

environmental assessment report

Northbank Enterprise Hub Pty Ltd Proposed Industrial & Business Park

Property:

Lot 1001 DP 1127780
Tomago Road, Tomago

Applicant:

Northbank Enterprise Hub Pty Ltd

Date:

24 August 2012

Major Project Application Number:

MP10_0185

Volume 1 Report



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Northbank Enterprise Hub Pty Ltd

Proposed Industrial and Business Park

239.7ha site being Lot 1001 DP 1127780 – Tomago Road, Tomago

Environmental Assessment

24 August 2012

**Submission of
Environmental Assessment (EA)**

EA prepared by

Prepared under the Environmental Planning and Assessment Act 1979.

Section 75F

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In respect of

Development Application

Applicant Name:

Northbank Enterprise Hub Pty Ltd

Applicant Address:

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Land to be developed:

Lot 1001 DP 1127780 – Tomago Road,
Tomago

Local Government Area of Port
Stephens

An environmental assessment is
attached.

Environmental Assessment

Certificate

I certify that I have prepared the
contents of this Statement and to the
best of my knowledge:

- It is consistent with Section 75F of the Environmental Planning and Assessment Act 1979;
- The Statement contains all available information that is relevant to the environmental assessment of the development to which the Statement relates; and
- The information contained in the Statement is neither false nor misleading.

Signature:
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Date:

Craig Marler
24 August 2012

EXECUTIVE SUMMARY

Introduction

This Environmental Assessment Report has been prepared by ADW Johnson Pty Ltd to accompany a Project Application to the Department of Planning & Infrastructure for a subdivision to be known as the Northbank Enterprise Hub.

The preparation of the Environmental Assessment Report has been undertaken in accordance with the following:

- The Director-General's Requirements (Ref: MP 10_0185);
- In consultation with relevant Government Agencies & the community;
- In response to correspondence received from the NSW Department of Planning and Infrastructure dated 31 March 2011 following its adequacy review of the original Environmental Assessment submitted in December 2010; and
- In response to correspondence received from the NSW Department of Planning & Infrastructure dated 14 March 2012 following a second adequacy review of the amended Environmental Assessment Report submitted in December 2011.

The purpose of the Environmental Assessment Report is to alert members of the public and the decision-maker to the potential environmental impacts and community consequences of the proposal.

Background

ADW Johnson has been engaged to assist Northbank Enterprise Hub Pty Ltd (previously known as WEPL Investments Pty Ltd) to obtain Project Approval to develop the remainder of its Tomago landholding identified as Lot 1001 DP 1127780 for the purpose of an industrial and business park subdivision. On the adjacent Northbank Enterprise Hub Pty Ltd land to the north east of the site is a Part 3A Project Approval for the establishment of WesTrac Headquarters for NSW, an industrial subdivision and bulk earthworks (Project Approval 07_0086). The current project has been designed to integrate with the existing approval to form a consolidated subdivision to be known as the Northbank Enterprise Hub.

The approval relating to the adjoining lands required as a condition of consent (Schedule 3 Condition 1 of Project Approval 07_0086) the redesign of that subdivision to account for land handed back as conservation. This redesign has been incorporated into the plans included with this Project Application, but is not part of the current Project Application. It has been confirmed by the NSW Department of Planning and Infrastructure that assessment of compliance with this condition will be handled separately.

A Development Application (DA 363/2010) was previously approved by Port Stephens Council for demolition of the four (4) existing dwellings on the subject site. Demolition has been completed.

A Development Application (DA 509/2010) was also previously approved by Port Stephens Council for an Advertising Sign informing the public of the impending development of Lot 1001. The sign has been constructed.

Currently Northbank Enterprise Hub Pty Ltd maintain the site in suitable condition for grazing, consistent with its previous history.

The Site

The site is described as Lot 1001 DP 1127780, and is located off Tomago Road, Tomago. The development site comprises a total area of approximately 239.7 hectares.

The Proposed Development

The proposal is for an industrial and business park subdivision. The details of the proposal are as follows:

- To fill the majority of the site to the 1:100 year flood level (fill area approximately 3.7 million cubic metres).
- A staged subdivision of the land for the purpose of an industrial and business park estate. The design of the subdivision is intended to provide flexibility for future occupants of the site (currently unknown).
- The total developable area of the site is approximately 154ha.
- The provision of two (2) new intersections from Tomago Road and a new internal road network to access all allotments.
- The provision of new servicing to the land including the relocation of the existing power lines that traverse the site along a portion of the Tomago Road frontage.
- New drainage and water quality management infrastructure. Proposed site drainage has been specifically designed to protect the wetlands to the south of the site.
- The provision of overflow wetland rehabilitation area at the southern section of the site.
- Retain undeveloped lands appropriate for conservation offset.
- New landscaping throughout the site including public open space areas at the south western (Riverside Park), north western (adjacent to Tomago house) and southern sections of the site. A public open space area towards the southern boundary, to be known as 'Gunner Heritage Park has been designed to retain four (4) former WWII anti aircraft gun emplacements and an underground command post.

The Site Zoning & Development Application Process

The site is identified as a State Significant Site under Schedule 3, Part 10 Tomago Industrial Site of State Environmental Planning Policy (Major Development) 2005.

The subject land is zoned *IN1 General Industrial* zoning under SEPP (Major Development) 2005. The proposal is defined as “subdivision” and is permissible within the IN1 General Industrial zone with consent.

The Minister’s (Clause 6) Opinion was received on 15 October 2010, indicating that the proposed development was a Major Project, to which the Major Development SEPP (and Part 3A of the Act) applies. The Director-General’s Requirements (Ref: MP 10_0185) were provided on 20 October 2010, and have been addressed in this Environmental Assessment Report. A copy of the Clause 6 Opinion and DGRs are located within **Appendix A** and **B** respectively.

The Project Application is lodged with the Department of Planning under the provisions of Part 3A of the Environmental Planning and Assessment Act 1979 (as amended). Whilst Part 3A of the EP&A Act 1979 has been repealed it continues to apply to this proposal on the basis of transitional arrangements.

Consultation

In establishing the environmental parameters and scope of this project, consultation was undertaken with key agencies including the NSW Department of Planning and Infrastructure; the NSW Environment Protection Authority (formerly the Office of Environmental & Heritage and the NSW Department of Environment, Climate Change and Water); Port Stephens Council; Newcastle City Council; Energy Australia; Hunter Water Corporation; NSW Roads and Maritime Services; NSW Department of Primary Industries; NSW Heritage Office; Jemena; The NSW Heritage Office; the Kooragang Wetlands Rehabilitation Project (Hunter-Central Rivers Catchment Management Authority) and The Commonwealth Department of Sustainability, Environment, Water, Population and Communities. The consultation was undertaken in accordance with the Director-General’s Requirements (Ref: MP 10_0185).

Consultation was also undertaken with adjoining and nearby landowners; the National Trust and ‘Friends of Tomago House’; Woromi Local Aboriginal Land Council; Tomago Aluminium; Hunter Bird Observers Club; and Community Group Members associated with the Part 3A approval on adjoining land to the north east. A public notice inviting comment from the general public was also placed in the Newcastle Herald (20/11/10) and the Port Stephens Examiner (25/11/10).

Key Environmental Investigations

Detailed investigations of the existing environment and the potential impacts of the proposed development have been undertaken. Specialist consultant reports were commissioned where necessary. The key issues addressed as part of this Environmental Assessment Report include the following:

- Flora and Fauna;

- Aquatic Ecology;
- Flooding;
- Groundwater;
- Stormwater and Water Quality Management;
- Traffic & Access;
- Heritage;
- Historical Archaeology;
- Aboriginal Archaeology;
- Geotechnical and Contamination;
- Infrastructure;
- Landscaping;
- Acoustics;
- Air Quality;
- Soil Erosion;
- Visual;
- Waste management;
- Hazards and Risks;
- Aesthetics;
- Site layout and design; and
- Relevant legislation including strategic and statutory context.

Justification for the Proposed Development

The Project Application for subdivision (with associated land filling, roads and services) covering some 239.7ha of land is important to NSW in terms of economic investment and employment generation and seeks to fulfil the objectives of the Lower Hunter Regional Strategy. The proposal will also achieve the intent of the IN1 General Industrial zoning as prescribed by SEPP (Major Development) 2005.

Northbank Enterprise Hub Pty Ltd is committed to achieving this outcome together with managing important environmental and heritage issues. Northbank Enterprise Hub Pty Ltd seeks a quality built outcome beyond that of a typical industrial subdivision.

Northbank Enterprise Hub Pty Ltd has a track record of delivering large projects such as the WesTrac proposal on the adjoining land to the north east. With all of the Tomago employment lands as identified under the Lower Hunter Regional Strategy under the one ownership of Northbank Enterprise Hub Pty Ltd there is substantial opportunity to deliver a well planned and integrated outcome of benefit to all.

Structure of the Environmental Assessment Report

This Environmental Assessment Report is structured in accordance with, and contains the information sought by the Director General's Requirements. The Environmental Assessment Report contains descriptive and summarised text with appropriate comment, while the appendices contain the detailed specialist assessment reports.

Section 1 – Provides the background to Northbank Enterprise Hub Pty Ltd and the proposed development. The objectives of the proposal are described, and an outline, in table format, of compliance with the Director General's Requirements is provided.

Section 2 – Describes the proposed subdivision. A detailed description of the proposal, including associated filling and earthworks, roads and services to be provided.

Section 3 – Provides the property description and owner's details, as well as a detailed site analysis and an overview of the existing environment.

Section 4 – Provides the planning context for the proposed development, as described in Section 2, including the relevant Commonwealth, State, Regional and local legislation and planning controls.

Section 5 – Describes how the project team identified the key issues associated with the proposal. This section outlines the consultation undertaken, and lists the project team and the specialist studies that were undertaken as part of the project.

Section 6 – Investigates, and makes assessment of, in accordance with the DGRs, the key environmental issues associated with the site and the proposed development. This section generally summarises the assessment and findings of the specialist consultant reports which are contained in the appendices to the report.

Section 7 – This section provides a summary of the proposed development "Statement of Commitments", and demonstrates how the proposal and the environmental safeguards will be implemented and managed in an integrated and feasible manner.

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List of Abbreviations

ACM	Asbestos Containing Material
ADWJ	ADW Johnson Pty Ltd
AHD	Australian Height Datum
AQIA	Air Quality Impact Assessment
BCA	Building Code of Australia
CDSEWPC	Commonwealth Department of Sustainability, Environment, Water, Population and Communities
DA	Development Application
DCP	Development Control Plan
DECCW	Department of Environment, Climate Change and Water
DG	Director-General
DoPI	Department of Planning & Infrastructure
DP	Deposited Plan
EA	Environmental Assessment
EAR	Environmental Assessment Report
EMP	Environmental Management Plan
EMRP	Environmental Management & Rehabilitation Plan
ENM	Excavated Natural Material
EPA Act	Environmental Planning and Assessment Act 1979
EPA Reg	Environmental Planning and Assessment Regulation 2000
EPBC Act	Environmental Protection and Biodiversity Conservation Act 1999
ESCP	Erosion and Sediment Control Plan
ESD	Ecologically Sustainable Development
GTA	General Terms of Approval
INP	Industrial Noise Policy
LEP	Port Stephens Local Environmental Plan 2000
LGA	Local Government Area
MSB	Mine Subsidence Board
OEH	Office of Environment & Heritage
PSC	Port Stephens Council
PA	Project Application
NIA	Noise Impact Assessment
PHA	Preliminary Hazard Analysis
RAP	Remedial Action Plan
REP	Regional Environmental Plan
RFS	New South Wales Rural Fire Service
RL	Relative Level
RMS	Roads and Maritime Services

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1.0 Introduction

1.1 BACKGROUND

In February 2001, Premier Bob Carr visited Newcastle to launch the Austeel project, which was to involve construction of a steel plant on 150ha of land between the Hunter River and Tomago House and involved the site which is the subject of this report. It was proposed to transport processed iron from Western Australia to the Tomago plant, which would produce steel for domestic and overseas markets. This proposal never proceeded.

In 2005 the whole of the subject lands now owned by Northbank Enterprise Hub Pty Ltd were identified by the Lower Hunter Regional Strategy as being important employment lands for the region. In 2006 an MOU was signed between the then landowner RLMC (now Hunter Development Corporation), the Minister for the Environment and the Minister for Planning to jointly pursue a development and conservation outcome at Tomago. Some 263.3 hectares of land have been offset for conservation following this agreement.

The importance of Tomago employment lands culminated in the site being declared a State Significant Site in 2007. Northbank Enterprise Hub Pty Ltd purchased the lands zoned industrial after this process.

Northbank Enterprise Hub Pty Ltd identified Tomago as being an ideal location to house their substantial tenant WesTrac. Northbank Enterprise Hub Pty Ltd first purchased adjoining lands to the east from Hunter Development Corporation (HDC) and obtained approval to establish WesTrac and an industrial subdivision on 7 August 2009 (Project Approval 07_0086). Bulk earthworks have been completed for the WesTrac facility and building construction is underway.

During the process of obtaining the existing approval Northbank Enterprise Hub Pty Ltd became interested in securing Lot 1001 (subject site) and were ultimately successful in purchasing the land from HDC in February 2010. It is considered that the purchase of Lot 1001 is of significant benefit to long term planning objectives for the region. The one ownership will allow an optimum outcome through the ability to masterplan the whole site.

A Development Application (DA 363/2010) was previously approved by Port Stephens Council for demolition of the four (4) existing dwellings on Lot 1001. Demolition has been completed.

A Development Application (DA 509/2010) was also approved by Port Stephens Council for an Advertising Sign informing the public of the impending development of Lot 1001. The sign has been constructed.

Currently Northbank Enterprise Hub Pty Ltd maintain the site in suitable condition for grazing.

1.2 OBJECTIVES OF THE PROPOSAL

The primary objective of the proposed subdivision is to provide a large and flexible estate that will satisfy the objectives of the Lower Hunter Regional Strategy. The Strategy identifies a need for a

continued supply of industrial land in order to support the regional economy, and provide business and employment opportunities for the growing population. The use of the subject land for the purpose of an industrial and business park estate is entirely consistent with both the Lower Hunter Regional Strategy as well as the land use zoning of the site.

The proposed subdivision has been designed to be integrated with the adjoining Part 3A Project approved subdivision to the north east. The site is well located within an area characterised by both established and approved emerging industrial development. The site is located in close proximity to the Port of Newcastle and major transport route the Pacific Highway enabling access to Maitland and Sydney.

1.3 COMPLIANCE WITH THE DIRECTORS-GENERAL'S REQUIREMENTS (REF: MP 10_0185)

The Director General's Requirements compliance table located at **Appendix B** outlines where the Director-General's Environmental Assessment Requirements for the project have been addressed in this report and its appendices.

It is ADW Johnson's view that the Director-General's Requirements have been adequately addressed within this report and within the annexed specialist reports. The adequacy of this is to be determined by the consent authority and relevant Government authorities.

2.0 Description of the Proposed Development

2.1 DESCRIPTION OF DEVELOPMENT

2.1.1 Summary Description

The proposed development is for a subdivision and associated filling and earthworks, roads and services to be known as the Northbank Enterprise Hub.

The proposal has been designed to be integrated with the adjoining Northbank Enterprise Hub Pty Ltd Part 3A approved industrial subdivision (Project Approval 07_0086) to the north east. It is understood that compliance with Schedule 3 Condition 1 of Project Approval 07_0086, which requires a subdivision redesign, will be assessed by the NSW DoPI separately.

Approval is sought from the NSW Minister for Planning for a Project Application pursuant to Part 3A of the NSW EP&A Act 1979. The Minister for Planning has confirmed that the proposal is a Major Project to which Part 3A of the Act applies (see Clause 6 Opinion attached at **Appendix A**).



Figure 1 – Plan of Proposed Subdivision.

2.1.2 Detailed Description of Proposal

The proposed development is for the following:

- To fill the majority of the site to the 1:100 year flood level (fill area approximately 3.7 million cubic metres).
- A staged subdivision of the land for the purpose of an industrial and business park estate. The design of the subdivision is intended to provide flexibility for future occupants of the site (currently unknown).
- The total developable area of the site is approximately 154ha.
- The provision of two (2) new signalised intersections from Tomago Road and a new internal road network to access all allotments.
- The provision of servicing to the land including the relocation of the existing power lines that traverse the site along a portion of the Tomago Road frontage.
- The establishment of a minimum 380m buffer zone to adjoining RAMSAR wetlands.
- Drainage and water quality management infrastructure. The proposed site drainage system has been specifically designed to protect the wetlands to the south and south east of the site.
- Retained freshwater wetland and swamp oak rushland forest and retain undeveloped lands appropriate for conservation offset.
- The provision of an overflow wetland rehabilitation area at the southern section of the site.
- Landscaping throughout the site including public open space areas at the south western (Riverside Park), north western (adjacent to Tomago house) and southern sections of the site. A public open space area towards the southern boundary, to be known as 'Gunner Heritage Park' has been designed to retain four (4) former WWII anti aircraft gun emplacements and an underground command post.

At this time no specific use of the land is proposed and the future uses would be subject to separate future approval.

2.1.3 Detailed Description of Components

The following provides a detailed description of the various components of the development.

Staging & Estimated Construction Timeframe

The proposed development will be constructed in four (4) stages as indicated in **Figure 2** below (also refer to the development plans provided in **Appendix C**). The staging plan has been prepared with consideration to commensurate facilities including water quality assurance, infrastructure and road access (intersection) requirements.

The proposed development will be constructed in response to market demand for industrial land and it is anticipated that the development will commence within a few years and continue over some twenty years.

Stage 1

The development will commence in the eastern section of the site with Stage 1 proposed to adjoin the existing approved development on the adjacent land to the north east. Stage 1 traffic is intended to access the site from the approved intersection constructed as part of the existing approved development on the adjacent land to the north east (Project Approval 07_0086). This arrangement will be subject to future traffic analysis prior to commencement of Stage 1 construction works to ensure that adequate capacity is available at the intersection (see Section 6.10 of this report).

The major drainage line which will extend through the eastern and southern sections of the site will be constructed as part of Stage 1. This will ensure that adequate infrastructure is in place to address stormwater and drainage and protect the wetlands to the south of the site. This matter is further detailed within Sections 6.5 and 6.22 of this report. Landscaping associated with the drainage line will also be completed as part of Stage 1 works.

Stage 1 will also include the establishment of new roads, drainage infrastructure and landscaping.

It is estimated that Stage 1 will take 18 months to construct.

Stage 2

Stage 2 will be located to the west of Stage 1 and to the east of the Tomago House landholding. Stage 2 will have frontage to Tomago Road and extend to the south towards the centre of the subject site.

Stage 2 will involve the construction of the proposed central intersection into the Northbank Enterprise Hub and extension of the road network from Stage 1.

Drainage infrastructure and landscaping will also be incorporated into Stage 2.

The north western section of Stage 2 will include a curtilage area (suitable for sympathetic development in respect to Tomago House and Chapel) that has been identified within the Statement of Heritage Impact provided within **Appendix I** and discussed further within Section 6.7 of this report.

It is estimated that Stage 2 will take 18 months to construct.

Stage 3

Stage 3 will be located to the south of Stage 1 and south east of Stage 2. Roads from Stages 1 and 2 will be extended through Stage 3. Drainage lines and associated landscaping from Stage 1 will also be extended through Stage 3 to connect to the primary Stage 1 drain which will be already constructed along the southern boundary of the site.

Stage 3 will also incorporate the development of 'Gunner Heritage Park', which will contain the former WW11 anti aircraft battery items. This matter is discussed further in Section 6.7 of this report.

It is estimated that Stage 3 will take 18 months to construct.

Stage 4

Stage 4 will be the final stage of the development and be located to the west of Stages 2 and 3 and the Tomago House land. The Tomago Chapel land and easement from the Tomago House land connecting to the Chapel land are located in the northern corner of Stage 4. A curtilage area (suitable for sympathetic development in relation to Tomago House and Chapel) to protect the heritage value of these items will be incorporated into the northern section Stage 4. The curtilage area is shown within the Statement of Heritage Impact provided within **Appendix I** and is discussed further within Section 6.7 of this report.

Stage 4 will involve the construction of the western intersection into the Northbank Enterprise Hub and involve the extension and completion of the integrated internal road network.

Stage 4 will also involve drainage works and associated landscaping being extended from Stage 2 and involve the completion of the remaining drainage works for the Northbank Enterprise Hub.

Stage 4 will also involve the development of a public park and sporting ground at the southern section of the land.

It is estimated that Stage 4 will take 18 months to construct.

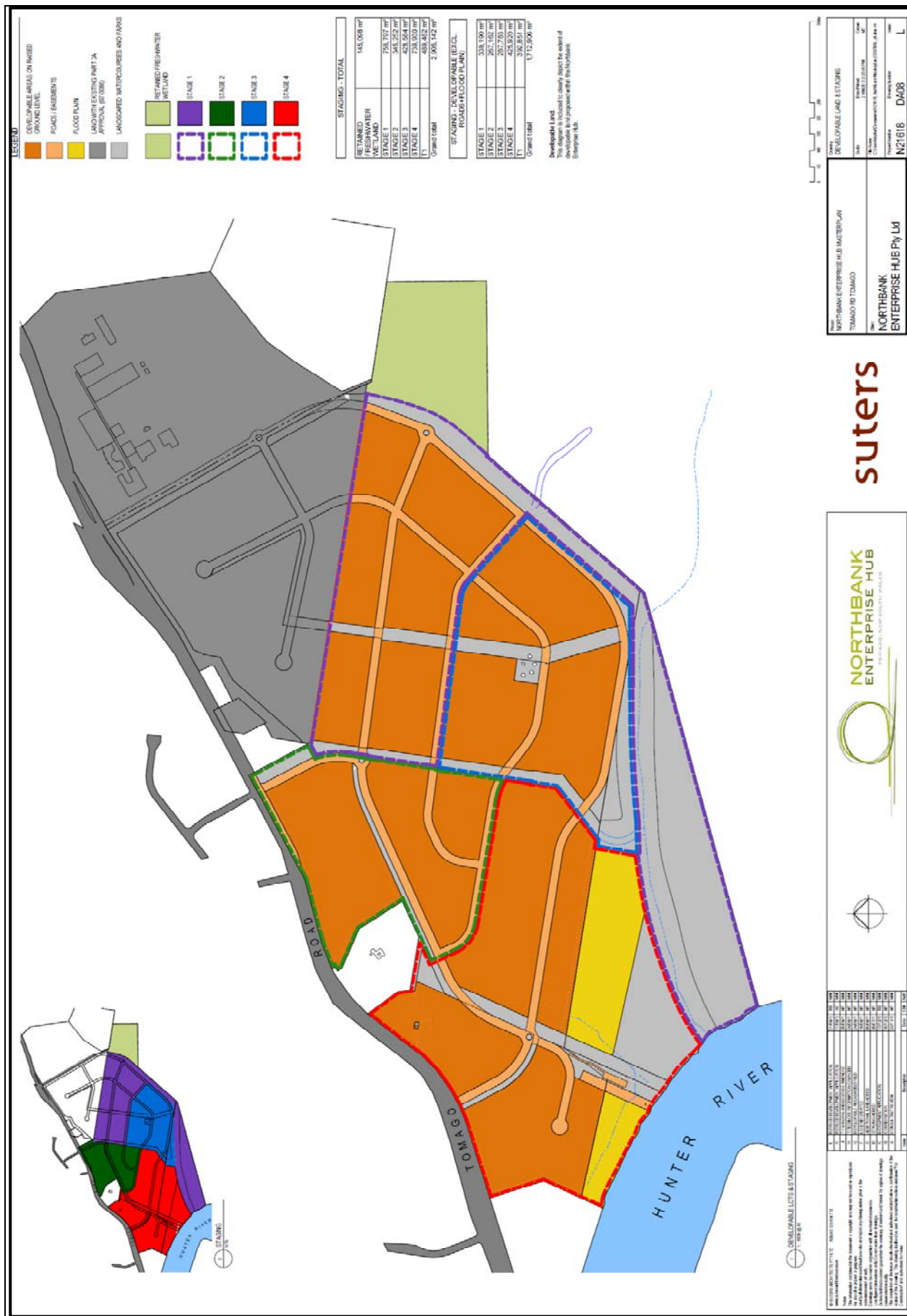


Figure 2 – Proposed Staging Plan.

Filling & Earthworks

The majority of the site will be filled to the 1:100 year flood level excluding a number of key areas including a heritage park (ensuring retention of heritage items at existing ground level), a significant area adjacent to the Hunter River to be maintained for the purpose of flood way and as a riverside open space area. Approximately 3.7 million cubic metres of fill is required to be imported onto the site.

It is proposed only to use Virgin Excavated Natural Material (VENM) or Excavated Natural Material (ENM) for the purpose of filling in order to ensure a high quality of fill material that will not result in any potential leaching of contaminants to wetlands adjacent. The proposed excavated natural material to be used as fill on site will comply with "Protection of the Environment Operations (Waste) Regulation 2005 – General Exemption Under Part 6, Clause 51 and 51A, The excavated natural material exemption 2008". The excavated natural material will be sourced from a compliant processor and will be applied to the land in a reasonable period of time with relevant records held for three years. Fill specification by geotechnical engineers and volumes associated with staging will be reviewed for compliance prior to undertaking any earthworks import. The need for Resource Recovery Exemptions and/or further approvals will be determined at this time. An example fill source supplier used on Stage 1 of the MP07_0086 site adjacent to Lot 1001 was sand from 'Macka's Sand' at nearby Salt Ash.

All material will be transported to the site via road (truck and dog). This is a process that will occur over a number of years and at different staging intervals as market demand for land dictates.

The following identifies the fill quantity required per stage and the estimated truck and dog movements:

- Stage 1 fill quantity – 1,557,201m³
Stage 1 truck and dog movements – 105,140
- Stage 2 fill quantity – 594,752m³
Stage 2 truck and dog movements – 39,650
- Stage 3 fill quantity – 815,173m³
Stage 3 truck and dog movements – 54,270
- Stage 4 fill quantity – 741,677m³
Stage 4 truck and dog movements – 49,316

The work method used to fill the site will be to preload for consolidation. Geotechnical advice in this regard indicates that 1-2m stockpile depths of preload material will result in acceptable consolidation rates. Soil and water management will be an important consideration during the earthworks for the protection of the receiving waters downstream.

Earthworks will result in appropriate finished surface levels directed to drainage channels created as a preference by filling rather than excavation in order to avoid acid sulphate soil exposure.

Subdivision Design

The proposed subdivision was developed after a detailed analysis of all site constraints and in consideration of a logical method of staging and construction. Whilst the proposed subdivision shows a number of lots of varying sizes the design purposefully allows for a range of combinations by consolidating lots as needed. In general, based on land enquiry at this time, it is anticipated that larger lots will be attractive to future occupants.

Access and Roads

The basis of the design is a series of circular roads that will integrate the subject land with the adjoining Part 3A approved subdivision and WestTrac facility. All allotments will be provided with access from these internal roads, no direct property access from Tomago Road is proposed to ensure efficiency and safety is maintained. In addition to accessing the approved intersection on the adjoining land two additional access points are required and proposed in order to cater for anticipated traffic movements in and out of the subdivision. The central intersection is proposed to be constructed as part of Stage 2 and the western intersection is proposed to be constructed as part of Stage 4. It is noted however that these new intersections would be constructed on an as needs basis based on demand and their design may vary over time with the ultimate outcome being a signalised intersection at each access similar to that already approved on the adjoining land. These intersections will be compliant with RMS standards and will require their approval.

Internal roads are proposed to be a generous 26m wide carriageway allowing for a 15m wide paved carriageway and 5.5m wide footways each side. These dimensions exceed standard design requirements including Port Stephens Council minimum standard of 13m paved carriageway. The footway widths permit good opportunity for appropriate street tree planting.

Flooding, Drainage and Water Quality (and balance) Management

The flat low lying topography, flood environment, existing drainage patterns and adjoining wetlands have been significant considerations in the design of the proposed development. Appropriate area has been retained for floodway and drainage catchments have been determined with necessary drains of the appropriate width to cater for a range of conditions. Reporting has been completed on: Stormwater Management (Best practice water quality improvement), local flooding and regional flooding – BMT WBM, Groundwater Modelling, Aquatic ecology, Flora and Fauna, Acid Sulphate Soils Management Plan and wetlands interface. The following is noted:

- Considerable setback of the development from the Hunter River boundary has been provided to minimise regional flooding impacts off site. All of the developed site building areas has flood immunity to the 1:100 year Hunter River flows. Refer to Section 6.4 of this EA Report and the Flood Reporting supplied in **Appendix F**.
- Local flood modelling outcomes demonstrates adequacy of the proposed drainage corridors to cater for 1:100 year flows. Refer to Section 6.4 of this EA Report and the Flood Reporting supplied in **Appendix F**.
- Stormwater Management modelling demonstrates best practice management has achieved target pollutant removal requirements for stormwater runoff with treatment controls improving water quality discharge to the adjoining wetlands and Hunter River. Refer to Section 6.5 of this EA Report and the Stormwater Assessment provided in **Appendix G**.
- Groundwater Modelling outcomes indicate closely matched potentiometric contours of groundwater comparing existing to post development conditions. Refer to Section 6.13 of this EA Report and **Appendix U**.
- Aquatic Ecology outcomes indicate although the existing man made drains are considered to be low to moderate habitat on site there is no net loss of fish habitat. Refer to Section 6.3.2 of this EA Report and **Appendix E**.
- Acid Sulphate Soils Management Plan demonstrates that acid sulphate soils can be managed. Refer to Section 6.13 of this EA Report and **Appendix V**.

Significant attention to site design for stormwater and groundwater has been made on flora and fauna and the wetland interface strategy with the adjoining wetlands having the following key points:

1. Buffer zone setback from RAMSAR ranging from a minimum of 380m to approximately 2km.
2. Maintain hydrological pathways, post development mimicking existing conditions.
3. A freshwater wetland (currently brackish) area of approximately 12.5 hectares conserved as undisturbed area within Lot 1001 adjacent to the development layout.
4. Future opportunity, for assessment by others, to add part of Lot 1001 to the area of the Tomago Wetland Rehabilitation Project (TWRP) via tidal inundation from the North South Drain. This will increase the coastal saltmarsh habitat by a further 13.2 hectares (current Stage 2 works at the time of writing is a further 55 hectares with floodgate installation).
5. An additional 10 hectares of overflow wetland rehabilitation area (freshwater wetland) within Lot 1001 replacing existing pasture grass of no environmental value.
6. Creation of frog habitat and other species associated within all freshwater wetlands of Lot 1001. This area may be of benefit located on the fringe to the TWRP providing frog

relocation opportunity from the areas being tidally inundated with saline conditions not suiting frogs.

