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STATEMENT OF RORY J KELLY
File 540091/1
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RJK-01 TO RJK17
Volume 1 OF 3 ORIGINAL

Brisbane City Council
BCC

Queensland Floods Commission of Inquiry
Inquiry

Statement of Rory John Kelly - 31 August 2011

Volume 1 of 3

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QFCI
Date: 27/09/11 JM
Exhibit Number: 633

Statement of Rory John Kelly

I, **Rory John Kelly,** Town Planner, of Level 12, Brisbane Square, 266 George Street, Brisbane, in the State of Queensland, state on oath as follows:

Introduction

1. Attachment "**RJK-01**" is a copy of a notice from the Commissioner of the Queensland Floods Commission of Inquiry (**Commission**) dated 16 August 2011 requiring me to provide a statement to the Commission by 5:00 pm, 31 August 2011 (**Notice**).

2. The Notice defines the:

   (a) "Tennyson development site" to mean the sites of the former Tennyson power station and animal research centre; and

   (b) "Tennyson Reach development" as the Mirvac development at Tennyson including the Tennyson Reach residential development, the State Tennis Centre, parkland and all other land used or available to Mirvac Group.

3. I have adopted the above definitions in this Statement.

4. I am informed that the Commission does not at this stage require me to address any development approvals or other processes associated with the "animal research centre". Accordingly this Statement does not address that topic. However I note that part of the development application for the Tennyson Reach development included the provision of car parking and road access both of which were subdivided from the animal research centre site. The Tennyson development site was subdivided in July 2007 to create Lots 1-8, 100, 101 and 566 on SP195275 and was created by Crown Action Plan. The site was further subdivided in December 2008 to facilitate the completion of the Queensland Tennis Centre and dedication of the internal access road (being an extension to King Arthur Terrace).

5. The Notice requires me to give:

   (a) a detailed account of all decisions, including reasons for those decisions, made by all employees, contractors and councillors of the Brisbane City Council (**Council**), civic cabinet and the Lord Mayor of Brisbane regarding certain aspects of the Tennyson development site and Tennyson Reach development including the

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Rory John Kelly [redacted] Witness [redacted]

preliminary development approval and any master plans granted to Mirvac by Council for the Tennyson Reach development; and

(b) a detailed account of all meetings had (including internal meetings of Team South and meetings involving Team South and any other person) and all assessment reports prepared by Team South with respect to the Tennyson Reach development and the Tennyson development site.

6. The Tennyson Reach development was a significant development project and the documentation and information that fall within the scope of the Notice as set out in subparagraphs 5(a) and (b) above is voluminous. In the time available to respond to the Notice, I have attempted to provide to the Commission information relevant to the development assessment, and in particular, information relevant to flooding.

7. I am advised by Council's legal advisors that the Commission's focus in this part of its inquiry is on land use planning as it relates to floods and, accordingly, the information given by me in this Statement is concerned primarily with land use planning and flood issues in respect of the Tennyson development site and the Tennyson Reach development. Given my continuous direct involvement in the Tennyson Reach development and my experience and seniority in Development Assessment South, I consider I am the most appropriate Council officer to provide a statement on these issues. In the event further information is required by the Commission, I would be happy to provide it to the extent I am able to do so.

8. For the purposes of responding to the Notice and preparing this Statement as outlined above I have, in my position at Council as Regional Manager - Development Assessment South, had access to:

(a) the business records of Council; and

(b) Council officers,

to obtain the requisite information. Unless otherwise stated, the matters set out in this Statement are based on my own knowledge and the information derived from the above sources.

9. In the time available to respond to the Notice, I have used my best endeavours to review the Development Assessment South files which I expect hold the relevant information on land use

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planning and flood issues for the Tennyson Reach development. I have also reviewed what I believe to be the relevant emails sent or received by me which were archived to Council's Groupwise account and which have been able to be retrieved for the purposes of the preparation of this Statement.

10. Unless otherwise stated, the documents attached to this Statement have been collated by me or by Council officers under my direction and instruction.

Qualifications and Roles within Council

11. I am a town planner and hold a Graduate Diploma in Urban and Regional Planning from QUT.

12. I have been employed by Council since May 1987 when I joined the Council as a Planning Officer. For all of that time, apart from 18 months in City Planning and 7 months in Development Assessment North, I have worked in the planning team known as Development Assessment South. I am currently the Regional Manager of Development Assessment South.

13. At the time of the development application for the Tennyson Reach development I was a Principal Planner in Development Assessment South. In this role I was the senior planning officer with responsibility for ensuring the timely processing of approximately 350 or so development applications being assessed by Development Assessment South at any one time. I had around approximately 20 town planners reporting to me who assisted in the assessment of development applications, and who referred technical or complex planning issues to me. I was expected to be, and I was, involved in development applications that involved a significant community interest or complex issues requiring strategic or policy direction. I was also Council's delegate for development applications that were not elevated to the Team Leader, Development Assessment South or to full Council.

14. By way of background, the Development Assessment branch of the Council is responsible for all aspects of assessment of development applications lodged under the relevant State planning legislation, for making recommendations to Council and elected representatives as to the approval or otherwise of development applications, and the conditions which ought to be imposed on any such approval.

15. Development Assessment's role can be contrasted with the role of the City Planning branch, which has responsibility for development policy and providing development policy advice to

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the Development Assessment branch rather than the assessment of particular developments against the Brisbane City Plan 2000 (City Plan).

16. The Development Assessment branch consists of five multidisciplinary teams which include planners and in-house allied professionals such as engineers, ecologists and architects. It also includes a Technical Specialist Team consisting of officers specialising in disciplines such as hydraulics, traffic and ecology. While the file is usually managed by a planner, that officer can and does access the expertise of other professionals in Development Assessment to assist in the assessment process.

17. Development Assessment can also access other specialist groups in Council outside Development Assessment for assistance in particular aspects of an application which call for the input of those specialised areas. Where this occurs, however, Development Assessment remains responsible for the overall conduct of the assessment of the application and any related processes and it retains the discretion to accept or reject advice tendered by other sections of Council.

18. Development Assessment South is one of the regional teams in the Development Assessment branch with responsibility, generally, for developments to the west of the South Eastern Freeway and to the south of the Brisbane River. For that reason, the Tennyson Reach development was within the scope of Development Assessment South's regional area of responsibility.

19. The Tennyson Reach development was a development which involved both significant community interest and multiple issues of varying complexity. Of particular significance for the Tennyson Reach development was that it involved a combined development application for a preliminary approval for a material change of use overriding the planning scheme and development permits for the State Tennis Centre and residential buildings. Where approved, and subject to its conditions, a preliminary approval of this nature overrides the planning scheme in terms of the level of assessment and applicable codes for development, to the extent of any inconsistency with the City Plan. In assessing and approving any such application, Council must consider the proposal against the whole of the planning scheme, including its applicable codes and planning scheme policies as applicable.

20. Because of its importance, I was frequently involved in aspects of the assessment of the development application for the Tennyson Reach development. However, I was not the

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planner with direct responsibility for the file. Steven Schwartz held that role but he is no longer an employee of Council. Accordingly, I may not have been directly involved in all meetings and discussions surrounding the development assessment process. I do not specifically recall when I nominated Steven Schwartz as the planner responsible for the file. It might have occurred relatively early in the process as I note (as discussed in paragraph 57 below) that he appears to have attended the very first meeting with Mirvac about the proposal.

21. Whilst the application for the Tennyson Reach development was significant, it was not unique in its complexity compared with other development applications I supervised during the life of the application. Over that period, I supervised approximately 15 to 20 applications of a similar or greater complexity and community interest. Further, the application for the Tennyson Reach development was not particularly contentious at the time and I note from documents I have seen in preparing this Statement that the application only attracted three properly made public submissions. In fact, so far as I recall, the Tennyson Reach development did not become the subject of any particular public interest until the January 2011 flood event.

22. For all of these reasons my recollection of the details in respect of the development application is limited, particularly where I do not have access to documents recording what occurred from time to time. Further, on some occasions, even when I review documents my independent recollection of events may be limited.

A detailed account of all decisions, including reasons for those decisions, made by all employees, contractors and councillors of the Brisbane City Council, civic cabinet and the Lord Mayor of Brisbane regarding the following aspects of the Tennyson development site and Tennyson Reach development:

(a) the tender process run by the State of Queensland

Summary

23. So far as I am aware, there were no decisions made by Council or its agents regarding the Tennyson development site or the Tennyson Reach development in respect of the tender process run by the State of Queensland, at least from the perspective of decisions involving substantive participation in the scope and nature of the tender process and the terms and conditions of the tender. If Council did make substantive decisions in respect of the tender process, that was never communicated to me, although I could not rule out the possibility that Council was in some way involved.

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24. My review of the documents has revealed, however, that instructions were provided to me as Principal Planner at Development Assessment South to provide advice to tenderers of a general nature about issues which might arise on any development application in respect of the Tennyson Reach development based on a generic development scenario that I developed to provide a reference point for referral to the assessment team. I did this because no detailed plans for the proposed development were provided. I deal with that matter in greater detail further below. However, my involvement in the provision of advice to tenderers did not result in the making by me or any other Council officer of any binding or operative decisions. It simply involved providing the same general guidance on potential planning issues to all tenderers.

25. So far as I recall, the instruction to provide such advice might have come from the Tennyson PowerStation Liaison Officer in City Planning branch, James Coutts, who is no longer an employee of Council. Given the existence of such a position in Council, it is possible that substantive decisions of the kind described in paragraph 23 above were made by Council through, or with the assistance of, the City Planning branch. As I have said, if that did occur, I knew and know nothing about it. I understand that Council is endeavouring to locate any documents relevant to any activities by City Planning branch which might be relevant.

Involvement of DAS in providing guidance to tenderers

26. Prior to reviewing the documents relevant to this matter, I had little recollection of Development Assessment South's involvement in providing guidance to tenderers for the Tennyson Reach development. With the assistance of documents from Council records, however, I am able to give an outline of the involvement by Development Assessment South in the tender process, though my independent recollection of these events remains limited.

27. As I summarise above, it appears from documents on the relevant Council file that Council provided advice to tenderers for the Tennyson Reach development, either directly or through the Tennyson PowerStation Liaison Officer in City Planning branch, James Coutts, based on a generic development scenario but without reference to detailed plans for the proposed development. It also appears that I had some contact with at least two of the tenderers, Stockland and Mirvac.

28. In summary, the process which appears to have been followed was:

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(a) I was approached directly by agents for each of Stockland and Mirvac to provide planning guidance on aspects of the proposed developments;

(b) I referred those matters outside my area of expertise to other officers in Development Assessment South and elsewhere within Council where relevant;

(c) I collated the responses and provided a consistent response on behalf of Council to the tenderers.

29. I will now outline in more detail what occurred by reference to the documents which appear to me to be of particular relevance.

30. Although I have no independent recollection of it, I note there is a letter on the file from Robert Bird & Partners dated 23 July 2004, marked to my attention. A copy of the letter is attachment "**RJK-02**". The letter is said to be in relation to "Tennyson Power Station Site Development, Enquiry into Water Sewerage and Stormwater Management" and states:

"Robert Bird & Partners have been engaged by Stocklands to provide civil engineering advice for the development of a costing plan to support their submission for development rights at the above site.

As discussed with you late last week having an understanding of the water and sewerage system capacities is fundamental to addressing the civil infrastructure and development potential of this site.

...

As you are aware all matters to this development are confidential and we would appreciate your commitment to maintaining our confidence as we exchange information. Thank you for your attention to this matter and we look forward to your reply."

31. It appears that at about this time I also received communications from Mirvac in relation to the Tennyson Reach development. The first of the written communications from Mirvac appears to have been an email sent to me by [redacted] of Brannock & Associates on 26 July 2004, a copy of which is Attachment "**RJK-03**". It states:

"Hi Rory,

[redacted]

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I thought I would send you this email as you probably wonder why you haven't seen a request for a prelodgement meeting come through from me for the Tennyson power station site.

The clients have not been ready. However, I am intending to send the forms through tomorrow and hoping we can get a meeting with you sometime next week? As I previously mentioned, due to confidentiality reasons we cannot send through plans ahead of the meeting. Also, we are hoping to only meet with a few of you in the team. We do not want the purchasers etc to attend at this time - purely because of confidentiality reasons."

32. The file indicates that at about this time I was asked to provide some general advice to the tenderers short-listed by the State based on a specified development scenario. Although I have no specific recollection of it, I believe this instruction was provided by the Tennyson PowerStation Liaison Officer in City Planning branch, James Coutts. I refer to a memorandum from me dated 27 July 2004 to Council officers which records this instruction. A copy of the memorandum is Attachment **"RJK-04".** It states, relevantly:

"This matter is highly confidential

The State Government is proposing to develop the Tennyson Power Station and as such have selected three preferred developers to submit tenders.

...

