as bricks, concrete, plastics, steel, terracotta and the like, as these are considered 'aesthetically unsuitable materials' as well as geotechnically unsuitable.
- Timber and other organic material as these have the potential for methane generation and ammonia impacts to groundwater.

These generally do not pose a risk to public health or safety. These are proposed to be removed from the capping layer as they are visually unattractive and future residents may not be happy to dig up pieces of building material when excavating to build or landscape on a newly created lot of land. Large building pieces also need to be removed to create a stable building platform. A contaminate of concern which may be associated with building material is asbestos. This has been found in some sampling events but not others. The RAP estimates there to be a total of 142m^2 of asbestos containing fibre cement sheeting within the entire 420,446m^3 of fill material determined to be present on site.

As detailed in the RAP, to render the site suitable for residential use the majority of the existing fill material is to be 'capped' by a 2m thick layer of clean soil. This cap is proposed to be a combination of imported clean fill and verified clean material won from the site through a process of setting aside 'uncontaminated' fill during excavation.

The RAP was presented to the Site Auditor (ENVIRON Australia) who subsequently prepared A Site Audit Report (May 2010) which concluded that the site can be made suitable for the purpose of 'residential with gardens and accessible soil' if the site was remediated and managed in accordance with the RAP presented to him. This is subject to conditions, as well as verification of the works by a NSW EPA Accredited Site Auditor prior to occupation.

The role of the site auditor is to endorse or reject a RAP that is put before them. The fact that an auditor has signed off this RAP does not mean that this is the best way to remediate the site.

Council's Environmental Scientist is also satisfied that the implementation of the RAP and the conditions recommended by the Auditor would render the site suitable for residential development. However, as there is now a relatively clear picture of the soil profile, it considered that additional and more considered processing of fill material will provide a greater percentage of

reuse of existing material in the 'cap', thereby reducing the amount of clean fill required to be imported onto the site. This is discussed in more detail below.

Deferred Commencement Condition 6 requires the RAP to be revised to detail a remediation process which will ensure a greater volume of existing fill is recovered for reuse in the site 'cap' while still rendering the site suitable for residential use to the satisfaction of the site auditor.

9.2.2 Extent of proposed fill

The investigations with regards to the remediation of the site were conducted as part of the rezoning process in early 2010. The amount of existing material to be reused on the site was considered an important consideration as this determined if final site levels and the number of truck movements to import clean fill were acceptable to Council.

In a letter to Council, Cardno compared site levels and truck movements under different 'reuse' scenarios, using 15% reuse as a base as this was the figure identified in an earlier RAP.

Further discussions held with Cardno and the site auditor at the time of rezoning confirmed that 15% reuse would be an appropriate minimum figure to include in the RAP. It was also agreed that the RAP would incorporate opportunities to identify and maximise the reuse of fill to achieve a level greater than 15%.

The amount of proposed reuse has long been questioned by Council and was requested to be quantified both in the PAD and the withdrawn application. In this application, no attempt was made to quantify contamination levels or to maximise the reuse of fill as requested throughout the history of this site.

During the JRPP briefing on 1 August 2012, the proposed contours and consequently the reuse level were questioned. This led to a thorough investigation of the sampling data by Council's Environmental Science Manager who concluded:

> *'Using a very conservative method, the results of the borehole log analysis are as follows:*
>
> - *less than 10% of the fill material is contaminated with asbestos containing materials.*
> - *less than 60% of the fill material is contaminated with construction/demolition waste.*
>
> *Taking an even more conservative approach and assuming that where there is contamination with construction and demolition waste there is potential for contamination by asbestos, then this gives an absolute maximum estimate for potential contamination by asbestos containing materials of 60% of the existing fill material. The flow on from this is that at least 40% of the existing fill material on the site is free from any form of*

contamination by foreign materials, including construction and demolition waste and asbestos.'

Subsequent meetings and computer modelling were undertaken with Consulting Earth Science, which resulted in a reuse figure of 18% (CES, 17 September 2012), noting that this is the "agreed" maximum amount of fill which can be reused in the capping layer. Advice from Council's Environmental Science Manager is that this is the agreed minimum figure (as opposed to the original 15% estimate) which can be obtained with a high degree of certainty using the proposed separation method which includes:

- Excavating material in approximately half metre layers.
- Removing fragments of fibre cement sheet for off-site disposal.
- Excavated material found to contain any aesthetically unsuitable material will be placed directly into tipper trucks. (The applicant clarified that this will be screened to remove geotechnically unsuitable materials prior to being buried under the 2m clean cap).