7. Enhancement of the TWRP, allowing restoration of the coastal saltmarsh and control over freshwater inundation of groundwater and surface water from the upstream catchment.
8. Discharge Points to remain through the levee at all existing discharge locations to Lot 1002. Initially proposed to be set in the position of continuing stormwater discharge matching pre to post development flow regimes. The discharge points will include pits installed with adjustable valve outlets for adaptive management options in the future.
9. Existing SEPP 14 wetland of Swamp Oak Rushland forest marginally encroaching the south eastern boundary of Lot 1001 site to be retained undisturbed.
10. Retain groundwater regime over the boundary of Lot 1002 to the Groundwater Dependent Ecosystems.
11. Majority, any excess overflow freshwater (stormwater and groundwater) discharge to the Hunter River Estuary.
12. The perimeter berm along the boundary shall be a crest level of 2mAHD adjacent to the filled development area for conveyance and the crest reduce to 1.2mAHD along the southern boundary where there is no filling works adjacent. Open drainage shall be excavated on the internal edge. The total width comprising approximately 35m riparian zone width of the setback from Lot 1001 boundary, perimeter berm, open drain excavation, overbank channel width and fill embankment to a minimum road verge height of 2.5mAHD.
13. A clear delineation point for TWRP consistent with NPWS aligning to private property boundaries.
14. Soil and Water Management Plan, including erosion and sediment control as part of the Construction Environmental Management Plan (CEMP) required with each stage of development.
15. Management and Monitoring plans of stormwater, groundwater and wetlands all within Lot 1001.

Flora and Fauna assessment is described further in Section 6.3.1 of this EA Report and **Appendix D**. The Wetlands assessment is contained in Section 6.22 of this EA Report.

Heritage Consideration

In terms of European Heritage, Statement of Heritage Impact investigations and a Historical Archaeological Assessment have guided the design of the proposed development in relation to important heritage items on the site and adjoining the site.

The subject site contains four (4) former WWII anti aircraft gun emplacements, an underground command post and three (3) ammunition bunkers. The proposed development has been designed for the four (4) former WWII anti aircraft gun emplacements and the underground command post to be retained in a public open space park to be known as 'Gunner Heritage Park'. This will ensure that the items are well maintained and will significantly increase the public awareness of these items.

Adjoining the subject site to the north are the Tomago House and Chapel sites which are listed within the NSW State Heritage Register. The proposal has been designed to ensure that an appropriate curtilage around these items is established including a green buffer zone around Tomago House. The design of the proposal also ensures that view corridors between Tomago House and the Hunter River are enhanced through the retention of a vista between the river and Tomago House which would have originally been a main access to the estate.

These matters are further addressed in Sections 6.7 and 6.8 of this report.

An Aboriginal Heritage Impact Assessment has been prepared by McCardle Cultural Heritage. The investigation identified two (2) sites (both shell middens) and a Potential Archaeological Deposit (PAD) at the northern corner of the site. Measures will be implemented to suitably manage these areas. This matter is further addressed in Section 6.9 of this EA Report.

Landscaping

The proposed subdivision design has provided for significant landscape opportunity throughout the site including along roadways, drainage channels as well as formal and informal open space areas. The proposal incorporates two (2) new public open space parks including:

- A riverside park (south western section of the site) which will be a major open space for the subdivision and provide a range of spaces for active and passive recreational activities.
- Gunner Heritage Park which, as noted above, will contain the WWII former anti aircraft emplacements and underground command post.

The proponent desires to create a landscape outcome that will reflect the intention for a quality development.

Servicing

All major services including water, electricity and sewer will be extended to service the subject land.

It is proposed to relocate the existing power line and easements that traverse the site to ensure the most efficient use of the land for development purposes. The existing power

line that extends across the northern section of the site (from the adjoining Part 3A approved land to the north east) is proposed to be relocated to extend along a section of the Tomago Road frontage.

Several meetings have been held with Ausgrid (formerly Energy Australia) in this regard, and they are supportive of the concept (see the consultation records in **Appendix R**). It is intended that the relocation will comply with Ausgrid's standards and specifications. The submitted plans show the relocated power line. A similar relocation process was undertaken on the adjoining proponent owned land.

Site Layout & Design

As noted above, the layout and design of the proposal has been developed following detailed analysis of all site constraints and a logical method of staging and construction. This has resulted in the proposed positioning of the developable allotments within the site; the layout of proposed roads; the location of proposed drainage and water quality measures within the site; the location of services; the areas of the site identified for landscaping; and the creation of a setback from the RAMSAR wetlands ranging from 380m to approximately 2km.

Provided in **Appendix N** are 'Development Guidelines for Future Development of the Northbank Enterprise Hub'. The guidelines have been specifically designed for the development of the Northbank Enterprise Hub and seek to guide the creation of a quality subdivision both in terms of built form and landscaped outcomes. The guidelines provide specific direction for the following:

- Boundary setbacks;
- Measures for the activation of Tomago Road;
- Street character;
- Building bulk, scale and height;
- Building design;
- Access and carparking;
- Development within the vicinity of Tomago House and Chapel;
- Landscaping;
- Drainage and water quality management;
- Safer by design considerations;
- Fencing; and

- Open work / storage areas.

In terms of lot size, the subdivision has been designed specifically to provide a number of varying lot sizes. It is the proponent's intention that significant flexibility needs to be made available for future (unknown) occupants of the Northbank Enterprise Hub. It is considered that flexible larger lots, will be attractive to future occupants. The subdivision has been designed in a manner that will allow for this to occur through lot consolidation if needed.

In relation to setbacks for development within the Northbank Enterprise Hub, the guidelines provided in **Appendix N** recommend a general front building line setback of 6m. The basis of this recommendation is to ensure that adequate area is available at the front of buildings to accommodate satisfactory landscaping, access, parking and manoeuvring of vehicles, and to reduce the visual impact of industrial development on the streetscape.

The guidelines further recommend that side setbacks should be in accordance with the provisions of the Building Code of Australia and that buildings must be set back a minimum of 1.5 metres from adjoining any drainage reserve land boundary.

In terms of corner sites, the guidelines recommend a front setback (to the primary frontage) of 6m and a side setback of 3m 'provided that the setback is appropriately landscaped'.

Specific setbacks have also been provided within the guidelines to ensure the future activation of Tomago Road. It is the proponent's intention to ensure that the Northbank Enterprise Hub is an attractive development when viewed from Tomago Road. To achieve this, the guidelines recommend that development should be set back a minimum of 10m from Tomago Road; the first 5m of this setback should be appropriately landscaped; vehicular access and carparking should be provided in a manner so that it is generally not visible from Tomago Road; and security fencing should be provided behind the vegetation buffer.

It is considered that the application of these setbacks, which are typically standard for industrial development; will allow for a consistent and tidy theme to be established throughout the subdivision and will allow for the creation of attractive development when viewed from Tomago Road.

The proposed Northbank Enterprise Hub will remain consistent with the broader urban design framework of the locality. The site analysis plan provided in Figure 3 of this EA Report provides an aerial image of the locality. The local area is characterised by well established industrial development from the intersection of Tomago Road with the Pacific Highway through to the subject site and extends further west past the subject site. Within this area is 'Tomago Aluminium' which is a major industrial development in the Tomago locality. Tomago Aluminium is located to the north west of the site. Adjacent to the north / east of the subject site is land subject to Major Project Approval 07_0086 and includes the development of a substantially sized WesTrac facility.

There is significant industrial development on either side of the site and along Tomago Road. The proposal seeks to develop a quality industrial subdivision that will remain consistent with the adjoining industrial uses. In fact, given that the proposal has been designed to be integrated with the adjoining lands (Part 3A Approval 07_0086) to the north east and that future development will be subject to a range of site specific design recommendations (as provided in the Development Guidelines in **Appendix N**), it is considered that the proposal will result in an industrial development that will remain consistent with and significantly contribute to the urban design framework of the local area. This will remain consistent with the intentions of the Lower Hunter Regional Strategy and is further addressed in Section 4.5.1 of this EA Report.

2.2 CONSIDERATION OF ALTERNATIVES

Site Selection Alternative Considerations

As previously referenced the subject land is in the same ownership as the adjoining Part 3A approved land to the north east, being Northbank Enterprise Hub Pty Ltd (formerly Redlake Enterprises Pty Ltd). It was a logical decision for the proponent to obtain the subject land from HDC in February 2011 when it became available for purchase based on the following:

- Ownership of the site would allow for a comprehensive masterplan for the Northbank Enterprise Hub lands to be developed by a single owner. This will result in an efficient design in terms of servicing, lot layout and road design and allow optimal ecological outcomes to be achieved;
- The site is zoned for industrial purposes, permitting the proposed development;
- The development would facilitate the objectives of the Lower Hunter Regional Strategy for the creation of employment lands;
- The site is located with good access to the Pacific Highway, New England Highway, F3 Freeway, Newcastle Airport and Newcastle Harbour;
- The site area is suitable for the proposed industrial and business park subdivision, and the substantial size and ability to integrate with the adjoining Northbank Enterprise Hub Pty Ltd approved industrial subdivision allows for the development of appropriate synergies and an integrated well planned outcome;
- With good management practices the site has few physical or environmental constraints to development; and
- Given the extensive studies that Northbank Enterprise Hub has undertaken on the adjoining land associated with Part 3A Approval 07_0086, an extensive understanding of the locality and local environment has been achieved by the proponent.

There were no other suitable sites in the locality identified by Northbank Enterprise Hub Pty Ltd containing all of the above characteristics and as a result, the site was acquired by Northbank Enterprise Hub Pty Ltd.

The alternative of not proceeding with the development would result in the continued use of the land for grazing and would not see the employment and economic land use outlined under the Lower Hunter Regional Strategy realised.

Alternative Design Considerations

The final design of the Northbank Enterprise Hub presented in the development plans in **Appendix C** was produced following a substantial design process and input from a number of specialist environmental consultants. A series of concept structure plans were developed and explored based on vehicular access and each plan offered different responses related to development staging, buffers & setbacks, traffic movement and land use. The concept structure plans considered are provided within **Appendix T** of this EA Report.

The chosen design layout was selected on the following basis:

- Its setbacks and overall ability to protect adjoining wetlands;
- A primary road link is established through the site with appropriate access points to Tomago Road allowing for excellent vehicular access. This matter is discussed further in Section 6.10 of the EA Report;
- The design will allow for the existing European heritage to be maintained and enhanced. In particular through the provision of appropriate curtilage around Tomago House and Chapel and the creation of 'Gunner Heritage Park' which will provide public access to former WW1 anti aircraft battery which are not currently available to the public. These matters are addressed further in Section 6.7 of this EA Report;
- The design of the subdivision allows for the significant natural features of the site to be maintained and enhanced, in particular the floodplain at the southern section of the site, enhancement of drainage channels through the site and retaining the character of the Hunter River frontage of the site;
- The design of the drainage for the subdivision will allow for no impact on the wetlands to the south of the site. This matter is discussed further in Sections 6.22 of this EA Report;
- The design allows for future flexibility of lot size to meet end user requirements;
- The design allows for the establishment of connectivity within and beyond the Northbank Enterprise Hub site by the opening of circulation roads and pedestrian & bike pathways;
- Open space within the subdivision has been designed to embrace building fabric, passive and active parkland and view corridors to the Hunter River;

- The subdivision design allows for the creation of public spaces with opportunities for accessibility to the wetlands to the south of the site and to the Hunter River waterfront;
- The future pedestrian and cycle pathways through the site providing connection to the public open spaces, parks and waterfront will contribute to the establishment of a healthy work environment within the Northbank Enterprise Hub; and
- The design of the subdivision allows for logically staged development that can occur in an economically viable manner over the next twenty (20) years.

Based on the above, Northbank Enterprise Hub Pty Ltd are confident that the location of the subject site and the proposed design of the subdivision are the optimal outcomes to facilitate the proposed development and protect important wetlands as well as be compatible with nearby land use.

3.0 Site Analysis & Overview of the Existing Environment

3.1 INTRODUCTION

This section provides the property description and owner's details, as well as a detailed site analysis and an overview of the affected environment.

3.2 PROPERTY DESCRIPTION AND OWNER DETAILS

The subject site is located on Tomago Road, Tomago and is described as Lot 1001 DP 1127780. The site has an area of approximately 239.7 hectares.

The site is owned by Northbank Enterprise Hub Pty Ltd. Copies of the Certificate of Title and Deposited Plan have been provided as **Appendix S**.

3.3 THE SITE AND LOCALITY

The subject land is located approximately 8km south west of Raymond Terrace and 12km north west of the Newcastle CBD. The site is located approximately 1.3km from Fullerton Cove to the east and the Hunter River bounds the site to the south west. The following figures show the location of the site within the locality.

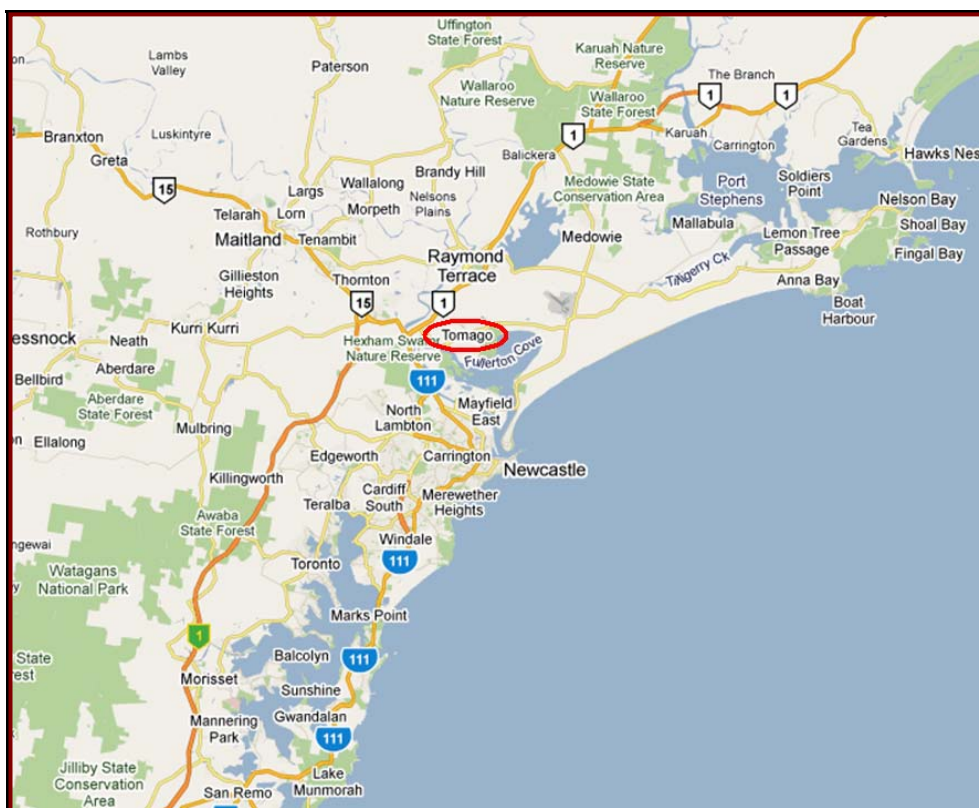


Figure 3 – Location of Tomago in Broader Context.

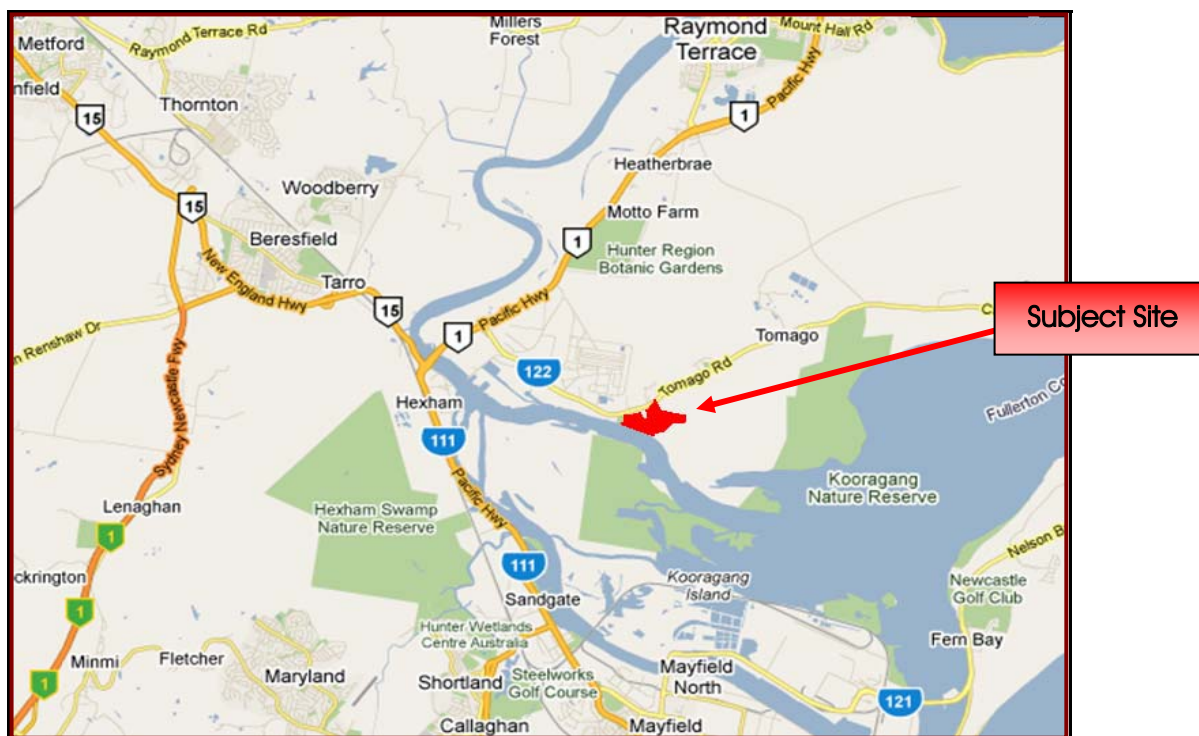


Figure 4 – Location Plan.

The locality is considered to be ideally located for future employment generating uses noting proximity to Newcastle Airport (approximately 9km), the Port of Newcastle and access to the road network (in particular the Pacific Highway, New England Highway and F3 Freeway).

3.4 CURRENT USES ON THE SITE

The 239.7ha development site is mostly cleared land that has been utilised for livestock grazing. Four (4) single dwellings and associated sheds were previously located towards the northern boundary of the site. A Development Application (DA 363/2010) was previously approved by Port Stephens Council for the demolition of the four (4) dwellings and the demolition works are now complete.

The site is currently maintained in a condition suitable for grazing of livestock.

3.5 ADJOINING LANDS

The following is noted in relation to surrounding land:

- To the north the site is bound by Tomago Road. Heritage listed Tomago House and Chapel are also located to the north and are surrounded by the site. The Tomago Aluminium Smelter is located further north west of Tomago Road. Numerous other well established industrial businesses are located on the northern side of Tomago Road;
- The site is bound to the north east by the remainder of the Northbank Enterprise Hub Pty Ltd landholding which has a Part 3A Approval (07-0086) for a 'WesTrac' Facility and industrial subdivision. Construction of the WesTrac facility is complete and the facility is now

operational. This proposal has been designed to integrate with the existing approved development;

- The site is bound to the east by conservation lands including RAMSAR Wetland;
- The site is bound to the south by conservation land including SEPP 14 Wetland; and
- The site has approximately 80 metres of river frontage to the Hunter River, which extends adjacent to the western boundary of the site. Further west of the Hunter River is Kooragang Island which contains significant development associated with coal transportation by rail and port.

Figure 5 below is a site analysis plan that shows the subject site in the context of surrounding land.

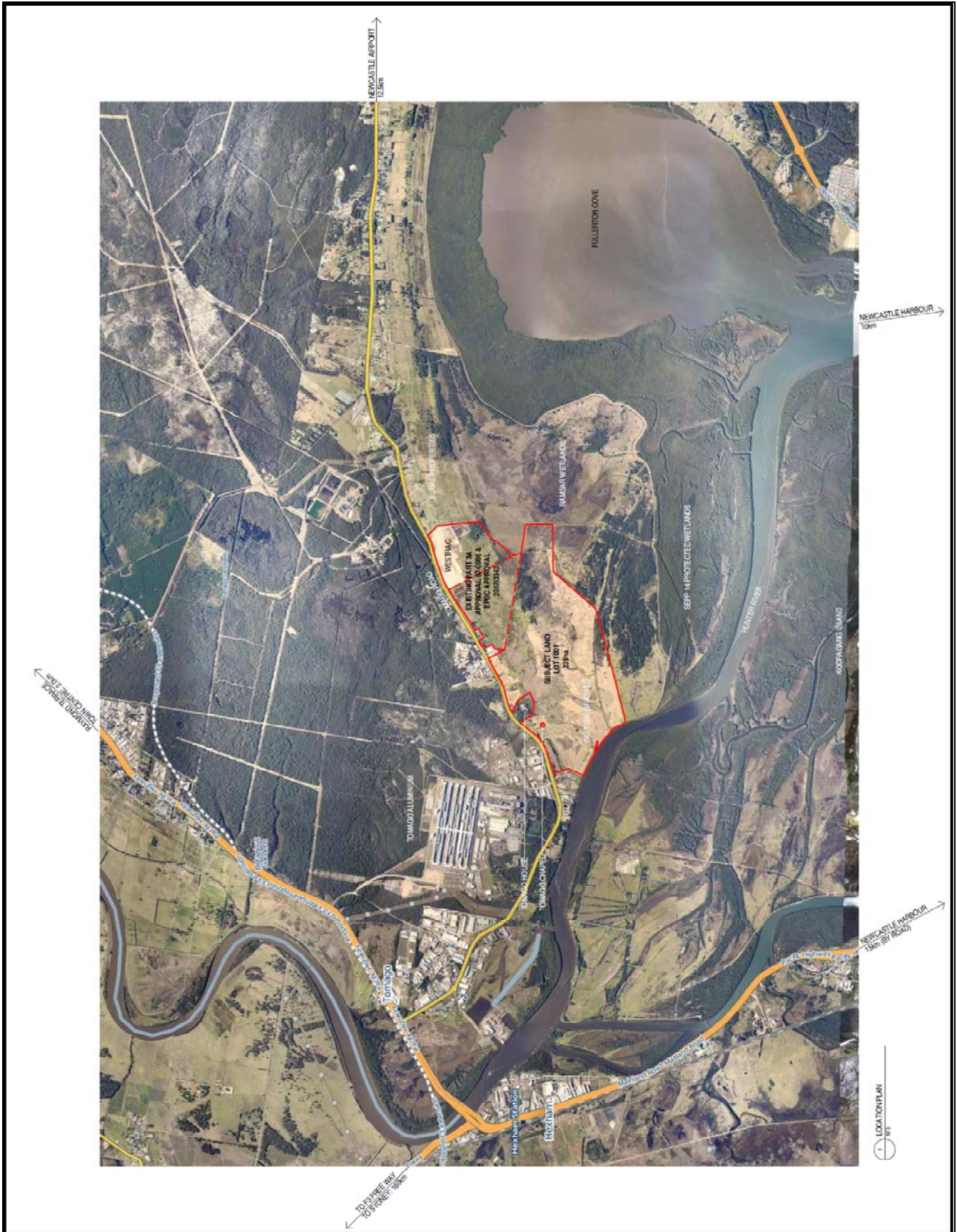


Figure 5 – Site Analysis Plan.



Established industrial development to the north of the site.



Aerial photo of the new WesTrac Facility (located to the north east of the subject site) with Tomago Road in the foreground.

3.6 SITE IMPROVEMENTS & SITE PHOTOS

The site was until recently occupied by four (4) vacant and dilapidated dwellings and associated outbuildings. A development approval to demolish these structures was granted by Port Stephens Council on 27 June 2010 (DA 363/2010) and demolition works are now complete. The site is clear of any significant structures.

It is noted that there are a number of former WWII structures on the site. These structures are addressed further in Section 6.7 of this report (photos of these structures are provided in Section 3.13 below).

The following photos provide an impression of the site.



Looking south east across the site.



Looking across the site towards the west.



Looking east across the site.

3.7 TOPOGRAPHY, VEGETATION & FAUNA

The site is of flat topography, low lying and subject to flooding. As can be seen from the below figures, the site is predominantly covered in pasture grasses for livestock grazing. Freshwater wetland areas are primarily located centrally within the northern section of the land and also at the eastern end of the site adjacent to the RAMSAR Wetland on adjoining land. Areas of swamp oak forest are located at the north east and southern sections of the site and two small pockets of swamp oak forest regeneration are located towards the south of the site. A small area of swamp mahogany paperbark swamp forest is located at the north western corner of the site.

A number of small drainage channels off the Hunter River extend through a portion of the site.

Given the general lack of significant vegetation, and its past use (for agriculture, see below 1954 aerial image), the site does not support an extensive range of flora and fauna. Flora & fauna are discussed in detail as part of the Environmental Assessment presented in Section 6.3.1 of this report.

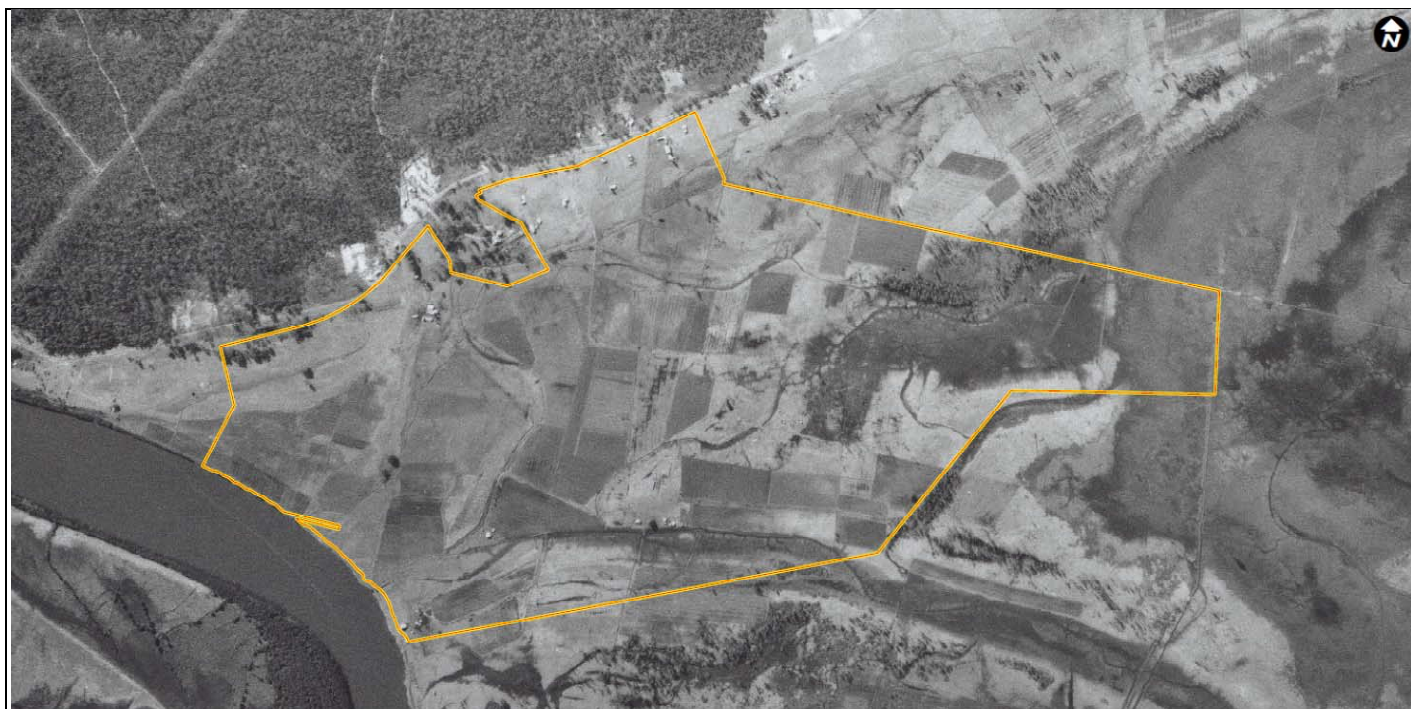


Figure 6 – 1954 Aerial Image of Subject Site.

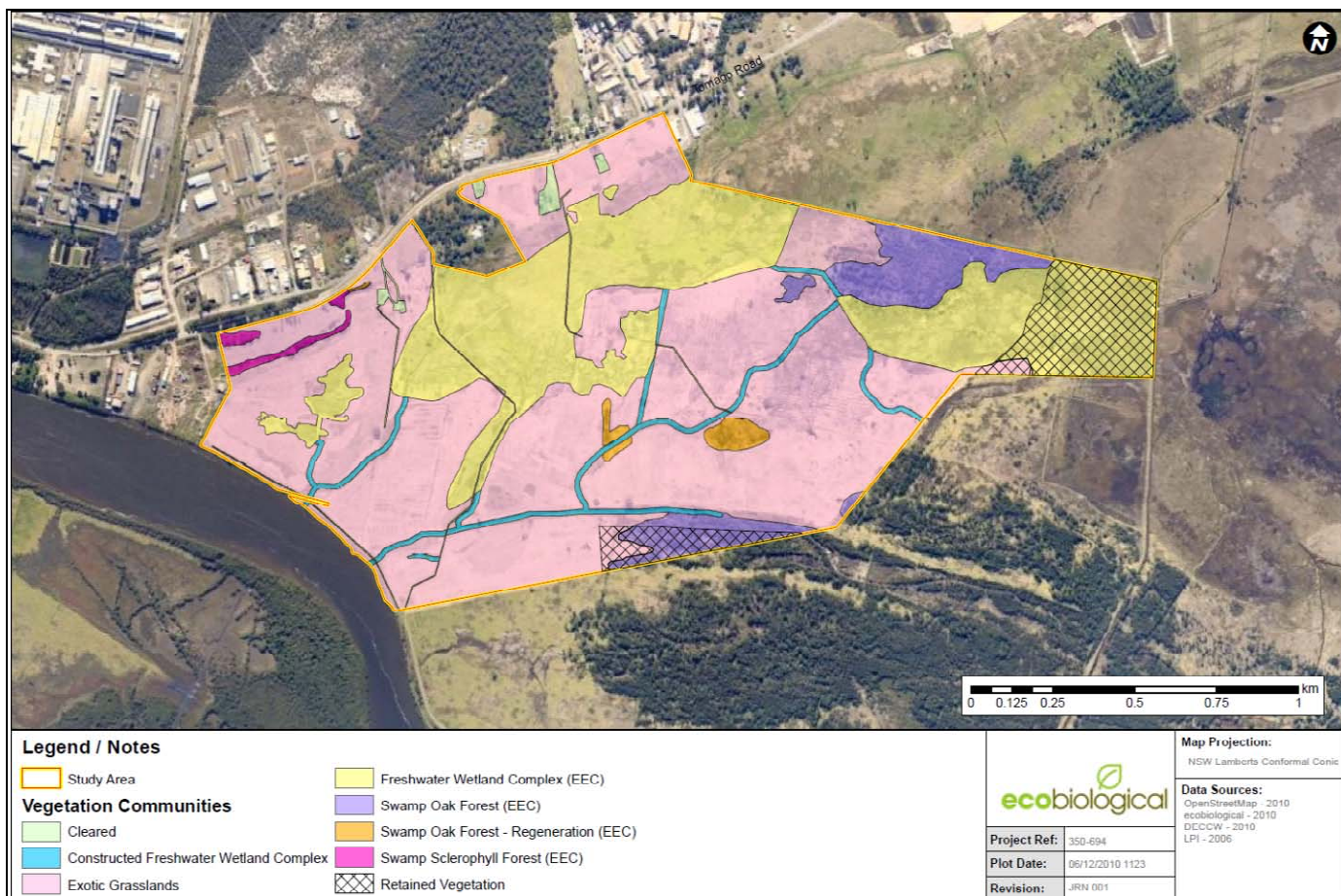


Figure 7 – Vegetation Communities.