There are no detailed plans outlining the nature of the development...

Advice to the tender consultants will need to be generic with the advice based on the a (sic) *development scenario for the combined sites...*

Specific questions to be addressed include:

- *What are the flood levels affecting the site and what are the habital* (sic) *floor levels?*

..."

33. In the memorandum I also state that I had prepared a list of Bimap (iBimap) and history searches (BIDS Applications/Site History) for the site, copies of which appear on the file. The Council officers to whom the memorandum was addressed are the relevant Council officers who could then have properly addressed the specific questions raised or would have been

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aware of technical specialists in Council who would have assisted them in preparing their response.

34. The file contains a handwritten note dated 4 August 2008 by "AB" who I know to be Andrew Blake, an engineer employed in Development Assessment South. A copy of the note is Attachment **"RJK-05"**. The note is in relation to "Tennyson Power Station Redevelopment Hydraulic Issues." The note lists the following:

" the development must address the 'Brisbane River Corridor Planning Policy' located in Appendix 2 of Volume 2 of City Plan.*

** 2 separate stormwater catchments exist over the development site.*

** there are existing stormwater pipes for both catchments that discharge to the river. the development must provide for overland flow and pipe drainage (QUDM & BCC supplement)*

** natural channel design may be an option for the overland flow paths.*

** the Q100 flood level from the Brisbane River is 7.9m AHD.*

** significant filling of the site will be required to achieve minimum development levels.*

** the development must not cause adverse impacts upstream.*

35. I would like to clarify a point of ambiguity in the above extract which is frequently repeated in other documents referred to in this statement. The third last dot point refers to the "Q100" flood level as being 7.9m AHD. In the context of this particular project, that is a misnomer. The relevant flood levels for development affected by river flooding are derived from the highest Defined Flood Level (**"DFL"**). It is a matter of historical record that while the level which is now reflected by the DFL was in previous years intended to reflect the Q100, in the light of advice received by Council in 2003, the DFL is above Q100. It is frequently the case that Council officers use the term Q100 to loosely refer to the DFL. I note that the flood modelling submitted as part of the development application calculated the Q100 for the Tennyson Reach development between approximately 6.94m to 6.97m AHD.

36. Appearing behind Andrew's note on the file are copies of various iBimap cadastral maps and aerial photographs (1946, 2001 and 2003) showing site boundary, stormwater catchments and waterway planning units copies of which are collectively Attachment **"RJK-06"**.

[redacted]

Witness

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37. The file also contains a memorandum dated 6 August 2004 addressed to me from Bruce McArthur in relation to "Tennyson Power Station Redevelopment Hydraulic Issues". A copy of the memorandum is Attachment **"RJK-07"**. Bruce McArthur is an engineer working in Development Assessment South. In the section of the memorandum titled "Stormwater" the information contained in the first five points in Andrew Blake's handwritten note are repeated verbatim. The memorandum then goes on to state:

- *"Filling of site is possible.*
- *Significant filling of the site will be required to achieve minimum development levels as outlined in the Subdivision & Development Guidelines. Refer - Part B Design Requirements, Section 2.4 Earthworks Adjacent to Waterways and Flow Paths.*
- *The development must not prejudice the overland flow path or worsen upstream effects."*

38. I refer to my memorandum dated 6 August 2004 a copy of which is **"RJK-08"**. It comprises a summary prepared by me of the responses provided by Council officers to the specific queries raised concerning the proposed generic development on the site. As stated above, I do not recall whether this information was provided to the tenderers by me directly or through the Tennyson PowerStation liaison officer.

39. I refer in particular to the information set out under the heading "Stormwater" where the following points are noted:

- *The Q100 flood level from the Brisbane River is 7.9m AHD. All residential is to have habital* (sic) *floor levels above Q100 and have flood free access. A lesser level may be considered for non residential uses.*
- *Filling of site would be permitted provided it can be demonstrated that it does not prejudice the overland flow path, worsen upstream effects or cause the ponding of water on adjoining lands. Significant filling of the site will be required to achieve minimum development levels as outlined in the Subdivision & Development Guidelines. Refer - Part B Design Requirements, Section 2.4 Earthworks Adjacent to Waterways and Flow Paths.*
- *Two separate stormwater catchments have been identified over the development site.*

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- *There are existing stormwater pipes for both catchments that discharge to the river. The development must provide for overland flow and pipe drainage [QUDM & BCC Supplement]*

- *Natural channel design may be favourably considered for the overland flow paths through the site."*

40. I observe that the points made about storm water and flooding in my 6 August 2004 memorandum were addressed by the report provided by Mirvac's consulting engineers as part of the development application for the Tennyson Reach development.

A detailed account of all decisions, including reasons for those decisions, made by all employees, contractors and councillors of the Brisbane City Council, civic cabinet and the Lord Mayor of Brisbane regarding the following aspects of the Tennyson development site and Tennyson Reach development:

(b) details of the proposal awarded by the State of Queensland to Mirvac as communicated to Council

41. This part of the Commission's request seeks information about decisions by Council or its agents regarding the details of the proposal awarded by the State to Mirvac for the Tennyson Reach development as communicated to Council. This question assumes that details of the tender awarded to Mirvac were in fact communicated to Council. So far as I am aware, the terms of the tender and any subsequent contracts or agreements were not provided to Council as such. This is not to say that it was not possible to infer what the tender required, given that one could reasonably assume that the key components of the planned development were reflective of tender conditions.

42. In my role as Principal Planner of Development Assessment South, I was involved in all aspects of the assessment process for the Tennyson Reach development for Council. It was not ever communicated to me what the exact details of the proposal awarded by the State to Mirvac were other than in a generic sense as outlined above.

43. I have no knowledge of, and as previously stated, in the time available I have not been able to identify Council's files relating to any proposal awarded by the State of Queensland with respect to the neighbouring animal research centre site as it relates to the Tennyson Reach development.

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Witness [redacted]

A detailed account of all decisions, including reasons for those decisions, made by all employees, contractors and councillors of the Brisbane City Council, civic cabinet and the Lord Mayor of Brisbane regarding the following aspects of the Tennyson development site and Tennyson Reach development:

(c) the preliminary development approval and any master plans granted to Mirvac by Council for the Tennyson Reach development

Summary

44. The scope of this aspect of the request depends on the nature of the decisions referred to. If one focussed on decisions which had a binding consequence in the development application process, the scope of the request would be quite limited, focussing on the ultimate decision to approve the application. It seems obvious to me that the Commission is interested in a much broader range of decisions. The difficulty, however, is how to confine the scope of the decisions referred to in a way which makes the task imposed by the request manageable. I say that because the process of considering a development application for a preliminary approval that varies the effect of the planning scheme and a development permit of the kind lodged for the Tennyson Reach development involves very many individual judgments and decisions about every step of the process. Further, while I was involved in overseeing the process, I was not involved in all such decisions. Indeed, many decisions would have been made outside Development Assessment South by other officers in Council. The number of documents which might be relevant to the numerous judgments and decisions made in course of the approval process, if documented at all, would be in the hundreds and perhaps thousands.

45. It seems to me that I can best assist the Commission by explaining the key steps in the approval process for the Tennyson Reach development, focusing on the flood and flooding issues which arose, and in that way identify the main decisions taken in the lead up to the formal approval process.

Summary of the approval process

46. Attachment **"RJK-09"** is a chronology of events in relation to the Tennyson Reach development. The chronology was prepared by Clayton Utz. I have reviewed the chronology which includes the relevant key dates from a planning perspective and it appears to be accurate.

47. The key steps and dates are as follows:

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27 June 2005	The State of Queensland (**State**) announces Mirvac Queensland Ltd (**Mirvac**) as the preferred developer of the Tennyson Reach development.
6 July 2005	Commencement of prelodgement process on an informal basis.
3 October 2005	Prelodgement process formalised.
16 November 2005	Development application lodged by Mirvac.
9 December 2005	Amended Acknowledgement Notice issued.
24 January 2006	Council sends Information Request to Department of Local Government, Planning, Sport & Recreation.
1 February 2006	Referral Co-ordination Information Request issued by Department of Local Government, Planning, Sport & Recreation.
6 April 2006	Mirvac responds to the Information Request.
31 May 2006	Mirvac completes public notification process (compliance notice lodged) - three properly made submissions received.
14 July 2006	Council extends decision making period.
31 July 2006	Mirvac lodges request to change development application.
8 August 2006	Acknowledgement Notice issued for changed development application.
17 August 2006	Referral Co-ordination Information Request issued by Department of Local Government, Planning, Sport & Recreation.
19 September 2006	Full Council approves development application subject to conditions.
25 September 2006	Decision notice issued.

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29 September 2006	Mirvac lodges a request to suspend its appeal period to seek a Negotiated Decision Notice.
6 October 2006	Negotiated Decision Notice issued with amended conditions.

48. I will now turn to describing the key steps in the approval process, focusing on flooding issues, in more detail and stage by stage.

The Prelodgement Processes Generally

49. For development applications that involve complex issues, proposals listed as generally inappropriate impact assessable developments and/or developments involving strong community interest, it is commonplace for prelodgement meetings to take place between Council and the developer prior to a development application being lodged.

50. The purpose of the prelodgement process is to:

(a) discuss in the early stages of planning and design of a development proposal the major issues which will need to be addressed in the development application;

(b) ensure any issues that might delay the assessment of the development application and cause requests for information to issue are addressed upfront in the application;

(c) give Council's preliminary view as to the likely overall merits of the proposed development; and

(d) provide guidance and direction for the proposed development where possible.

51. The prelodgement process involves the developer submitting to Council a completed prelodgement meeting request form and supporting information which may include photographs of the site, a concept or detailed plan, information relevant to likely impacts of the development, details of solutions to identified issues and how the development responds to the performance criteria in the City Plan.

52. Council charges a fee for each prelodgement meeting which is generally chaired by a Principal Planner from Council's Development Assessment section. Other Council officers outside Development Assessment branch or the Team Leader called on to attend the meeting will

depend upon the nature of the proposed development and the issues raised by the applicant as outlined in the request form.

53. Following the prelodgement meeting, Council officers document the issues discussed and make written recommendations for the proposal. Council then provides this document to the developer. While the prelodgement meeting is designed to provide guidance on the application, it does not pre-empt the outcome of any subsequent development application assessed by Council. At the time of the Tennyson Reach development, such an assessment was carried out in accordance with the now repealed *Integrated Planning Act 1997* and the *Brisbane City Plan 2000.*

Prelodgement Process - Tennyson Reach development

54. I have no independent recollection of the prelodgement process for the Tennyson Reach development. I can provide an account of it, however, by reference to the documents I have considered relating to that process. My account is based primarily on documents contained in a hard copy file which appears to be a prelodgement file for the Tennyson Reach development. Other documents relevant to the prelodgement process have also been located from various sources in Council and to the extent they have been referred to me, I have included them in this Statement.

55. While a prelodgement process is formally commenced by the relevant request form, in this case it appears from the documentary record that the process of meeting and discussing potential planning issues began in early July 2005 on an informal basis, and was later formalised by the completion by the developer of the appropriate form.

56. In particular it appears that a letter was sent by Mirvac to City Planning branch dated 29 June 2005, confirming that Mirvac had been appointed as preferred developer for the Tennyson Reach development and referring to workshops to be attended by key team members to review the project prior to a formal prelodgement meeting. A copy of the letter is Attachment **"RJK-10"**. This letter is addressed to the City Planning branch, not to Development Assessment South, and refers to discussions about informal meetings prior to the formal prelodgement meeting. It might be that City Planning branch agreed to such a process. I do not recall being a party to any such discussions or agreeing to that proposal, although I might have. It is much more likely that it was City Planning branch who agreed to initiate the relatively informal

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Witness [redacted]

process which occurred in this case given that the Tennyson PowerStation Liaison Officer was in City Planning branch.

57. The file indicates that the first of the workshops took place on 6 July 2005. I refer to a Mirvac agenda and a handwritten note to file of that date prepared by Steven Schwartz who then was an Urban Planner in Development Assessment South and who was nominated by me as the Assessment Manager for this project under my direction. Copies of the Mirvac agenda and the handwritten note are Attachments **"RJK-11"** and **"RJK-12"** respectively. I note that Steven Schwartz's file note records that this was the initial meeting between Council and Mirvac, that it was proposed there be a series of workshops prior to lodgement to sort out issues, and that the "Initial issues" were that the first two residential "buildings are in waterway corridor" and "water/sewer capacity".

58. The file indicates that further meetings took place between Council and Mirvac. I refer to an email from Dennis Kim, Program Officer, Water Resources sent on 7 September 2005 which refers to a "prelodgement meeting" which was to take place the following day. A copy of the email from Dennis Kim is Attachment **"RJK-13"**. The email states:

[redacted] *and I had a discussion about this site and we do not have major issues except the following issues:*

- *Protect waterway health by improving stormwater quality and reducing run-off.*
- *Demand management initiatives utilised for all water supply issues and supplement with alternative sources eg. Rainwater tanks.*
- *Reduce property run-off by ensuring maximum absorption within property boundaries.*
- *Reduce road run-off by increasing absorption on roadsides and slowing velocity*
- *Maximising recycling opportunities*

The rest of flood related issues are guided by Bob Adamson."