Any areas of fill that appear free from any aesthetically unsuitable material will be validated beginning with a walk over inspection. Any observed asbestos and soils within a 0.5m radius of this will be removed as will any aesthetically unsuitable material. A composite sample will be taken and analysed for heavy metal or chemical contamination. If these samples are considered suitable, this section of fill will be used in the clean soil layer.

While the method of validation is suitably arduous to ensure the fill is suitably clean for its use in the cap, it is clear that large volumes of fill will be automatically discarded prior to any form of processing or validation. In view of the final landform currently depending solely on the amount of material reused on site, it is appropriate that all reasonable measures be employed to maximise the amount of reuse. It is clear from the results of testing that more clean fill is available than the 18% proposed. This just requires a suitable method to extract this from the less suitable fill. The current proposal does not attempt to achieve this.

Deferred Commencement Condition 6 seeks to reduce the impact of the proposed landform through maximising the reuse of onsite material. This requires a modification of the Remedial Action Plan to include methods to process the existing fill material to recover a greater percentage than can be recovered without processing (DCC 6.b).

Additionally, as it is agreed that the final amount of fill that can be reused in the cap cannot be fully known until 'sorting' has been finalised, a final landform needs to be set to provide the applicant with the certainty required to implement to proposal.

A further consideration in this regard is the EPA's request that all verified clean fill won from the site is be covered with imported virgin excavated natural material (VENM) to provide even greater certainty that asbestos containing material will not be present in surface and near surface soils.

As no figure was quoted with regards to the depth of imported VENM cover, a depth of 600mm of imported clean soil is considered to be a suitable minimum depth. This is considered to provide a reasonable cover as this is the depth to which excavation for services, post holes, cut/fill for dwellings etc are generally undertaken.

Therefore, to provide certainty of landform, DCC 6.c) limits the total fill (combination of existing and imported) allowed on the site to 480,000m^3. This comprises of 420,446m^3 of existing fill on site plus 58,800m^3 of imported material needed for the top 600mm capping layer.

This would equate to 32% of existing fill being reused and a reduction in imported materials of 61,700m^3, compared to the 18% recovery option, significantly reducing the number of truck movements and providing considerable opportunities for modifications to the proposed landform. Accordingly, part c) of DDC 6 requires the lodgement of revised plans for approval by Council. These will show revised contouring of the site based on a total fill content of 480,000m^3. To provide guidance regarding the revised contouring, DCC 6.c) notes that any re-contouring is to focus on reducing the height of the northern portion of the ridge line and providing more gradual gradients to meet the levels of adjacent properties.

9.3 Subdivision Design, Layout and Visual Impact

Providing a high quality, functional subdivision has many aspects. Considering the location and current landform of the Shearwater Landing Site, proposed contouring and lot layout will have a significant impact on the amenity of future residents as well as the visual impact of the development. Road design and landscaping are also important considerations and have been addressed elsewhere in this report.

As part of the site is located on the highest point in Cronulla and with three prominent boundaries, the site is considered to be in a highly visible location. The impact for the existing residents on Bate Bay Road and users of the Don Lucas Reserve and Captain Cook Drive will be high as the existing 'open' character of the site will be changed to a residential environment. The development will also impact on the adjoining school.

9.3.1 Lots 101-103

From Cronulla High School, Captain Cook Drive becomes the only road in and out of the Kurnell Peninsula. It can therefore be seen as an 'entrance' to the peninsula. This area carries a high traffic load, including a large number of trucks associated with sandmining and other industrial activities undertaken within Kurnell.

As Clause 13(1) of the Kurnell SEPP restricts development within 20m of the road reserve boundary, the majority of Captain Cook Drive is bordered by vegetated strips. While there is no such requirement for this residential zoning, the Australand development (on the northern boundary of this subdivision) maintained this character at Council's request by providing a

landscaped strip on its boundary with Captain Cook Drive, followed by 'Road 2' of that subdivision (Figure 6). The first residential dwelling within the Australand development is therefore approximately 20m from the Captain Cook Drive boundary.