Provided below is a figure demonstrating the vegetation communities on the site in terms of fauna habitat significance. As can be seen the site is predominantly covered in vegetation with low fauna habitat value.

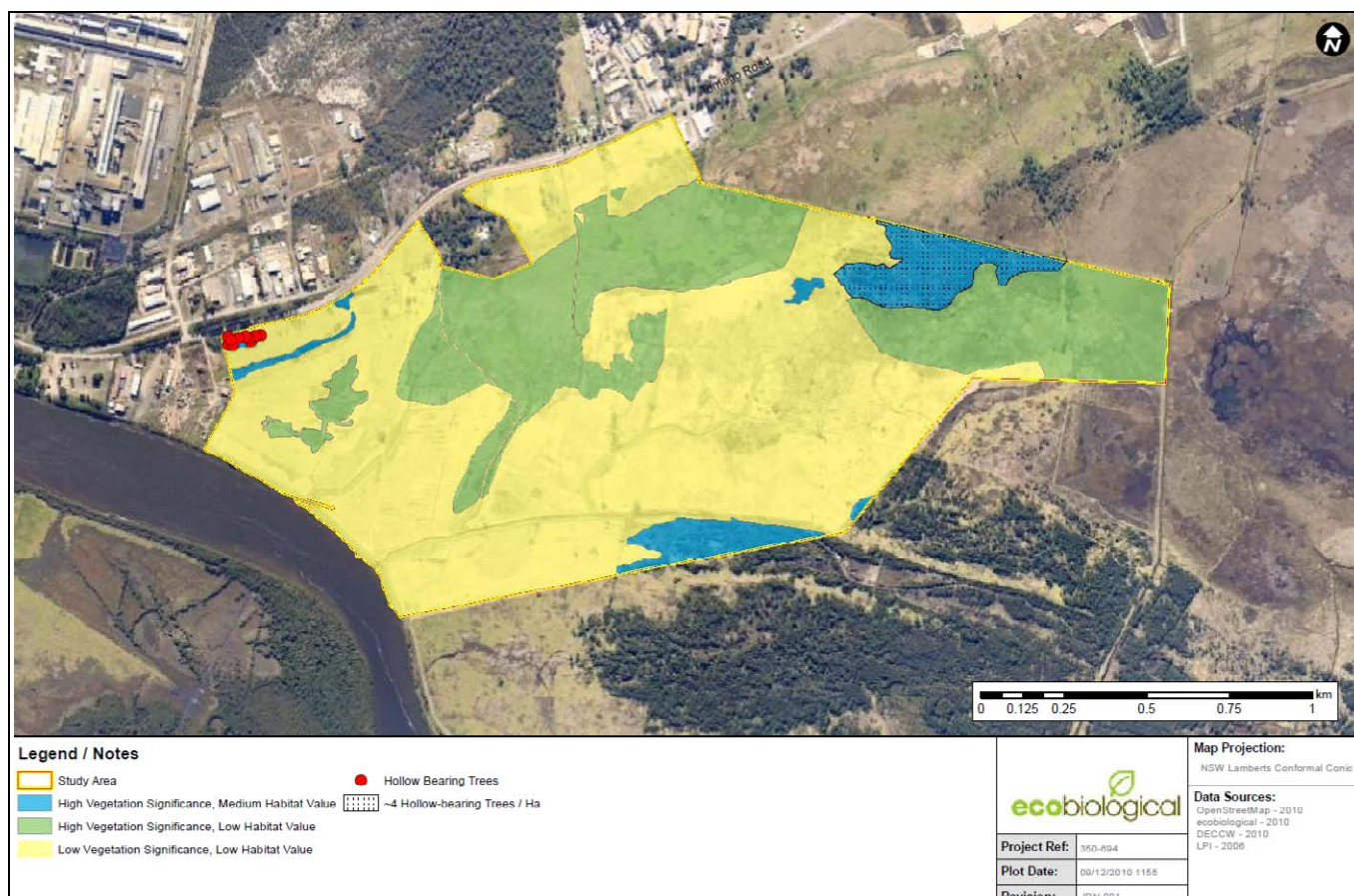


Figure 8 – Vegetation Community & Fauna Habitat Significance.

3.8 FLOODING

The site is subject to flooding and it has been determined via two dimensional flood modelling analysis that the 1:100 year level is predicted to vary from 2.80m AHD at the western boundary of the site, to 2.40m AHD at the eastern boundary of the site. With existing levels of the site mostly at approximately 0.5 – 0.8m AHD, it can be seen that a substantial quantity of fill will be required to achieve the 1:100 year level. It is estimated that approximately 3.7 million cubic metres will be required for the full development area.

3.9 BUSHFIRE

Parts of the subject site are identified as being bushfire prone land (Vegetation Category 2 and Vegetation Buffer 100m & 30m) on Port Stephens Council's Bushfire Prone Land maps.

Figure 9 below is an extract from Council's Bushfire Prone Land Map and shows the extent of bushfire prone land on the subject site.

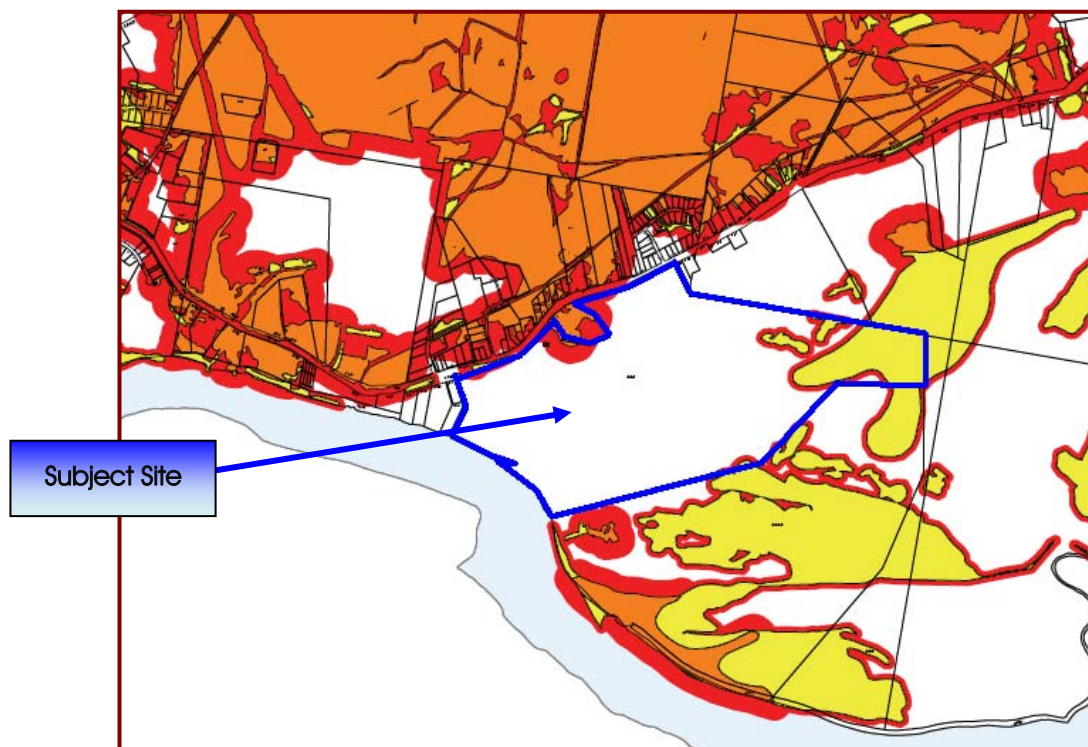


Figure 9 - Extract from Port Stephens Bushfire Prone Land map.

Given the nature of the proposal and that the site is substantially cleared, it is considered that there is no substantial threat from bushfire. A Bushfire Safety Authority is not required having regard to the operation of Part 3A of the Environmental Planning & Assessment Act 1979. In addition no sensitive land uses are currently proposed that would require special attention with regard to bushfire.

3.10 TRAFFIC & ACCESS

Access to the site is via Tomago Road, which connects with the Pacific Highway some 5km to the west, and with Nelson Bay Road some 9km to the east. Tomago Road is constructed with tar seal and has a single lane of travel in each direction. The following photographs are of Tomago Road:



Looking east along Tomago Road.



Looking west along Tomago Road.

Tomago Road has traditionally supported relatively low traffic volumes, however, with the recent growth of Newcastle Airport and other industrial activities and development, volumes are

increasing. A traffic report has been prepared and this is discussed in more detail as part of the Environmental Assessment in Section 6.10 of this report.

3.11 GEOTECHNICAL

The site contains predominantly low-lying estuarine clays. This factor, in combination with filling of the site required, will necessitate careful consideration in regard to geotechnical issues. The work methods associated with the filling of the site require detailed consideration to ensure that an adequate building platform is created for roads and buildings in an efficient and cost-effective manner.

This matter is addressed further in Section 6.13 of this report.

3.12 ACID SULPHATE SOILS & CONTAMINATION

Geotechnical testing indicates that the low lying, estuarine/alluvial clays are potentially acid sulphate soils. The significant depth of fill, and adoption of a preloading method for filling will leave the clays relatively undisturbed, with the exception of disturbance occurring during potential service trenching. In the event that such soils are disturbed it will be necessary to have prepared an acid sulphate soils management plan. An Acid Sulphate Soils Management plan has been prepared and this matter is addressed further within Section 6.13 of this EA Report.

Investigations have shown that the site is not the subject of any significant contamination. Contamination is addressed in Section 6.14 of this EA Report.

3.13 ABORIGINAL ARCHAEOLOGY AND HERITAGE

An Indigenous Archaeological Assessment has been prepared by McCardle Cultural Heritage and is located at **Appendix K**. Two (2) sites (both shell middens) and a potential archaeological deposit (PAD) were identified in the northern corner of the site within a low lying dune (located at the interface of the interbarrier depression and the Inner Pleistocene dunes, also known as the interbarrier depression). The location of the sites and PAD is consistent with predictive modelling and the archaeology of both the local and regional areas. The findings of the assessment are discussed further in Section 6.9 of this EA Report.

Adjoining land on Tomago Road to the north is the State Heritage listed Tomago House and associated Chapel. The subject site also contains four (4) former WWII anti aircraft gun emplacements, an underground command post and three (3) ammunition bunkers.

A Statement of Heritage Impact has been prepared by EJE Heritage and is located at **Appendix I**. A Historical Archaeological Assessment has been completed by Austral Archaeology and is located at **Appendix J**. The findings of these reports are discussed further as part of the Environmental Assessment in Sections 6.7 and 6.8 of this report.



Tomago House adjoining to the North of the subject site.



Looking west towards Tomago Chapel from Tomago House.



Looking towards the north western former WWII gun emplacement.



Looking towards the southern WWII gun emplacement.



Looking towards the WWII underground command post.



Looking towards the stairway entry into the WWII underground command post.



Looking towards a WWII ammunition bunker on the site.



Looking inside of a WWII ammunition bunker.

3.14 DRAINAGE

The land is flat, generally grading downslope from Tomago Road to the Hunter River and eastern edge. Site elevations are consistently 1mAHD, with protection provided by the levee 1.7-1.8mAHD to the river bank. The land contains long man made deeply incised drains which convey the majority of stormwater and groundwater to the Hunter River. The drains were installed to effectively drain the site to enable farming landuses of the past. External stormwater catchments entering the site are minor by comparison to site area. The groundwater catchment however extends into the Tomago Sandbeds. These groundwater flows express as surface flows within Lot 1001, base flows in the existing drains. The majority of stormwater and groundwater from the respective catchments head toward the Hunter River, discharging from the site via two floodgates. A much smaller proportion discharges to the adjoining wetlands of Lot 1002 and the North South Drain.

3.15 UTILITIES

The following is noted in relation to utilities:

- The site is not currently serviced by sewer. An agreement has been negotiated between the proponent and Hunter Water to extend sewer to the adjacent Part 3A approved industrial site. It is intended to also connect the proposed development of Lot 1001 to the HWC system.
- Water service is available to service the site from Tomago Road.
- Electricity is currently available to the site. It is proposed to relocate the power line that extends across the northern section of the site so that it extends across a section of the Tomago Road frontage. Ausgrid (formerly Energy Australia) have been consulted in this regard and are supportive of this concept (see Section 5 of this report).
- Telecommunications are available to service the site.
- It is understood that there is capacity in the existing gas network adjoining the property with both primary and secondary mains in the vicinity. Provision is made in the typical road cross sections servicing the development for provision of gas servicing. If anchor tenants are known along with their gas demands, Jemena will consider, on merits, funding the infrastructure.

3.16 EASEMENTS & ROAD WIDENING

A small section of the northern portion of the site is subject to formal road widening and is shown on the development plans provided in **Appendix C**. The proposed road widening has no significant impact on the proposed development outcome.

A number of easements are located on the site including:

- A Right of Carriageway (A) passes through the centre of the site from Tomago Road (adjacent to Tomago House land) to the Hunter River. Also from this main Right of Carriageway is a Right of Carriageway and Footway linking to Lot 1002 DP1127780 (AA) and a link to the Tomago Chapel land (I). These easements are benefitted by Hunter Development Corporation, NSW Department of Commerce, Port Stephens Council, The National Trust of Australia (NSW), Industrial Switchgear Pty Ltd and Primicerius Pty Ltd.
- An Easement for Transmission Line 30.48 wide (B) runs through the centre of the site from the north east to the south west. Energy Australia has the benefit of this easement.
- An Easement for Obtaining Water (C) is situated in two areas within the centre of the site. This easement is benefitted by Hunter Development Corporation and Port Stephens Council.
- An Easement for Power and Access (D) and an Easement for Power 5 wide (E) exist along the bank of the Hunter River. The NSW Department of Commerce has the benefit of these easements.
- An Easement to drain water 4 wide (F) exists within the site and adjacent to Lot 2 DP833855 at the north east of the site. This easement is benefitted by Port Stephens Council, Industrial Switchgear Pty Ltd and Primicerius Pty Ltd.
- An Easement for Drainage (J) exists over existing channels throughout the site. This easement is benefitted by Hunter Development Corporation, Port Stephens Council, The National Trust of Australia (NSW), Industrial Switchgear Pty Ltd, Primicerius Pty Ltd, WEPL Investments and numerous land holdings on the northern side of Tomago Road.
- An Easement to lay water pipes (K) exists in the centre of the site. This easement is benefitted by Hunter Development Corporation.

The easements are identified on the Deposited Plan located at **Appendix S** and also on the below plan which forms part of the Development Plans provided in **Appendix C**.



Figure 10 – Easements.

3.17 OBSERVATIONS FROM ANALYSIS OF SITE AND CONTEXT

The subject site is well located relative to essential transport, in particular to road networks, the Port of Newcastle, and to the nearby Williamtown Airport. The site is separated from substantial residential areas, and located close to existing and emerging industry including the adjoining approved Northbank Enterprise Hub Pty Ltd industrial subdivision and WesTrac Facility to the north east. For these reasons the site is ideal for industrial development, as recognised by the Lower Hunter Regional Strategy and the industrial zoning of the land and its inclusion as a State Significant Site under SEPP (Major Development) 2005.

A number of constraints have been identified as requiring management, and these are discussed further as part of the Environmental Assessment (Section 6).

4.0 Planning & Related Statutory Provisions

4.1 INTRODUCTION

The purpose of this section is to outline the applicable planning controls and statutory requirements relating to the site and the proposed subdivision. This section explores the relevant Commonwealth and State Legislation, State Planning Controls, Regional Planning Controls and Local Planning Controls, and provides an overview of the approval process for the project.

4.2 COMMONWEALTH LEGISLATION

4.2.1 Environment Protection and Biodiversity Conservation Act 1999

This Act (EPBC Act) was introduced in 1999, and replaces several dated Environmental Protection and Conservation Acts. The EPBC Act aims to protect seven matters of national environmental significance being;

- World Heritage properties;
- National heritage places;
- Wetlands of international importance (Ramsar wetlands);
- Threatened species and ecological communities;
- Migratory species;
- Commonwealth marine areas; and
- Nuclear actions (including uranium mining).

The proposed development has been referred to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities. The referral has determined that the proposal is a 'Controlled Action' (EPBC Referral No. 2010/5660) requiring assessment and approval.

A Public Environmental Report addressing the Schedule 4 Requirements of the EPBC Regulations will be prepared and submitted to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities at a later date for assessment and determination.

4.3 STATE LEGISLATION AND PLANS

4.3.1 Environmental Planning and Assessment Act 1979 & Regulation 2000

The EP&A Act 1979 and the EP&A Regulation 2000 constitute the principle planning legislation in NSW and provide the statutory framework for the assessment of the proposed subdivision.

Consideration has been given to the objectives of the EP & A Act 1979 and these are addressed below:

a) To encourage:

I. The proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,

The proposal development remains entirely consistent with this objective based on the following:

- The proposal will create an industrial and business park subdivision that will provide employment lands attractive to a wide range of business for the Port Stephens and Lower Hunter communities for an extended period of time.
- The numerous environmental studies that have been undertaken in the preparation of this application confirm that the proposal can proceed in respect to important environmental considerations. Ongoing monitoring programs will further ensure that the proposed industrial subdivision is acceptable from an environmental perspective.

II. The promotion and co-ordination of the orderly and economic use and development of land,

The proposed development remains consistent with this objective. The proposed subdivision is proposed to be integrated with the adjoining Part 3A approved industrial subdivision (MP Approval 07-0086) to the north east to form the Northbank Enterprise Hub. The proposal is ideal in terms of economic considerations based on the following:

- The site is identified as employment lands under the Lower Hunter Regional Strategy. The proposal will facilitate the intent of this strategy.
- The site is zoned for industrial development by SEPP (Major Development) 2005.
- The site has excellent access available to key transport nodes including the Pacific Highway, New England Highway and F3 Freeway.
- The site is located in close proximity to Newcastle, Raymond Terrace and Maitland.
- The site is within close proximity to Williamstown Airport and Newcastle Port.
- All major services can be extended to the proposed development.

- Given that Northbank Enterprise Hub Pty Ltd own the adjoining Part 3A approved to the north east, a well coordinated and integrated masterplan to make the most efficient use of developable land whilst maximising ecological outcomes can be achieved for the Northbank Enterprise Hub.

III. The protection, provision and co-ordination of communication and utility services,

The proposal remains consistent with this objective.

IV. The provision of land for public purposes,

The proposed development incorporates public parks and public thoroughfares to the Hunter River and wetland areas to the south of the site.

Based on the above, the proposal will significantly improve the provision of public land in the area.

V. The provision and co-ordination of community services and facilities, and

The proposed development will not inhibit the provision and co-ordination of community services and facilities.

VI. The protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and

The proposal remains consistent with this objective. Refer to Section 6.3.1 and the Flora and Fauna Assessment provided within **Appendix D** for further detail.

VII. Ecologically sustainable development, and

The proposal remains consistent with this objective. Refer to Section 6 of this report.

VIII. The provision and maintenance of affordable housing, and

This objective is not applicable to the proposed development.

(b) To promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

The proposal remains consistent with this objective.

(c) To provide increased opportunity for public involvement and participation in environmental planning and assessment.

The Part 3A process under which this development is being considered allows extensive public involvement.

Please also refer to the Public and Authority consultation that has been undertaken to date provided in Section 5 of this report.

The proposed development is considered to be consistent with all of the objects of the EP & A Act 1979.

4.3.2 Threatened Species Conservation (TSC) Act 1995

The TSC Act 1995 provides a framework for the listing and declaration of threatened species, populations, endangered ecological communities, key threatening processes and critical habitat. It also provides a framework for the preparation and implementation of recovery plans and threat abatement plans and for licensing.

An ecological survey of the site has been undertaken and a Flora and Fauna report has been prepared by Ecobiological (see **Appendix D**). This matter is further addressed in Section 6.3.1 of this report.

4.3.3 NSW Heritage Act 1977

The NSW Heritage Act, 1977 provides a framework for the identification and listing of state heritage items in the order to promote an understanding of and encourage conservation of the State's heritage.

The Tomago House and Tomago Chapel sites adjoin the development site to the north. Tomago House and Tomago Chapel are listed within the NSW State Heritage Register under the NSW Heritage Act 1977.

European Heritage and Historical Archaeological investigations have been completed and are addressed in Sections 6.7 and 6.8 of this report. The Heritage Impact Statement is provided within **Appendix I** and the Historical Archaeological Assessment is provided within **Appendix J**.

4.3.4 Hunter Water Regulation 2010

This Regulation applies controls over agriculture, sewage disposal and pollution.

The Tomago Sandbeds are defined as a special area under this Act and are located on adjoining land to the north and north east of the subject site. Given that the subject site is not identified as being affected by the Tomago Sandbeds area, the Hunter Water Regulation 2010 is not applicable to this Project Application.

4.3.5 Protection of the Environment Operations Act 1997

The purpose of this Act is to control pollution and establish a license regime. It is anticipated that no license will be required for the proposed development.

4.3.6 Contaminated Land Management Act 1997

This Act requires that the EPA be notified of contamination likely to be of “significant risk of harm”. On the basis of work completed it is considered that the site would not be classified as being of significant risk of harm.

4.3.7 National Parks and Wildlife Act 1974

The objects of the Act are the conservation of nature and objects, places or features of cultural value within the landscape. The Act also has controls that apply to aboriginal relics and sites. The Minister can issue stop work orders in relation to an action that may detrimentally affect an Aboriginal object or place.

An Indigenous Archaeological Assessment has been completed and is discussed in Section 6.9 of this EA Report. The Indigenous Archaeological Assessment is provided in **Appendix K** of this EA Report.

4.3.8 Rural Fires Act 1997

The provisions of this Act require practicable steps to be undertaken to prevent the occurrence and spread of bushfires.

The site is identified as being bushfire prone land however given the nature of the proposal and that the site is substantially cleared, it is considered that there is no substantial threat from bushfire.

A Bushfire Safety Authority is not be required having regard to the operation of Part 3A of the Environmental Planning & Assessment Act 1979.

4.3.9 Water Management Act 2000

The Water Management Act 2000 is the key piece of NSW water legislation that provides the basis for the sustainable management of water. The act provides a basis for water planning, the allocation of water resources and water access entitlements.

The subject land is situated on a declared floodplain and contains a number of OEH assets including levees, floodgates and drains that form part of the Hunter Valley Flood Mitigation Scheme under Chapter 5, Part 2 of the Water Management Act 2000. Section 256 (which is within Chapter 5, Part 2) of the Act states:

'256 Construction of fences, structures and flood works

(1) A person must not:

(a) construct any building, fence or structure in, on, or adjacent to, a levee bank, or

(b) construct a flood work on a floodplain,

except with the consent of the Minister.

Tier 2 penalty.

(2) The Minister's consent may be given unconditionally or subject to conditions.

(3) An authorised officer:

(a) may enter any lands on which any building, fence or flood work has been constructed otherwise than in accordance with the Minister's consent, and

(b) may take such measures as are necessary to demolish or remove the building, fence or flood work or to render the flood work ineffective.

(4) The costs incurred by an authorised officer under this section are recoverable from the landholder as a debt in a court of competent jurisdiction.

(5) The Minister may, by notice published in the Gazette, exclude any lands from a floodplain.

*(6) In this section, **floodplain** means any lands declared to be within the floodplain of the Hunter River by a proclamation in force under section 16 of the former Hunter Valley Flood Mitigation Act 1956, other than lands excluded from the floodplain by a notice published under this section.'*

Clause 256(1)(b) confirms that construction of a 'flood work' on a 'floodplain' requires the consent of the Minister for Water. The Environment Protection Authority (EPA) has confirmed that the filling of the flood plain constitutes 'flood work' as defined by the Water Management Act 2000 and separate application is required to be made under Clause 256 of the Water Management Act 2000. This application will be made by the proponent separately.

A Flood Study and Stormwater Assessment are discussed in sections 6.4 and 6.5 of this EA Report (and provided in full in **Appendices F and G**).

4.3.10 NSW 2021 Plan

NSW 2021 is the State Government's 10 year plan to guide policy and budget decision making and to deliver on community priorities. It sets long term goals and targets, and outlines immediate actions to help to achieve the goals. The goals reflect the Government's commitment to state growth to improve opportunities and quality of life for people in regional and metropolitan NSW.

NSW 2021 is based around five (5) key strategies including:

- *Rebuild the economy – restore economic growth and establish NSW as the 'first place in Australia to do business'.*

Comment – This section of the plan identifies a target of 100,000 new jobs (including 40,000) in regional NSW; new infrastructure; more land available for housing and jobs; growth of critical industries and investment; 20% red tape reduction; improving public sector efficiency; and boosting skills and qualifications. The proposed development remains entirely consistent with this strategy based on the following:

- The proposal will create a quality subdivision that will stimulate significant and continued business investment into the Port Stephens and Lower Hunter Region for an extended period of time.
 - The Northbank Enterprise Hub will be attractive to a wide range of business investment given that the site's location will allow future users to capitalise on excellent access to key transport nodes including the Pacific Highway, the New England Highway and the F3 Freeway. The site is within close proximity to Newcastle Airport and Newcastle Port and the Northbank Enterprise Hub will be located centrally between Newcastle, Port Stephens and Maitland.
 - Future business investment into the Northbank Enterprise Hub will result in the creation of significant local employment opportunities over an extended period of time.
 - A significant portion of the employment opportunities that will be generated by end users of the site will be in the form of traineeships and apprenticeships. This supports the aim of boosting skills and qualifications.
- *Return quality services – provide better transport, health, education, policing, justice and family services, with a focus on the customer.*

Comment – This strategy is not particularly relevant in relation to the proposal. It is noted however that no element of the proposal contrasts with any of the goals of this strategy.

- *Renovate infrastructure – build the infrastructure that makes a difference to both our economy and people's lives.*

Comment – Proposed servicing and infrastructure for the Northbank Enterprise Hub has been undertaken in consultation with the relevant service and infrastructure providers. This matter is further discussed in Section 6.11 of this EA Report.

- *Strengthen our local environment and communities – improve people's lives by protecting natural environments and building a strong sense of community.*

Comment – The development of the Northbank Enterprise Hub will contribute to the strengthening of the sense of community within the local Tomago and Port Stephens area.

A range of environmental investigations have been undertaken as part of this Environmental Assessment (see Section 6). The investigations have confirmed that the proposed development can be undertaken without any adverse impacts in relation to the local natural environment.

It is also noted that future development within the Northbank Enterprise Hub will have opportunity to consider energy usage, waste management and recycling practices.

- *Restore accountability to government – talk honestly with the community, return planning powers to the community and give people a say on decisions that affect them.*

Comment - The proposal is seeking to realise the intent of the Tomago Industrial State Significant Site. The proposed development will be publicly advertised to the community allowing comment to be made to the NSW DoPI in relation to the proposed development.

4.4 STATE ENVIRONMENTAL PLANNING POLICIES

A review of all State Environmental Planning Policies (SEPPs) confirms that the following are of particular relevance to the proposed subdivision:

4.4.1 SEPP (Major Development) 2005

On 1 October 2011, Part 3A of the EP&A Act 1979 was repealed by the *Environmental Planning & Assessment (Part 3A Repeal) Act 2011 No. 22*. Despite this, Part 3A continues to apply to the proposed development based on the transitional provisions identified in Schedule 6A of the EP&A Act 1979. These transitional arrangements also confirm (schedule 6A(3)(2)(a)) that *'any State environmental planning policy or other instrument made under or for the purposes of Part 3A, as in force on the repeal of that Part and as amended after that repeal, continue to apply to and in respect of a transitional Part 3A project'*. Therefore SEPP (Major Development) 2005 continues to apply to the proposed development.

The SEPP defines certain developments that are major projects under Part 3A of the Environmental Planning and Assessment Act 1979 and determined by the Minister for Planning. The SEPP also lists State significant sites.

The subject land is identified as a State Significant Site under Schedule 3, Part 10 Tomago Industrial Site of State Environmental Planning Policy (Major Development) 2005. The NSW Director General confirmed on 15 October 2010 that the proposed development is a Major Project to which Part 3A of the Environmental Planning & Assessment Act, 1979 applies. A copy of this letter is provided within **Appendix A**.

The subject land is zoned *IN1 General Industrial* zoning under SEPP (Major Development) 2005. The following are the objectives of the *IN1 General Industrial* zone:

- (a) *to provide for a wide range of industrial, warehouse and related land uses;*
- (b) *to provide suitable areas for those industries that need to be separated from other land uses;*

- (c) to encourage employment opportunities;*
- (d) to minimise any adverse effect of industry on other land uses and the environment; and*
- (e) to enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.*

The proposed development will remain consistent with each of the above objectives subject to appropriate management of any potential environmental issues. In particular the proposal will achieve the following:

- Provide a range of lot sizes that will be attractive to numerous business operations;
- Creation of an industrial estate that is well located relative to major transport nodes, the Port of Newcastle, Williamtown Airport and other existing and emerging industrial development;
- The site is separated from substantial residential areas;
- Creation of numerous employment opportunities through the construction of the subdivision and following establishment of industrial and business operations within the subdivision; and
- The development of an industrial and business park designed with respect to important environmental considerations (refer to Section 6 of this report).