Further meetings

59. Notwithstanding the likelihood that further meetings occurred prior to lodgement of the development applications, the files which I have reviewed so far do not contain evidence of them. As I have said, I do not recall attending any such meetings.

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Rory John Kelly

Witness [redacted]

Prelodgement deliberations by Council officers about flooding issues

60. One matter which is presumably of particular interest to the Commission and which is covered in documents I have seen is the deliberations and dealings by various Council engineers in respect of flooding issues. I refer to the comment by Dennis Kim referenced in paragraph 58 which refers to the "rest of flood related issues" being guided by Bob Adamson. At the relevant time, Bob Adamson was the Principal Hydraulic Engineer in the Technical Services Team in Development Assessment branch. Bob Adamson is no longer an employee of the Council.

61. The documents which I have seen show that there must have been discussions involving Council officers and Mirvac's engineering consultants, GHD.

62. The dealings are reflected in the emails and memoranda contained in Attachment "**RJK-14**". I do not recall any details about these dealings, although I note (as I would expect) that both Steven Schwartz and I have received some of the emails. In summary, however, it appears that the following occurred:

(a) Bob Adamson had some informal discussions with GHD in which they outlined the substance of their (presumably preliminary) views on the impacts for flood levels and river conveyance of the development;

(b) engineers in Council's City Design branch then had discussions with GHD in the course of which GHD sought, and was provided with, access to part of Council's Mike 11 river model;

(c) thereafter, there appears to have been some discussion between Council engineers as to what was required in respect of flood modelling for the development, with the eventual position being reached that it was a matter for Mirvac's engineers to undertake modelling in regard to flow conveyance impacts of the development.

63. The final position appears to be set out in the following email from GHD to Evan Caswell, Senior Engineer, Flood Management Water & Environment, City Design sent on 28 September 2005. The email states:

"Evan,

We have been asked by Bob Adamson to undertake modelling of the Brisbane River in regard to flow conveyance at the proposed Tennyson Riverside Development Site (old Tennyson Power station). We therefore still require the information that [redacted] *requested on the 01/09/05. If you no longer have a copy of this request I can email it again, just let me know.*

Generally we would need:

Mike II model of approx. 2 km upstream and downstream of site, boundary conditions at each end for 50, 100, and any greater ARI events that Council have. This will include in flow hydrographs, and tailwater (level-time) inputs for the critical duration (at the site) only."

64. I note in that regard that the development application for the Tennyson Reach development was in fact accompanied by a report from GHD which dealt with, amongst other things, flow conveyance impacts of the development.

The Prelodgement Development Request

65. On about 3 October 2005, Mirvac lodged a Prelodgement Meeting Development Assessment Request which refers to a pre-organised time for the development assessment meeting as 3 October 2005. A copy of the Prelodgement Meeting Development Assessment Request is Attachment **"RJK-15"**. As I have said, it appears that this form was lodged following a series of meetings between Council and Mirvac to formalise the process and allow for payment of the prelodgement fee. I refer in this regard to a document titled "DTM Scoping Sheet" a copy of which is Attachment **"RJK-16"**. A note appears on the DTM Scoping Sheet in Steven Schwartz's handwriting which records: *"Series of meetings held - file created so that payment could be made."* This confirms my belief that there was such a series of meetings. As I have said, I do not recall being involved in them and I have not seen any relevant documents relating to such meetings; however, given my role in Development Assessment South and the significance of the Tennyson Reach development I would have attended at least one of the meetings, and perhaps more.

66. I refer to the Minute of the DTM held in relation to the Tennyson Reach development on 6 October 2005 which is Attachment **"RJK-17"**. The letters "DTM" stand for "Daily Team Meeting". It is usually at these meetings that tasks relevant to the progress of an application will be allocated. Although I have no recollection of doing so, I expect I would have attended

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Witness [redacted]

this meeting with the other Principal Planner in Development Assessment South, Natasha Holland, most likely together with an engineer from Development Assessment South, and I expect I would have invited Steven Schwartz from Development Assessment South. The DTM is a file allocation meeting and I note in this regards that the minute records the Assessment Manager as Steven Schwartz and me as Council's Delegate. As I have said, however, I might have nominated Steven Schwartz as Assessment Manager earlier in the process.

67. In the ordinary course, as I have said in paragraph 53 above, the prelodgement process results in a document being given to the developer. I have not as yet located such a document in respect of the prelodgement process for the Tennyson Reach development. I note that contrary to the usual practice where prelodgement advice has been given in writing, the development application for the Tennyson Reach development does not refer to any prelodgement minutes or written advice. It would be unusual for the parties involved in this development to overlook that matter. Accordingly, I suspect that for some reason there were no such minutes or written advice in this case.

Development Application is Lodged

68. A development application for the proposed Tennyson Reach development was lodged by Brannock & Associates Pty Ltd on behalf of Mirvac on 16 November 2005. A copy of the development application is Attachment **"RJK-18"**.

69. The development application was for:

(a) a Preliminary approval for a Material Change of Use overriding the planning scheme under section 3.1.6 of the *Integrated Planning Act 1997* (Qld) for multi-unit dwellings (191 units in 3 buildings), and park;

(b) Development Permit for a material change of use for indoor sport and recreation (tennis centre stadium) and outdoor sport and recreation (outdoor courts) and associated uses including office, restaurant, shop and convention centre (function room);

(c) Development Permit for a material change of use for multi-unit dwelling (114 units in buildings E & F) and park;

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(d) Development Permit for material change of use for multi-unit dwelling (88 units in building D), shop, restaurant and park; and

(e) Development Permit for operational works for disturbance to marine plants.

70. The preliminary approval process that applied through the now repealed *Integrated Planning Act 1997* (Qld) at the time of the development application allowed for development applications to be made that stated the way in which the applicant is seeking to vary the effect of a local planning instrument (which includes a planning scheme) for the land. This was commonly referred to as a "s.3.1.6 Application".

71. A s.3.1.6 application overrides the planning scheme by:

(a) varying the level of assessment under the planning scheme, so that the preliminary approval could specify the level of assessment (ie. self assessable, code assessable, impact assessable or exempt); and

(b) identifying any City Plan or other codes that relate to the development use proposed.

72. To the extent the Preliminary approval specified the level of assessment or identified City Plan or other codes for the development, the preliminary approval would prevail over City Plan to the extent that the preliminary approval was inconsistent with City Plan.

73. The development assessment process for this development application required referral coordination and involved Concurrence and Advice Agencies. I have necessarily focussed on the approval process from the perspective of flood and flooding issues in this statement and do so in the next section.

A detailed account of all decisions, including reasons for those decisions, made by all employees, contractors and councillors of the Brisbane City Council, civic cabinet and the Lord Mayor of Brisbane regarding the following aspects of the Tennyson development site and Tennyson Reach development:

(d) any investigation or study regarding the effect of flood on the Tennyson Reach development or the effect of the Tennyson Reach development on flooding elsewhere.

74. I will now turn to setting out in detail the assessment process that was followed in assessing the Tennyson Reach development, focusing as I have said I would, on flooding issues.

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75. I should make clear at the start that there is not a formal process of minuting each and every meeting, formal or informal, of Council officers involved in the assessment process either within Development Assessment South or outside the team. The process that is undertaken is essentially an informal process of deliberation and consultation between Council officers, with substantive outcomes or decisions being recorded in writing. In my role as Principal Planner I would have participated in a number of those meetings, in addition to any meetings I was asked to attend by the Assessment Manager, Steven Schwartz.

76. As stated above, Council's file indicates a DTM was held for the Tennyson Reach development during the prelodgement process.

77. A DTM would also have occurred following the lodgement of the development application. The DTM is the first step in project managing the development application through Council's assessment processes and although I have no independent recollection of doing so, it was my responsibility to ensure a DTM occurred.

78. The purpose of the DTM is to identify the key planning issues for review, irrespective of whether the developer had addressed those key issues or not, and to allocate those issues to the relevant Council officers. If a prelodgement process had been undertaken, as had occurred with the Tennyson Reach development, the DTM considers at a preliminary level whether the issues raised during the course of prelodgement have been addressed by the developer. The DTM also identifies whether the development application needs to be referred to strategic planning for approval, whether advice is required from Council officers external to Development Assessment South, and sets time frames for obtaining any such advice.

79. Potential flooding issues either on the proposed development site or otherwise are identified at the DTM. In relation to the Tennyson Reach development, flooding issues had already been identified during the prelodgement phase. Although I have no independent recollection of flooding issues being raised at the DTM, the fact that hydraulic assessment advice was obtained (which appears on the file) indicates that flooding issues were raised at the DTM. While I am confident a DTM occurred, so far I have only been able to locate a formal electronic minute. There are usually handwritten minutes which record the detail of the discussions which are attached to the file. In this case the handwritten note on the file merely refers to a planned internal meeting. I have not been able to locate the minutes of that internal meeting and, at present, cannot explain why.

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80. When Development Assessment South seeks advice from Council officers outside the team, the advice is provided in the form of a memorandum or in an email. It is practice to place copies of memoranda and emails on the file, or to save the emails passing between Council officers from time to time in Council's Groupwise system.

81. In relation to flooding, I refer to a memorandum marked to the attention of Sam Gay, Engineer, Development Assessment South dated 6 January 2006 from Andrew Blake, Hydraulic Engineer, Technical Specialist Team, a copy of which is Attachment **"RJK-19"**. If a development application involves significant flood issues or includes a report on flooding issues, the practice of Development Assessment South's engineers is to refer this aspect of the development application to engineers in the Technical Specialist Team for assessment and recommendations.

82. As appears from Andrew Blake's memorandum, Andrew undertook an assessment of the hydraulic issues raised by Mirvac's development application for the Tennyson Reach development. Having had the opportunity to read the memorandum during the course of preparing this Statement, I note that Andrew Blake identifies some specific matters in respect of flooding issues in his memorandum. Based on my long experience of reading these kinds of memoranda, the effect of it was to impliedly accept that flooding issues other than those specifically referred to had been adequately addressed. The relevant sections of the memorandum are:

"2.0 COMMENTS

2.1 ***The proposed road must have Q100 flood immunity***
The proposed road through the site does not have Q100 flood immunity. The entire road must have Q100 flood immunity as stated in the Subdivision and Development Guidelines (Part B, Section 2.2, Table B2.3.1).

2.2 ***Q50 inundation extents and overland flow easement required***
Q50 inundation extents must be provided for the proposed overland flow paths between the buildings to define the overland flow easements required.

2.3 ***Underground drainage easements required***
Underground drainage easements are required for stormwater drainage within the site.

3.0 RECOMMENDATIONS

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3.1 Additional information is required as stated in Comment 2.1 above.

3.2 Development conditions are required to address Comments 2.2 & 2.3."

83. I refer to the development application which contains in Volume 6 a report by Mirvac's consulting engineers, GHD, titled "Flooding & Stormwater Quality Management". I note that the GHD report refers at section 6.3.3 to use by GHD of Council's Mike II Model Flood Study. As stated above in paragraph 62, the file indicates that two extracted cross sections of Council's model was provided to GHD. These extracts were provided to GHD on 4 October 2005 by Council's City Design.

84. The development application contains the following statement in section 1.8 of Volume 1 Project Overview:

"The primary hydrologic and hydraulic functions of the Brisbane River that are potentially impacted due to development are:

- *Floodplain storage; and*
- *Flood conveyance."*

85. It appears from Andrew Blake's memorandum that the impacts of the proposed Tennyson Reach development on flood plain storage and/or flood conveyance were not considered to be problematic by Council's hydraulics engineer and, more importantly, as Council's hydraulics engineer had not queried the methodology adopted by Mirvac's consultant engineers, that the correct flood modelling technology had been applied. As far as I am aware, and based on Andrew Blake's advice, the GHD report was sufficient to satisfy Council that if there were any off-site impacts of flooding caused by the proposed development, they would have no adverse impact.

86. In this regard I note that in Volume 1 Project Overview of the development application at section 1.8.1 in relation to "Brisbane River Floodplain Storage" it states:

"Analysis of the net effect of cut and fill on the site shows that a loss of floodplain storage of approximately 40000 m³ will result on the site.

Analysis of total works on both the subject site and on DPI&F land [animal research centre] *shows that loss of floodplain storage will be approximately 36,000 m³.*

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Such storage volume represents a minimal percentage of total available floodplain storage in this reach of the Brisbane River. Further, the minimal loss of floodplain storage (approximately 36,000 m³) represents only 0.0015% of the total volume of a 100 year ARI flood (approximately 2.4 x 10^9m³ as taken from BCC supplied data) at this point in the River.