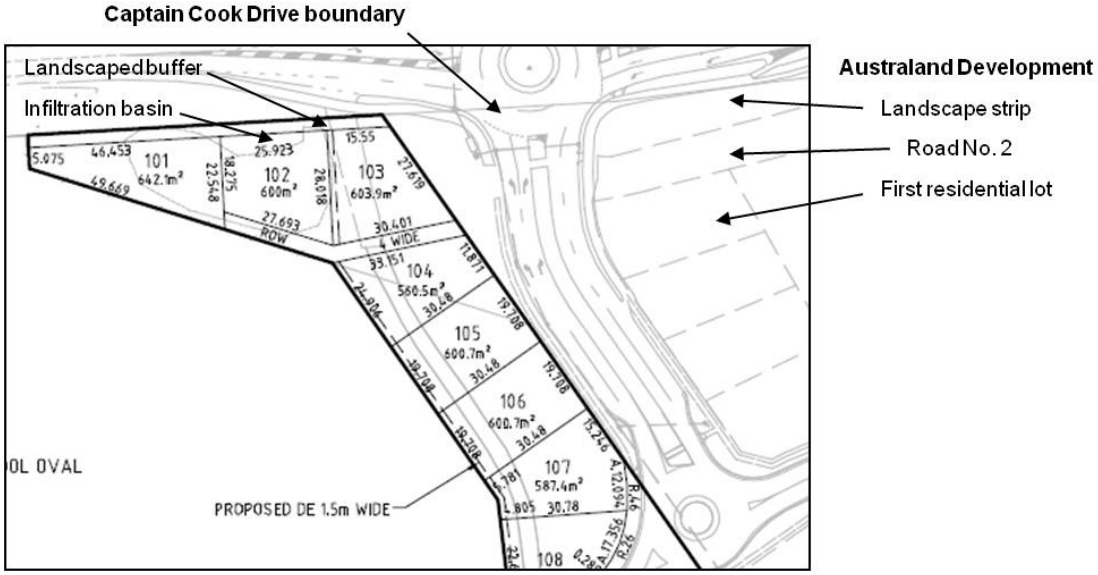

Figure 6 North-western corner of the site showing relationship with Captain Cook Drive and the Australand site.

As seen in Figure 6, three (3) lots at the north-western corner of the site (Lots 101, 102 and 103) are directly adjacent to Captain Cook Drive. Captain Cook Drive will form the rear boundary of these lots, resulting in 1.8m high fencing on the boundary. With the 20m setback afforded by the Australand site to the north and the oval and school to the south, this small section of rear fences followed by dwellings up to 9.0m in height, will form a highly prominent feature to this otherwise green and 'open' entrance to Kurnell.

Australand has also expressed concern with the aesthetics of these lots as it is contrary to the continuation of the landscaped setback on the northern side of Trinity Street and the landscaping on both sides of Trinity Street designed to provide a high standard entry statement to the suburb of Greenhills Beach.

Following comments from the NSW Roads and Maritime Services regarding noise attenuation requirements for these dwellings, the applicant submitted a Traffic Noise Impact Assessment. This confirms that these dwellings will require some form of noise mitigation measures to meet the internal noise criteria for the development. Suggestions include ventilations systems that can meet BCA requirements with windows and doors closed and acoustic seals and enhance sound insulating materials. The report also notes that acoustic design principles would also be beneficial such as orientating bedrooms away from the road and minimising windows in this direction.

Requiring occupants to keep windows closed and dwellings to turn their backs to the northern sun and views across the wetland and to the city is unreasonable and inappropriate for a large new subdivision. It is recognised

in many new subdivisions affected by road noise that spatial separation is a preferred method of noise and visual mitigation over physical barriers.

These lots, particularly Lot 101, have awkward shapes that make placement of a dwelling difficult. Add to this the restrictions placed on them to mitigate noise, as well as the physical constraints (and maintenance burden) of the proposed buffer strip and infiltration basin, these lots would provide a poor amenity outcome for future residents.

Combined with the visual impact on Captain Cook Drive, Lots 101–103 are not supported for residential use in their current configuration. Deferred Commencement Condition 5 has therefore been recommended to prohibit residential development on these lots.

This issue has been raised with the applicant throughout the history of this project. As the applicant has insisted that these lots remain, there is no alternative plan for consideration. It might be that part of this land can form parts of larger residential lots configured in a different way. Some of the land may be best given over to landscaping. The applicant may have some other alternative that could be put forward.