Figure 11 is an abstract from SEPP (Major Development) 2005 and illustrates the site's zoning in the context of the surrounding locality.

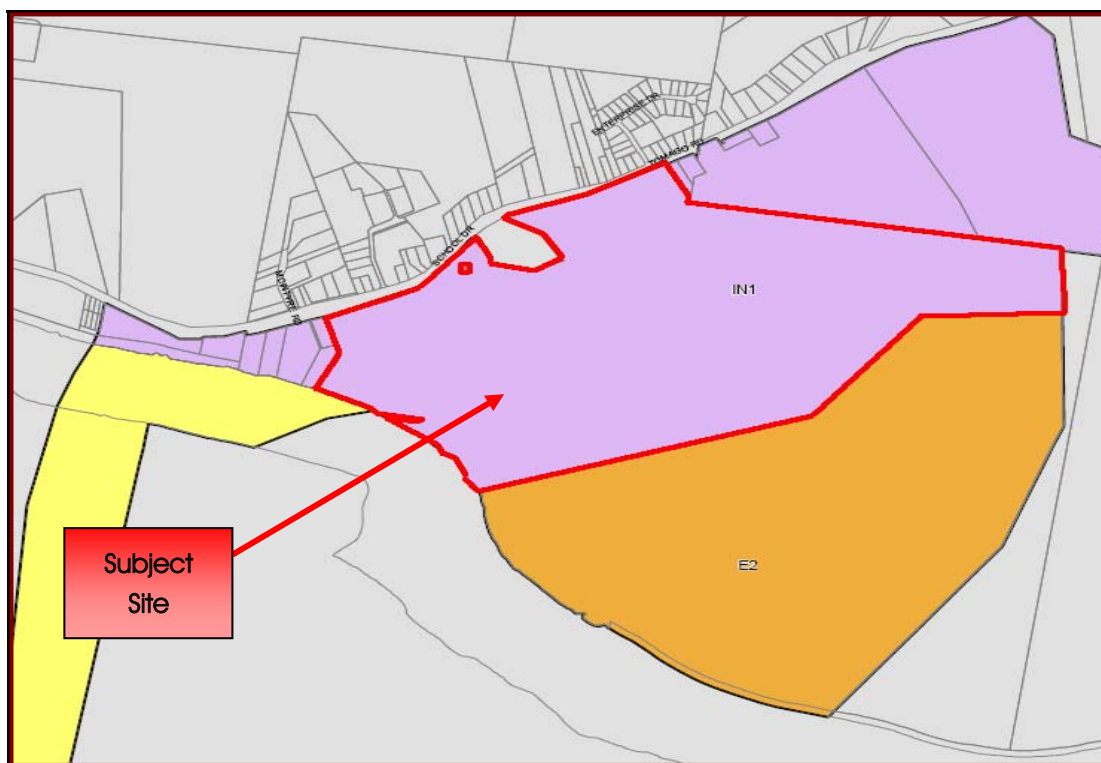


Figure 11 - Zoning Extract from SEPP (Major Development) 2005.

The applicable land-use definition for the proposed development, based on definitions in SEPP (Major Development) 2005, is “subdivision”.

Permissibility

Clause 12(1) of *Schedule 3, Part 10 Tomago Industrial Site of SEPP (Major Development) 2005* states the following:

“12 Subdivision—consent requirements

(1) Land within the Tomago Industrial site may be subdivided, but only with consent.”

The proposal is permissible with consent.

Clause 8(3) of *Schedule 3, Part 10 Tomago Industrial Site of State Environmental Planning Policy (Major Development) 2005* lists the following development as permissible:

(3) Development for any of the following purposes is permitted with consent within Zone IN1 General Industrial:

aquaculture; boat construction facilities; boat repair facilities; boat launching ramps; commercial port facilities; depots; drainage; earthworks; educational establishments; fill; freight transport facilities; hazardous industries; hazardous storage establishments; heavy industries; jetties; light industries; marinas; materials recycling or recovery centres; offensive industries; offensive storage establishments; office premises; signage; truck depots;

vehicle body repair workshops; vehicle repair stations; warehouses or distribution centres; waste management facilities.

Future development within the proposed subdivision will be required to have regard for the above permitted land uses and be subject to future development assessment.

4.4.2 SEPP (Infrastructure) 2007

The general aim of this Policy is to facilitate the effective delivery of infrastructure across the State of NSW. Clause 104 – Traffic Generating Development, of this SEPP is considered to apply to the proposed development.

Pursuant to Clause 104 Traffic Generating Development, the proposed industrial subdivision is identified in Schedule 3 as a Traffic Generating Development to be referred to the RMS. A Traffic Impact Assessment has been prepared by TPK & Associates and is located at **Appendix L** of this report.

4.4.3 SEPP 33 Hazardous and Offensive Development

The proposed development is for subdivision only and the provisions of this SEPP are not particularly relevant at this time. This issue is addressed in further detail in Section 6.18 of this report.

4.4.4 SEPP 55 Remediation of Land

This SEPP outlines the procedures for remediation of contaminated land. Contamination is addressed in Section 6.14 of this report.

4.4.5 SEPP 71 Coastal Protection

This SEPP has been made under the Environmental Planning and Assessment Act 1979 to ensure that development in the NSW coastal zone is appropriate and suitably located, to ensure that there is a consistent and strategic approach to coastal planning and management and to ensure there is a clear development assessment framework for the coastal zone.

The site is located within the coastal zone identified by the SEPP. The SEPP requires that the consent authority must consider Clause 8 - Matters of Consideration, when assessing development within the coastal zone. The following points address these matters:

The aims of this Policy are set out in clause 2,

The proposed industrial and business park subdivision is consistent with the aims of the Policy which are generally to protect and manage the natural, cultural, recreational and economic attributes, vegetation and visual amenity of the NSW Coast as it applies to the site.

- (a) Existing public access to and along the coastal foreshore for pedestrians or persons with a disability should be retained and, where possible, public access to and along the coastal foreshore for pedestrians or persons with a disability should be improved,

The subject site does not currently provide any public access to the coastal foreshore for pedestrians or persons with a disability. Access to the river frontage will be significantly improved by the proposal.

- (b) Opportunities to provide new public access to and along the coastal foreshore for pedestrians or persons with a disability,

The proposal remains consistent with the aims of this policy. The subdivision design incorporates a new public park with frontage to the Hunter River at the south western corner of the site.

- (c) The suitability of development given its type, location and design and its relationship with the surrounding area,

The site is suitable for the proposed industrial and business park subdivision, and this suitability is evident from the assessment presented in this report. The proposal is consistent with the IN1 General Industrial zoning of the site; is consistent with the objectives of the Lower Hunter Regional Strategy; and is consistent with the established industrial development in the locality and the proposed future character of the area.

- (d) Any detrimental impact that development may have on the amenity of the coastal foreshore, including any significant overshadowing of the coastal foreshore and any significant loss of views from a public place to the coastal foreshore,

The proposed development will not interfere with designated view corridors and is not prominently located. No overshadowing of coastal foreshore areas will result. Built visual amenity will be consistent with the industrial zoning.

- (e) The scenic qualities of the New South Wales coast, and means to protect and improve these qualities,

The proposal is consistent with the aims of this policy.

- (f) Measures to conserve animals (within the meaning of the *Threatened Species Conservation Act 1995*) and plants (within the meaning of the Act), and their habitats,

The proposal is consistent with the aims of this policy and offsets will be provided to satisfy NSW DoPI requirements. A Flora and Fauna assessment has been undertaken (see section 6.3.1 of this EA Report) and is located at **Appendix D** of this report.

- (g) **Measures to conserve fish (within the meaning of Part 7A of the *Fisheries Management Act 1994*) and marine vegetation (within the meaning of that Part), and their habitats,**

The proposal is consistent with the aims of this policy and offsets will be provided to satisfy NSW DoPI requirements. An Aquatic Assessment has been undertaken (see Section 6.3.2 of this EA Report) and is located at **Appendix E** of this report.

- (h) **Existing wildlife corridors and the impact of development on these corridors,**

The proposal is consistent with the aims of this policy and does not impact on any corridor.

- (i) **The likely impact of coastal processes and coastal hazards on development and any likely impacts of development on coastal processes and coastal hazards,**

The proposal is consistent with the aims of this policy. The impact of flooding is discussed in Section 6.4 of this report.

- (j) **Measures to reduce the potential for conflict between land-based and water-based coastal activities,**

The proposal is consistent with the aims of this policy and does not result in any conflict between land or water based coastal activities.

- (k) **Measures to protect the cultural places, values, customs, beliefs and traditional knowledge of Aboriginals,**

The proposal is consistent with the aims of this policy. Aboriginal Archaeology is addressed within Section 6.9 and **Appendix K** of this EA Report.

- (l) **Likely impacts of development on the water quality of coastal waterbodies,**

This matter is addressed separately in this report (see Section 6.3.2, 6.5 and 6.22). The drainage strategy for the site has been designed specifically to ensure protection of water quality, noting the important RAMSAR and SEPP 14 wetlands nearby.

- (m) **The conservation and preservation of items of heritage, archaeological or historic significance,**

The proposal is consistent with the aims of this policy. European Heritage and European Historical Archaeology are addressed within Section 6.7 and 6.8 and **Appendices I** and **J** of this report. Aboriginal Archaeology is addressed within Section 6.9 and **Appendix K** of this EA Report.

- (n) Only in cases in which a Council prepares a draft Local Environmental Plan that applies to land to which this Policy applies, the means to encourage compact towns and cities,

The proposal is not the subject of consideration under this clause.

- (o) Only in cases in which a development application in relation to proposed development is determined:

- (i) The cumulative impacts of the proposed development on the environment.

The proposed development will have an insignificant cumulative impact on the environment given that it can be demonstrated how each issue of the proposal will be adequately managed.

- (ii) Measures to ensure that water and energy usage by the proposed development is efficient.

The proposal development remains consistent with this objective. Water and energy usage by end users of the site will be subject to consideration in separate development applications.

4.5 REGIONAL ENVIRONMENTAL PLANS AND STRATEGIES

4.5.1 Lower Hunter Regional Strategy

The Lower Hunter Regional Strategy was released as a final document in October 2006. In summary, the purpose of the strategy is to provide broad guidance to future planning for the Lower Hunter, with the following general aims:

- To promote Newcastle as the regional city, with a hierarchy of urban centres;
- To provide for a forecast population increase of 160,000 persons by 2031;
- To identify new release areas;
- To ensure an adequate supply of employment land;
- To focus a higher proportion of new housing in centres which will reduce pressure on existing established suburbs;
- To enable the release of rural land for a series of new communities and extensions to existing urban areas;
- To ensure that greenfield land is released in a coordinated way with improved neighbourhood design and more efficient use of infrastructure; and
- To ensure the protection of biodiversity through a Regional Conservation Plan.

Figure 12 below is an extract from the Lower Hunter Regional Strategy and shows that the site is identified by the strategy as “employment lands”.

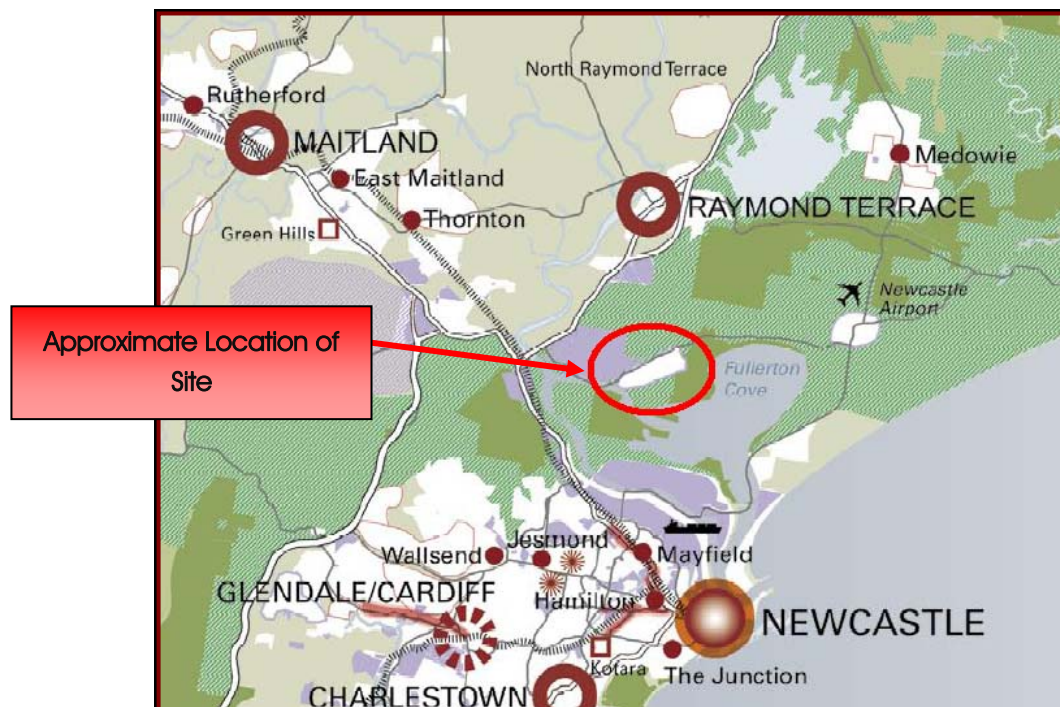


Figure 12 - Extract from Lower Hunter Regional Strategy.

The proposal is entirely consistent with the objectives of the Lower Hunter Regional Strategy given that proposal will create ‘employment lands’ in Tomago consistent with the above mapping extract.

4.6 LOCAL ENVIRONMENTAL PLANS

4.6.1 Port Stephens Local Environmental Plan 2000

The site is a State Significant Site zoned IN1 General Industrial under the Major Projects SEPP. The Port Stephens Local Environmental Plan is not applicable in terms of the site zoning.

The Major Projects SEPP confirms that the only other Environmental Planning instruments that will apply to the proposed development are other SEPP’s, where relevant.

5.0 Identification of Issues & Stakeholder Consultation

5.1 INTRODUCTION

This section describes how the project team identified the key issues associated with the proposal and the specialist studies undertaken and used to support this project.

5.2 OVERVIEW OF THE METHODOLOGY

The key issues associated with the proposed subdivision have primarily been identified in consultation with the NSW Department of Planning & Infrastructure and other key stakeholders as outlined in Section 5.3 of this report. In particular, the Director-General's requirements (MP10_0185) (see **Appendix B**) have guided the preparation of this Environmental Assessment Report.

Key issues were also identified by the proponent, Northbank Enterprise Hub Pty Ltd, who has significant experience with similar projects given the Part 3A approval for the WesTrac Facility and industrial subdivision on adjacent lands to the north east.

ADW Johnson Pty Ltd also undertook environmental and town planning investigations in accordance with the company checklists and policies.

While not exhaustive, the following legislation formed the basis for identification of the issues associated with the preparation of the Environmental Assessment Report:

- Environmental Planning and Assessment Act 1979;
- Protection of the Environmental Operations Act 1997;
- Threatened Species Conservation Act 1995;
- National Parks and Wildlife Act 1974;
- Heritage Act 1977;
- Contaminated Land Management Act 1997;
- Water Management Act 2000;
- Native Vegetation Act 2003;
- Roads Act 1993;
- Rural Fires Act 1997;
- Rural Fires & Environmental Assessment Legislation Amendment Act 2002;
- Local Government Act 1993;
- Port Stephens Local Environmental Plan 2000 & associated Development Control Plans and Policy; and
- Commonwealth Environment Protection and Biodiversity and Conservation Act 1999.

5.3 STAKEHOLDER CONSULTATION

In establishing parameters, and appropriate design for this project, consultation was carried out with the key authorities and stakeholders. The following is a brief outline of the consultation undertaken.

5.3.1 Commonwealth Department of Sustainability, Environment, Water, Population and Communities (former Department of Environment, Water, Heritage and the Arts)

In accordance with the EPBC Act 1999, the proposed development was referred to the Australian Government Department of Sustainability, Environment, Water, Population and Communities. The referral determined that the proposal is a 'Controlled Action' (EPBC Referral No. 2010/5660).

Representatives of the Commonwealth Department of Sustainability, Environment, Water, Population & Communities undertook an inspection of the site with representatives of ADW Johnson on 29 June 2011 and 10 August 2012.

A Public Environmental Report addressing the Schedule 4 Requirements of the EPBC Regulations will be prepared and submitted to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities at a later date for assessment and determination.

5.3.2 NSW Roads & Maritime Services (RMS)

On 5 November 2010, Craig Marler of ADW Johnson and Terry Keating of TPK & Associates met with Brad Parkes of the NSW RMS (minutes of the meeting are contained within **Appendix R**). The key points identified by the RMS for consideration are as follows:

- The traffic generation and traffic splits should be adopted as per the existing approved development to the east of the site;
- The RMS has no current plans to upgrade Tomago Road;
- The RMS is likely to seek a contribution or works in kind to the overall road network; and
- The RMS noted that the proposal should consider connectivity within the design to avoid "rat runs".

Further to the above however, in June 2011 the project team attended a meeting with the RMS Newcastle to discuss the original traffic report submitted as part of the now superseded EA Report dated 15 December 2010. The outcome of the meeting was as follows:

- The RMS provided a revised traffic generation rate (see Section 6.10 of this report and **Appendix L**) to the one that was originally nominated by the RMS and formed the basis of the original traffic report submitted as part of the now superseded EA

Report dated 15 December 2010. The RMS advised that the revised rate was to be applied in any further analysis undertaken by TPK & Associates. The reporting has been undertaken in accordance with the RMS's advice. The reduction in traffic generation results in a significant reduction in anticipated traffic generated by the proposed development;

- The RMS confirmed that they would plan and manage the progressive upgrade requirements of Tomago Road and primarily required revised indicators for the subject development by TPK utilising the new traffic generation rate they provided; and
- The RMS also confirmed that analysis of the site frontage was sufficient for their needs.

Furthermore, in May 2012, Mr. Terry Keating of TPK & Associates discussed the RMS adequacy review comments (dated 16 January 2012) with Mr. David Young (Manager, Land Use Development, RMS). In particular, the RMS adequacy review comment *'the western intersection shall be realigned with opposite McIntyre Road (eastern occurrence)'* was discussed. Advice was given that Newcastle RMS is giving further consideration to this matter. Mr Young indicated that at this time, the Project Application and TPK Traffic Assessment should continue to support the current proposed location and 'T junction' intersection as proposed.

All of the above matters are addressed within Section 6.10 of this report and the Traffic Impact Assessment provided within **Appendix L**.

5.3.3 NSW Environment Protection Authority (EPA)

On 5 November 2010, representatives of ADW Johnson met with representatives of EPA (formerly the NSW Department of Environment Climate Change and Water) to discuss the proposal (minutes of the meeting are contained within **Appendix R**). The EPA reinforced the content of the very detailed set of comments provided as part of the DGR's. The key points raised by the EPA for consideration included the following:

- The EPA requires detailed water management, drainage and wastewater reporting so that it can review the level of impact that the proposal will have on the RAMSAR wetlands and to establish whether the proposal will have any impact on current rehabilitation projects.

Comment – Refer to Section 6.22 of this report.

- Detailed site surveys for flora and fauna needs to be undertaken with specific reference towards any threatened species.

Comment – Refer to Section 6.3.1 of this report and the Flora and Fauna Assessment provided in **Appendix D**.

- The timing of the detailed flora and fauna surveys should have regard for migratory species.

Comment – Refer to Section 6.3.1 of this report and the Flora and Fauna Assessment provided in **Appendix D**.

- Consideration should be given to the EPBC Act 1999 and consultation should be undertaken with the Commonwealth Government.

Comment – The proposal has been referred to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities. The referral has determined that the proposal is a 'Controlled Action' (EPBC Referral No. 2010/5660) requiring assessment and approval (refer to Section 4.2.1 of this report).

A Public Environmental Report addressing the Schedule 4 Requirements of the EPBC Regulations will be prepared and submitted to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities at a later date for assessment and determination.

- Consideration should be given to updated frog survey guidelines.

Comment – Refer to Section 6.3.1 of this report and the Flora and Fauna Assessment provided in **Appendix D**.

- That the proponent considers a biodiversity offset strategy given that the proposal will result in the loss of areas of EEC. The EPA indicated that it was likely that they would consider a Biobanking approach.

Comment – This matter is addressed within Section 6.3.1 of this report.

- Consideration should be given to the impacts of light reflection over the RAMSAR land. This should be addressed within the Environmental Assessment Report.

Comment – Refer to Section 6.3.1 of this report.

- Vehicular access through the site from Tomago Road to the RAMSAR land will be required.

Comment – The subdivision design allows for required vehicular access to be made available.

- The Aboriginal heritage consultant should have regard for OEH'S 2010 Guidelines for Aboriginal Cultural Management.

Comment – The DGRs require compliance with the 2005 guidelines.

- The EPA confirmed that it enforces Chapter 5 Part 2 of the Water Management Act 2000. The EPA noted that the proposal will require consent from the Minister as the proposal represents development in a declared floodplain. During the meeting the EPA confirmed that a separate application was not required to be made by the

proponent because if the Part 3A application was approved this would include the required consent for works within the floodplain. The EPA have since confirmed however (in its Adequacy Review letter dated 27 January 2012) that a separate application is required to be made, should the Part 3A Project be approved.

Comment – Noted. Separate application will be made by the proponent.

- The EPA require continual access to inspect and maintain the levee banks on the Hunter River (in accordance with 'Part 2 Hunter Valley Flood Mitigation Works' of the Water Management Act 2000).

Comment – Noted. The design of the subdivision will allow the necessary access to be made available.

- The EA should provide full details of fill and the type of fill to be used.

Comment – Refer to Section 2.1.3 of this report.

It is considered that the proposal adequately addresses each of the above matters raised by the EPA.

5.3.4 NSW Heritage Office

A written response was received from Petula Samios of the Heritage Branch, NSW Department of Planning on 15 November 2010. The key issues raised included the following:

- Tomago House and adjoining Tomago Chapel are listed as an item of state heritage significance of the State Heritage Register. The house and chapel are owned and operated by the National Trust of Australia (New South Wales) as a historic property, function and events centre and a place to visit on the tourist trail.

Comment – Noted.

- View Corridor Analysis – Extensive views exist throughout the surrounding lands subject to the development proposal from Tomago House.

Comment – Heritage investigations have been completed (**Appendix I**) and this matter is addressed within Section 6.7 this EA Report.

- Curtilage Study – The lands subject to the development proposal form part of the historical setting to Tomago House and Chapel.

Comment – This matter is addressed within the Statement of Heritage Impact (**Appendix I**) and discussed further in Section 6.7 of this report.

- Landscape Assessment – This should include an identification of significant elements of the historical landscape, identification of significant plantings and remnant landscape elements.

Comment – This matter is addressed within the Statement of Heritage Impact (**Appendix I**) and discussed further in Section 6.7 of this report.

- Archaeological Assessment – There is a very high potential for extensive archaeological evidence to be present within the lands subject to the development proposal.

Comment – Aboriginal Archaeology is addressed within Section 6.9 and **Appendix K** of this EA Report.

- Water Table Analysis – An investigation into the impact of the proposed developments (proposed fill, potential basement car parks, etc) may have on the water table (in various locations across the site as well as Tomago House and Chapel) should be undertaken.

Comment – The proposed development does not include buildings therefore does not propose any carpark excavations. Considerations of the proposed development in relation to the water table are addressed within Section 6.13 of this report.

- Aboriginal Heritage Impact Assessment.

Comment – An Indigenous Archaeological Assessment has been prepared by McCardle Cultural Heritage and accompanies this EA Report as **Appendix K**. The findings of this report are discussed in Section 6.9 of this report.

- Heritage Impact Statement.

Comment – A Heritage Impact Statement has been prepared by EJE Heritage and accompanies this report as **Appendix I**. The findings of this report are discussed in Section 6.7 of this assessment.

- The National Trust (New South Wales) should be consulted in relation to the proposal.

Comment – It is noted that consultation with the National Trust (New South Wales) was not included in the DGRs. It is considered that the National Trust (New South Wales) will be provided with adequate opportunity to comment on the proposal during the assessment of the Part 3A Project.

- The proposal has not yet been considered by the NSW Heritage Council. Accordingly, the Heritage Council may be making a further submission in this regard following it being discussed at a future meeting.

Comment – Noted.

5.3.5 Hunter Water Corporation

A letter was forwarded to the Hunter Water Corporation on 28 October 2010 inviting comment in relation to the proposal. A response was received from Malcolm Withers

(Senior Account Executive Major Development) on 30 November 2010 confirming the following:

Water Supply

The proposed development is estimated to place an additional loading of 1,189 Equivalent Tenements (ET) on the water system and is to be serviced in accordance with a developer funded Water Servicing Strategy which was approved by Hunter Water in November 2010. Connection points will be to an existing 500mm CICL in Tomago Road. A water main will need to be constructed across Tomago Road from the 500mm water main to service the development (a plan demonstrating this is provided in the HWC correspondence provided within **Appendix R**).

Hunter Water's modelling indicates that there is sufficient capacity to service the proposed development.

Wastewater Transportation

The proposed development is currently remote from any reticulated wastewater services. The development is to be serviced in accordance with an approved developer funded sewer servicing strategy for the area. Hunter Water advised that a servicing strategy is currently under development and will be submitted for Hunter Water's consideration in the near future. The development will connect into the Williamstown Wastewater Transfer Scheme that is currently being planned and will discharge into Raymond Terrace Wastewater Treatment Works (WWTW). The development has been included in the design of this transfer scheme. Hunter Water will be able to provide more information after the completion of the Servicing Strategy.

Wastewater Treatment

Raymond Terrace WWTW has sufficient capacity to cater for the first stage of the Williamstown Transfer Scheme, which has allowed approximately 30L/s for this development. This is equivalent to approximately 600 ET. Based on correspondence with ADW Johnson Hunter Water has advised that this will be sufficient for the first stage of the development. Upgrades are planned for Raymond Terrace WWTW in 2017 which will cater for the ultimate development.

The matters raised by Hunter Water have been noted and the water and sewer supply arrangements have been designed accordingly. Refer to Section 6.11 of this report and the Servicing Strategy provided within **Appendix H**.

5.3.6 Ausgrid

A meeting was held between Scott Day of ADW Johnson and Kevin Smith (Senior Consulting Engineer – Major Connections) of Ausgrid (formerly Energy Australia) on 7 October 2010 (minutes of the meeting are contained within **Appendix R**). Discussions are also ongoing.

The key matters outlined by Ausgrid included the following:

- Ausgrid requires continuous communication on milestones of Northbank to ensure inclusion in capital works planning (eg. Notification of when the Part 3A Project is lodged).
- Ausgrid noted that the Northbank Enterprise Hub is quite significant in scale and has unknown power supply requirements, dependent on what type of development ultimately ends up on site. It is quite likely that to service the Northbank site that either an upgrade will be required to the zone substation that is being constructed now across the road from Tomago House or a zone substation will need to be located within the Northbank site.

Assessment for this will not be triggered until several stages of Northbank are completed and is heavily dependent on the type of development that ends up in Northbank.

Subsequent Discussions:

- Advice was sought from Ausgrid in relation to whether it is a satisfactory design option to relocate the 132kv line which currently crosses Lot 1001 (the subject site) so that it extends along a section of the Tomago Road frontage. Ausgrid confirmed that the proposed arrangement is feasible however the following should be considered:
 - Available offset from RMS road - possible need for guard rails on certain poles and/or possible easement requirements on adjoining land; and
 - Multi-circuit poles required i.e. 132kV, 33kV, 11kV and LV. May need the LV and/or 11kV underground to save pole height.

The matters raised by Ausgrid have been noted and the proposed power supply arrangement has been designed accordingly. Refer to Section 6.11 of this report and the Servicing Strategy provided within **Appendix H**.

5.3.7 Jemena (Gas Supply)

A letter was forwarded to Jemena on 28 October 2010 inviting comment in relation to the proposal. No response was received.

It is considered that Jemena will be provided with adequate opportunity to comment on the proposal during the assessment of the application.

5.3.8 Port Stephens Council

Port Stephens Council was contacted in writing on 27 October 2010 advising that ADW Johnson would be available for a meeting to discuss the proposal. No response was received from Council.

It is considered that the issues raised by Council in their submission (forming part of the DGRs) have been addressed by this Environmental Assessment Report. Furthermore, it is considered that Port Stephens Council will be provided with adequate opportunity to comment on the proposal during the assessment of the application.

5.3.9 Newcastle City Council

Newcastle City Council was contacted in writing on 31 July 2012. The invitation for comment outlined the development proposal, a site plan was supplied and a copy of the Regional Flooding Assessment (see **Appendix F**) was supplied. Council was invited to respond in writing if it had any comments or questions in relation to the proposed development. No response has been received to date. The proponent will be available to discuss any aspect of the proposal with Council as necessary.

5.3.10 NSW Department of Primary Industries

A written response was received from Mr. Scott Carter of the Port Stephens Fisheries Institute on 17 November 2010. The key issues that were identified included:

- Water quality issues must be addressed in accordance with SEPP 62 – Sustainable Agriculture.

Comment – This matter is addressed within Section 6.3.2 of this report and **Appendix E**.

- The area has significant potential in the future for upslope migration of saltmarsh as sea levels rise. The filling of the land would remove this long term potential for the survival of a Threatened Community. Consequently the Department would like to see an assessment of the potential of the land as future saltmarsh rehabilitation area and any potential proposal to offset this loss.

Comment – This matter is addressed within Section 6.3.2 of this report and the Aquatic Assessment provided within **Appendix E**.

- The low lying wetland areas behind Tomago House that are currently extensively drained would be a significant source of carbon for the estuarine ecosystem. The Department would expect an assessment of the offsite impacts of removing this food source.

Comment – In respect to the above comment it is noted that the proposal is seeking to develop an industrially zoned parcel of land to achieve the objectives of the Lower Hunter Regional Strategy. Offsets will be provided to satisfy NSW DoPI requirements.

Detailed reports addressing flora and fauna and aquatic ecology are discussed in Section 6.3 of this report and provided within **Appendices D and E**.