Accordingly, due to:

- *Minimal loss of floodplain storage; and*
- *The relative 'disconnectedness' of the site floodplain from the River,*

it is expected that the proposed development will have no measurable adverse impact upon flood afflux or peak flood flow rate due to loss of floodplain storage."

87. I also note that at section 1.8.2 in relation to "Brisbane River Flood Conveyance" it states:

"The proposed development includes river frontage residential buildings and public open space. Four of the proposed buildings (Buildings A, B, C and D) do not encroach forward of the alignment of the existing power station building to the river, and will result in a widening of available active flow path of the River in the upstream portions (Buildings C and D).

Buildings E and F project forward of the alignment of the power station building and into the fringe of the active flow path of the River. Loss of available active flow path at this location is approximately 5% and is located in a region of low velocity and disturbed flow.

Such reduction in active flow area where velocities are lowest (due to increased friction and various obstructions discussed above) is not expected to result in afflux that will cause worsening of flooding to upstream properties.

Further detailed hydraulic modelling using Council's Brisbane River Mike II model is currently being completed in order to quantify any afflux due to the proposed development layout."

88. In relation to State Planning Policies, the Development Application stated at section 2.6.3:

"***State Planning Policy 1/03 (Mitigating the Adverse Impacts of Flood, Bushfire and Landslide)***

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This Policy aims to minimise the risk of flooding, bushfire and landslide to people, property, economic activity, and the environment. In relation to flooding, GHD has prepared a report which addresses the impacts of flooding on the site.

Part of the site is affected by flooding from the Brisbane River. The proposed development has been designed to ensure that all residences are above the Q100 flood level and flood free access is provided to the residences and basements. Access to the Animal Institute [animal research centre] *will be constructed to achieve Q100 immunity. The majority of the facilities within the State Tennis Centre will also have Q100 immunity."*

89. Having received Andrew Blake's advice, Development Assessment South would have consistently sought to ensure that the issues raised by Andrew Blake were addressed and that the recommendations made by him were actioned and effected to ensure that the flood immunity level was maintained at the level identified in GHD's report in any subsequent preliminary approval and development permits. In particular, an engineer in Development Assessment South would have ensured that the development conditions required to address points 2.2 and 2.3 of Andrew Blake's memorandum were included in any development approval.

90. In relation to the issue raised by Andrew Blake in point 2.1 of his memorandum, my recollection is that the western part of the proposed road connecting to Softstone Street had Q100 immunity but the eastern part of the proposed road connecting to Fairfield Road did not. As I recall, Council's engineers ultimately accepted the eastern part of the road as not being wholly at Q100 level because of engineering constraints created by the existing Fairfield Road.

91. The reference to Q100 level in this case is a reference to Q100 as determined by the Mike 11 model and not an attempt to refer to the DFL.

92. I refer in this regard to a note to file from Sam Gay to Development Assessment South dated 24 January 2006 which in turn refers to a discussion between Kevin Matthews who was then the Principal Engineer in Development Assessment South and Bob Adamson. A copy of the note to file is Attachment **"RJK-20"**. The note records:

"Kevin Matthews spoke with Bob Adamson today and they have agreed that the level of the access road for the Tennis centre should only have to meet Q50 levels. Particularly in view of the fact that the level of the existing Fairfield Road is at Q50.

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They also discussed that it was preferable for the access road to be structurally elevated as opposed to the road corridor being filled up, thus creating an effective dam through the low north east section of the property."

93. As part of the process of following up on the matters raised by Andrew Blake in his memorandum of 6 January 2006, I refer to a letter sent by facsimile by the Department of Local Government and Planning to Brannock & Associates on behalf of Mirvac on 1 February 2006, a copy of which was sent to Steven Schwartz. A copy of the letter is Attachment **"RJK-21"**. This letter formed the information request coordinated by the State on behalf of the concurrence agencies for the development application. Paragraph 25 of that letter relates to overland flood issues and reflects the acceptance by Council's engineers that Q50 was the acceptable flood level for the eastern end of the access road. The information request relevantly requires the following:

"Provide a contour plan identifying the extent of batters, at 1 in 4, where fill may be required to construct the access road between Fairfield Road and the Tennis Centre. Also demonstrate how the ponding areas are proposed to drain and how the access road might allow for overland flow. Note the minimum level must accommodate the Q50 flood level and is calculated at 6.7m."

94. I note that Council's FloodWise Property Report for the Tennyson Reach development indicates a level of 6.6 m AHD. A copy of a FloodWise Property Report for a unit in the Tennyson Reach development dated 14 January 2011 is Attachment **"RJK-22"**. For that reason it seems to me that the reference to 6.7m as Q50 in the above quote is mistaken.

95. Although I cannot explain in detail how it occurred, it is clear from the "As Constructed" plans held by Council that the access road (King Arthur Terrace) for the Tennyson Reach development was in fact constructed at or above Q100. The only part of the road which was below Q100 was the western roundabout providing access to the Tennis Centre car park. Attachment **"RJK-23"** is a copy of the "As Constructed" plans for the extension to King Arthur Terrace with the area of the road below Q100 shaded in blue on drawings numbered C8242 and C8229.

Setback Issues

96. Throughout the development assessment process, there was an issue as to the setback from the Brisbane River of proposed residential buildings E & F. This issue related to the fact that the

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buildings were inside the 20 metre setback from the high water mark required by the Waterways Code. My understanding is that the significance of the 20 metre setback from the high water mark is primarily concerned with riparian amenity, that is, with the biodiversity of the river in its natural state, and not with flood hydrology or hydraulics.

Development of the Conditions of Approval

97. As will be seen below, the development approvals in this case were substantial documents containing numerous conditions. The conditions package was developed by the following process:

(a) many of the conditions would have been entered directly into a draft conditions package by various assessment officers in respect of those parts of the development application that were in the scope of their relevant expertise. The conditions relating to flood immunity would have had their genesis in entries made by [redacted]

(b) the next step would have been for Steven Schwartz to review the draft conditions package, insert conditions relevant to his part in the process and to consolidate a draft conditions package;

(c) that draft would have been provided to me and I would have given it an initial review in the course of which I would likely have amended and varied the draft as I thought appropriate;

(d) once the draft conditions package had been settled by me with Steven Schwartz, I recall that it was provided to Brannock & Associates to allow Mirvac to make such initial submissions as it thought appropriate. I recall that there was at least one and possibly two conferences in which aspects of the draft conditions package were discussed with Mirvac and Brannock & Associates. Attachment **"RJK-24"** is a note to file by Steven Schwartz dated 7 September 2006. It comprises four pages of comments on the draft conditions package provided by Mirvac and what appears to me to be brief minutes of one of the conferences. I do not have any recollection of discussions at the meetings with Mirvac about the draft conditions relating to flood immunity and flooding issues, and in particular I recall no discussion about minimum habitable floor levels. I note that Steven Schwartz's note to file does

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include a reference to a discussion about the storage of hazardous materials above flood level;

(e) the conditions package ultimately presented to Council was the result of this process.

98. There are less documents which have so far been located about this process than I would have expected. It might be that there were not many more documents created as the work on the draft package may have been done on-screen during the conferences.

The Establishment & Coordination (Planning Guidance) Committee (PGC)

99. During the course of the assessment by Development Assessment South of the development application, I prepared a number of power point presentations with the assistance of Steven Schwartz for presentation to **PGC**. I refer in particular to a power point presentation to the PGC dated 6 February 2006 a copy of which is Attachment **"RJK-25"**.

100. I recall that the purpose of the presentation was to inform the PGC of the development application and to seek the PGC's endorsement of recommendations made by Development Assessment South for the redevelopment of the Tennyson development site. It is my practice to present the power point presentation to the PGC myself, and to speak to the PGC based on my knowledge of the matter. I refer to pages 4 & 5 of the power point presentation and note that it identifies "*8 key issues contained in referral coordination advice*" including "*Flooding - Appropriate flood immunity*". I understand the "referral coordination advice" to be the information request letter sent by the State to Brannock & Associates dated 1 February 2006.

101. During the course of preparing this Statement I have reviewed the letter of 1 February 2006 which I understand to be the "referral coordination advice" identified in my power point presentation. I accept that appropriate flood immunity is not in fact an issue contained in the referral coordination advice. I expect that the inclusion of this as a key issue in the presentation in reference to the referral coordination advice was an oversight on my part. However, I believe the reason why I made reference to flood immunity in the presentation is that I was conscious that this would be an issue for the PGC and I wanted to make it clear to the PGC that flooding had been considered and addressed, and that Council's policy on flood immunity was being maintained as regards the Tennyson Reach development.

102. I have also reviewed a power point presentation prepared by me for presentation to the PGC on 11 September 2006. A copy of the presentation is **"RJK-26"**. The purpose of the presentation, as I recall and as is stated in the power point document, was to seek the PGC's endorsement of the Officer's recommendation to approve the Tennyson Reach development. On page 5 there is slide titled "Key Issues". To the best of my recollection, the list of key issues was copied over, with some amendments (deleting "Local Plan - Development principles" and including "Contamination") from the power point document previously prepared for presentation to the PGC on 6 February 2006.

103. On page 12 of the power point document, there is a slide titled "*Key issues (cont)*". In relation to "*Flooding*" it states "*Minimum floor levels Resolved.*" I believe that at some stage prior to the PGC presentation I had a discussion with Councillor Helen Abrahams who was then the Local Councillor for the development site and also Chair of the Urban Planning Committee.

104. As Principal Planner in Development Assessment South, I had regular meetings with Councillor Abrahams in her capacity as the Local Ward Councillor in Development Assessment South and as Chair of the Urban Planning Committee. I recall that she raised the issue of flooding at one of those meetings. Although I do not recall my specific response I believe I conveyed that Council's policy of minimum habitable floor levels was to be maintained and that the Tennyson Reach development had been considered by Council's engineers. I believe I might have included the comment "*Minimum floor levels Resolved*" in response to my discussion with Councillor Abrahams. Another possibility is that the comment relates to an issue noted in a note to file by Steven Schwartz dated 7 September 2006 which deals with draft conditions for the DA and states " *maintenance shed is below FL height. Condition to use racks above FL to store hazardous materials*". There might be other explanations, and I cannot be sure. But I have no recollection of any discussion about flooding in the PGC itself.

105. Having reviewed the power point document for the purposes of preparing this Statement, I note that the following words are recorded by hand on the document: "Min Floor Levels Resolved 11 Sept 2006." The handwritten notes were not made by me and I do not recognise the handwriting.

106. The file indicates that there was a meeting of the PGC on 11 September 2006. I have read the agenda for the meeting which refers at item 4 to the address of the proposed Tennyson Reach

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development and to me as the presenter of this item. I would have attended that meeting and addressed the PGC on the development application. A copy of the PGC agenda is Attachment **"RJK-27"**. I have also reviewed what I understand to be hand written minutes of the meeting, a copy of which are Attachment **"RJK-28"**. I do not recognise the hand writing. Whilst it is not clear to me what exactly is written, there appears to be no suggestion that there was a discussion by the PGC of flood immunity or related issues.

Urban Planning & Economic Development Committee (UPED Committee)

107. After submission to the PGC, the development application is considered by the UPED Committee whose role it is to recommend or not recommend the approval of the development application. In the ordinary course, a report and recommendation on the development application is prepared for the UPED Committee and ultimately for Council. I refer to a document titled "Report and Recommendation on Development Application" by Steven Schwartz which is the report and recommendation on the development application for the Tennyson Reach development. A copy of the report is Attachment **"RJK-29"**. As is my practice, I would have reviewed and critiqued the report and recommendation. While I do not specifically recall doing so, I must have been satisfied with the contents of the document before it was finalised and sent by me to Richard Sivell, Manager of Development Assessment, and Peter Button, Team Leader of Development Assessment South, for sign off.

108. The report and recommendation provides a general summary of relevant considerations for the UPED Committee and Council in considering the development application. I refer to section 8 titled "Issues Relevant to the Application". The issues that are included under this heading are to a degree a matter of judgement for Council officers in identifying matters which have been relevant in the development application or which Council officers consider would be of particular interest to the UPED Committee and Council.

109. I refer to section 8.5 of the report and recommendation which is titled "Flooding" and states:

"The site is affected by flooding and there are potential impacts on roadways and the proposed residential area. The approval has been conditioned to manage overland flow impacts with swales, bunding and setting minimum habitable floor levels.'

110. This section was included in the report and recommendation because flooding had consistently been identified as an issue. As I state above, however, I was satisfied based on material

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included in support of the development application for the Tennyson Reach development, the development application itself and the assessment by Council's engineers, that flooding issues had been adequately addressed. Nonetheless, flooding was specifically referred to in the report and recommendation because it was likely to be an issue of interest to Council given that the proposed development was on a riverside site.