9.3.2 Contouring

The site currently consists of large gullies as a result of the previous sand mining activities and two large mounds in the north-eastern and central eastern section of the site formed by fill activities once sand mining ceased. The site is therefore proposed to be re-contoured to provide a suitable landform for residential development.

The southern section of the site currently drops off steeply from the road reserve, allowing almost uninterrupted views (from properties off the southern side of Bate Bay Road and the footpath areas) across the site, particularly from the top of Bate Bay Road. This section of the site will be filled to become level with Bate Bay Road.

While many objections have been raised relating to view loss associated with these southern most lots, filling the southern portion of the site to be level with Bate Bay Road is considered reasonable and appropriate, acknowledging that some visual impact will result with any form of development at this point. The greatest impact will be from future dwellings on the lots in the south-eastern corner. The impact from these may be somewhat reduced by providing a greater downward slope within the front 6m setback. This is possible considering vehicle access will not be provided at this location.

Moving north from Bate Bay Road, the site is proposed to form a long ridge extending along much of the eastern boundary with the Don Lucas Reserve. The top of this ridge is proposed to be around 4m above the highest point of the corresponding reserve. The visual impact from the reserve will therefore be significant. Again, some impact is anticipated and accepted for a residential zoned site.

As the gully is now proposed to be only partially filled, it will be possible to plant some more significant vegetation to provide a softer interface. While some of these slopes are unable to support revegetation as proposed, DCC 2.d) seeks to ensure the final landform can support revegetation as proposed in DCC 4. Issues associated with the treatment of the gully and the recommended conditions are discussed in Section 9.4.

Within the site, the height and extent of the proposed ridge results in the land falling at various grades towards the Australand development to the north/north-east and to the Cronulla High School to the west (discussed in Section 9.3.3 below). The impact of this includes awkwardly sloped and angled lots on which to construct a dwelling, the strong visual presence of the development from the Australand site and some steep sections of road which could result in access issues at the development stage.

It is considered that these visual and design impacts of the development to both bounding properties and future residential lots are directly linked to the height and extent of the proposed ridge. A reduction in both of these, as considered possible on the implementation of DCC 6, would provide a more gentle development and interface with surrounding land uses.

9.3.3 Interface with Cronulla High School

Objections have been received regarding the interface of the proposal with the school, including from the Department of Education and Communities, concerned about security and protection of students and security to properties backing onto the school. The amenity of future residents in view of the use of the oval outside of school hours is also a consideration.

These issues are compounded by the fact that the properties that back onto the oval rise up to 6m above the level of the oval, resulting in future dwellings being well above the level of the ovals. The difference in levels accentuates the issues of overlooking, noise and light impacts from the potential use of the ovals at night or early mornings, as well as the visual impact of these houses floating well above the land as seen from Captain Cook Drive. The steep rise in the land also creates a difficult platform for the construction of future dwellings.

It is not unusual for schools and ovals to share boundaries with residential properties. Privacy and security concerns associated with this can be overcome by providing appropriate fencing and landscaping along the boundary with the school.

Following advice from the Department of Education and Communities, the applicant proposes to construct a 2.1m high fence along the entire boundary with the school. This will consist of a 1.8m solid portion, topped with open railings. The landscape plan required under DCC 1.3 will ensure appropriate planting is undertaken along this boundary.

Council's Environmental Planning Unit and Communities Unit are supportive of such an arrangement as the passive surveillance from these properties offers greater security to the school out of hours and during school holidays.

The levels of the lots backing onto the oval were still considered to result in negative privacy impacts on both users of the oval and future residents of these lots, as well as adverse visual impact on Captain Cook Drive. Neither a 2.1m high fence, nor the proposed 3-7m high planting would ameliorate the impact with second storey windows/balconies positioned around 8m above the oval.

To address this concern, contours around the school oval have been decreased by approximately 2m.

This revised landform is an improvement to that initially proposed. Together with significant planting along the rear boundary, future residents will be afforded greater privacy. The visual impact of future dwellings from Captain Cook Drive will also be reduced once planting is established. Any additional reduction in the overall levels, as may be possible following the implementation of DCC 6, will further improve the amenity for future residents as well as the visual impact of the development.