- The wetland systems currently on the site act as flood storage for the river. The Department would expect an assessment of the flooding impacts on the river and adjacent habitat areas caused by filling of this flood storage. The stormwater management from the future hard surface runoff should also be assessed and the potential water quality impacts determined.

Comment – This matter is addressed within Sections 6.4 and 6.5 of this report and the Flood Impact Assessment and Stormwater Assessment provided within **Appendices F and G**.

- An aquatic survey of the drainage system should be carried out to determine the ecological importance of the large network of small drains on the site.

Comment – This matter is addressed within Section 6.3.2 of this report and the Aquatic Assessment provided within **Appendix E**.

- The Department has a policy relating to the installation or provision of buffer zones (generally 50m) between aquatic habitats and developments. The subdivision should include suitable buffer zones between the development envelopes and the boundary of the development on the proponents land.

Comment – Given the environmental management protection measures that are proposed as part of the development (as outlined within Sections 6 and 7 of this report and the various consultant reports that accompany this report) it is considered no adverse impacts will be generated by the proposal.

5.3.11 Kooragang Wetland Rehabilitation Project (Hunter-Central Rivers Catchment Management Authority)

A meeting was held between representatives of ADW Johnson and representatives of the Kooragang Wetland Rehabilitation Project on 4 November 2010 (minutes of the meeting are contained within **Appendix R**). The key matters identified were:

- Consideration of the provision of a pedestrian corridor from Tomago House linking to the wetland and Hunter River to the south & south west of the site. The corridor be suitably screened with natural vegetation.

Comment – The subdivision design allows for pedestrian connectivity. Landscaping is discussed in section 6.12 of this EA Report and **Appendix M**.

- Retain and provide new landscaping vegetation (natural species) around the eastern and southern site boundaries to create a visual buffer between the wetland area and the proposed development.

Comment – Refer to the Section 6.12 and the landscaping plan provided within **Appendix M**.

- The vegetation along the major north – south drainage extending through the site is encouraged to be retained.

Comment – Refer to Section 6.12 and the landscaping plan provided within **Appendix M**.

- To be aware that there is a sea eagle nest in the wetland to the south of the site.

Comment – Noted. Refer to Section 6.3.1 of this report and the Flora and Fauna Assessment provided in **Appendix D**.

- Avoid creating isolated pockets of salt marsh on the development site. Numerous small pockets are ineffective.

Comment – Noted. The proposal will not lead to the creation of isolated pockets of salt marsh.

- Consideration of a riparian corridor along the Hunter River frontage to contribute towards future connectivity.

Comment – The proposal does not provide a riparian corridor along the entire frontage of the Hunter River however the proposal does provide a section of constructed wetland and public open space. Refer to Section 6.12 of this report and the Landscaping Plan provided within **Appendix M**.

- Koala's have been known to cross Tomago Road from opposite woodland areas and head towards Fullerton Cove. Any new vegetation corridors should utilise native vegetation to encourage Koala movement.

Comment – The vegetation to be planted will utilise native vegetation. Refer to Section 6.12 of this report and the landscaping plan provided within **Appendix M**.

- Consider the provision of a small public jetty as part of the pedestrian linkage network through the site to the Hunter River and adjoining wetland areas.

Comment – Refer to Section 6.12 and **Appendix M** of this report. A small public floating pontoon to enable site visitors to gain access to the Hunter River whilst protecting the river bank. This structure will be subject to future engineering and investigations at a later date.

- The opening and usage of the single flap flood gate from the Hunter River should be appropriately managed to facilitate increased ecological outcomes.

Comment – Noted. Refer to Sections 6.4 and 6.5 of this report and the attached Flood Assessment and Stormwater Assessment provided within **Appendices F** and **G**.

- Any drainage / basin areas on the developed site be used to facilitate public open space areas.

Comment – The proposed drainage scheme for the site will incorporate landscaping along drainage lines. Constructed wetlands and a public park will be

located adjacent to the major drain extending adjacent to the southern boundary of the site.

It is considered that the proposal adequately addresses each of the above matters raised.

5.3.12 Friends of Tomago House and National Trust

A meeting was held on 17 November 2010 with the 'Friends of Tomago House' and a member of the National Trust, Mr. Jerry Hayes. Minutes of the meeting are provided within **Appendix R**.

The key issues raised during the meeting were:

- Proposed drainage arrangements and water quality control.
Comment – Refer to Section 6.5 of this report and **Appendix G**.
- Consideration of the land usage between Tomago House and Tomago Chapel. An existing easement provides access from Tomago House to Tomago Chapel.
Comment – The proposal will not prevent operation of the easement.
- Proximity of the proposed road behind Tomago House.
Comment – The proposed road has been given a landscaped buffer.
- Consideration of sympathetic land uses adjacent to Tomago House and Chapel.
Comment – Future land use will require separate approval. Refer to Section 6.7 of this report and the Statement of Heritage Impact provided in **Appendix I** for further details.
- Consideration of flora and fauna impacts.
Comment – This matter is addressed within Section 6.3.1 and the Flora and Fauna report provided as **Appendix D** of this report.
- Consideration of landscape screening to provide a buffer to wetlands to the south and east of the site.
Comment – Landscaping is provided (refer to Section 6.12 of this EA Report and **Appendix M**). It is noted that the north eastern corner of the site will not be developed and will be untouched and retained as freshwater wetland. This will provide a buffer zone setback from the RAMSAR wetlands ranging from 380m to 2km.
- The proposal should respect existing sight lines enjoyed from Tomago House.

Comment – An appropriate visual connection has been provided for (refer to the landscape plans provided in Section 6.12 and **Appendix M** of this EA Report).

- Ongoing consultation.

Comment – This will be achieved throughout the assessment stage of the Project Application.

5.3.13 Tomago Aluminium

A written response in relation to the proposal was received from Mr. Warren Brown (Environment and Sustainability Manager) of Tomago Aluminium (see **Appendix R**). The correspondence confirms the following:

- The subject site falls within the designated buffer zone for the Tomago Aluminium Smelter. The designated buffer zone was established by the NSW Department of Planning as part of the original smelter approval process to ensure incompatible activities on land around the smelter were not developed.

When the NSW State Government purchased a large area of buffer zone property from Tomago Aluminium in the area subject to the proposed subdivision, Tomago Aluminium sought to emphasise that the surrounding airshed capacity is largely consumed by existing emissions and that the noise environment is also close to upper limits.

Comment – Noted.

- Tomago Aluminium requests that the proponent be mindful of the operation of the smelter in the development of the land. Tomago Aluminium would be concerned if new industries to the area sought to emit additional fluoride or sulphur dioxide into the airshed.

Comment – Future development within the proposed subdivision will be subject to future project / development applications. This matter is further addressed in Section 6.16 of this EA Report.

- Tomago Aluminium noted that established monitoring sites (both air quality and vegetation) are located on the subject land (to meet DECCW (now OEH) licensing requirements). If access or relocation of the sites are required as part of the development, it is requested that this be discussed with Tomago Aluminium in the first instance.

Comment – Noted, ongoing discussions will be undertaken with Tomago Aluminium should any future works require relocation or access to the monitoring sites.

5.3.14 Hunter Bird Observers Club

No formal written response was received from the Hunter Bird Observers Club. It is noted however that members of the club attended the meeting held with the Friends of Tomago House (see 5.2.10 above) and their input into the meeting has been noted above.

5.3.15 Community Group Members from Adjoining WesTrac Project Approval

A letter was forwarded to all community group members on 2 November 2010 inviting comment in relation to the proposal. No responses were received.

Community group members will also be provided with adequate opportunity to comment on the proposal during the public notification process of the Part 3A Project.

5.3.16 Adjoining / Nearby Land Owners

The following is noted:

- A mailbox drop exercise was undertaken by ADW Johnson to notify nearby landowners of the proposal. The notified parcels of land are demonstrated in the below figure.

No responses were received. It is considered that adjacent / nearby land owners will be provided with adequate opportunity to comment on the proposal during the public notification process of the Part 3A Project.

- Preliminary informal discussions have been held with the new owner of Lot 1002, Port Waratah Coal Services (PWCS). Formal consultation will be ongoing as the project progresses. It is considered that the PWCS will be provided with adequate opportunity to comment on the proposal during the public notification process of the Part 3A Project.
- Direct consultation will be undertaken with the owner of the adjoining land to the west of the subject site in August 2012. In particular, ADW Johnson will supply and detail the findings of the Regional Flooding Assessment prepared by BMT WBM (see **Appendix F**) and seek feedback. Furthermore, it is considered that the owner of this land will be provided with adequate opportunity to comment on the proposal during the public notification process of the Part 3A process.

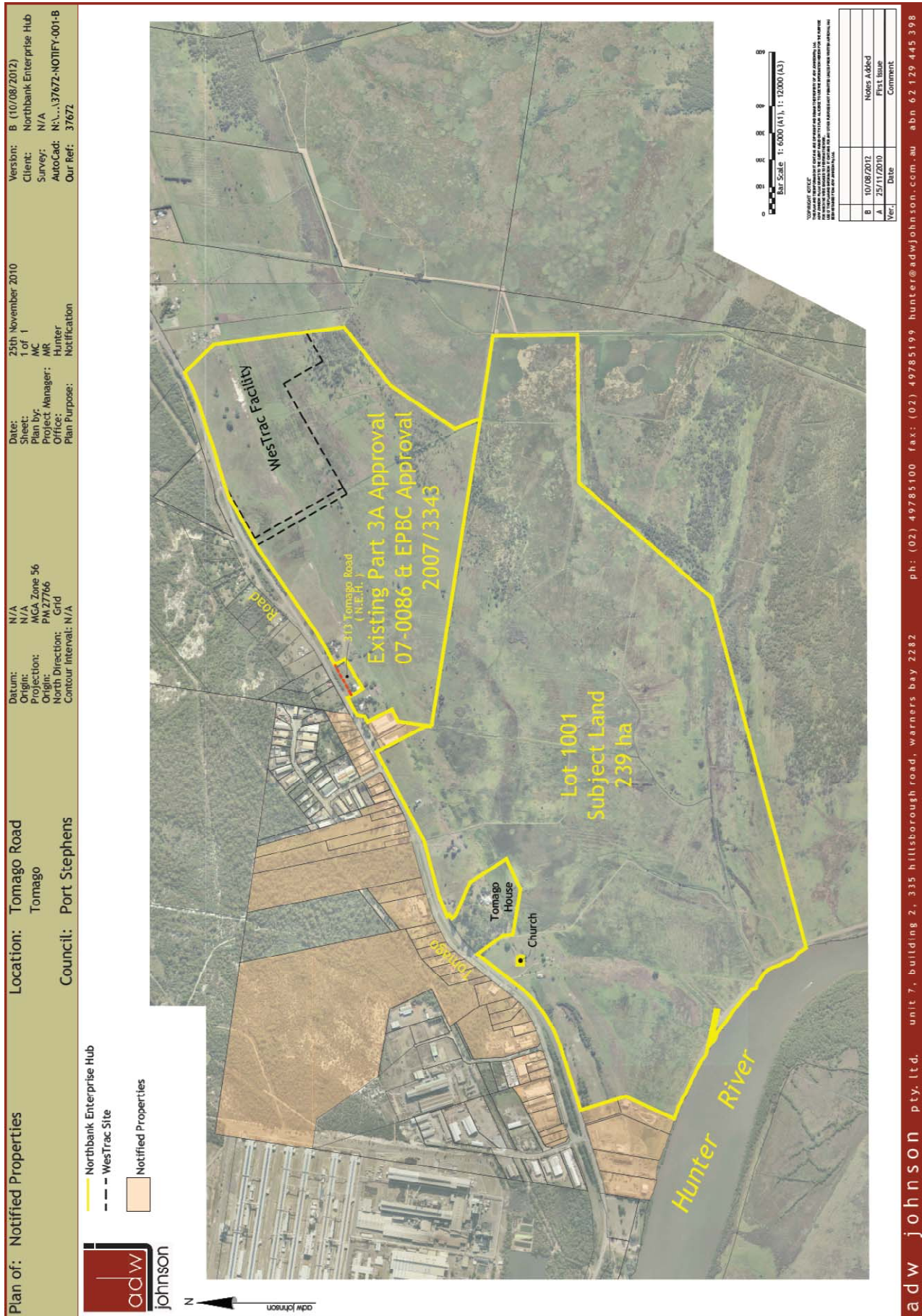


Figure 13 - Notified Properties.

5.3.17 Public Newspaper Notification

A public notice was placed in the Newcastle Herald on 20 November 2010 and the Port Stephens Examiner on 25 November 2010 inviting comments in relation to the proposal. Copies of the notices are provided within **Appendix R**. No responses were received.

It is considered that the general public will be provided with adequate opportunity to comment on the proposal during the public notification process of the Part 3A Project.

5.4 THE PROJECT TEAM

Consultants were commissioned to undertake specialist assessments and investigations to identify the various issues associated with the proposed subdivision.

The Environmental Assessment for this project has been undertaken by the following project team:

Company	Personnel / Project Coordinator	Responsibility
Northbank Enterprise Hub Pty Ltd	David Aspinall Kurt Robinson	<ul style="list-style-type: none"> Proponent Director, Property Management & Development – Australian Capital Equity
ADW Johnson Pty Ltd	Craig Marler Scott Day Lachlan McRae Mat Radnidge Ian McNicol	<ul style="list-style-type: none"> Project Management and Principal Planner Environmental / Civil Engineering Town Planning Community Consultation
Suters Architects Pty Ltd	David Rose Robert Macindoe Michael McPherson	<ul style="list-style-type: none"> Subdivision design and layout
Ecobiological	Adam Blundell Kristy Peters	<ul style="list-style-type: none"> Ecological survey Flora and fauna assessment report
TPK & Associates	Terry Keating	<ul style="list-style-type: none"> Traffic Assessment Report
BMT WBM	Darren Lyons Mark Wainwright	<ul style="list-style-type: none"> Flood Study Stormwater Design

Company	Personnel / Project Coordinator	Responsibility
EJE Architecture	Barney Collins	<ul style="list-style-type: none"> Heritage Impact Statement
Austral Archaeology	Justin McCarthy	<ul style="list-style-type: none"> Historical Archaeological Desktop Assessment and Sensitivity Mapping
McCardle Cultural Heritage	Penny McCardle	<ul style="list-style-type: none"> Aboriginal Archaeological Assessment
Spectrum Acoustics	Neil Pennington	<ul style="list-style-type: none"> Acoustic Assessment
Coast Ecology	Dr Kristy McQueen	<ul style="list-style-type: none"> Aquatic Assessment
Douglas Partners	Stephen Jones Matthew Blackert	<ul style="list-style-type: none"> Preliminary Geotechnical Assessment Contamination Assessment
Terras Landscape Architects	Phil Williams	<ul style="list-style-type: none"> Landscape design
Environ Australia	Fiona Robinson Steven Cadman	<ul style="list-style-type: none"> Groundwater Modelling & Monitoring

6.0 Environmental Assessment

6.1 INTRODUCTION

This section investigates, and makes assessment of, the key environmental issues associated with the site and the proposed development, including having regard to the Director General's Requirements.

6.2 DISCUSSION OF RELEVANT LEGISLATION

An overview of legislation has been presented in Section 4.0 of this report.

As previously referenced, the proposed development is permissible within the *IN1 General Industrial* zoning applying to the land, and is consistent with the Lower Hunter Regional Strategy which identifies the site for employment land.

The NSW Director General confirmed on 15 October 2010 that the proposed development is a Major Project to which Part 3A of the Environmental Planning & Assessment Act 1979 applies. A copy of the letter is attached at **Appendix A** to this report. Whilst Part 3A of the EP&A Act 1979 has been repealed it continues to apply to this proposal on the basis of transitional arrangements.

The Director General issued requirements for this Environmental Assessment Report on 20 October 2010. A table assessing the Director General's Requirements is attached at **Appendix B** to this report.

The Department of Sustainability, Environment, Water, Population and Communities of the Australian Government confirmed on 16 November 2010 that the proposal is a 'Controlled Action'(EPBC Referral No. 2010/5660) and requires assessment and approval by the Minister of Sustainability, Environment, Water, Population and Communities.

A Public Environmental Report addressing the Schedule 4 Requirements of the EPBC Regulations will be prepared and submitted to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities at a later date for assessment and determination.

Pursuant to SEPP Infrastructure 2007, Clause 104 Traffic Generating Development, the proposed subdivision is identified in Schedule 3 as a Traffic Generating Development to be referred to the RMS. A Traffic Impact Assessment has been prepared by TPK & Associates and is located at **Appendix L** to this report.

SEPP 33 Hazards have been considered under Section 6.18 of this EA Report.

SEPP 71 Coastal Protection, Clause 8 Matters for Consideration, have been addressed in Section 4.4.5 of this report.

6.3 ECOLOGY

6.3.1 Flora & Fauna

The subject site has a long history of grazing (see Figure 6) and is substantially cleared of significant tree cover and is dominated by pasture grasses, however, does contain a number of Endangered Ecological Communities. The land has been modified over time with a series of manmade drains which convey water from the site to the wetlands at the rear and to the Hunter River, a reflection of the long established use of the site for the grazing of cattle.

Filling is proposed to cover most of the site and a Flora and Fauna Assessment has been prepared by EcoBiological to accompany this report (see **Appendix D**) and assess relevant impacts.

The Flora and Fauna assessment methodology included the following:

- Review of databases and literature including:
 - A list of threatened flora and fauna reported from the local area was obtained from the OEH database, *the Atlas of NSW Wildlife*.
 - A review of past ecological reports carried out in the general area and a variety of other databases were consulted for any additional threatened species records.
 - A field survey conducted using the compiled list of threatened species as a guide to species potentially occurring in the study area. The survey was not, however, limited to the species compiled from database extracts and past ecological reporting records. Searches were undertaken for any species listed on *Schedules 1 and 2* of the *TSC Act* that were considered likely to occur in the type of habitat present in the study area. The likelihood of any 'key threatening processes' occurring in the study area was also assessed.
- Systematic flora surveys were conducted across the study area and vegetation community mapping was established (see Figure 7). The significance of each vegetation community was assessed.
- An assessment of vertebrate fauna was undertaken across the study area and the following fauna groups were surveyed based on the *Threatened Biodiversity Survey and Assessment Guidelines (DEC 2004; DECCW 2009a)* and the *Lower Hunter Central Coast Regional Environmental Management Strategy: Flora and Fauna Guidelines (Murray et al. 2002a, 2002b)*:
 - Arboreal mammals;
 - Small and large terrestrial mammals;

- Bats;
 - Birds;
 - Targeted migratory bird surveys;
 - Targeted nocturnal bird surveys;
 - Targeted Australasian Bittern surveys;
 - Amphibians; and
 - Reptiles.
- An assessment of representative fauna habitat values was made across the study area.

Flora

Threatened Ecological Communities

Field surveys conducted by EcoBiological identified the following Threatened Ecological Communities on the subject site:

- Swamp Mahogany – Paperbark Swamp Forest;
- Swamp Oak Rushland Forest;
- Swamp Oak Rushland Forest – Regeneration; and
- Freshwater Wetland Complex.

An assessment of significance of each of the above Threatened Ecological Communities concluded that the proposal will have no unacceptable impact on these communities.

Compensatory (Environmental Offset) Strategy

An offset package (containing both on-site and off-site offsets) is currently being developed in consultation with OEH. Appropriate conservation mechanisms and management plans for these areas will be determined in due course.

The proponent has incorporated into the site design layout retention of a 12.5ha portion of Freshwater Wetland Complex and a 3.4ha portion of Swamp Oak Forest (see Figure 14 below). The retained Freshwater Wetland Complex provides a minimum 380m buffer to the adjoining Ramsar wetland. The western section of the proposed perimeter berm will be located north of the existing drainage channel. This will enable preservation of mapped SEPP 14 wetland within the retained Swamp Oak Forest Patch. Management plans to

protect and monitor these retained habitats are confirmed in the Statement of Commitments (see Section 7.3.1 of this EA Report).

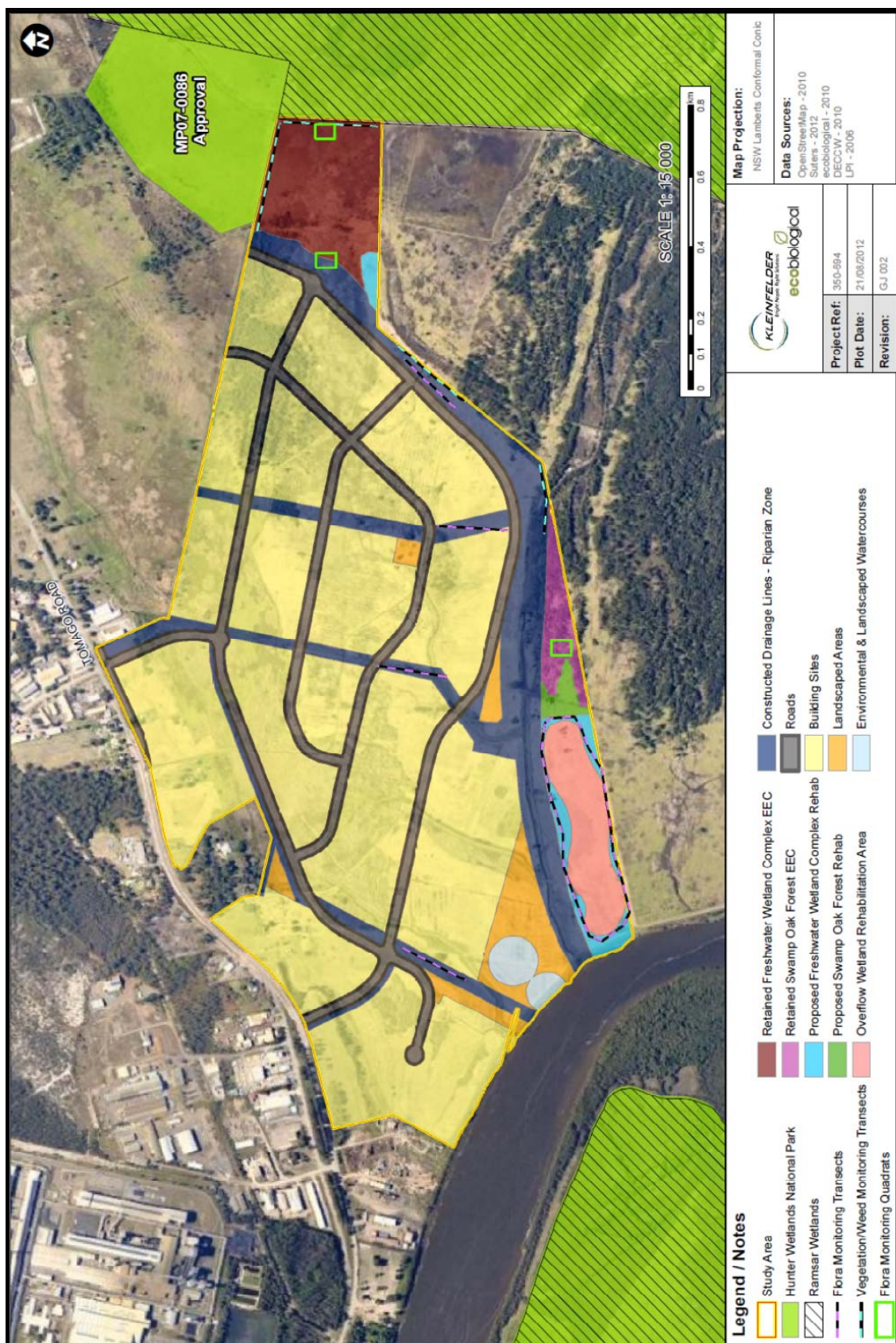


Figure 14 - On Site Offsets & Mitigation Measures.

Flora

The field studies undertaken by EcoBiological found no threatened flora species within the study area. Threatened species with potential habitat occurring in the study area were identified as:

- Noah's False Chickweed (*Lindernia alsinoides*);
- *Maundia trichlochinoides*;
- Tall Knotweed (*Persicaria elatior*); and
- *Zannichellia palustris*.

The EcoBiological report undertook an assessment of these above flora species with potential habitat occurring in the study area found that given each of the species were not identified as occurring on the study area, that the proposed development will have no significant impact on these species.

Fauna

The EcoBiological fauna field surveys identified nine threatened species listed as vulnerable under the NSW Threatened Species Act 1995 in the study area:

- Grey-headed Flying fox (*Pteropus poliocephalus*) (also listed as vulnerable under the Commonwealth EPBC Act 1999);
- Eastern grass owl (*Tyto longimembris*);
- Southern Myotis (*Myotis macropus*);
- Eastern Bentwing-bat (*Miniopterus oceanensis*);
- Little Bentwing-bat (*Miniopterus australis*);
- Eastern Freetail-bat (*Mormopterus norfolkensis*);
- Eastern False Pipistrelle (*Falsistrellus tasmaniensis*);
- Yellow-bellied Sheath-tail-bat (*Saccolaimus flaviventris*); and
- Greater Broad-nosed Bat (*Scoteanax rueppelli*).

Two migratory species listed on the EPBC were also recorded during surveys of the study area (White bellied Sea-Eagle and Cattle Egret).

An assessment of impact on each of the above species was undertaken and it was concluded that the proposal will have no significant impacts.

In relation to the Eastern Grass Owl in August and September 2011 EcoBiological undertook a widespread regional Grass Owl survey (further to two Grass Owl surveys that were undertaken by EcoBiological in 2006). Forty sites were selected either by known records of the Grass Owl obtained through the OEH Atlas or through EcoBiological records, and from site inspections of areas containing potential habitat. The area of potential habitat was estimated to be approximately 20,624ha in area.

In total 11 of the 40 sites had confirmed sightings of Grass Owls. A synchronised survey was carried out at the 11 sites to determine if owls were being counted multiple times. It was found that 7 individuals, or 'groups' of owls were located throughout the region with one 'group' utilizing the study area. It is unknown whether the owls recorded represent individuals, family groups or dispersing juveniles.

The incremental loss of habitat over the last 12 months within the study area and immediate vicinity due to flooding of the Hunter Wetlands National Park and the development to the northeast have significantly reduced the available home range area of the resident Grass Owls known to have occupied the site since 2006. Observations made by EcoBiological in 2011 show that the primary roost used in 2006 (to the east of the site) has been destroyed and the secondary roost used in 2006 within the subject site is not currently being used by the owls. However, one or more owls is currently using the site as foraging habitat and new roosting sites could reasonably be expected to be established there in the future.

The study area and surrounds still represent ideal foraging habitat for the Grass Owl, as noted by sightings of Grass Owls within the study area during the 2011 regional survey. Suitable habitat and foraging resources, as well as the presence of other individuals or groups of Grass Owls, occur in close proximity to the study area within protected areas to the south on Ash Island, and further south within Hexham Swamp Nature Reserve which may enhance population viability of this species in the region. Five of the seven confirmed individuals or 'groups' of Grass Owls were recorded within protected lands, including the Hexham Swamp Nature Reserve, Hunter Wetlands National Park and Hunter Water owned land.

The report confirms that the additional loss of a further 240ha of known foraging and roosting habitat within the study area is likely to place the family group utilising this home range at risk of extinction. On a local scale, the loss of this foraging habitat is only minor, representing less than an estimated 1% of mapped suitable habitat. Therefore, the loss of this 240ha of habitat is unlikely to be the catalyst for the entire local population being put at risk of extinction. The report notes that further habitat loss in the locality and any unforeseen impacts upon conserved land may put the local population under extreme pressure for medium to long term survival. It is therefore recommended that any further land clearing (ie. beyond that of the subject site) be conditioned with regular regional surveys for a minimum of 5 to 10 years on a yearly to 2 yearly basis.

The EcoBiological report also investigated a number of threatened fauna species that were considered as possibly occurring in the type of habitat represented in the study area. These species included:

- The Green and Golden Bell Frog (*Litoria aurea*);
- Wallum Froglet (*Crinia tinnula*);
- White-fronted Chat (*Epthianura albifrons*);
- Red-backed Button-quail (*Turnix maculosus*);
- Black-necked Stork (*Ephippiorhynchus asiaticus*);
- Australasian Bittern (*Botaurus poiciloptilus*);
- Black Bittern (*Ixobrychus flavicollis*);
- Magpie Goose (*Anseranas semipalmata*);
- Australian Painted Snipe (*Rostratula australis*);
- Spotted Harrier (*Circus assimilis*); and
- Eastern Osprey (*Pandion cristatus*).

An assessment of each of the above was undertaken and it was confirmed that the proposed development will have no significant impact on the species.

Ramsar & SEPP 14 Wetlands

The report noted that it has been determined that no adverse impact on the Ramsar Wetland and SEPP 14 wetlands adjoining the study area will occur provided that the ameliorative measures for hydrology management and the monitoring of water quality as recommended within the BMT WBM reporting are adopted. Northbank Enterprise Hub Pty Ltd intend to adopt these recommendations in full and this is confirmed in the Statement of Commitments in Section 7.5 of this report.

The buffer zone of 380m from the development to Ramsar and the deeply incised North South Drain along the common boundary, significantly minimises the potential for impacts on Ramsar.

The mitigation measures include an intensive program to protect the adjoining wetland against weed invasion. Mitigation includes maintaining hydrology of surface runoff after land filling both during and after the construction phase of the proposed development. Groundwater modelling has demonstrated that pre to post development potentiometric

contours are the same at the wetland interface. Site design has been placed on managing the wetland interface of the development with SEPP14 on Lot 1002.

Mitigation measures (outlined in Section 6.5 and 7.5 of this EA Report) will be implemented to minimise potential flooding and stormwater impacts of the proposal on the broader aquatic and terrestrial environment.

Mitigation measures include the use of a perimeter berm for any excess stormwater runoff diverted to the Hunter River, whilst maintaining hydrologic connections to adjoining Lot 1002. It is considered that the potential flood impacts associated with the proposed development of the land are acceptable and will not manifest as significant adverse impacts on adjoining properties.

Noise

Noise levels from subdivision construction and future users within the proposed subdivision have been assessed by Spectrum Acoustics and discussed in Section 6.15 of this EA Report (also see **Appendix Q**). In particular, the potential noise impacts on migratory bird populations within the adjoining RAMSAR wetlands were considered. It was found that cumulative noise levels from the project and other existing/approved industries in the area are highly unlikely to have any impact on migratory bird populations. Importantly, it is also noted that a 380m to approximately 2km setback from the RAMSAR wetlands will be created, further minimising any potential to disturb migratory shorebirds.

Lighting

The works associated with the proposed subdivision are anticipated to be undertaken during daylight hours. Therefore no lighting impacts will be generated by the proposal in relation to the adjoining wetland.