111. Generally, issues are included in the report and recommendation in order of importance and relevance to the planner. Although I am not able to specifically recall, it is likely that the issue in section 8.1 ("Height (bulk and scale) and Setbacks - Buildings E & F") was a key issue and that "Flooding" in section 8.5 was less pressing, but was included to reassure Council that flooding had been assessed and appropriate conditions recommended.

112. The report and recommendation was attached to a document titled "DECISION OF THE BRISBANE CITY COUNCIL URBAN PLANNING AND ECONOMIC DEVELOPMENT Committee's Recommendation of 19 September 2006" and presented to the UPED Committee for recommendation or not to Council. A copy of the Decision is **"RJK-30".** As is Council's practice, there would have been a meeting of the UPED Committee on 19 September 2006. Although I do not specifically recall doing so, I would have prepared and presented a power point presentation at the meeting, although I have not located a copy of any such document. I have no specific recollection of any discussion at the meeting about flood immunity or flooding issues. The UPED Committee recommended approval by Council of the development application. The development application was approved by Council at a meeting of Council on the afternoon of 19 September 2006. This is evidenced by the fact that the Decision is marked as "Adopted" and stamped "2487/06 Council's Delegate".

The Development Application approved subject to conditions

113. The Minutes of Proceedings for the meeting of Council on 19 September 2006 records the recommendation and Council's approval of the development application on pages 109 to 113. A copy of the Minutes of Proceedings is Attachment **"RJK-31"**.

114. The development application was approved, subject to a number of conditions.

115. Relevantly to flooding, the development conditions included conditions requiring the following:

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(a) the minimum habitable floor level to be 8.4m AHD (that is 500 mm above the DFL for the site defined by Council as 7.9m AHD);

(b) the development to be in accordance with Council's Subdivision and Development Guidelines;

(c) the development to be in accordance with approved plans, including elevations.

116. The development approval including its conditions (i.e. the decision notice) as approved by Council is a voluminous document. In fact, there was a Request for a Negotiated Decision Notice given to Council by Mirvac. Such a request defers the applicant's, and subsequently the submitter's, appeal period pending a process of negotiation on conditions in the development approval. As a consequence of that process, Council issued a Negotiated Decision Notice which revised the conditions on the original development approval in a number of respects and replaced the original decision notice. The revision to conditions did not involve revisions to conditions relating to flooding or flood immunity.

117. A copy of the Negotiated Decision Notice dated 9 October 2006 is Attachment **"RJK-32"**. It also includes a schedule listing the changes to the conditions of the original decision notice. Specific conditions relevant to flooding in both the original Decision Notice and Negotiated Decision Notice include:

(a) preliminary approval for 191 units in 3 buildings and park:

"12) All proposed residential buildings are to be designed in accordance with Council's "Subdivision and Development Guidelines" to ensure that minimum habitable floor levels are 500mm above the 100 year (ARI) flood level (river and creek flooding) or 500mm above the 50 year (ARI) (overland flow level) whichever is the greater.

Minimum non-habitable floor levels are to be not less than 50 year (ARI) or 100 year (ARI) flood levels (which ever is the greater).

GUIDELINE

This condition is imposed when the site is affected by flooding. The 100 year ARI event is applicable to river and/or creek flooding. If the catchment is localised, the 50 year ARI event will be applicable unless the site is also affected by creek or river

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flooding in which case the higher flood level is used. For any other enquiries about this condition, please contact the Engineering Officer."

(b) development permit for a material change of use for indoor sport and recreation (tennis centre stadium) and outdoor sport and recreation (outdoor courts) and associated uses including office, restaurant, shop and convention centre (function room):

"47) Undertake the works on the site in accordance with an Earthworks Plan approved by the Engineering Delegate, Development Assessment.

(a) Submit an earthworks plan (and obtain approval from the Engineering Delegate, Development Assessment, prepared by a Registered Professional Engineer of Queensland (RPEQ), and in accordance with Council's "Subdivision and Development Guidelines" demonstrating how the development will comply with this requirement and the following:

- *The location of any cut and/or fill;*
- *The quantity of fill to be deposited and finished fill levels;*
- *Maintenance of access roads to and from the site such that they remain free of all fill material and are cleaned as necessary;*
- *The existing and proposed finished levels (extending into the adjacent properties);*
- *Preservation of all drainage structures from the effects of structural loading generated by the earthworks;*
- *Protection of adjoining properties and roads from ponding or nuisance from stormwater;*
- *That all vehicles exiting from the site will be cleaned and treated so as to prevent material being tracked or deposited on public roads.*

[redacted] *(b) All fill material placed on the site is to be free of contaminants (as defined by section 11 of the Environmental Protection Act 1994), noxious, hazardous,*

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deleterious and organic materials. Suitable fill material is deemed to comply with the requirements of clause 4.3, AS 3798, Guidelines on Earthworks for Commercial and Residential Developments.

(c) Prepare the following details for presentation to the Council's Engineering Delegate at a pre-start meeting arranged by the consultant supervising the contractor:

- *The type of fill to be used and the manner in which it is to be compacted;*
- *Details of any proposed access routes to the site which are intended to be used to transport fill to the site;*
- *Engineering details of any haul roads to be built to facilitate the placement of fill on the site;*
- *The contractor is responsible for maintaining the access roads near the site such that they remain free of all fill material and are cleaned as necessary;*
- *Damage to Council assets will need to be repaired at no cost to Council;*
- *Public footpaths fronting the site are to remain safe at all times; and*
- *Compliance with Council's Erosion and Sediment Control Guidelines relating to earthwork's on a construction site.*

(d) Implement and maintain the provisions of a Site Based Stormwater Management Plan which is consistent with Council's "Subdivision and Development Guidelines" (2000 or later version) and aims to prevent or minimise the contamination of stormwater and the release of contaminated stormwater from the site during construction and operational works.

GUIDELINES

This condition is imposed for applications when significant earthworks are proposed in conjunction with a development proposal. Site Based Stormwater Management Plans (that address short and long term stormwater management from a quality and quantity perspective) may be part of Environmental Management

[redacted]

Rory John Kelly

Witness

[redacted]

Plans (EMPs) and include ESC Programs/Management Plans. For any enquiries about this condition, please contact the Engineering Delegate, Development Assessment."

"53) Run off from the site and run off concentrated on the site from local catchments for storms up to the 50 year (ARI) flood event and for a 100 year (ARI) flood event for creek and river flooding, is to be managed in accordance with approved drainage plans and Council's "Subdivision and Development Guidelines" so as not to have any adverse effect on neighbouring properties.

(a) Design and construct all buildings to have the appropriate freeboard in accordance with the Council's "Subdivision and Development Guidelines" so as to not to be flooded during a 50 year (ARI) local flood event of a 100 year (ARI) creek or river flood event whichever is the higher flood level;

(b) Submit engineering plans and calculations, prepared by a Registered Professional Engineer Qld (RPEQ) and in accordance with the Council's "Subdivision and Development Guidelines", demonstrating how the development will comply with this requirement. Such plans are to show adequate survey information on areas adjoining the site with particular attention to ponding of water and overland flow paths and building pads. Additionally, the submitted information is to determine the extent of any stormwater drainage works and the width of any overland flow easements. Obtain approval for the design from the Engineering Delegate, Development Assessment, Development and Regulatory Services;

(c) Complete the works in accordance with the approved engineering plans; and

(d) Submit "As Constructed" plans including an asset register (if required), approved by a Registered Professional Engineer of Queensland (RPEQ) (to a standard specified in Council's "Subdivision and Development Guidelines") certifying that the works have been completed in accordance with the approved design and any approved modifications.

GUIDELINE

[redacted]

Witness [redacted]

This condition is intended to ensue that the design of the subject development accounts for the stormwater run off and/or if stormwater drainage patterns in the vicinity of the site require improvements. For any enquiries about this condition, please contact the Engineering Delegate, Development Assessment."

"57) Design and construct all proposed buildings in accordance with Council's "Subdivision and Development Guidelines" to ensure that minimum habitable floor levels are 500mm above the 100 year (ARI) flood level (river and creek flooding) or 500mm above the 50 year (ARI) (overland flow level) whichever is the greater.

- *All service sheds must ensure that the storage level for chemical purposes are to be not less than 500mm above the 50 year (ARI) or 100 year (ARI) flood levels (which ever is the greater)."*

GUIDELINE

This condition is impose when the site is affected by flooding. The 100 year ARI event is applicable to river and/or creek flooding. If the catchment is localised, the 50 year ARI event will be applicable unless the site is also affected by creek or river flooding in which case the higher flood level is to be used. For flood level information, Council Flood Reports are now available from any of Council's Customer Service Centres and Regional Business Centres. The new Flood Report provides the latest flood information for a nominated property plus other useful information about flooding and your development."

(c) development permit for a material change of use for multi-unit dwelling (114 units in buildings E & F) and park:

"97) The overall height of the proposed buildings are to be in accordance with the following requirements:

(a) Construct the floor levels generally in accordance with the floor levels on the approved elevations and sections 00-DA0003 rev D, 41-DA1600 rev C, 41-DA1601 rev C, 31-DA 1600 rev D, 31-DA1601 rev D, with the minimum building height (including lift overruns, roof plant, and 'pop-up' structures) not to exceed the following:

[redacted]

Rory John Kelly

[redacted]

Witness

[redacted]

***Minimum Habitable Flood Level**: 8.40 AHD*

***Car Park Podium:** 15.00 AHD*

***Building E:** 45.52 AHD*

***Building F:** 42.50 AHD and 31.50 AHD for the stepped section to level 7*

(b) Submit certification from a licensed surveyor that the as-constructed floor levels and maximum building heights are in accordance with part (a) of this condition. This information is to be submitted to the Delegate, Development Assessment Team.

GUIDELINE

This condition is imposed to ensure the flood levels and maximum overall height of the proposed building is in accordance with the development approval. The relaxation of the maximum height limit is to permit a minor encroachment of the roof line. This encroachment shall not exceed 200mm and is only permitted for the area shown on the approved plan and is not to extend further than this area. For any enquiries about this condition, please contact the Development Assessment Team Architect."

"121) Undertake the works on the site in accordance with an Earthworks Plan approved by the Engineering Delegate, Development Assessment.

(a) Submit an earthworks plan (and obtain approval from the Engineering Delegate, Development Assessment, prepared by a Registered Professional Engineer of Queensland (RPEQ), and in accordance with Council's "Subdivision and Development Guidelines" demonstrating how the development will comply with this requirement and the following:

- *The location of any cut and/or fill;*
- *The quantity of fill to be deposited and finished fill levels;*
- *Maintenance of access roads to and from the site such that they remain free of all fill material and are cleaned as necessary;*

[redacted]

Rory John Kell[redacted]

Witness [redacted]

- *The existing and proposed finished levels (extending into the adjacent properties);*
- *Preservation of all drainage structures from the effects of structural loading generated by the earthworks;*
- *Protection of adjoining properties and roads from ponding or nuisance from stormwater;*
- That all vehicles exiting from the site will be cleaned and treated so as to prevent material being tracked or deposited on public roads.

(b) All fill material placed on the site is to be free of contaminants (as defined by section 11 of the Environmental Protection Act 1994), noxious, hazardous, deleterious and organic materials. Suitable fill material is deemed to comply with the requirements of clause 4.3, AS 3798, Guidelines on Earthworks for Commercial and Residential Developments.

(c) Prepare the following details for presentation to the Council's Engineering Delegate at a pre-start meeting arranged by the consultant supervising the contractor:

- *The type of fill to be used and the manner in which it is to be compacted;*
- *Details of any proposed access routes to the site which are intended to be used to transport fill to the site;*
- *Engineering details of any haul roads to be built to facilitate the placement of fill on the site;*
- *The contractor is responsible for maintaining the access roads near the site such that they remain free of all fill material and are cleaned as necessary;*
- *Damage to Council assets will need to be repaired at no cost to Council;*
- *Public footpaths fronting the site are to remain safe at all times; and*

[redacted]

Witness [redacted]

- *Compliance with Council's Erosion and Sediment Control Guidelines relating to earthwork's on a construction site.*

(d) Implement and maintain the provisions of a Site Based Stormwater Management Plan which is consistent with Council's "Subdivision and Development Guidelines" (2000 or later version) and aims to prevent or minimise the contamination of stormwater and the release of contaminated stormwater from the site during construction and operational works.

GUIDELINES

This condition is imposed for applications when significant earthworks are proposed in conjunction with a development proposal. Site Based Stormwater Management Plans (that address short and long term stormwater management from a quality and quantity perspective) may be part of Environmental Management Plans (EMPs) and include ESC Programs/Management Plans. For any enquiries about this condition, please contact the Engineering Delegate, Development and Regulatory Services."