9.4 Don Lucas Reserve

A small section of the Don Lucas Reserve forming the site's eastern boundary has been included in the application. Works proposed on this section of the reserve are generally to 'fill' part of a deep gully which extends for approximately 220m along the centre of the eastern boundary at a width of approximately 90m at its widest point. This disturbed area within the reserve is then proposed to be landscaped.

9.4.1 Proposed fill and levels

As the 'gully' extends into the residential site, some filling is required to provide suitable residential lots. Additionally, some filling within the reserve is accepted to support the fill within the residential lots but also to provide a natural transition between the residential and reserve lands without the need for large retaining structures.

While the proposal for this part of the development has come a long way since the PAD and withdrawn proposal, some of the proposed batters, particularly those adjacent to the building within the reserve, are considered to be too steep to support revegetation activities. In addition, a small retaining wall is still proposed within the gully to support this steep batter.

As the proposed lots fronting the reserve in this area have an approximate grade of just 4.5%, it is considered both reasonable and achievable that batter slopes can be reduced to a maximum of 20% with some regrading of the adjacent residential lots, particularly considering the requirements of DCC 6.

Deferred Commencement Condition 2.d) seeks to provide a suitable landform within the Don Lucas Reserve to allow for appropriate revegetation and prevent the need for retaining structures.

As a result of the landform, the roof water of the majority of lots backing onto the reserve will be drained into the gully via a drainage system to the rear of each of these properties, which has been designed in consultation with Council. To allow the infiltration of this stormwater from the residential properties, a condition of consent has been recommended that all fill material placed within the gully must comprise of natural crushed sandstone only, with minimal clays and fines.

9.4.2 Landscaping

The applicant proposes some landscaping within the gully. The selection of species and pot sizes proposed are not considered suitable for the area or for bush regeneration.

It is considered that an experienced bush regenerator or ecologist is required to undertake such works. As such, DCC 4 has been recommended requiring the preparation of a Vegetation Management Plan by an appropriately qualified and experienced bush regenerator/ecologist. This condition also includes a list of suitable species and appropriate densities. As Council is the caretaker of this land and responsible for its maintenance, it is appropriate that Council approves any works in this area.

9.5 Stormwater and Groundwater Management

9.5.1 Drainage system

The drainage system is generally considered to adequately and effectively convey stormwater from the site as detailed in Section 9.7 below. However, there are still some uncertainties with regards to the final location of stormwater infrastructure along the existing public road reserve as the exact location of existing services is unknown until further investigations are completed.

To accommodate this, DCC 3.b) is recommended to ensure the location of such infrastructure, including GPT's, is determined in consultation with and with the approval of Council's Engineering Division.

Deferred Commencement Condition 3.b) also requires the drainage system to be designed around a tailwater level of 0.9 metres AHD to allow for sea level rise. While advice from Council's Stormwater Manager is that 'it is not unreasonable to adopt an invert of 0.5 metres AHD for the development on the basis that the proposed pipe would match the invert of the existing pipe,' he also notes that the pipeline for the development will need to be designed on the basis that mean high tide is approximately 0.6 metres AHD.

Some minor design changes to the internal system have also been included in this condition. It is considered that the drainage system can be designed to be effective and efficient and the proposal is therefore supported.

9.5.2 Use of Council wetland

The use of Council's wetland located off the western side of Captain Cook Drive has long been the favoured solution to managing the majority of stormwater from the development. The augmentation works have been designed in consultation with Councils' Stormwater Manager and Environmental Science Manager and are acceptable.

9.5.3 Roof water discharge to the reserve

As the crest of the development generally follows the eastern most section of Road 1, the majority of the lots east of Road 1 drain to the Don Lucas Reserve to their rear. To convey the roof water from these lots, the application proposed a piped system which discharged at a central location within the reserve through a large rocky structure for scour protection.

This design was considered highly unsuitable in terms of visual and physical impact on the reserve. Following consultation with relevant Council staff, revised plans were submitted showing a modified scheme. Roof water from affected lots is now proposed to be connected to a slotted subsoil drain within free draining material to allow subsurface flow into the gully. Surface runoff will also enter this bed of free draining material, which is continued from the boundary to the invert of the gully.

A small concrete kerb has been included within the site boundary to assist with removing organic and inorganic matter prior to release to the reserve. Surface flows from large storm events are designed to overflow this concrete kerb to provide even distribution into the gully. This part of the proposal is now considered suitable.