Lighting from future users within the proposed subdivision will be subject to separate development assessment and managed through implementation of a Lighting Management Plan where necessary. Given the substantial separation distance (range of 380m – approximately 2km) from the wetlands and the also the ability of end users of the site to direct and shield lighting away from the wetlands, it is considered that there will be no significant impact on the flora and fauna within the wetland.

Environment Protection & Biodiversity Conservation Act 1999

The proposed development has been referred to the Commonwealth Department of Sustainability, Environment, Water, Population and Communities. The Commonwealth Minister for the Environment declared the project to be a 'Controlled Action' under section 75 of the EPBC Act to be assessed under Public Environment Report (referral decision, EPBC 2010/5660).

With the removal of grazing from the site, and the establishment of an appropriate stormwater treatment system and water quality management and monitoring system, improvement on the current quality of water flow can be expected.

6.3.2 Aquatic Ecology

An Aquatic Assessment has been prepared by Coast Ecology and is located at **Appendix E** of this report.

The purpose of the Aquatic Assessment was to identify any aquatic constraints to consider in the design of the proposed industrial and business park subdivision and future development. Specifically the aims of the impact assessment were as follows:

- To determine the ecological importance of the freshwater wetlands and creeks within the proposed development area;
- To determine the impact of the proposal on the aquatic fauna habitat, saltmarsh and mangroves within the proposed development area;
- Consider the impacts of the proposal on SEPP 62 – Oyster aquaculture;
- To gain an understanding of the biota currently utilising the adjoining SEPP 14 wetlands and assess the impact of the proposal on these habitats; and
- To determine the importance of the proposed development area as a source of particulate organic carbon to the local aquatic environment.

The assessment involved a combination of the following:

- Threatened species impact assessment;
- A habitat assessment was conducted on site to determine the presence / absence of suitable habitat for threatened species likely to occur in the area;
- Water quality samples were collected from drainage and freshwater wetlands within the subject site and from the Hunter River and unnamed creek to the east of the subject site;
- Macrophyte surveys were conducted and instream vegetation was also recorded by Ecobiological in their Flora and Fauna Assessment (see Section 6.3.1 of this EA Report and **Appendix D**);
- Macroinvertebrate surveys were conducted within the drainage lines on the subject site;
- Fish surveys were undertaken including:

- o Bait Trap Surveys – were used to sample fish within the drainage channels and freshwater wetlands that intersect the site; and
- o Fyke Net Surveys – were used to sample fish within the mangroves in the adjoining SEPP 14 / Ramsar wetlands.
- Organic Carbon Analysis. Water samples were collected from four (4) locations; two at the mouth of the each of the drainage lines within the site, one within the Hunter River upstream of the subject site, and one from the creek sourcing the wetlands adjoin the site to the east.

The below figure shows the survey locations.

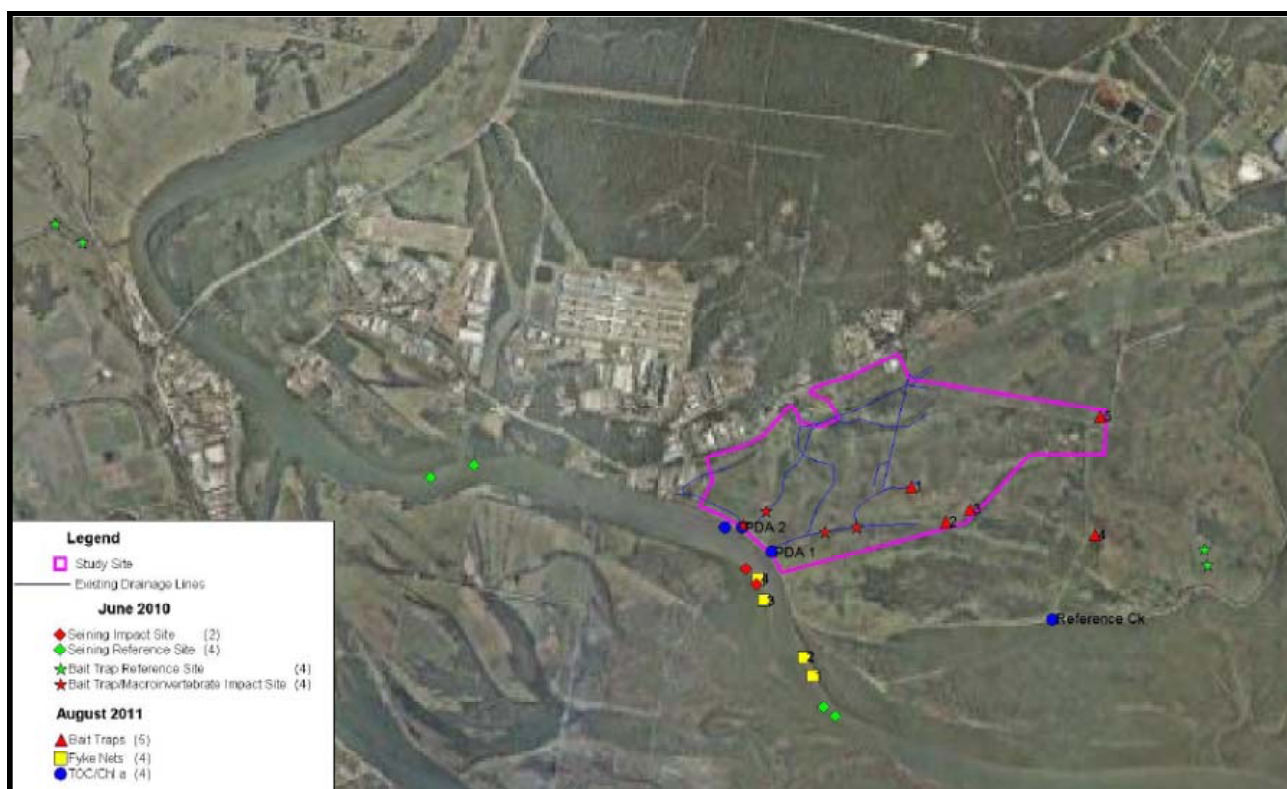


Figure 15 - Survey Locations.

The assessment was conducted within a study area defined as approximately 10km radius of the proposed development area.

The following is a summary of the findings of the Aquatic Impact Assessment:

- The water quality recorded from the drainage lines within the PDA was below ANZECC guidelines for dissolved oxygen and pH and nutrient concentrations (total nitrogen and total phosphorus) exceeded ANZECC guidelines for estuarine systems. The creeks within the subject site were congested with macrophytes, with up to 70% instream vegetation coverage, the dominant species being *Typha orientalis* and *Phragmites australis*. While these are native species, they are highly invasive in wetlands and creeks with high nutrient levels.

- Fish species within the subject site drainage lines were dominated by the exotic Mosquito fish, along with some hardy native species. Initial macro-invertebrate surveys indicated that the drainage lines were well below reference condition, indicating that the health of the drainage lines in the subject site was relatively poor. The reporting confirms that care must be taken with the interpretation of macroinvertebrate results however as the AUSRIVAS model used is not designed for slow moving waters with estuarine (tidal) influence. For this reason, no further macroinvertebrate surveys were conducted.
- The subject site contains approximately 8km of drainage lines of relatively poor health. These will be removed and then reinstated following the staged development. The proposed open drainage channels would be earth lined and landscape vegetated with instream vegetation and the existing floodgates at the mouth of the drainage lines entering the Hunter River will remain. The extent of drains across the site increases post development. As such, the proposed open drainage channels are likely to continue to provide fish habitat equivalent to the existing habitat available, thereby maintaining a 'no net loss' habitat policy. Figure 16 below demonstrates the proposed fish crossings within the Northbank Enterprise Hub.



Figure 16 - Fish Friendly Crossings Post Development.

- The proposed development of the subject site is unlikely to have a significant impact on the mangrove environment within the subject site as the extent of works does not include the Hunter River foreshore zone where mangroves occur. No saltmarsh communities have been mapped within the subject site and as such, the proposal is unlikely to result in the destruction of this Endangered Ecological Community.

- Mitigation measures have been proposed to minimise potential impacts of the proposal on the adjoining wetlands, with hydrologic pathways and flow regimes remaining the same post development. In particular the use of a perimeter berm along the south eastern boundary of the site will prevent excess water from the subject site entering directly in to the adjoining wetlands and saltmarsh areas, and the onsite treatment of stormwater prior to discharging into the Hunter River. Stormwater and groundwater will be adaptively managed to ensure no long term adverse impacts on the adjacent wetlands.

The Aquatic Impact Assessment concludes that the proposal is unlikely to have a negative impact on the broader aquatic environment, including the adjoining SEPP 14 wetlands. The proposal is unlikely to negatively impact on water quality such that it would detrimentally affect commercial oysters cultured in the Hunter River. This is also based on the fact that design for pollutant reduction targets will be met and the distance to the oyster leases being approximately 7.5km downstream at Fern Bay. The relative contribution of the subject site to food availability (i.e. particulate organic carbon) to detritus / filter feeders in the local aquatic area is considered minimal due to the large catchment area of the Hunter River and the many sources of organic carbon available (both autochthonous and allochthonous).

6.4 FLOODING

6.4.1 Regional Flooding

The site is subject to inundation by regional floods from the Hunter River. Filling of the site is necessary for flood immunity of the business and industrial park from the 1% AEP event. BMT WBM was engaged to assess the flood impact of filling of the overall site (see **Appendix F** for the full Regional Flooding Assessment).

BMT WBM has used TUFLOW, a 2 Dimensional hydraulic model of the Hunter River floodplain developed as part of the Williams River Flood Study (BMT WBM, 2009) completed for Port Stephens and Dungog Shire Councils.

Specifically the modelling undertaken for the proposed development aimed to:

- Confirm existing flood conditions across the site including flood levels, flows and velocities to establish baseline conditions for impact assessment and the flood planning requirements for future site development;
- Assess the potential for development on site with regards to flooding constraints; and
- Identify the potential flood impacts of the proposed development over a range of design flood magnitudes.

The modelling was completed on a superseded development fill area, larger than proposed with this submission. Since this previous result would only be an overestimate by comparison to this submission, the model was not amended for the reduced development footprint. The results of the modelling and flood impact assessment confirmed the following:

- Peak 1% AEP flood levels for existing conditions are estimated to vary from 2.8m AHD at the western site boundary to 2.4m AHD at the eastern site boundary;
- The majority of the existing site is subject to significant inundation in major flood events with typical 1% AEP flood depths across the site are in the order of 1 – 2m;
- Corresponding peak flow velocities for the 1% AEP event under existing conditions are typically in the order of 0.5m/s;
- The southern portion of the existing site is currently classified as 'Floodway' for a 1% AEP event corresponding to the location of major overbank flows spilling from the Hunter River North Arm channel to the floodplain;
- Extensive fill is required to achieve the required flood immunity for the site. The proposed fill footprint has been excluded from any nominated floodway area;
- Local increases in peak flood level of up to 0.18m immediately adjacent to the proposed fill area are simulated for the 1% AEP event. Some existing industrial property immediately to the west of the development would be impacted, however given the magnitude and extent of area affected, it is expected some local works (bundling/fill) could be used to effectively manage any adverse impact. Significant onground building improvements and stockpiling operations on the adjoining lands are also likely to be adversely impacting nearby properties, however these have not been considered in the regional model;
- There is a significant area of the Hunter River floodplain upstream of the development site for which peak flood level increases are predicted, albeit at relatively low levels (<0.05m) for the 1% AEP event, where depths are in the order of 2-3m. The majority of this floodplain area consists of Kooragang Wetlands and Hexham Swamp with little existing development where the effects of a minor increase during the peak event is insignificant;
- For the design events less than the 1% AEP, the impact of the proposed development is significantly less. Up to the 2% AEP event there is minimal change in peak level and peak velocity on adjoining industrial property; and
- Climate change and sea level rise of 0.9m has been considered in the modelling simulations. The site design is sufficiently elevated that on ground building floor levels will be high to not be inundated by the peak 1% AEP event and 0.9m sea level rise. Impact of the proposed development on 1% AEP peak flood levels for the SLR scenarios are same as those for the 1% AEP peak event without sea level rise.

The proposed development results in some impacts on existing design flood conditions. The most significant of these impacts are generally confined locally to the site and do not significantly impact on existing development. The further reaching impacts of the development, whilst covering a significant area, are relatively minor in absolute magnitude (ie. peak flood level increases <0.05m) and not expected to impact significantly on existing development.

It is considered that the potential flood impacts associated with the proposed development of the land are acceptable and will not manifest as significant adverse impacts on adjoining properties.

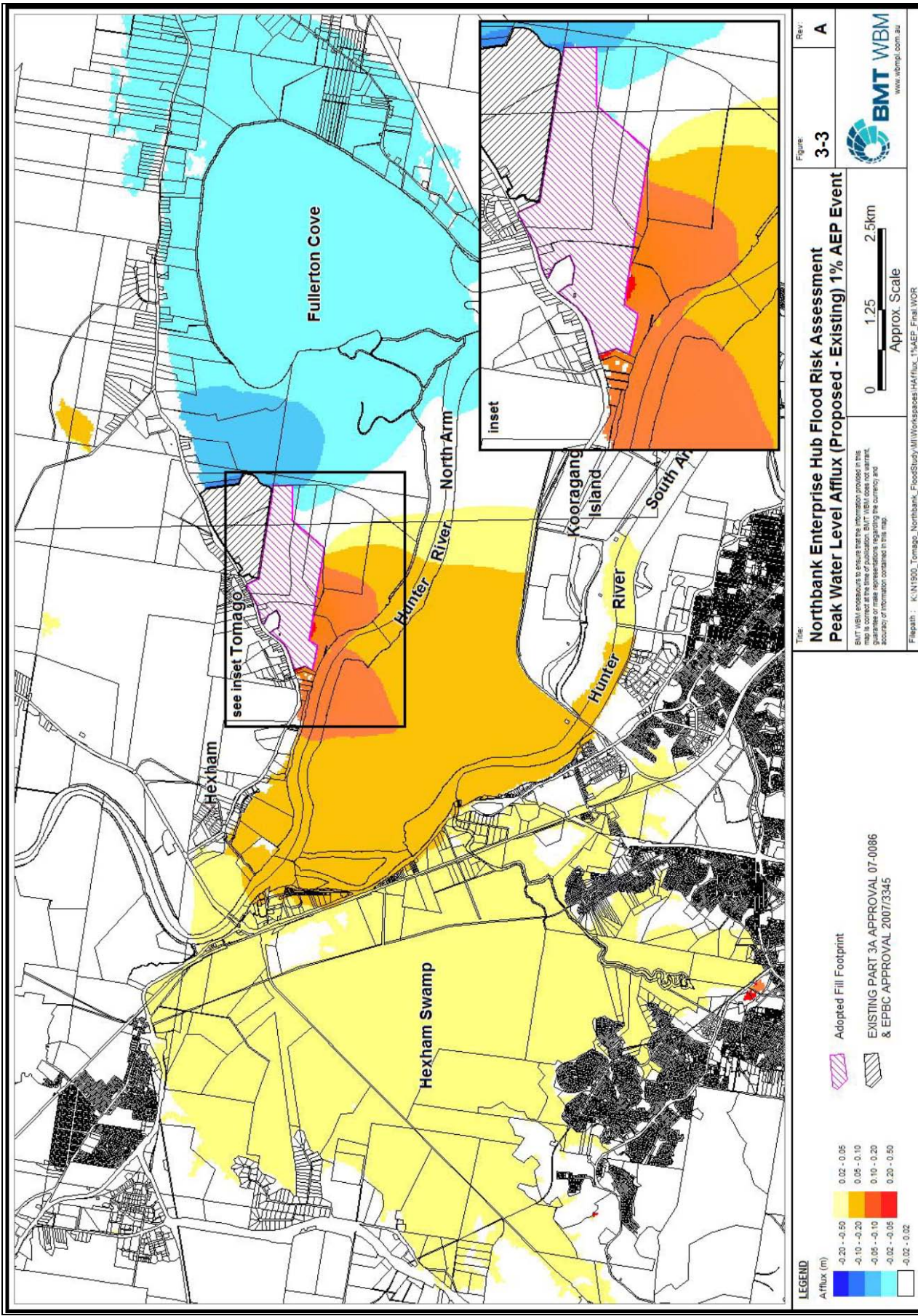


Figure 17 - Peak Water Level Afflux (Proposed – Existing) 1% AEP Event.

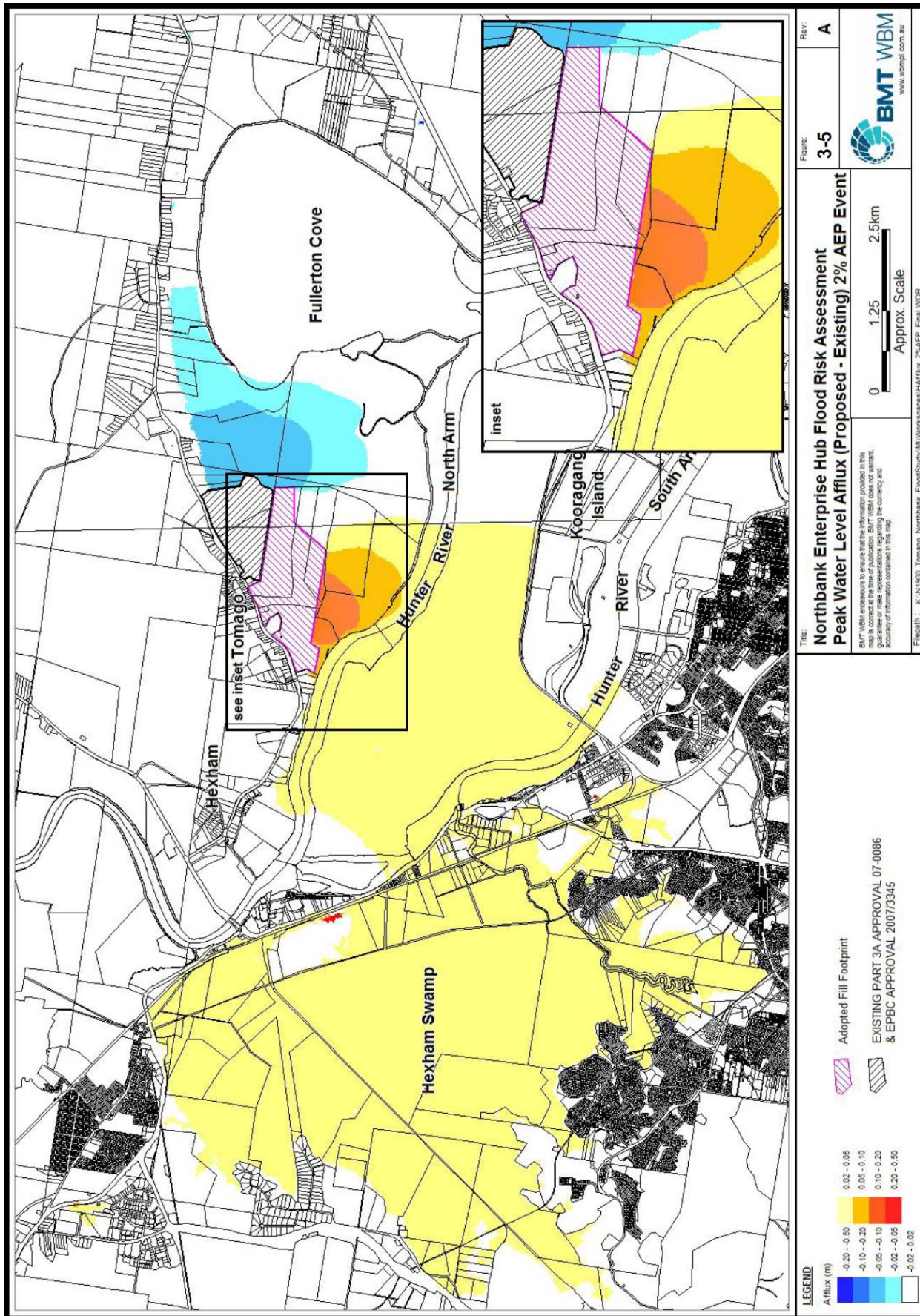


Figure 18 - Peak Water Level Afflux (Proposed – Existing) 2% AEP Event.

6.4.2 Local Flooding

In terms assessing the potential impacts of the proposed development on local flood conditions and determining drainage corridor widths for site design, a Flooding and Drainage Assessment has been prepared by BMT WBM (see **Appendix F**). Trunk drainage channels have been designed with 1%AEP event capacity. The flooding and drainage assessment gave consideration to:

- Existing site drainage;
- Design of an open channel, trunk drainage corridor system;
- Assess proposed site drainage; and
- Determine offsite impacts of local flooding.

TUFLOW, a 2D model was setup and utilised for the flood risk assessment. Direct rainfall modelling within TUFLOW was used to determine the hydrologic (rainfall / runoff) processes required for the study. A pre (existing case) and post development model topography was developed for the study. In order to optimise the drainage design of the proposed development, the open channels were represented using 1D sections through the 2D model and linked along the banks of the channels. A 5m model grid (which allows for the topography to be defined at a 2.5m resolution) was selected for the study based on a trade-off between model resolution, model run time and result size).

The model shows that because the existing site is very flat, during the 1 in 100 year design rainfall event, water ponds in local depressions across much of the site at depths of up to 0.5m. At the same time a series of small, flat drainage channels slowly convey water to the Hunter River through flapped outfalls.

The business and industrial park is based on developable land grading down at 1% slope to a minimum 2.5m AHD at the drainage channel edges of five main drainage channels. The adoption of in-channel water quality treatment measures strongly influenced the drainage design by dictating minimum cross section dimensions. Design of the drainage channel network involved optimising the area of available land for development while keeping peak water levels predicted in the 1 in 100 year rain event below 2.5m AHD. Trunk drainage channel widths range from 28m-41m at this preliminary design stage. The optimised drainage design is detailed within the Stormwater Assessment discussed in Section 6.5 below and provided in **Appendix G**.

A perimeter berm (bund) has been included along the eastern and south eastern boundary for stormwater control. The perimeter berm has capacity to convey the runoff from 1%AEP event, with a crest level of 2m AHD adjacent to the development footprint and 1.2m AHD, extending along the southern boundary adjacent to no fill.

Based on the assessment undertaken by BMT WBM it is considered that the proposal is acceptable in terms of potential flood impacts. The concept and any minor drainage issues would be confirmed at the detailed design stage of development.

6.5 STORMWATER, WATER QUALITY & WATER BALANCE

The detailed assessment on stormwater management by BMT WBM is contained in **Appendix G**. The proposed development will increase the total imperviousness for developable areas within the project site from approximately 0% to 80%. This increase in imperviousness will increase the total stormwater runoff volume with an associated increase in the total volume of stormwater pollutants generated from the catchment surfaces. Without mitigation, the proposed development has the potential to convey excessive loads of nutrients, sediment, heavy metals, oils/greases, gross pollutants and other common stormwater pollutants to the Hunter River. A series of mitigation measures are proposed to ensure that both the quantity and quality of stormwater are managed within the project site prior to discharge into the Hunter River.

The modelling was completed on a superseded development fill area, a larger development area over Lot 1001 than proposed with this submission. Since this previous result would only be an overestimate of pollutants by comparison to this submission, the model was not amended for the reduced development footprint area. The result is that the retained freshwater wetland area of approximately 13 hectares was modelled, included as developed area in the MUSIC Model. The MUSIC modelling results demonstrate that the proposed water management strategy would achieve estimated 92%, 75% and 48% reductions in TSS, TP and TN loads respectively. These reductions exceed Port Stephens Council's and OEH's (previously DECCW's) runoff quality targets for industrial development. The MUSIC modelling conservatively considered the treatment achieved through the proposed biofiltration swales only. Measures of gross pollutant traps, grassed swales and constructed vegetated waterways are also included within the strategy and these measures would increase the load reductions. In addition, aquatic vegetation along the drainage channels would provide further filtration and nutrient uptake between the development and the discharge points into the wetlands adjacent and the Hunter River. This is expected to further improve the performance of the strategy.

Conventional piped stormwater drainage systems would convey stormwater runoff from the development surfaces to proposed major drainage channels. Gross pollutant traps would be formed adjacent to each stormwater outlet discharging into the drainage channels to capture gross pollutants and coarse sediment. Overflow from the gross pollutant trapping basins would be directed through short sections of grassed swales and constructed vegetated waterways to provide further treatment to remove sediment loads and allow for nutrient uptake. Runoff filtered through the grassed swales and constructed vegetated waterways would be directed to biofiltration swales for further filtering and nutrient uptake. Biofiltration swales would be formed along benched areas on each side of the central drainage channels.

Stormwater treatment measures, notably the main drainage channels and biofiltration swales, would be progressively constructed as development proceeds throughout the Project Site. Progressive implementation of the stormwater strategy would be aligned with the proposed development staging (Stages 1-4). Provided below is a figure demonstrating the stormwater quality management concept for the site.

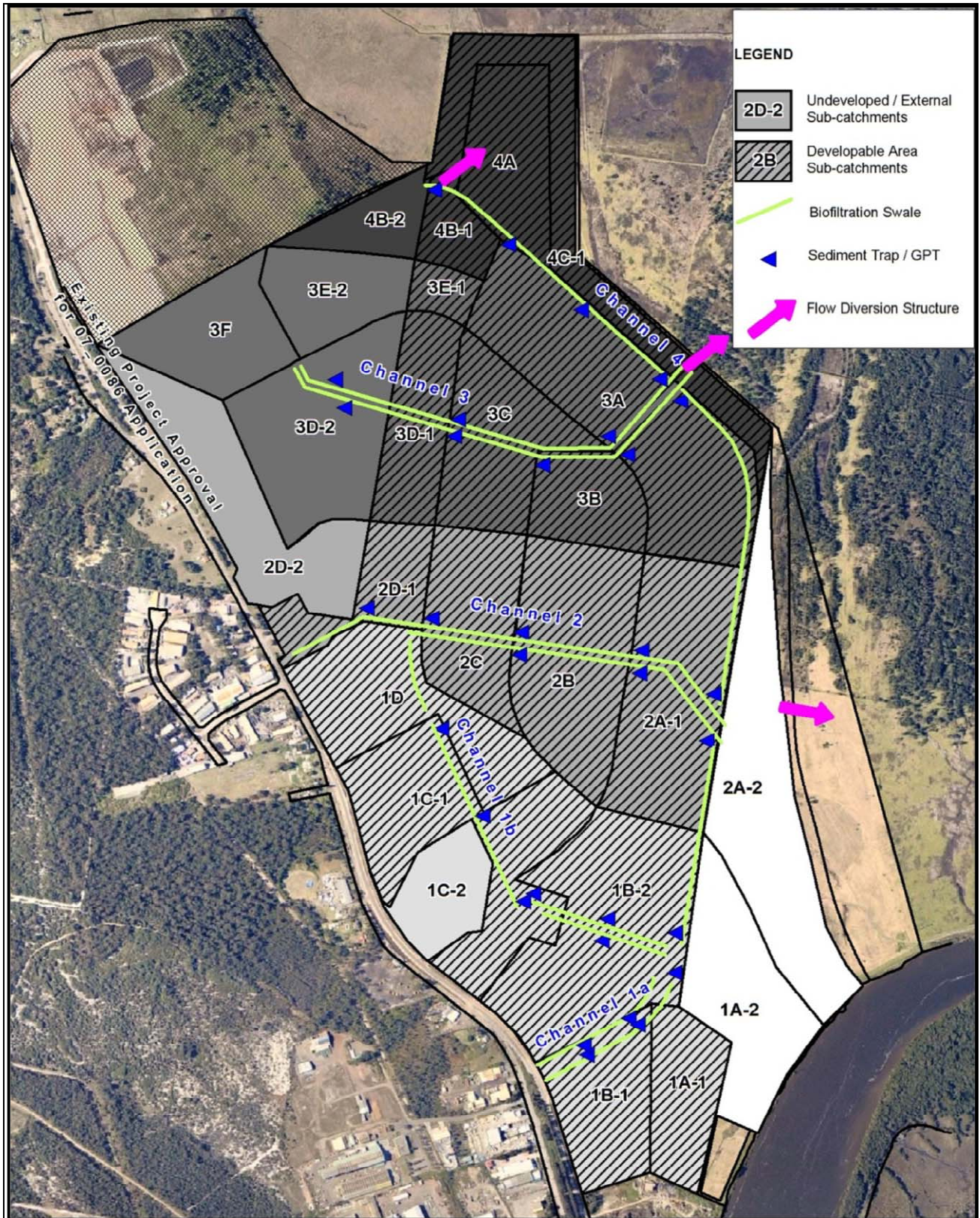


Figure 19 - Stormwater Quality Management Concept.

Management and Monitoring shown on the figure below is described further in Section 6.22 of this EA Report and in the Stormwater Assessment in **Appendix G**. This will ensure that stormwater quality is managed from all sites as development proceeds.

Refer to Section 6.22 of this EA Report for overlap of the stormwater assessment with the wetland interface strategy.