"131) Run off from the site and run off concentrated on the site from local catchments for storms up to the 50 year (ARI) flood event and for 100 year (ARI) flood event for creek and river flooding, is to be managed in accordance with approved drainage plans and Council's "Subdivision and Development Guidelines" so as not to have any adverse effect on neighbouring properties.

(a) Design and construct all buildings to have the appropriate freeboard in accordance with the Council's "Subdivision and Development Guidelines" so as not to be flooded during a 50 year (ARI) local flood event or 100 year (ARI) creek or river flood event whichever is the higher flood level;

(b) Submit engineering plans and calculations, prepared by Registered Professional Engineer Qld (RPEQ) and in accordance with the Council's "Subdivision and Development Guidelines", demonstrating how the development will comply with this requirement. Such plans are to show adequate survey information on areas adjoining the site with particular attention to ponding of water and overland flowpaths and building pads. Additionally, the submitted

[redacted]

Rory John Kelly

Witness

[redacted]

information is to determine the extent of any stormwater drainage works and the width of any overland flow easements. Obtain approval for the design from the Engineering Delegate, Development Assessment, Development and Regulatory Services;

(c) Complete the works in accordance with the approved engineering plans; and

(d) Submit "As Constructed" plans including an asset register (if required), approved by a Registered Professional Engineer of Queensland (RPEQ) (to a standard specified in Council's "Subdivision and Development Guidelines") certifying that the works have been completed in accordance with the approved design and any approved modifications.

GUIDELINE
This condition is intended to ensure that the design of the subject development accounts for the stormwater run off and/or if stormwater drainage patterns in the vicinity of the site require improvements. For any enquiries about this condition, please contact the Engineering Delegate, Development and Regulatory Services."

"132) Design and construct all proposed buildings in accordance with Council's "Subdivision and Development Guidelines" to ensure that minimum habitable floor levels are 500 mm above the 100 year (ARI) flood level (river and creek flooding) or 500 mm above the 50 year (ARI) (overland flow level) whichever is the greater.

- *Minimum non-habitable floor levels are to be not less than 300mm above the 50 year (ARI) or 100 year (ARI) flood levels (which ever is the greater).*

GUIDELINE

This condition is imposed when the site is affected by flooding. The 100 year ARI event is applicable to river and/or creek flooding. If the catchment is localised, the 50 year ARI event will be applicable unless the site is also affected by creek or river flooding in which case the higher flood level is to be used. For flood level information, Council Flood Reports are now available from any of Council's

[redacted]

Witness

[redacted]

Customer Service Centres and Regional Business Centres. The new Flood Report provides the latest flood information for a nominated property plus other useful information about flooding and your development."

(d) development permit for material change of use for multi-unit dwelling (88 units in building D), shop, restaurant and park:

"164) The overall height of the proposed buildings are to be in accordance with the following requirements:

(a) Construct the floor levels generally in accordance with the floor levels on the approved elevations and sections 00-DA0003 rev D, 41-DA1600 rev C, 41-DA1601 rev C, 31-DA 1600 rev D, 31-DA1601 rev D, with the minimum building height (including lift overruns, roof plant, and 'pop-up structures) not to exceed the following:

***Minimum Habitable Flood Level**: 8.40 AHD*

***Car Park Podium:** 15.00 AHD*

***Building D:** 48.52 AHD and 40.50 AHD for the eastern stepped section and 39.50 AHD for the western stepped section.*

(b) Submit certification from a licensed surveyor that the as-constructed floor levels and maximum building heights are in accordance with part (a) of this condition. This information is to be submitted to the Delegate, Development Assessment Team.

GUIDELINE

This condition is imposed to ensure the flood levels and maximum overall height of the proposed building is in accordance with the development approval. The relaxation of the maximum height limit is to permit a minor encroachment of the roof line. This encroachment shall not exceed 200mm and is only permitted for the area shown on the approved plan and is not to extend further than this area. For any enquiries about this condition, please contact the Development Assessment Team Architect."

[redacted]

Witness [redacted]

"188) Undertake the works on the site in accordance with an Earthworks Plan approved by the Engineering Delegate, Development Assessment.

(a) Submit an earthworks plan (and obtain approval from the Engineering Delegate, Development Assessment, prepared by a Registered Professional Engineer of Queensland (RPEQ), and in accordance with Council's "Subdivision and Development Guidelines" demonstrating how the development will comply with this requirement and the following:

- *The location of any cut and/or fill;*
- *The quantity of fill to be deposited and finished fill levels;*
- *Maintenance of access roads to and from the site such that they remain free of all fill material and are cleaned as necessary;*
- *The existing and proposed finished levels (extending into the adjacent properties);*
- *Preservation of all drainage structures from the effects of structural loading generated by the earthworks;*
- *Protection of adjoining properties and roads from ponding or nuisance from stormwater;*
- *That all vehicles exiting from the site will be cleaned and treated so as to prevent material being tracked or deposited on public roads.*

(b) All fill material placed on the site is to be free of contaminants (as defined by section 11 of the Environmental Protection Act 1994), noxious, hazardous, deleterious and organic materials. Suitable fill material is deemed to comply with the requirements of clause 4.3, AS 3798, Guidelines on Earthworks for Commercial and Residential Developments.

(c) Prepare the following details for presentation to the Council's Engineering Delegate at a pre-start meeting arranged by the consultant supervising the contractor:

[redacted]

Witness [redacted]

- *The type of fill to be used and the manner in which it is to be compacted;*
- *Details of any proposed access routes to the site which are intended to be used to transport fill to the site;*
- *Engineering details of any haul roads to be built to facilitate the placement of fill on the site;*
- *The contractor is responsible for maintaining the access roads near the site such that they remain free of all fill material and are cleaned as necessary;*
- *Damage to Council assets will need to be repaired at no cost to Council;*
- *Public footpaths fronting the site are to remain safe at all times; and*
- *Compliance with Council's Erosion and Sediment Control Guidelines relating to earthwork's on a construction site.*

(d) Implement and maintain the provisions of a Site Based Stormwater Management Plan which is consistent with Council's "Subdivision and Development Guidelines" (2000 or later version) and aims to prevent or minimise the contamination of stormwater and the release of contaminated stormwater from the site during construction and operational works.

GUIDELINES
This condition is imposed for applications when significant earthworks are proposed in conjunction with a development proposal. Site Based Stormwater Management Plans (that address short and long term stormwater management from a quality and quantity perspective) may be part of Environmental Management Plans (EMPs) and include ESC Programs/Management Plans. For any enquiries about this condition, please contact the Engineering Delegate, Development and Regulatory Services."

"198) Run off from the site and run off concentrated on the site from local catchments for storms up to the 50 year (ARI) flood event and for 100 year (ARI)

[redacted]

Rory John Kelly

[redacted]

Witness

[redacted]

flood event for creek and river flooding, is to be managed in accordance with approved drainage plans and Council's "Subdivision and Development Guidelines" so as not to have any adverse effect on neighbouring properties.

(a) Design and construct all buildings to have the appropriate freeboard in accordance with the Council's "Subdivision and Development Guidelines" so as not to be flooded during a 50 year (ARI) local flood event or 100 year (ARI) creek or river flood event whichever is the higher flood level;

(b) Submit engineering plans and calculations, prepared by Registered Professional Engineer Qld (RPEQ) and in accordance with the Council's "Subdivision and Development Guidelines", demonstrating how the development will comply with this requirement. Such plans are to show adequate survey information on areas adjoining the site with particular attention to ponding of water and overland flowpaths and building pads. Additionally, the submitted information is to determine the extent of any stormwater drainage works and the width of any overland flow easements. Obtain approval for the design from the Engineering Delegate, Development Assessment, Development and Regulatory Services;

(c) Complete the works in accordance with the approved engineering plans; and

(d) Submit "As Constructed" plans including an asset register (if required), approved by a Registered Professional Engineer of Queensland (RPEQ) (to a standard specified in Council's "Subdivision and Development Guidelines") certifying that the works have been completed in accordance with the approved design and any approved modifications.

GUIDELINE
This condition is intended to ensure that the design of the subject development accounts for the stormwater run off and/or if stormwater drainage patterns in the vicinity of the site require improvements. For any enquiries abut this condition, please contact the Engineering Delegate, Development and Regulatory Services."

[redacted]

Witness [redacted]

"199) Design and construct all proposed buildings in accordance with Council's "Subdivision and Development Guidelines" to ensure that minimum habitable floor levels are 500 mm above the 100 year (ARI) flood level (river and creek flooding) or 500 mm above the 50 year (ARI) (overland flow level) whichever is the greater.

- *Minimum non-habitable floor levels are to be not less than 300mm above the 50 year (ARI) or 100 year (ARI) flood levels (which ever is the greater).*

GUIDELINE

This condition is imposed when the site is affected by flooding. The 100 year ARI event is applicable to river and/or creek flooding. If the catchment is localised, the 50 year ARI event will be applicable unless the site is also affected by creek or river flooding in which case the higher flood level is to be used. For flood level information, Council Flood Reports are now available from any of Council's Customer Service Centres and Regional Business Centres. The new Flood Report provides the latest flood information for a nominated property plus other useful information about flooding and your development."

118. Subsequent to the development approval for the Tennyson Reach development, a number of applications to amend the development approval have been received and assessed by Council. Subject to the matters set out in paragraph 119 below in respect of the amendment application in subparagraph (c), those applications and subsequent approvals do not relate to flooding impacts. For completeness the amendment applications relate to:

(a) design of the buildings;

(b) design and height of the roof of the Tennis Stadium;

(c) shade structures to concourse and café, spectator seating and shade to external courts, BBQ area, material storage and undercroft storage rooms;

(d) enclosure of roofed terrace area and cover of two show courts (permanent shade structure),

(e) proposed maintenance workshop on lower level of the gymnasium;

[redacted]

Rory J[redacted] Witness [redacted]

(f) enclosure of the bulk bin recycling store adjacent to the gymnasium;

(g) revised roof design of the compactor structure; and

(h) changes to conditions in relation to minor increase in gross floor area for buildings E and F, unit configurations, parkland contributions, parkland design plan, access easements, community management strategy, on-site managers unit, parkland landscape management plan, detailed plan in relation to pedestrian and bicycle pathways, permanent shade structures, plant and equipment certification, footpaths, acoustic levels and acoustic works, restaurant noise, hours of construction, road intersection, gymnasium design and timing of land dedication.

119. During the course of my preparation for this statement and following a review of the relevant files (as mentioned in paragraph 9 above) it has come to my attention that:

(a) the amendment application referred to in subparagraph 118(c) when approved included an approval relating to some storage and other non-habitable areas for the Tennis Centre might have included some consideration of flood impacts. The approval was given on 9October 2009;

(b) a current application for a Request for Permissible Change to a Development (dated 21 June 2011) seeking an approval for, amongst other changes, an expansion of change room facilities, new storage areas and other non-habitable areas forming part of the Tennis Centre, will likely include a consideration of flood impacts. In particular there will be a consideration of whether the current, as constructed, facilities comply with the conditions imposed by the Negotiated Decision Notice dated 9 October 2006 and the Subdivision and Development Guidelines.

120. I do not yet have a final view in relation to the matters set out in subparagraph 119(b) above, however I am currently investigating the matter and as soon as I have a final view I will provide the Commission with a supplementary statement addressing this issue as well as the approval mentioned in subparagraph 119(a) above.

[redacted]

Rory John Kelly [redacted] Witness

A detailed account of all meetings had (including internal meetings of Team South and meetings involving Team South and any other person) and all assessment reports prepared by Team South with respect to the Tennyson Reach development and the Tennyson development site.

121. Until appointed as Regional Manager two years ago, all of my involvement in the development assessment processes for the Tennyson Reach development was as Lead Principal Planner or Principal Planner, Development Assessment South. As I have explained in a number of instances, I do not have a detailed recollection of individual discussions and meetings and it would be unusual for notes to be kept of those meetings and discussions. I have endeavoured in this Statement to set out the material meetings, events and documents impacting on the assessment process by Development Assessment South of the Tennyson Reach development, focusing on flooding issues.

122. To the extent that I am reasonably able to respond to this question, I believe I have done so in this Statement. I would be happy to address further specific issues that might be brought to my attention.

DATED 31 August 2011.

[redacted]

Rory John Kelly

[redacted]

Witness

[redacted]

Our ref: Doc 1679383

16 August 2011

Mr Rory Kelly
Regional Manager - South
Brisbane City Council
GPO Box 1434
BRISBANE QLD 4001

REQUIREMENT TO PROVIDE STATEMENT TO COMMISSION OF INQUIRY

I, Justice Catherine E Holmes, Commissioner of Inquiry, pursuant to section 5(1)(d) of the *Commissions of Inquiry Act 1950* (Qld), require Mr Rory Kelly to provide a written statement, under oath or affirmation, to the Queensland Floods Commission of Inquiry, in which the said Mr Kelly:

- provides all information in his possession and identifies the source or sources of that information;
- makes commentary and provides opinions he is qualified to give as to the appropriateness of particular actions or decisions and the basis of that commentary or opinion;

In respect of the following:

1. a detailed account of all decisions, including reasons for those decisions, made by all employees, contractors and councillors of the Brisbane City Council, civic cabinet and the Lord Mayor of Brisbane regarding the following aspects of the Tennyson development site and Tennyson Reach development:
   a. the tender process run by the State of Queensland;
   b. details of the proposal awarded by the State of Queensland to Mirvac as communicated to Council;
   c. the preliminary development approval and any master plans granted to Mirvac by Council for the Tennyson Reach development; and
   d. any investigation or study regarding the effect of flood on the Tennyson Reach development or the effect of the Tennyson Reach development on flooding elsewhere.