9.5.4 NSW Office of Water requirements

Clause 25 of Kurnell SEPP notes that *'Council shall not consent to the carrying out of development where … c) groundwater or surface water is discharged as waste water into bores, unlined pits, channels or excavations, unless arrangement for the proper utilisation and protection of this natural resource have been made that are satisfactory to the Department of Environment, Climate Change and Water.'*

This responsibility now lies with the NSW Office of Water (NOW), which has noted that it 'will have requirements that will need to be addressed' with regards to proposed stormwater infiltration provided in the north-western corner of the site. However, NOW has advised that it is unable to provide these details at this stage as it is unclear how the new Aquifer Interference Policy will be applied or how the Policy and the SEPP for Kurnell are likely to interact with regard to groundwater.

9.5.5 Clause 20F, Kurnell SEPP – Groundwater vulnerability

The infiltration basin in the north-west corner has been provided to address the hydrological function of key groundwater systems as required under Cl. 20F.

Groundwater recharge is of particular importance for this site as the receiving waters for the Breen site are the groundwater dependent ecosystems of the Towra Point Reserve, including a RAMSAR listed wetland. The Office of Environment and Heritage are the owners and managers of this reserve and have provided comment on the proposal.

Considering the sensitive receiving environment, it has been a requirement that current levels of recharge from the site are maintained. Measures to maintain groundwater flow, recharge and discharge are fully supported by OEH, noting in their submission that any such system is to be rigorously monitored to ensure the effectiveness of these measures. Due to the importance of this matter, it was investigated at the rezoning stage to confirm to Council that this was possible.

The proposal as submitted included a passive managed aquifer recharge system at the north-western corner of the residential site. This system was an underground infiltration pit receiving only roof water from ten (10) residential lots via a piped system. This was shown on private land.

While Council was satisfied that groundwater recharge volumes had been adequately addressed with this system, the design was considered unacceptable largely due to maintenance concerns and responsibility issues considering its proposed location on private property. The applicant was advised that a more natural infiltration bed would be more appropriate and that the maintenance issue was to be addressed.

Revised plans in response to this advice redesigned the system to a 'semi-natural' form with a sand bed and stepped sandstone boulder edge. While an improvement, it is considered that a wholly natural system would function more efficiently and require little to no maintenance. Deferred Commencement Condition 3 is recommended which seeks to replace the boulder edge with a sloped natural batter and for the basin to be planted as per requirements set out in DCC 4.

9.6 Flora and Fauna

A Flora and Fauna Assessment Report by SLR Consulting Australia accompanied the development application. This report notes that the site is highly degraded and therefore unlikely to contain any threatened species.

The Office and Environment and Heritage (OEH) has questioned the findings of the report that threatened species which have been noted in the general area will not be impacted by the proposed works. The submission by OEH expresses concern that these species have not been adequately targeted as sampling methods have not been defined in the Flora and Fauna Assessment.

The writer of the Flora and Fauna Assessment has responded to the OEH submission, providing more information on sampling methods and defending the conclusions of the report.

It is understandable why OEH would be concerned about the impact on certain threatened species, namely the Green and Golden Bell Frog, the White-fronted Chat and the Coast Groundsel as these have been identified on the neighbouring Australand site and sand dunes. However, both Council's Environmental Scientist and Environmental Science Manager support the findings of the submitted Flora and Fauna Assessment, agreeing that the site is highly degraded and has little habitat value due to clearing and filling activities on the site over many years.

With regards to the works for the wetland augmentation, these works have been designed in consultation with and to the satisfaction of Council's Environmental Science Manager to only encompass the most degraded sections of the Swamp Oak Forest. This forest has only established in the last 20 years on what was previously a saline wetland area. The Swamp Oak Forest that is removed by these works will be replaced with components of the endangered ecological community, Sydney Freshwater Wetlands.

9.7 Flooding and Sea Level Rise

A report by Worley Parsons prepared for the rezoning process was included in the application. This report confirmed that the site was expected to be significantly above the 100 year ARI flood level following the proposed site works and that appropriate water management of surface runoff from the site was needed to ensure that runoff did not cause flood risks outside of the site boundaries. This report recommended that modelling be undertaken as part of any residential subdivision application.

While a flood assessment report has not been provided with the application, modelling has been undertaken in the design of the stormwater management system. The residential development itself is well above the 100 Year ARI flood event levels including predicted climate change. The Collector Road (Road 2) connects to Bate Bay Road at a level above the PMF flood level for the local area.