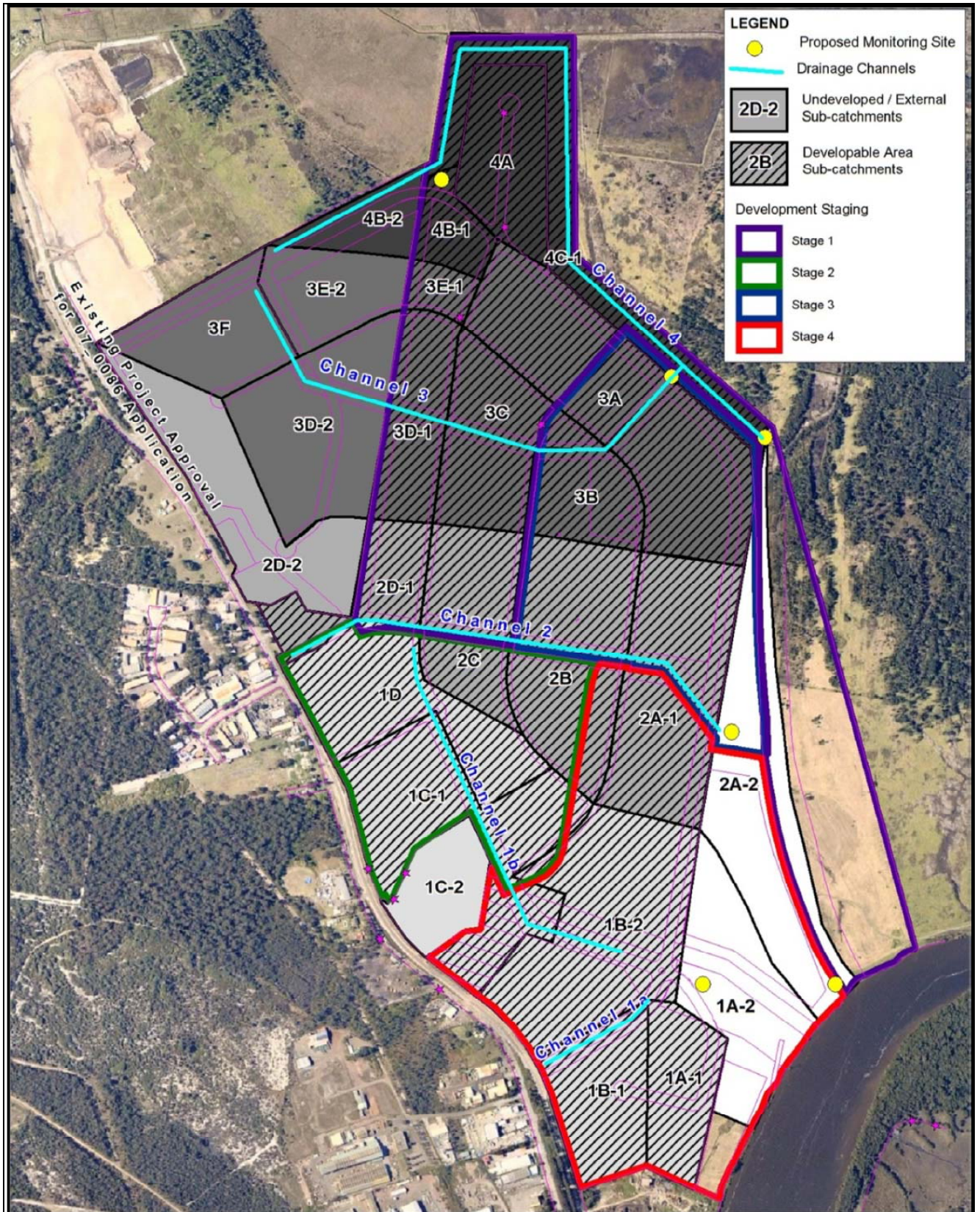


Figure 20 - Surface Water Monitoring Sites.

6.6 EROSION & SEDIMENT CONTROL

Erosion and sediment controls, described in a Soil and Water Management Plan (SWMP) are necessary during construction for the protection of receiving waters downstream. A SWMP will be required with each stage of construction and each CEMP. An erosion and sediment control plan has been prepared for Stage 1 bulk earthworks as a concept outline of the considerations for construction. Measures are temporary, however necessary and required until such time that building and construction areas are landscaped, revegetated and sealed.

Features of the plan include:

- Early sequencing of the perimeter berm;
- construction access;
- barrier fencing;
- sediment fencing;
- continuity of existing drainage during bulk earthworks; and
- sedimentation basins.

Whilst there is sufficient land space available for a sedimentation basin for almost any type of fill, works on land adjacent was completed with sand – Type C. The sediment control/basin sizing for sand diminish significantly. The perimeter berm will most likely be clayey, impermeable material – Type F to achieve function. To be conservative, a higher criteria level of protection has been adopted for the design sizing of the sediment basin(s), reflecting the sensitivity of the receiving waters downstream. “Managing Urban Stormwater: Mines and Quarries – Consultation Draft 2007” produced by DECC, was referenced due to the scale of the site works. The 90th percentile rainfall event is the standard for mines and quarries. It is also described that 2-5 day rainfall events are suitable criteria for well managed sites in which prompt action can be guaranteed. At this site the 95th percentile, 5 day rainfall event has been selected, which is approximately 3 times the storage volume of that generated by using the 75th percentile, 5 day rainfall event typically used for development sites. This gives the basin an increased capacity, capturing runoff from a greater number of storm events. This minimises the potential risk of sediment laden water leaving the site and discharging to the wetlands downstream during construction.

An overall sediment basin for the full development site, sized in accordance with “*Managing Urban Stormwater Soils and Construction*” (Blue Book) 4th Edition, Volume 1, March 2004 produced by Landcom, has been sized to be approximately 18,500m³. This sediment basin quantity however would be apportioned between the constructed wetland and a number of smaller intermediate dams for greater control of runoff during construction at shallow depths over the thick pasture grasses. Further details of the layout of sediment dams will be determined during the detailed design phase, in conjunction with the bulk earthworks strategy.

Erosion and sediment control measures to be implemented during construction include:

- 1) Disturbance only of areas to be immediately worked on and regeneration of dust and erosion free surfaces – landscaping, concrete, bitumen sealing as soon as practical thereafter.
- 2) Provision of and continued maintenance of sediment fencing to low perimeter locations.

- 3) Provision of mesh and gravel or geotextile inlet filters.
- 4) Contract specifications requiring stabilised site access, low flow earth flow earth banks and wind erosion screens.
- 5) A construction programme that provides for the sediment basin to be constructed at the outset with all site runoff, where practical, piped or channelled to this basin for primary treatment/settlement before leaving the site via a mesh supported geotextile filter/riser before discharging to the wetlands.
- 6) Contract specifications requiring regular maintenance of all erosion and sediment control structures and devices for the full contract and maintenance period.

Land Disturbance Conditions

Where practicable the soil erosion hazard shall be kept as low as possible. Limitations to access are to be in accordance with the below table:

Table 1 - Land Use Limitations

LAND USE	LIMITATION
Access Areas	Access is to be limited to the designated all weather roads.
Truck Wash Down Bay	Any truck exiting out of the site shall be thoroughly cleaned and limit the exportation of clay and sediment on public roads.
Remaining Lands	Entry is prohibited to remaining land.

Construction Sequence

Works shall be undertaken in the following sequence prior to the commencement of bulk earthworks:

- 1) Install sediment fencing and cut drains to meet the requirements of the SWMP. Waste collection bins shall be installed adjacent to site office.
- 2) Construct stabilised site access in location nominated by the Contractor and in accordance with Port Stephens Council's requirements.
- 3) Construct sediment basins for disturbed areas in accordance with the rate per hectare provided in the SWMP. Install risers and two pegs in the floor of the basin and have them marked to show the top of the sediment storage zone. Ensure the basin is cleared of sediment once the design capacity is reached.
- 4) Redirect clean water around the construction site.

- 5) Install sediment control protection measures at all natural and man-made drainage structures. Maintain until all the disturbed areas are stabilised.
- 6) Clear and strip the work areas in accordance with the Geotechnical advice in **Appendix P** of the EA Report (refer to Section 6.13 of this EA Report).
- 7) Any disturbed areas, other than lot grading areas, shall immediately be covered with site topsoil within 7 days of clearing. Lot re-graded shall be covered with bitumen emulsion as specified.
- 8) Apply permanent stabilisation to site (landscaping).

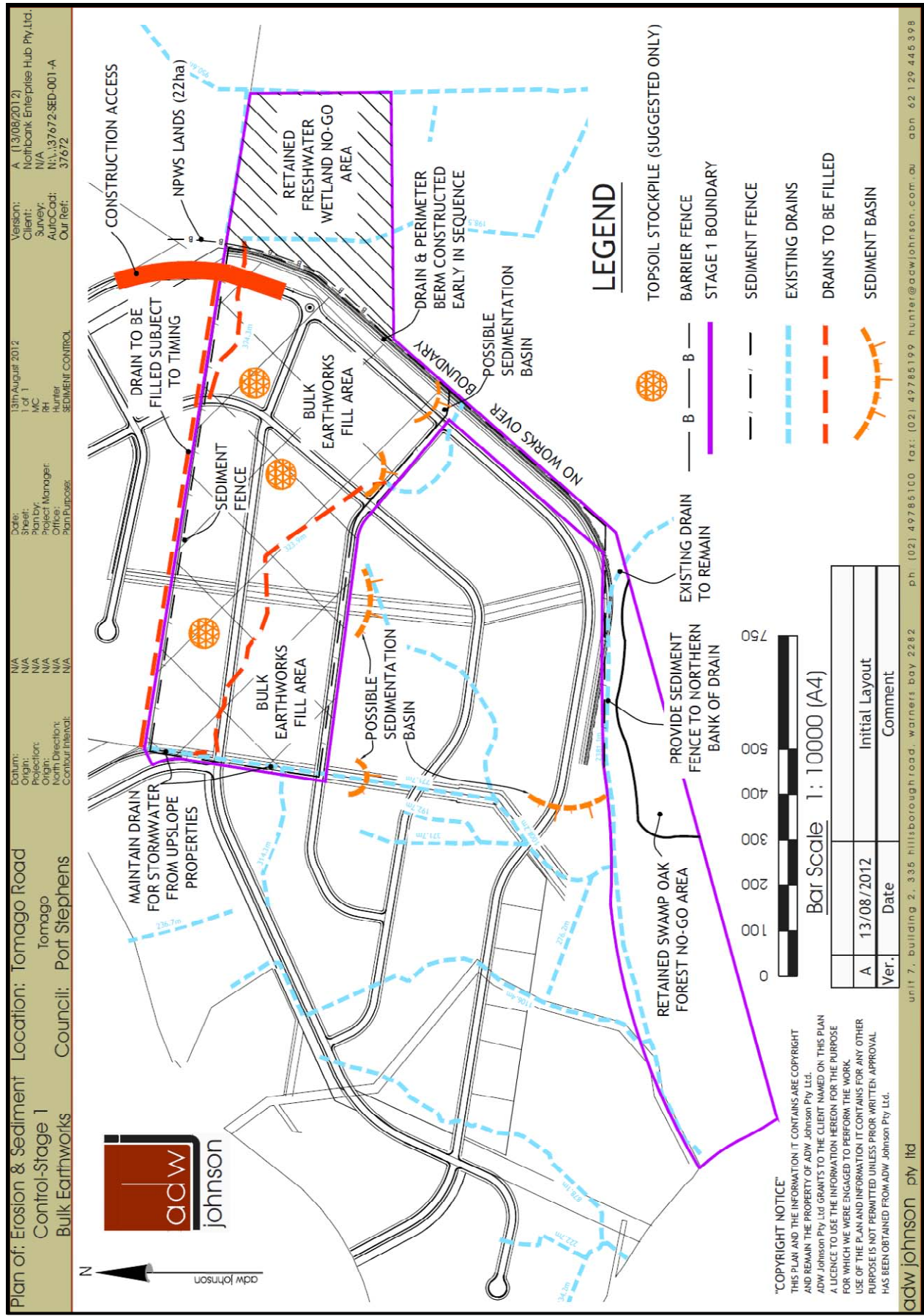
Sediment Control Conditions

- 1) Proprietary sediment fencing shall be installed by the Contractor in accordance with their approved SWMP and elsewhere at the discretion of the site superintendent to contain sediment fractions as near as possible to their source.
- 2) Sediment removed from any trapping device shall be relocated where further pollution to downslope lands and waterways cannot occur.
- 3) Stockpiles shall be located by the Contractor in accordance with their approved SWMP and elsewhere at the discretion of the site superintendent. Where stockpiles are to be in place longer than 30 days they shall be stabilised by covering with mulch or with temporary vegetation.
- 4) Water shall be prevented from entering the permanent drainage system unless it is sediment free. Drainage pits are to be protected in accordance with the Contractor's approved SWMP.
- 5) Temporary sediment traps at pits shall be retained until after lands they are protecting are completely rehabilitated.
- 6) Dust suppression will be required for the control of airborne particles during construction. This will be via standard water cart usage during earthworks and pavement construction of the hardstand areas.

Site Maintenance Requirements

- 1) Waste bins are to be provided for all construction refuse. They are to be emptied at least weekly and refuse is to be disposed in accordance with the site manager's recommendations.
- 2) The site manager shall inspect the site at least weekly and shall:
 - (a) Ensure that all drains are operating effectively and shall make any necessary repairs;
 - (b) Remove any spilled material from area subject to runoff or concentrated flow;
 - (c) Remove trapped sediment where the capacity of the trapping device falls below 60%;

- (d) Inspect the sediment basins after each rainfall event and/or weekly. Ensure that all sediment is removed once the sediment storage zone is full. Ensure that outlet and emergency spillway works are maintained in a fully operational condition at all times;
- (e) Ensure rehabilitated lands have effectively reduced the erosion hazard and initiate upgrading or repair as appropriate;
- (f) Construct additional erosion or sediment control works as may be appropriate to ensure the protection of downslope lands and waterways;
- (g) Maintain erosion and sediment control measures in a fully functioning condition at all times until the site is rehabilitated;
- (h) Ensure that the revegetation scheme is adhered to and that the all grass covers are kept healthy, including watering and mowing; and
- (i) Remove temporary soil conservation structures as the last activity in the rehabilitation program.



Version: A (13/08/2012)
 Client: Northbank Enterprise Hub Pty Ltd.
 Survey: N/A
 AutoCad: N/A
 Our Ref: 37672

Date: 13th August 2012
 Sheet: of 1
 Author: M.C.
 Checker: R.H.
 Project Manager: Hunter
 Office: Hunter
 Part Purpose: SEDIMENT CONTROL

Date: N/A
 Origin: N/A
 Operator: N/A
 North Direction: N/A
 Contour Interval: N/A

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Figure 21 - Erosion & Sediment Control Stage 1 Bulk Earthworks.

6.7 EUROPEAN HERITAGE

A Heritage Assessment and Statement of Heritage Impact has been prepared by EJE Heritage to accompany this Environmental Assessment Report (see **Appendix I**). Also supplied in **Appendix I** is an addendum to the Heritage Assessment and Statement of Heritage Impact Assessment dated 23 April 2012 to directly respond to those matters raised by the NSW DoPI and Heritage Council of NSW during the March 2012 'Adequacy Review'.

The Heritage Impact Statement examines the proposed works and identifies any impacts that the proposal will have on the significance of any heritage items and outlines any measures which should be taken to mitigate any negative impacts. These are detailed below.

Significant Heritage Items Located Adjacent to the Subject Site

The following significant heritage items are located adjacent to the site:

- Tomago House and Tomago Chapel which are State significant listed on the State Heritage Register (NSW Heritage Act, 1977).
- Tomago House and its Landscape Setting are listed as having State significance under the Port Stephens Local Environmental Plan 2000.
- Tomago House including Grounds and Trees and Chapel classified by National Trust of Australia.

Investigation of Burial of Aboriginal Chief Toocooyoo

Historical research describes the burial of an Aboriginal chief, Toocooyoo, on the Tomago Estate (to which the development site historically formed part of) however the exact location of the burial is not known. The Heritage Assessment cited a newspaper report of 1953 which noted the supposed 1860's burial place of Toocooyoo:

"When the tribal chief, Toocooyoo, died in the 60's, he left all his property to the Windeyers, and, according to local legend, was buried just beyond the house under an enormous pine tree which still stands".

The Heritage Assessment confirms that given pine trees formed part of the ornamental plantings on Tomago Estate, there is therefore good reason to believe that the burial place of Toocooyoo is within the existing curtilage of Tomago House and not on the subject site.

Significant Heritage Items Located On the Subject Site

A former WWII anti – aircraft battery was found to be situated on the proposed development site. The battery was constructed following the Japanese submarine attack on Newcastle in 1942 and was established to increase protection of the Newcastle industries which were playing an important role in the war effort.

Site inspection undertaken by EJE Heritage confirmed that remnants of four (4) octagonal brick and concrete gun emplacements are located on the subject site. They are arranged in a semi circle around a partly buried concrete building which was the former command post. Approximately 250 metres from these remnant structures are three (3) reinforced concrete, above ground structures, which were used for the storage of ammunition.

Statement of Heritage Impact in Relation to Heritage Items Located On and Adjacent to the Subject Site

The Statement of Heritage Impact confirms that the following aspects of the proposal respect or enhance the heritage significance of the abovementioned items for the following reasons:

- Extension of the curtilage of Tomago House and outbuildings to incorporate its chapel and the site of its stables will create a buffer zone between the heritage items and the Northbank Enterprise Hub. This curtilage will not exclude the possibility of sympathetic and appropriate development that would maintain the viability of the site for present and future generations. A number of options might be considered. (For example, the provision of accommodation would support the current use of Tomago House and its chapel for weddings and other functions. Persons associated with the Tomago aluminium smelter and the expanding airport might also make use of such accommodation). These activities would publicise the existence of Tomago House, draw members of the public and create sustainable uses for the heritage items. It would also provide income for the conservation and maintenance of those items.

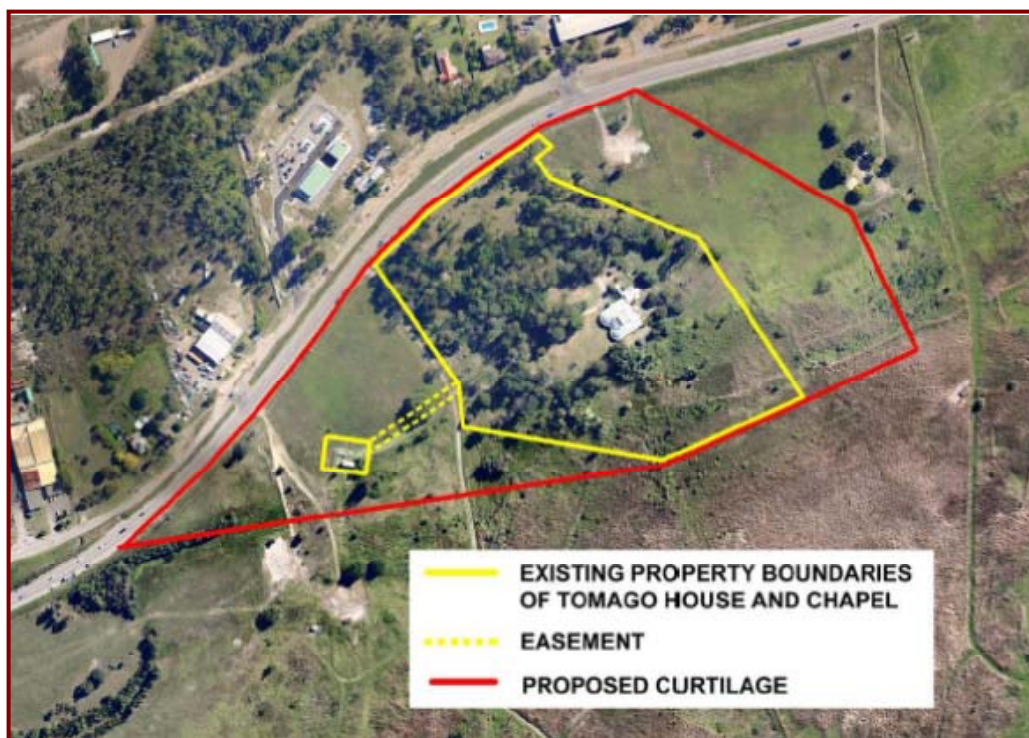


Figure 22 – Proposed Extensions to the curtilage of Tomago House, Chapel and Stables site.

- The proposed subdivision allows for a green corridor as a visual link and access between Tomago House and the Hunter River. This retains a vista between the river and Tomago House, which would have originally been a main access to the Estate.
- The proposed development includes the retention and promotion of the gun emplacements and command post as a pocket park, including interpretive elements. It is proposed that the ammunition magazines remain in-situ and be protected as archaeological relics below the intended fill level of the development. It must be noted that the site is flood prone and zoned for Industrial Uses. The development proposal includes filling the site to above the 1:100 year flood level, which will allow the site to be drained and public and private access to be safely managed. The use of the place through public access will encourage a greater understanding of Tomago House, the Chapel and the WWII defence site.
- Provision of a green buffer zone around Tomago House will reduce the visual impact of buildings within the Industrial Zoned land.
- Public access to the overall site and to the protected wetlands will be improved.
- The Archaeological Assessment prepared by Austral Archaeology (see Section 6.8 below and **Appendix J**) makes clear the statutorily mandated action that is to occur if any archaeological relic is discovered. The archaeologically sensitive areas are grouped within three classifications:
 - The scattered house sites on the flood plain, of nil to low sensitivity, will generally be protected by the progressive filling of those areas.
 - The housing belts along Tomago Road, of low to moderate sensitivity, will generally not be filled as they are on comparatively higher ground.
 - The site of the estate village to the west of Tomago House, the stable site and the western half of the anti-aircraft battery site, all of high sensitivity, will be treated in different ways. The stable site and most of the Tomago Estate village site will be incorporated within the proposed extended curtilage of Tomago House. The western half of the battery site will form the basis of Gunner Heritage Park. The military road, located in a low-lying area, will be protected by progressive filling. All these areas of high sensitivity will, therefore, be protected.

The Statement of Heritage Impact confirms the following aspects of the proposal could detrimentally impact on the heritage significance of the item:

- The visual link between Tomago House and Tomago Chapel can potentially be modified by future development. These two items are intimately connected. This connection needs to be respected in all future development in the vicinity of the House and Chapel.
- Views of the protected wetlands and Hunter River from Tomago House will be changed, with public vantage points being brought closer. The proposed sub-division must provide

for the continued protection and understanding of the importance of these protected wetlands.

The Statement of Heritage Impact indicates that the following solutions have been considered and discounted based on the following:

- Retention and conservation and access of and to the existing ammunition magazines at their existing levels was considered but discounted as their spacing and level on flood prone land presents a significant loss of potential developable industrial land zoned by the NSW Government as important for the future of the economy of the Hunter Valley, the State of NSW and Australia. It is considered that retaining the ammunition magazines as archaeological relics below the fill level and their interpretation at "Gunner Heritage Park" will sufficiently respect this short lived WWII defence facility as a group.

The Statement of Heritage Impact confirms that the development of the Tomago area as a significant Industrial Zone for the State of NSW has been predicated since the 1970s. While the realisation of this zone and use will change the visual rural setting south and east of Tomago House and Chapel and modify the topography and former use of land adjoining the Hunter River, it is considered that Tomago House and its Chapel will benefit significantly from the local economic stimulus. The proposed development will allow Tomago House and its Chapel to benefit from the increased business and financial activities on the surrounding sites.

The Development will focus public and private attention on the extant heritage items and further will allow the WWII anti-aircraft battery site and its surviving fabric to be brought into the attention of the public, which to date has never been afforded. The raising of the land and managed drainage systems will protect the battery site from flooding and make it available for public visitation and interpretation.

Conclusion & Recommendations

The overall heritage impact on the listed heritage items and the WWII Anti-Aircraft Battery is considered to be positive, provided that the heritage items and fabric discussed above are respected and the following recommendations are implemented:

- Reveal Heritage Items

Clear the overgrowth for more adequate physical assessment of each known item, including draining of the flooded battery command post; this will allow detailed design development of Gunner Heritage Park to proceed.

- Assess and Interpret the Fabric

Review the assessment of significant fabric that remains hidden, against criteria for state and national heritage significance and incorporate such findings into an overall heritage interpretation strategy for the site. The Heritage Interpretation Strategy must be undertaken by an experienced heritage interpretation specialist and must be in place within five (5) years of project approval.

Amendments to the proposed subdivision layout as the design concepts develop must continue to respect the significance of the WWI fabric as a group of items. Although the gun emplacements and command post were the 'core' of the anti-aircraft battery, the additional supporting structures on the site makes the group significant in the NSW context. Their interpretation must form part of the overall interpretation of the heritage of the site and its adjoining heritage items.

- Magazines

It is proposed to dedicate the curtilage of the anti-aircraft artillery site as a public park, to be known as Gunner Heritage Park in commemoration of the wartime role of the artillery battery. The site is not currently known to the general public, and has consequently not yet been subjected to much damage or anti-social activity. This situation may change as the surrounding undergrowth is cleared. The magazines, which are subsidiary to the gun position itself, are to be buried in filling the surrounding land to a 1 in 100 year flood level and therefore concealed from view. This will protect them from accidental or deliberate structural damage as well as from vandalism and other anti-social conduct. Prior to burial, a conservator experienced in in-situ conservation will be contacted for advice regarding the optimum way to conserve the fabric of the magazines (ammunition bunkers) once buried in fill.

Although burial will protect the relics, it is important that their sites be marked and interpreted in their individual contexts as well as in their wider relationship with the gun position. Each magazine should be suitably marked at ground level. These markers should, within a military theme, reflect the design and fabric of the structures while providing information as to their function, significance and role.

- Gunner Heritage Park

The development will conserve and maintain the fabric of the gun position itself, including the gun emplacements, Command Post and Director Post. The site will be cleared of undergrowth; a drainage plan should be re-established; gun pintle lugs and their base plates should be stabilised and conserved; the emplacements themselves should be stabilised, repaired as necessary and conserved.

Access steps will be made safe for public use in providing access to the relics. There are few barriers to disabled access to the gun position. A central interpretative marker will be placed near the command post, the design and fabric will reflect an artillery theme. This will provide information as to the history and nature of the entire site, including the relationships between all the extant visible and invisible relics.

- Monitor the Effects of Development

As development proceeds in the vicinity of Tomago House and the Chapel it must respect the historic visual and cultural link between them. Future development within the Tomago House curtilage area will be subject to Heritage Impact Assessment at the DA stage.

The below plan demonstrating an extended curtilage of Tomago House and outbuildings to incorporate its chapel and the site of its stables to create a buffer zone (based on the findings of the EJE Statement of Heritage Impact (2011)) will be adopted. Suitable development in this area will be permitted if the Development Application is supported by a Heritage Impact Assessment prepared by a suitably qualified expert.

The proponent will make formal application under the NSW Heritage Act 1977 to the NSW Heritage Council to extend the curtilage of Tomago House as shown in Figure 23 below within one (1) month of the project approval.



Figure 23 – Proposed Heritage Curtilage Area around the Tomago House, Chapel and Stables site.

- View Corridors for Tomago House and Chapel

View corridors associated with the house and chapel are currently constrained by several factors, involving the nature of access to Crown land and private land as well as plantings near the house. Tomago Road is a thoroughfare accessible to the public as of right, whereas other land in the vicinity is in private hands. The house is visible from the road in only two places; in others, views are obscured by trees. The chapel is much more easily visible; yet it is not obvious that the two items are associated with one another. Other

places from views of the house can be obtained are situated on private land to which public access is not available.

The subdivision proposal, far from reducing view opportunities, will actually increase them. The new roads to be built within the subdivision will greatly add to these opportunities, as land previously denied to public entry will be opened to it.

Tomago House and its chapel currently occupy separate lots with no common boundary. The sites are linked only by a narrow easement, the lots to either side of which are not owned by the National Trust as proprietor of the sites. Conceivably, development could take place on these lots, obstructing view corridors between the house and the chapel. To remedy this, it is proposed to increase the curtilage of the house to the west and south-west to take in the chapel and the land between the house boundary and the nearest planned access road.



Figure 24 – Current Views of Tomago House from Tomago Road and Additional Views that will be opened up by the proposed development.

- Historic Landscape

Heritage plantings near Tomago House and its chapel are concentrated within the existing property boundary of the house itself, together with a smaller area to the south which is not within the boundary. The proposed extension of the curtilage will incorporate these plantings. The extension to the south-west will incorporate a single tree, significant because of its considerable size and age.

The landscape surrounding the place has long been the subject of change. While the Windeyer family drained the previously waterlogged area so as to use it for farming, with cessation of this activity the drainage channels fell into decay and the land began to return to its original state. The present condition of the land no longer reflects its historical associations; the proposed development, therefore, does not have any impact upon these apart from increasing the height of the surrounding land to a 1 in 100 year flood level. This has the potential to affect heritage values of the house and chapel. To safeguard against this, it is proposed to treat and disguise the sides of the embankment with appropriate plantings. It is proposed, also, to extend the setback of any development on the lot immediately to the north east of Tomago House. Extension of the curtilage to the southern access road will allow a buffer consisting of the width of the road plus the standard setback of development addressing it. Extension of the curtilage to incorporate the chapel will create a buffer appropriate to the heritage values of that building.

The Tomago area is currently subject to flooding. Filling of the development site to a 1 in 100 year flood level will not, therefore, expose Tomago House and its chapel to a greater risk of flooding. Indeed, the increased height of the surrounding land, together with base and camber of Tomago Road, may actually reduce vulnerability.

6.8 HISTORICAL ARCHAEOLOGICAL ASSESSMENT

A Historical Archaeological Assessment was undertaken by Austral Archaeology and accompanies this EA Report in **Appendix J**. The findings of the Archaeological Assessment were considered within the Statement of Heritage Impact (**Appendix I**) prepared by EJE Heritage as discussed above.

The Historical Archaeological Assessment was prepared in accordance with the provisions of the Australia ICOMOS Burra Charter. The reporting, particularly the historical background, draws on the abovementioned EJE Heritage *Heritage Assessment and Statement of Heritage Impact*. Additional targeted research was conducted in order to better understand the potential archaeological record that may be present within the study area. A site inspection was also undertaken to clarify the disposition of the archaeological resource within the study area.

The report established the existence of a variety of archaeological sites in the study area. The sites were identified in the historical documentation reviewed by Austral and in some instances were visually confirmed during the site inspection.

The archaeological sensitive areas identified included the following:

- Archaeological items associated with the colonial phase have a moderate possibility of being extant in the area along Tomago road and around Tomago House;
- An area of high archaeological sensitivity is to be considered to extend west from Tomago;
- House along Tomago Road and represents the remnants of the focus of community life at the early Tomago estate, including church, schoolhouse, post office, domestic sites and landscaped gardens;
- The housing areas along Tomago Road have been the location of rural structures associated with the Tomago Estate, domestic sites associated with their tenants and a

range of 20th century domestic and rural sites and are of low to moderate archaeological potential;

- Dairying structures, such as tanks and house sites, occur sporadically across the site but owing to their late date of construction they are to be considered of nil to low archaeological value;
- The immediate vicinity of the anti-aircraft battery is to be considered of high archaeological potential as strong evidence exists that numerous structures were demolished there at the end of the war; and
- The military road from Tomago Road to the anti-aircraft battery is to be considered of high potential, although badly damaged through years of disuse it is still largely intact and forms part of a cultural landscape with the anti-aircraft battery.

Based on the above findings, Austral produced the following archaeological sensitivity map which shows areas of high, moderate and low archaeological sensitivity. This map forms the basis of the below mentioned recommendations.