   The 'Tennyson development site' means the sites of the former Tennyson power station and animal research centre.

   The 'Tennyson Reach development' means the Mirvac development at Tennyson including the Tennyson Reach residential development, the State Tennis Centre, parkland and all other land used or available to Mirvac Group.

400 George Street Brisbane
GPO Box 1738 Brisbane
Queensland 4001 Australia
Telephone 1300 309 634
Facsimile +61 7 3405 9750
www.floodcommission.qld.gov.au
ABN 82 696 762 534

2. a detailed account of all meetings had (including internal meetings of Team South and meetings involving Team South and any other person) and all assessment reports prepared by Team South with respect to the Tennyson Reach development and the Tennyson development site.

Mr Kelly may also address other topics relevant to the Terms of Reference of the Commission in the statement, if he wishes.

The statement is to be provided to the Queensland Floods Commission of Inquiry by Wednesday 31 August 2011.

The statement can be provided by post, email or by arranging delivery to the Commission by emailing info@floodcommission.qld.gov.au.

[redacted]

Commissioner
Justice C E Holmes

DRS/U

26 JUL 2004

ROBERT BIRD & PARTNERS
INTERNATIONAL CONSULTING ENGINEERS
ABN 67 010 580 248 ACN 010 580 248
Level 16 ANZ Centre 324 Queen Street Brisbane Qld 4000
PO Box 7035 Riverside Centre Brisbane Qld 4001
Ph: (07) 3319 2777 Fax: (07) 3319 2799
Email: brisbane@robertbird.com.au Web Site: www.robertbird.com.au

Reference: NF:SS LTR/C 4431T

23rd July 2004

Brisbane City Council
GPO Box 1434
BRISBANE QLD 4001

Attention: Mr Rory Kelly

Dear Sir

RE: TENNYSON POWER STATION SITE REDEVELOPMENT
ENQUIRY INTO WATER SEWERAGE AND STORMWATER MANAGEMENT

Robert Bird & Partners have been engaged by Stocklands to provide civil engineering advice for the development of a costing plan to support their submission for development rights at the above site.

As discussed with you late last week having an understanding of the water and sewerage system capacities is fundamental to addressing the civil infrastructure and development potential for this site. We understand that Brisbane Water will require up to 10 days to review the requirements of the site and it's impact on the existing civil services. We therefore request that the following information be forwarded to them and that a meeting be organized with the relevant persons to discuss their findings. In addition we would appreciate an earlier meeting this week to discuss some of our concepts which address the 100 year flood level that we believe affects the site.

The estimated yield of the proposed project is as follows;

Development Type	Scale
4 Bed	100
3 Bed	200
2 Bed	400
7000 seat Sports Facility	Tennis Centre, Gym & Clubhouse
Small convenience Store & Cafe	

As you are aware all matters to this development are confidential and we would appreciate your commitment to maintaining our confidence as we exchange information. Thank you for your attention to this matter and we look forward to your reply

Yours faithfully
ROBERT BIRD & PARTNERS PTY LTD

[redacted]

Principal, Civil Division

From: [redacted]
To: "'Rory Kelly'" <SPAS@brisbane.qld.gov.au>
Date: Tuesday, 27 July 2004 15:11:41
Subject: RE: Tennyson Prelodgement

Rory,
Sorry about the delay in responding. I think a figure of 300 to 400 dwellings is probably appropriate to work with.
Cheers,
[redacted]

-----Original Message-----
From: Rory Kelly [mailto:SPAS@brisbane.qld.gov.au]
Sent: Monday, 26 July 2004 5:27 PM
To: [redacted]
Subject: Re: Tennyson Prelodgement

[redacted]

I have spoken to Brisbane water about how we discuss this matter and go further.

They have suggested I obtain the maximum number of people or dwellings ie if you were thinking of 350 dwellings then say 300 to 400. There may be capacity issues assocuiated with this site and we need to advise thresholds for upgrades which equal $

Rory Kelly
Senior Planner
Development Assessment South
[redacted]

>>> [redacted] Monday, 26 July 2004 >>>
Hi Rory,

I thought I would send you this email as you probably wonder why you haven't seen a request for a prelodgement meeting come through from me for the Tennyson power station site.

The clients have not been ready. However, I am intending to send the forms through tomorrow and hoping we can get a meeting with you sometime next week? As I previously mentioned, due to confidentiality reasons we cannot send through plans ahead of the meeting. Also, we are hoping to only meet with a few of you in the team. We do not wish the purchasers etc to attend at this time - purely because of confidentiality reasons.

thanks,
[redacted]

[redacted]

Senior Planner

Brannock and Associates

Planning and Environment Consultants

[redacted]

This message was received from the Internet.
Please exercise caution with the message and any attachments.

This message has passed through an insecure network.
Please direct all enquires to the message author.

This message was received from the Internet.
Please exercise caution with the message and any attachments.

Brisbane City

Brisbane City Council
Development Assessment South
Floor 10 BAC

MEMORANDUM

TO	**Bruce McArthur Engineer Red Cell** [redacted]		
CC	**Peter Button**		
FROM	**Rory Kelly**	DATE	**27 July 2004**
SUBJECT	Tennyson Power Station redevelopment incorporating some or all of the Animal Research Institute on land described as Lot 663 on SL2532, Lot 566 on SP104107, Lot 5 on RP206443, Lots 1 & 2 on RP100860, Lot 1 on RP37962 and Located at 9, 21A & 37 Softstone Street, 681 & 701 Fairfield rd, 44 Ortive Street, 137 Tennyson St having a combined area of approximately 378,220 square metres.		

This matter is highly confidential

The State Government is proposing to develop the Tennyson Power Station and as such have selected three preferred developers to submit tenders.

I understand that the tender submission date will close in about two week's time and that these developers are required to seek Council's advice.

There are no detailed plans outlining the nature of the development, these I assume will be developed up if they are selected as the preferred tender.

Advice to the tender consultants will need to be generic with the advice based on the a development scenario for the combined sites. This scenario combines the requirements of 2 tender developers:

- 7000 to 10,000 seat multi purpose sports facility including licensed club, gym, etc
- retailing of up to 1,500 to 2,000 sqm of GFA;
- residential accommodation for between 600 to 1000 dwelling units at say an average of 2.3 people per unit;
- residential building height and density similar to Medium Density;
- car parking to service both residential and commercial uses;
- potential for public transport interchange;
- vehicle egress to and egress from the site to Council's satisfaction.

Specific questions to be addressed include:

- What are the flood levels affecting the site and what if any are the habital floor levels?
- Are the wetlands located on the site and if so what constraints do these have on the development intensity of the site?
- Extent of the traffic assessment required and preferred traffic ingress/egress point;
- Is the existing water supply and sewerage connections to the site adequate or will upgrading be required? If upgrading works are required what is the extent of the works if known at this time?
- Stormwater discharge?
- Are there any river interface requirements?
- What City Plan Codes and policies need to be addressed as part any future development application?

An initial meeting with the tender consultants will be held on Friday 6 August 2004 at a time yet to be arranged. We will call the tenders in to further meetings if required to discuss specifics.

To save paper I have prepared a list of Bimap and history searches for the site for perusal. A prelodgement file number will be generated shortly.

It is also proposed to generate a list of issues that will need to be addressed during the preparation of the conceptual development plans i.e. contamination, consultation etc.

Please contact me if you have any further queries.

Rory Kelly
Senior Planner Assessment South

BRISBANE CITY COUNCIL
Design Form

Job No. Page

Job TENNYSON POWER STATION REDEVELOPMENT By AB

Section HYDRAULIC ISSUES. Date 04/08/04

* the development must address the "Brisbane River Corridor Planning Scheme Policy" located in Appendix 2 of Volume 2 of City Plan.
* 2 separate stormwater catchments exist over the development site.
* there are existing stormwater pipes for both catchments that discharge to the rivers. The development must provide for overland flow and pipe drainage. (QUDM & REC Supplement)
* natural channel design may be an option for the overland flow paths.
* the Q100 flood level from the Brisbane River is 7.9m AHD.
* significant filling of the site will be required to achieve minimum development levels.
* the development must not cause adverse impacts upstream.

CC721 (9/01)

BRISBANE CITY

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Date: 02/08/2004
Time: 13:43:46
Userid: wwls
Scale: 1:5000

Location:
500931 6955437

Themes:
Flood Reg Lines
Wway Plan Units
Cadastre > 1:2500
Flood Levs Rivers

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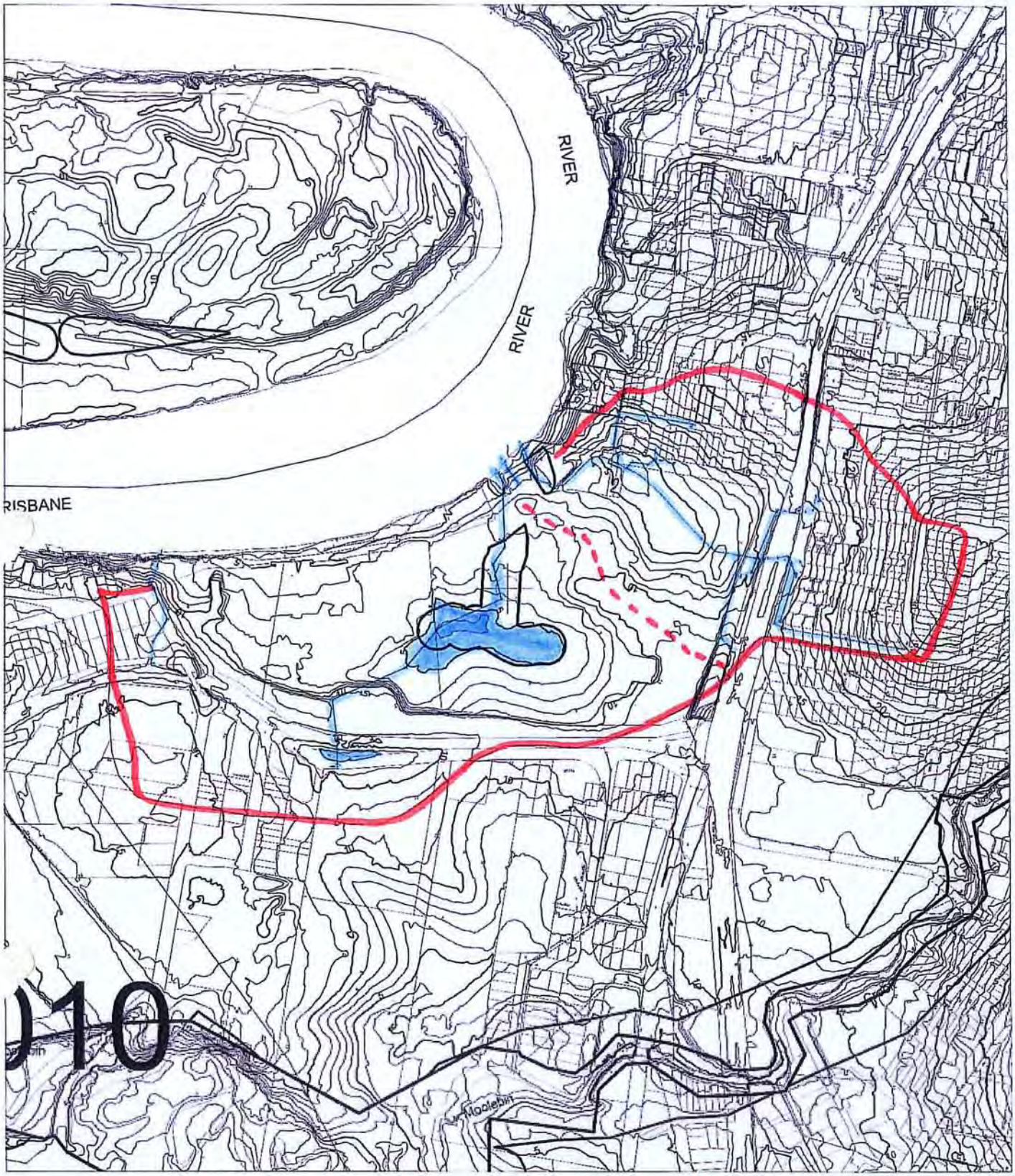
Based on Data provided with the permission of NRM: Cadastral Data (Feb 2004)