Furthermore, in a response to concerns raised by OEH, Carndo confirms that:

> '*all internal roads and lots have been designed in accordance with Council guidelines and Australian Standards. The new piped drainage system has been designed to convey minor storms up to the 10 year ARI storm event underground and to convey the 10 to 100 year ARI storm events with the road carriageways at safe flow depths and velocities as prescribed by these standards.'*

With regards to downstream impacts, following consultation with Council the pipe network from the boundary of the site to the downstream discharge point has now been designed to convey the 100 year ARI flow underground. This ensures that the development will not impact on flooding at downstream properties or Captain Cook Drive for events up to the 100 year ARI storm.

9.8 Heritage

9.8.1 Aboriginal heritage

An Aboriginal Archaeological Assessment report by Mary Dallas Consulting Archaeologists, March 2012, has refined previous mapping based on more detailed investigations. Parts of the site which were identified as having high archaeological sensitivity along the north-western boundary and along the south-eastern boundary are now considered as having moderate sensitivity.

This latest assessment has addressed concerns raised by the Office of Environment and Heritage (OEH) during the previous application assessment process. Further consultation with OEH in preparing the March 2012 report has resulted in the report and its recommendations for testing and the lodgement of any Aboriginal Heritage Impact Permit being supported by OEH. The Office recommends that any testing program be discussed with OEH prior to the lodgement for the permit.

9.8.2 State heritage

The allotment consisting of the Don Lucas Reserve (Lot 7304 DP 1130200) extends north to form part of the 'Cronulla Sand Dune and Wanda Beach Reserve'. This is listed as a State Heritage Item under the *Heritage Act 1977*. The Heritage curtilage shares a common boundary with the Shearwater Landing site for approximately 140m along the north-eastern boundary. All of the filling proposed in this northern most area along the boundary will therefore be within the heritage listed area.

The proposal requires approval pursuant to Section 58 of the *Heritage Act 1997* and was referred to the NSW Heritage Office as nominated integrated development. The Heritage Council subsequently granted General Terms of Approval on 20 September 2012.

9.9 Landscaping

The site is located in a highly sensitive environmental area between areas of core bushland. The site has been highly modified in the past but is currently supporting a range of regrowth plant species, both indigenous and exotic. All the existing vegetation is proposed to be removed and the site reshaped and capped. The site will be developed for housing and therefore no survey has been conducted indicating what trees will be impacted by development.

The area affords water and district views and is adjacent the beach. This, in conjunction with the development controls for this site (including a height limit of 9m and a maximum floor space ratio of 0.55:1) results in the expectation that the proposed houses will be large and that the area of building/hard paving/pools will be maximised.

Only a minimal scheme of street trees (one per block, single species per road, in a limited palette of species) was proposed to compensate for the loss of the existing vegetation on the site and footpaths were shown on both sides of the road.

Council's Landscape Architect concluded that '*The current landscape proposal is a minimalist scheme that will result in a subdivision of massive houses and small scale landscape that bears no relationship to its setting*.'

These concerns were discussed with the applicant and the Landscape Architect consultant at a meeting on 26 July 2012. Council's Landscape Architect discussed the different opportunities of providing landscaping more suitable for the development including:

- Planting along one side of the three laneways provided for pedestrian access to the beach.
- Increasing the number of street trees, including providing a mix of species and sizes of trees.
- Providing some tree planting along the boundary with Cronulla High School, the Australand site and Don Lucas Reserve where fencing will be constructed by the applicant.
- Providing a footpath on one side of the road only so as allow for greater plantings on the road verge without a footpath.

These recommendations aim to create more variety and biodiversity, as well as creating a visual and physical link between the new development and the adjoining bushland. A list of suitable species for the site was also provided at this meeting.

Revised landscape plans were subsequently received on 6 August 2012. Only minor changes were proposed including the removal of the footpath, a doubling of trees on Road No.2 and plantings of low shrubs of mixed indigenous/exotic species between the paved footpath and the property boundary. Council's Landscape Architect concluded that '*the design is still essentially single species of street trees at equal centres and in rows, with no trees in the pedestrian ways, no massed planted areas except near the roundabout on Captain Cook Drive and no screen planting within the property frontage or along rear or side boundaries.'*

A number of proposed species are still considered unsuitable for the area, including several exotic species. The street tree proposal remains unacceptable because it does little to break up the scale and bulk of what will be relatively large dwellings, or to provide a sense of place in this environmentally sensitive area.