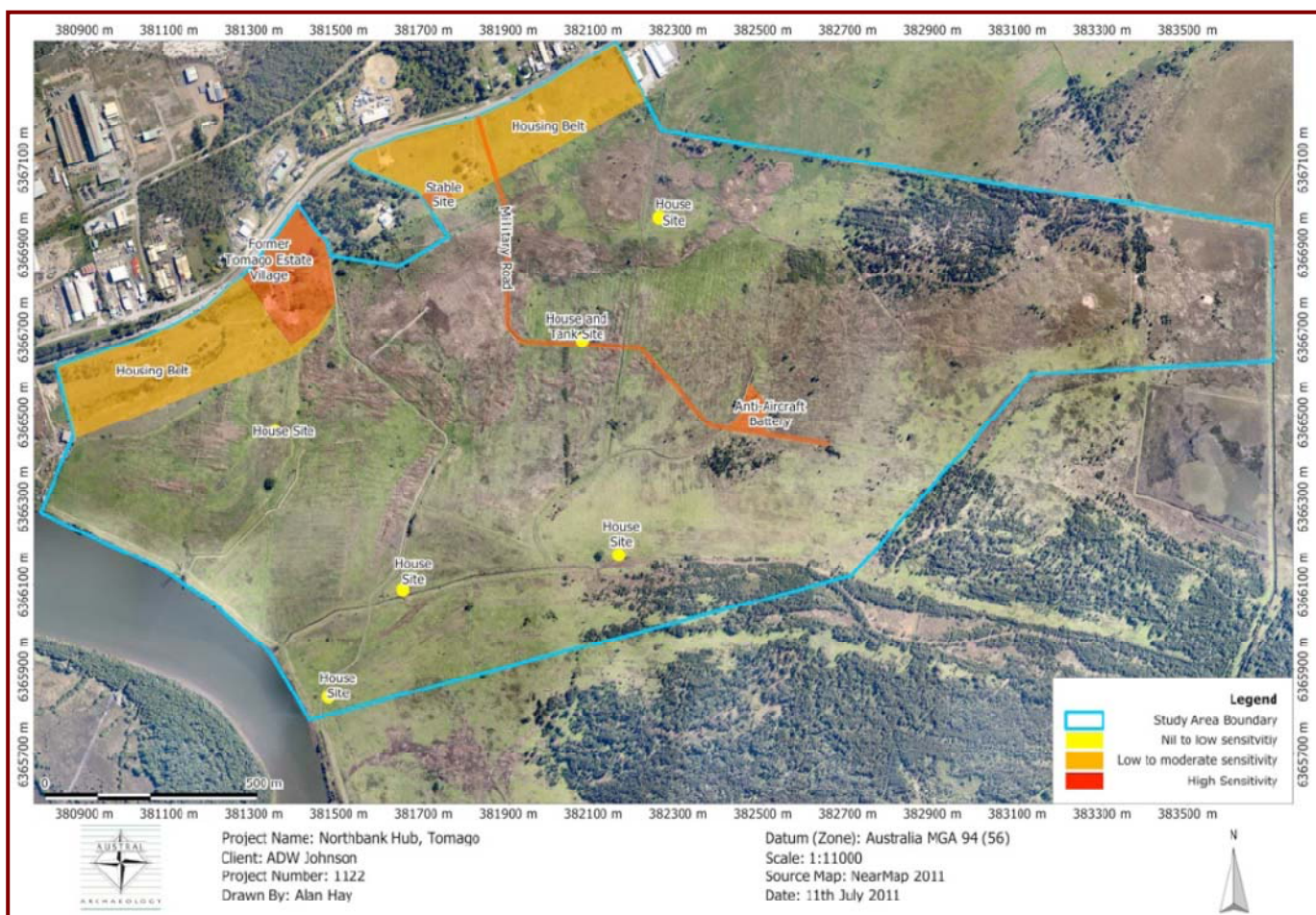


Figure 25 – Archaeological Sensitivity Mapping.

The reporting concluded that based on the findings of the assessment, no further archaeological investigation is needed and the proposed development works may proceed.

The following recommendations will be implemented by the proponent:

- In the event that historical archaeological relics not assessed or anticipated by this report are found during the works, all works in the immediate vicinity are to cease immediately and a qualified archaeologist be contacted to assess the situation and consult with the Heritage Branch of the OEH regarding the most appropriate course of action, as required by the *NSW Heritage Act 1977*;
- In the event that Aboriginal archaeological material or deposits are encountered during earthworks, all work within a 50 to 100 m radius must cease immediately to allow an archaeologist to make an assessment of the find. The archaeologist may need to consult with the Regional Archaeologist in the Office of Environment and Heritage (OEH) and the relevant Aboriginal stakeholders, regarding the find. Section 89A of the NPW Act 1974 requires that the OEH must be notified of any Aboriginal objects discovered within a reasonable time;
- Should the proposed development be altered significantly from the proposed concept design, then a reassessment of the heritage / archaeological impact may be required; and
- Given the assessed State significance of the World War Two defenses, Tomago House and Chapel, should any Historical Archaeological excavation be required as part of the proposed development, the Excavation Director will demonstrate that works are able to satisfy the Heritage Council endorsed excavation criteria.

6.9 ABORIGINAL ARCHAEOLOGY

An Aboriginal Heritage Impact Assessment has been prepared by McCardle Cultural Heritage to accompany this EA Report (see **Appendix K**).

The scope of works carried out included the following:

- A review of relevant statutory registers and inventories for indigenous cultural heritage including the NSW Office of Environment and Heritage (OEH) Aboriginal Heritage Information Management System (AHIMS) for known archaeological sites, the State Heritage Register, the Australian Heritage Database (includes data from the World Heritage List UNESCO, National Heritage List, Commonwealth Heritage List, Register of the National Estate) and the Port Stephens Local Environmental Plan;
- A review of local environmental information (topographic, geological, soil, geomorphological, and vegetation descriptions) to determine the likelihood of archaeological sites and specific site types, prior and existing land uses and site disturbance that may affect site integrity;
- A review of previous cultural heritage investigations to determine the extent of archaeological investigations in the area and any archaeological patterns;
- The development of a predictive archaeological statement based on the data searches and literature review;

- Identification of human and natural impacts in relation to known and recorded archaeological sites and predicted archaeological potential of the study area;
- Consultation with the Aboriginal community as per the Aboriginal Cultural Heritage Consultation Requirements for Proponents (2010);
- Undertake a site inspection with the participation of the registered Aboriginal groups; and
- The development of mitigation and conservation measures.

Previous Assessment (Indigenous Outcomes (2010))

The assessment also included a review of the 'Indigenous Outcomes' Assessment (dated December 2010) that formed part of the original Environmental Assessment Report for the Northbank Enterprise Hub submitted in 2010. In particular the five (5) sites, identified as NB1 – NB5 by 'Indigenous Outcomes', were mapped based on the GPS coordinates identified by 'Indigenous Outcomes' (2010). McCardle Cultural Heritage attempted to relocate NB1 – NB4. NB5 was identified as being located on the adjoining site and separately dealt with as part of the approval to the adjoining development and therefore required no further assessment as part of the current proposal. The location of all sites identified in the previous Indigenous Outcomes (2010) Report (NB1 – NB5) are shown on Figure 26 below.

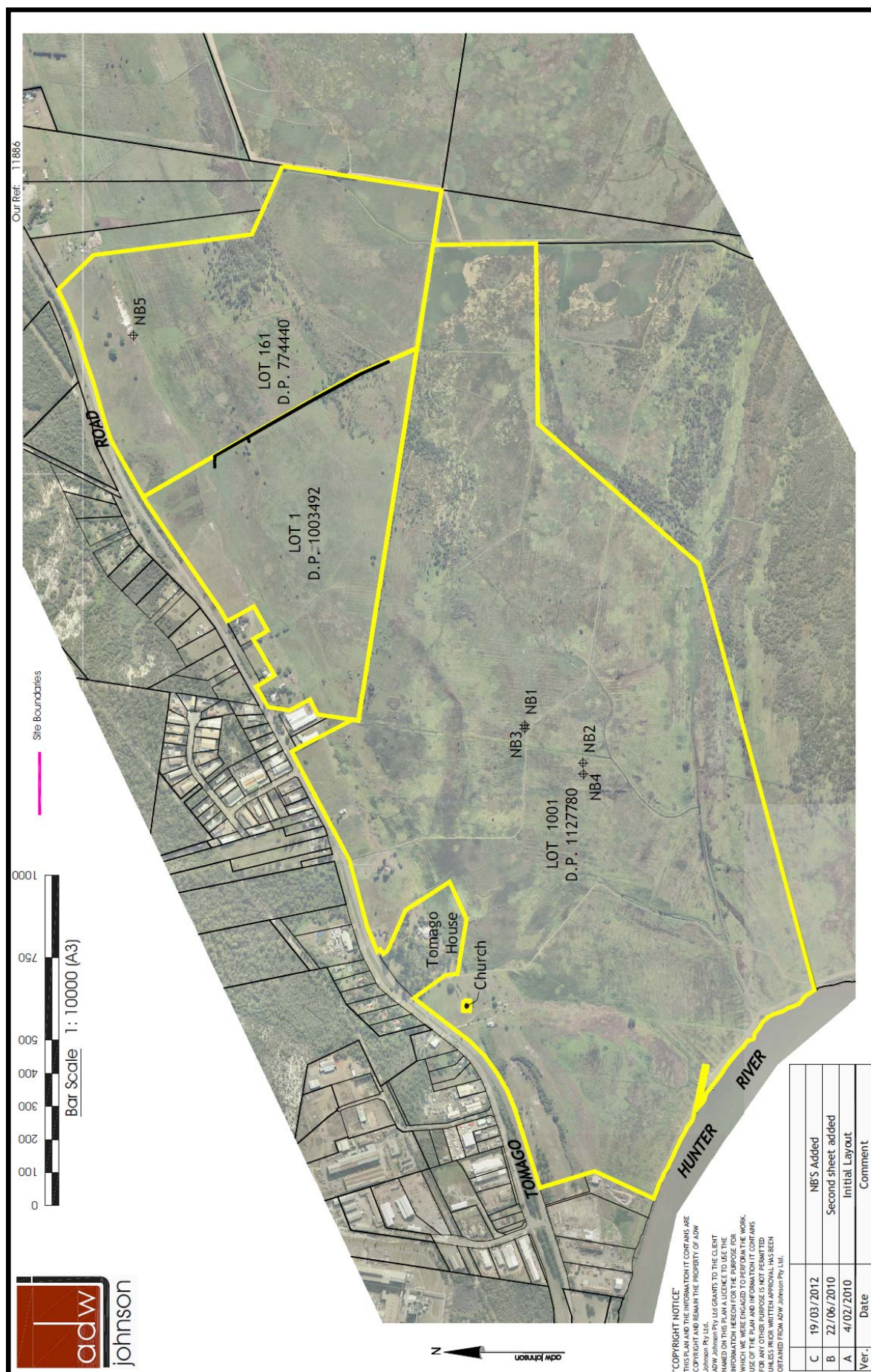


Figure 26 - Sites Previously Identified by 'Indigenous Outcomes' (2010).

Sites NB1 – NB4 were located one at a time and examined by McCardle Cultural Heritage and the registered Aboriginal stakeholders. The site area of approximately 2 – 3 metres surrounding the GPS coordinate was slashed and re-inspected by the archaeologist and Aboriginal representatives.



Photo of NB1 & NB2 facing north west (the sites are located in a flood plain).



Photo of NB1 after slashing (note the water logging).



Photo of NB2 after slashing (note the water logging).



Photo of NB3 facing west.



Photo of NB3 after slashing (note the water logging).



Photo of NB4 facing west.



Photo of NB4 after slashing (note the water logging).

As shown in the above photographs, all sites are located within the swampy flood plain area and are highly disturbed. McCardle Cultural Heritage advises that the likelihood of sites being in this landform are very low. Discussions on site between McCardle Cultural Heritage and the Aboriginal representatives confirmed that NB1 – NB4 were not sites due to the location, levels of disturbances and the fact that camping would not have been possible in such an environment.

Current Assessment

The study area was broken into Survey Units based on two (2) landforms (see Figure 27 below):

Survey Unit 1: Interbarrier Depression (Floodplain)

This unit included the majority of the study area and includes the interbarrier depression flood plain area. This unit has been subject to previous clearing, tracks, regular flooding and water logging. Vegetation is predominantly dense pasture grass and reeds and few trees in some areas and exposures were low, all of which contributed to reduced ground surface visibility. Given the landform and its location as well as regular flooding, this unit has low to no potential for cultural materials to be present.

Survey Unit 2: Interbarrier Depression (Low Dune)

This unit included the north western low lying dune that is located approximately 200 metres south of the Inner Pleistocene dunal system. This unit has been subject to previous clearing, housing construction and demolition, and tracks. Vegetation is predominantly dense pasture grass and reeds and few trees in some areas and exposures were low, all of which contributed to reduced ground surface visibility. Given the landform and its location, this unit has low to moderate potential for cultural materials to be present.

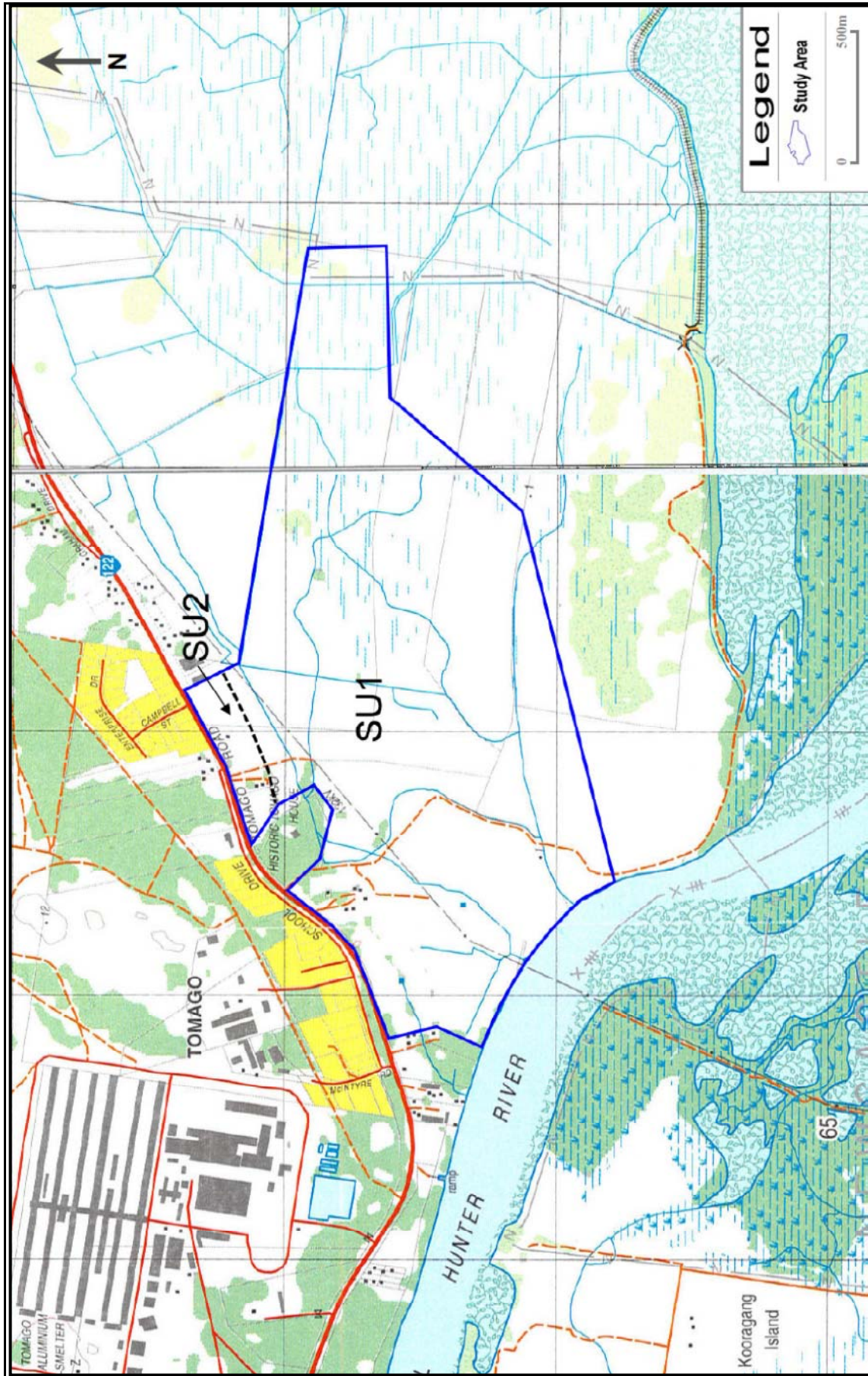


Figure 27 - Survey Units.

Effective Coverage

Effective coverage is an estimate of the amount of ground observed taking into account local constraints on site discovery such as vegetation and soil cover. There are two components to determining the effective coverage being (1) visibility and (2) exposure.

The level and nature of the effective survey coverage is considered satisfactory to provide an effective assessment of the Aboriginal sites identified and those potentially present within the investigation area. The coverage was comprehensive for obtrusive site types (eg. Grinding grooves and scarred trees) but somewhat limited for the less obtrusive surface stone artefact sites by surface visibility constraints that included vegetation cover and minimal exposures.

In view of the predictive modelling undertaken as part of the assessment and the results obtained from the effective coverage, it is considered that the survey provides a valid basis for determining the probably impacts of the proposal and formulating recommendations for the management of the identified sites and potential Aboriginal sites.

Sites

The results of the survey have identified two (2) sites located on the dune in the north of the study area which have contributed to the knowledge base of the known Aboriginal resources and sites in the local area.

No sites were identified in the flood plain area. This is likely due to the fact that this portion of study area is situated in the interbarrier depression, which was the coastal margin and estuarine swamp, it is unlikely that the study area would have been occupied.

The two (2) sites identified on the dune in the north west of the study area are discussed below:

Tom/1: shell midden (E 381860 N 6367096)

The site is located in the dune in the north and along a first order stream and the visible extent is approximately 20 metres in length and 5 metres on the southern side of a creek. Exposed through creek bank erosion, this site includes pieces of pipi and oyster. Its extent is unknown as the surrounding area is covered in dense pasture grass. This site forms part of the Potential Archaeological Deposit (PAD) (see below).

Tom/2: shell midden (E 381984 N 6367199)

The site is located along the dune to the north. Exposed through house demolition, tracks and erosion, the visible extent of this site is spread over an area of approximately 10 metres in length and 20 metres in width. Containing large and small pieces of pipi and oyster as well as tuff artefacts, the surface material is highly disturbed through previous land uses. This site forms part of the PAD (see below).

Table 2 - Sites Summary

SITE	SITE TYPE	FEATURE(S) / CONTENT	SURVEY UNIT	LANDFORM	DISTANCE FROM WATER	STREAM ORDER
Tom/1	Shell midden	shell	2	dune	0m	1 st & interbarrier depression
Tom/2	Shell midden	shell, artefacts	2	dune	0m	Interbarrier depression

The below figure shows the location of the two (2) identified sites and PAD.

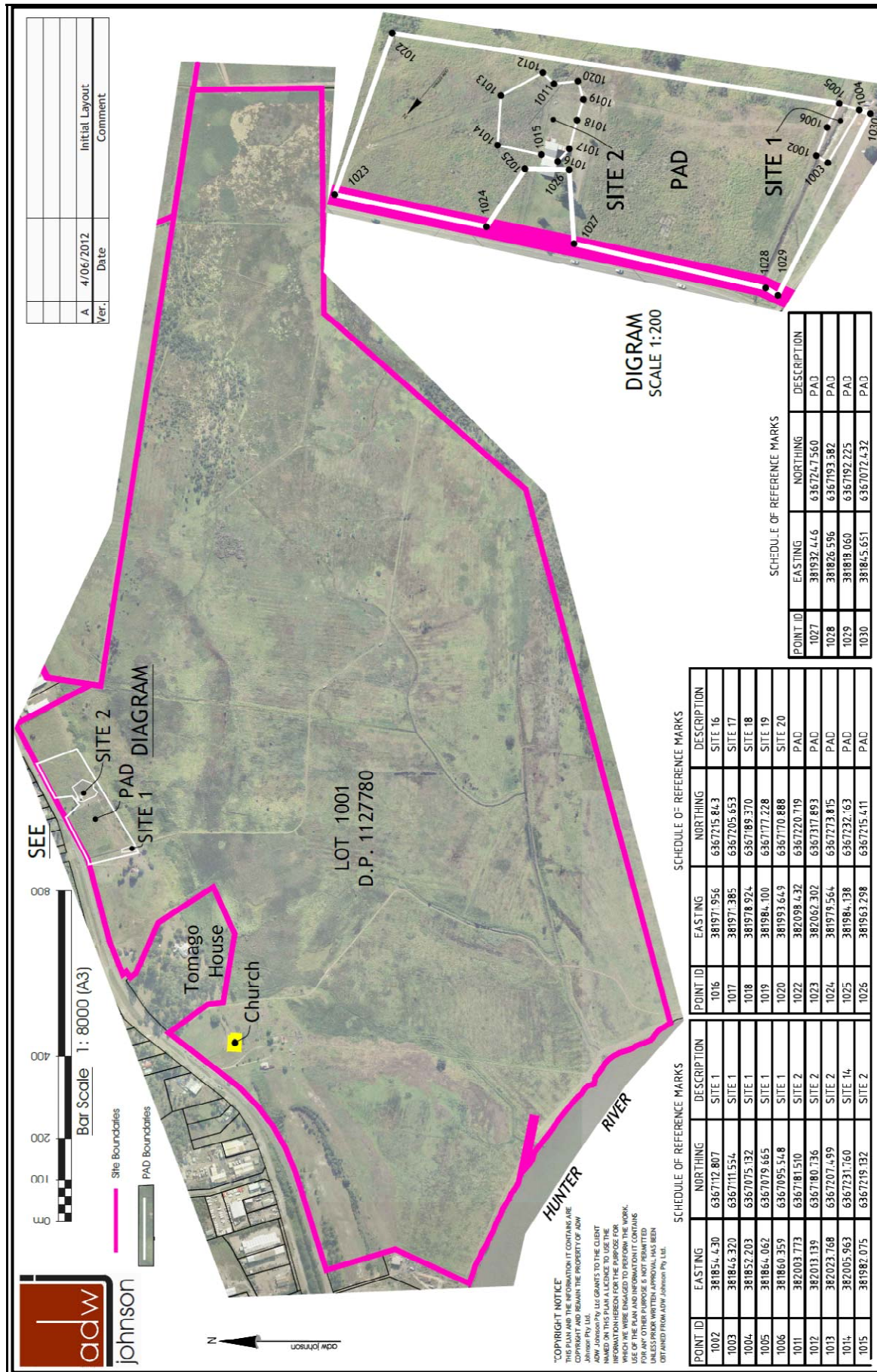


Figure 28 - Sites Tom/1, Tom/2 & PAD.

Potential Archaeological Deposit (PAD)

One PAD was identified and is shown in the above figure. This PAD includes the north dune overlooking the flood plain and within this PAD are the two (2) surface sites identified (Tom/1 and Tom/2). Parts of this PAD have been subject to moderate disturbances such as the house construction and demolition, however the majority appears to be relatively undisturbed.

Table 3 - PAD Summary

PAD Number	Feature(s)	Survey Unit	Landform
TOM1/PAD1	2 shell middens with artefacts	2	Dune

Significance Assessment

One of the key steps in the process of cultural heritage management is the assessment of significance. Not all sites are equally significant and not all are worthy of equal consideration and management.

The determination of significance can be a difficult process as the social and scientific context within which these decisions are made is subject to change. This does not lessen the value of the heritage approach, but enriches both the process and the long term outcomes for future generations as the reasons for, and objectives of, site conservation also change over time.

The significance of indigenous archaeological sites or cultural places can be assessed on the criteria of the Burra Charter, the Australian Heritage Commission Criteria of the National Estate and the OEH guidelines that are derived from the former two. The NSW NPWS Aboriginal Cultural Heritage Standards and Guidelines Kit (1997) emphasises two realms of significance assessment:

- Aboriginal cultural significance; and
- Aboriginal (scientific) significance.

Scientific significance is assessed according to the contents of a site, state of preservation, integrity of deposits, representativeness / rarity of the site type, and potential to answer research questions on past human behaviour (NPWS 1997).

The following is an evaluation of the scientific significance of the individual archaeological sites identified within the study area.

Table 4 - Scientific Significance Assessment

Site	Site Type	Representativeness	Integrity	Research Potential	Scientific Significance
Tom/1	Shell midden	Well represented	Fair	Low	Low
Tom/2	Shell Midden	Well represented	Fair	Low	Low
Tom/PAD1	PAD	Unknown	Unknown	Unknown	Unknown

While Aboriginal sites and places may have scientific significance, they also have cultural / social significance to the Aboriginal people from that area. Determining cultural / social significance can only be determined by the Aboriginal people from the area in which the sites and / or places were identified. Consultation with the Aboriginal community has been undertaken in order to document cultural / social significance.

Assessment of Impacts

The following table identifies the assessed impact of the proposed development on the two (2) sites (Tom/1 & Tom/2) and PAD (Tom/ PAD 1).

Table 5 - Impact Summary

Site	Site Type	Type of Harm	Degree of Harm	Consequence of Harm	Representative	Integrity	Research Potential	Scientific Significance
Tom/1	Midden	Direct	Total	Total Loss	Well Represented	Poor	Low	Low
Tom/2	Midden	Direct	Total	Total Loss	Well Represented	Poor	Low	Low
Tom/PAD 1	PAD	Direct	Total	Total Loss	Unknown	Unknown	Unknown	Unknown

The two (2) disturbed sites (both shell middens) will be directly impacted by the development. Located on a low dune, these sites are well represented both locally and regionally and are highly disturbed with little to no research or scientific potential.

The PAD disturbances, integrity, presence and extent of subsurface cultural materials as well as their representatives, research and scientific potential remains unknown.

Cumulative Impacts

The cumulative impact to Aboriginal heritage in the area is limited given that:

- The net development footprint (ie. the area of direct impact) is small and does not affect a high proportion of any particular landform present within the region;
- A comparable suite of landforms (low dunes) that are expected to, and do contain a similar archaeological resource occur in multiple contexts both within the local area and throughout the region;
- The identified surface sites have been subject to past land uses that have resulted in a disturbed surface landscape and as a consequence of these disturbances the representative value of the archaeological resource occur in multiple contexts both within the local area and throughout the region;
- The identified surface sites have been subject to past land uses that have resulted in a disturbed surface landscape and as a consequence of these disturbances the representative value of the archaeological resource is lessened; and
- The PAD appears to remain relatively undisturbed and in order to ensure any cultural materials that may be present are protected which is warranted, a subsurface testing program should be implemented.

Recommendations

The following recommendations made by the McCardle Cultural Heritage assessment will be adopted by Northbank Enterprise Hub Pty Ltd:

General

1. The persons responsible for the management of works on site will ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular importance is the National Parks and Wildlife Amendment (Aboriginal Objects and Aboriginal Places) Regulation 2010, under the National Parks and Wildlife Act 1974;
2. The involvement of the registered Aboriginal stakeholders in the ongoing management of the Aboriginal cultural materials within the project study area (specifically the low dune) will be promoted and included in the Environmental Management Plan and / or the Aboriginal Heritage Management Plan; and
3. A cultural awareness program will be included as part of the site induction program and developed with the registered Aboriginal stakeholders and form part of the Environmental Management Plan and / or the Aboriginal Heritage Management Plan.

PAD & Sites

1. If the identified Tom/PAD1 will be impacted upon by any future development an archaeological subsurface investigation will be required in accordance with the Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW prior to works starting; and
2. If sites Tom/1 and/or Tom/2 will be harmed by any future development an Aboriginal Heritage Impact Permit (AHIP) for the surface collection will be required prior to works starting.

Subject to the adoption of the mitigation measures outlined above, the impacts of the proposed development will be appropriately managed.

6.10 TRAFFIC, ACCESS & PARKING

A Traffic Impact Assessment (TIA) for the project has been prepared by TPK & Associates to accompany this report (see **Appendix L**). The Traffic Impact Assessment is comprised of two (2) documents as follows:

1. Traffic Assessment Report dated October 2011; and
2. Response Report dated June 2012. This forms an addendum to the Traffic Assessment Report dated October 2011 and directly addresses the comments made in the 'Adequacy Review' dated March 2012.

The assessment focuses on the following objectives:

- Recommendations for a road network that balances road function and road environment around the site with a focus on all road user needs;
- Recommendations for the connectivity of the site and the adjoining approved land use (Part 3A Approval 07_0086) to the east internally and to Tomago Road;
- Confirmation that the proposed road network and on site amenity will service all user needs in terms of road safety and traffic management; and
- Establish that appropriate road safety and traffic management guidelines and standards have been addressed by the proposal.

The land use 'staging' adopted by the assessment adopted the following:

STAGE	DESCRIPTION
WT1	Approved WesTrac facility, CAT Institute & Caterpillar Warehouse (Part 3A approval 07_0086)
WT2	Approved Industrial Park – 48.49ha (Part 3A approval 07_0086)
S1	Stage 1 Developable Area shaded in purple in Appendix B of the TIA – 438,842m ²
S2	Stage 2 Developable Area shaded in green in Appendix B of the TIA – 267,162m ²
S3	Stage 3 Developable Area shaded in blue in Appendix B of the TIA – 287,783m ²
S4	Stage 4 Developable Area shaded in red in Appendix B of the TIA – 425,920m ²

In June 2011 the project team attended a meeting with the RMS Newcastle to discuss the original traffic report submitted as part of the now superseded EA Report dated 15 December 2010. The outcome of the meeting was as follows:

- The RMS provided a revised traffic generation rate (see below) to the one that was originally nominated by the RMS and formed the basis of the original traffic report submitted as part of the now superseded EA Report dated 15 December 2010. The RMS advised that the revised rate was to be applied in any further analysis undertaken by TPK & Associates. The reporting has been undertaken in accordance with the RMS's advice.
- The RMS confirmed that they would plan and manage the progressive upgrade requirements of Tomago Road and primarily required revised indicators for the subject development by TPK utilising the new traffic generation rate they provided.
- The RMS also confirmed that analysis of the site frontage was sufficient for their needs.

The following updated traffic generation rates for the peak hours confirmed by the RMS to establish rates reflective of the potential road environment and development precinct were adopted for the report:

- GFA deemed to be 35% of the site areas.
- 0.33 trips per hour 100m² GFA for the am and pm peaks.

The additional traffic generated will be distributed:

- 70%:30% for the peak directional flow.
- The catchment split to be 85% to/from the Pacific Highway.