As the street trees will be dedicated to Council and as some of the plantings assist in addressing other areas of concern including visual impact, a Deferred Commencement Condition (DCC 1.3) has been recommended requiring the preparation of a detailed landscape plan for approval by Council. This condition clearly details the recommended planting scheme including a suitable species list for the three (3) distinct environmental areas.

As there are some existing trees on the development site in areas not impacted by earthworks which could potentially be retained, this condition includes requirements for the preparation of a detailed tree survey and an arborist report.

10.0 SECTION 94 CONTRIBUTIONS

In June 2010, a Voluntary Planning Agreement (VPA) was entered into between Breen Holdings, Australand and Sutherland Shire Council. The VPA was made in lieu of monetary Section 94 contributions. No further s.94 contributions are required.

11.0 DECLARATION OF AFFILIATION

There was no declaration of affiliation, gifts, or political donations noted on the development application form submitted with the application.

12.0 CONCLUSION

The proposed development is for a staged development including the masterplan layout of 161 residential lots and Stage 1 works including the initial development of three (3) existing lots into six (6) super lots, vegetation removal, site remediation, bulk earthworks, construction of associated road and infrastructure, augmentation of the existing wetland basin stormwater treatment facility, landscaping and (if required) installation of a passive gas venting system on part of Don Lucas Reserve at 15R Bate Bay Road, Greenhills Beach, 452 Captain Cook Drive, Greenhills Beach, 405-417 Captain Cook Drive, Kurnell and 31 Lindum Road, Kurnell.

The residential land is located within Zone E4 – Environmental Living pursuant to the provisions of State Environmental Planning Policy (Kurnell Peninsula) 1989. The proposed development, being a subdivision, is a permissible land use within the zone with development consent. The Don Lucas Reserve and wetland basin are within Zone 6(a) - Public Recreation (Existing) under the provisions of the Kurnell Peninsula SEPP. All development within this zone requires consent.

In response to public exhibition eleven (11) submissions were received. The matters raised in these submissions have been discussed in this report and include traffic, loss of views, privacy and construction management. These issues have been dealt with by design changes or conditions of consent where appropriate.

The site is part of a new beachside residential suburb in a highly prominent location. It is also in an environmentally sensitive setting as highlighted by its E4 zoning. The proposal has the unique opportunity to deliver a high quality, ecologically sound, residential subdivision.

It is appreciated that the shape and landform of the site present some challenges in regards to internal design potential, however, it is considered that some design changes are required to alleviate several areas of concern and deliver a better-quality development.

It is considered that following the implementation of the recommended Deferred Commencement Conditions, the development will deliver a high

quality subdivision in a suitably landscaped setting. The resulting development will sit comfortably in its beachside and heritage dune setting and assist in protecting the adjacent world class wetlands with minimal impact on the locality.

As there is insufficient information to assess the impact of any passive gas venting system, approval is not being recommended for this portion of the application.

The application has been assessed having regard to the Heads of Consideration under Section 79C (1) of the Environmental Planning and Assessment Act 1979 and the provisions of State Environmental Planning Policy (Kurnell Peninsula) 1989 and all relevant Council DCPs, Codes and Policies. Following detailed assessment it is considered that Development Application No. 12/0476 may be supported for the reasons outlined in this report.

13.0 RECOMMENDATION

That Development Application No. 12/0476 for a Staged Development Including the Masterplan Layout of 161 Residential lots and Stage 1 Works Including the Initial Development of Three (3) Existing Lots Into Six (6) Super Lots, Vegetation Removal, Site Remediation, Bulk Earthworks, Construction of Associated Road and Infrastructure, Augmentation of the Existing Wetland Basin Stormwater Treatment Facility and Landscaping on Lot 22 DP 226424, Lot C DP 370539, Lot 115 DP 777967, Lot 116 DP 777967 and Lot 7304 DP 1130200 (Nos. 15R Bate Bay Road & 452 Captain Cook Drive, Greenhills Beach and Nos. 405-417 Captain Cook Drive & 31 Lindum Road, Kurnell be approved, subject to the draft conditions of consent detailed in **Appendix A** of the Report.