GDA N

Quality System
Quality Endorsed Company

BCC.090.001448



BRISBANE CITY

Date: 02/08/2004
Time: 14:09:18
Userid: wwts
Scale: 1:8000

Themes:
Flood Reg Lines
Wway Plan Units
Contour 02 (1m)
Storm Water
CP Waterways
Cadastre

Location:
500993 6955468

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BRISBANE CITY

Date: 02/08/2004
Time: 14:22:51
Userid: wwts
Scale: 1:5000

Themes:
Flood Reg Lines
Wway Plan Units
Storm Water
CP Waterways
Cadastre
AP Satellite 2003

Location:
500932 6955441

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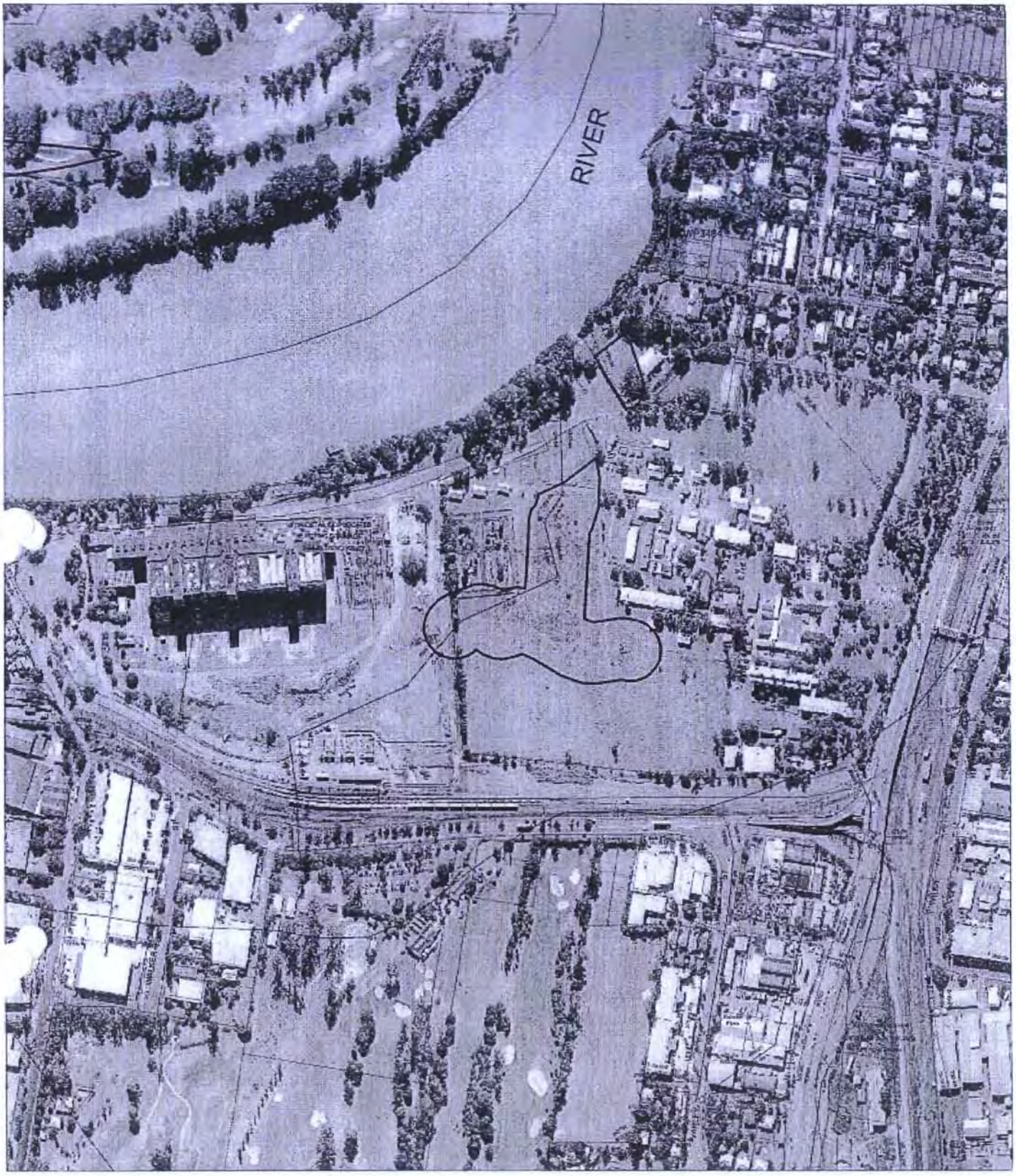
webmap

BCC.090.001450



BRISBANE CITY

Date: 02/08/2004
Time: 14:22:21
Userid: wwts
Scale: 1:5000

Themes:
Flood Reg Lines
Wway Plan Units
Storm Water
CP Waterways
Cadastre
Aerial Photo 2001

Location:
500932 6955441

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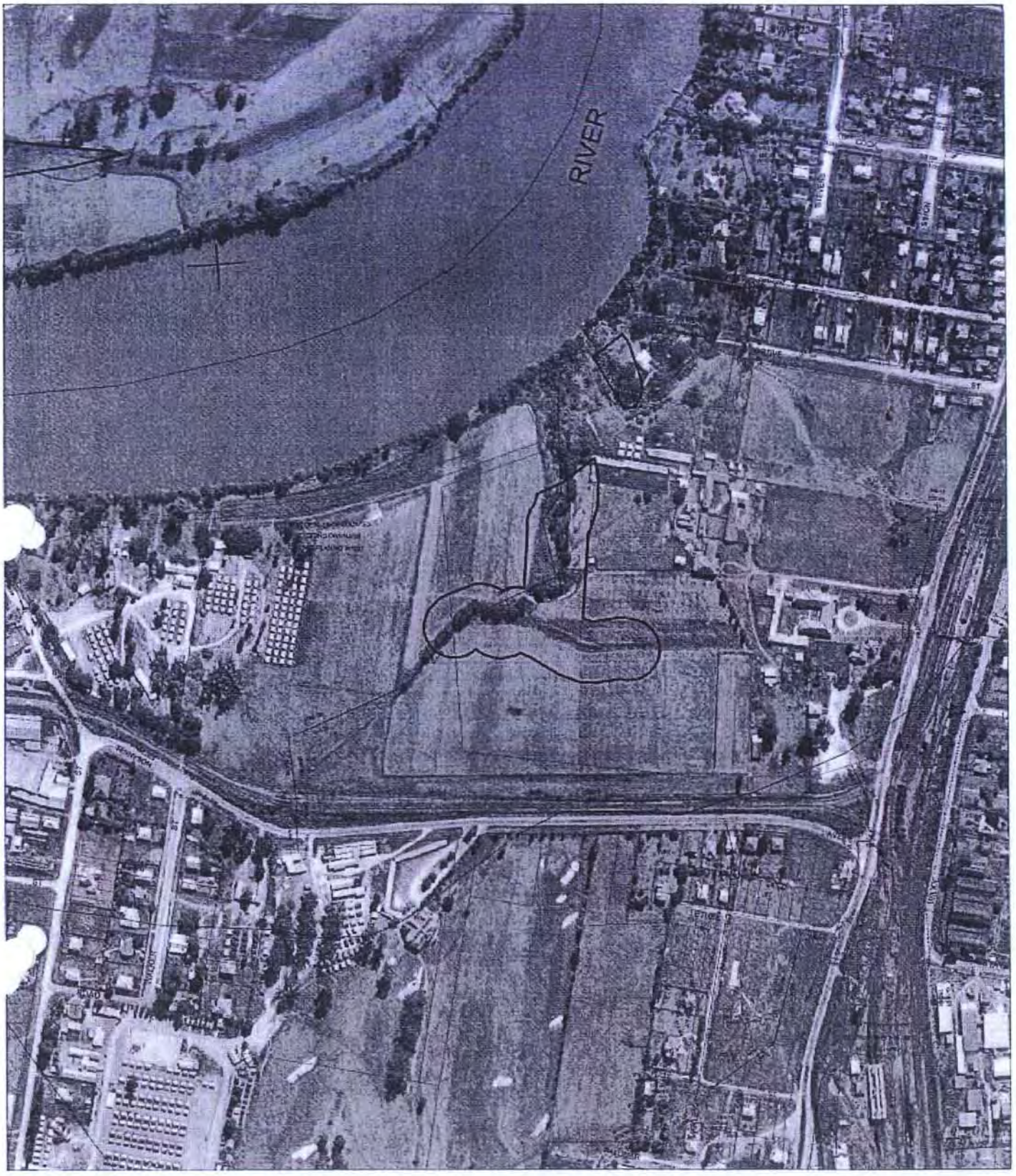
Quality System
Quality Endorsed Company
webmap



BRISBANE CITY

Date: 02/08/2004
Time: 14:22:37
Userid: wwts
Scale: 1:5000

Themes:
Flood Reg Lines
Wway Plan Units
Storm Water
CP Waterways
Cadastre
Aerial Photo 1946

Location:
500932 6955441

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GDA
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Quality System
Quality Endorsed Company
webmap

BCC.090.001452

Brisbane City

Brisbane City Council
Development Assessment South
Floor 10 BAC

MEMORANDUM

TO			
CC			
FROM	Rory Kelly	DATE	27 July 2004
SUBJECT	Tennyson Power Station redevelopment incorporating some or all of the Animal Research Institute on land described as Lot 663 on SL2532, Lot 566 on SP104107, Lot 5 on RP206443, Lots 1 & 2 on RP100860, Lot 1 on RP37962 and Located at 9, 21A & 37 Softstone Street, 681 & 701 Fairfield rd, 44 Ortive Street, 137 Tennyson St having a combined area of approximately 378,220 square metres.		

This matter is highly confidential

The State Government is proposing to develop the Tennyson Power Station and as such have selected three preferred developers to submit tenders.

I understand that the tender submission date will close in about two week's time and that these developers are required to seek Council's advice.

There are no detailed plans outlining the nature of the development, these I assume will be developed up if they are selected as the preferred tender.

Advice to the tender consultants will need to be generic with the advice based on the a development scenario for the combined sites. This scenario combines the requirements of 2 tender developers:

- 7000 to 10,000 seat multi purpose sports facility including licensed club, gym, etc
- retailing of up to 1,500 to 2,000 sqm of GFA;
- residential accommodation for between 600 to 1000 dwelling units at say an average of 2.3 people per unit;
- residential building height and density similar to Medium Density;
- car parking to service both residential and commercial uses;
- potential for public transport interchange;
- vehicle egress to and egress from the site to Council's satisfaction.

Specific questions to be addressed include:

- What are the flood levels affecting the site and what if any are the habital floor levels?
- Are the wetlands located on the site and if so what constraints do these have on the development intensity of the site?
- Extent of the traffic assessment required and preferred traffic ingress/egress point;
- Is the existing water supply and sewerage connections to the site adequate or will upgrading be required? If upgrading works are required what is the extent of the works if known at this time?
- Stormwater discharge?
- Are there any river interface requirements?
- What City Plan Codes and policies need to be addressed as part any future development application?

An initial meeting with the tender consultants will be held on Friday 6 August 2004 at a time yet to be arranged. We will call the tenders in to further meetings if required to discuss specifics.

To save paper I have prepared a list of Bimap and history searches for the site for perusal. A prelodgement file number will be generated shortly.

It is also proposed to generate a list of issues that will need to be addressed during the preparation of the conceptual development plans i.e. contamination, consultation etc.

Please contact me if you have any further queries.

Rory Kelly
Senior Planner Assessment South

BRISBANE CITY

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Date: 02/08/2004
Time: 09:34:27
Userid: eas1
Scale: 1:5000

Themes:
Cadastre
Storm Water

Location:
500867 6955124

Disclaimer:

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BCC.090.001455

BRISBANE CITY

Date: 02/08/2004
Time: 11:29:27
Userid: eas1
Scale: 1:3000

Themes:
Cadastre
Contours (1 m)
Storm Water

Location:
21-A SOFTSTONE ST, TENNYSON

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Quality Endorsed Company

BCC.090.001456

Dedicated to a better Brisbane

MEMORANDUM

To: **Rory Kelly** Date: **06/08/2004**

Attn:

CC:

From: **Bruce McArthur**
Engineer
Development Assessment Team South

Re: **Tennyson Power Station Redevelopment**
Hydraulic issues

Brisbane City Council
Customer & Community Services
Development & Regulatory Services
Development Assessment South
Level 13, 69 Ann Street
GPO Box 1434
Brisbane Qld 4001
Phone: 07 3403 4392
Facsimile: 07 3403 5379
Email: Eas5@brisbane.qld.gov.au
Internet: www.brisbane.qld.gov.au

Water Supply

- Extend of upgrading to be determined by Brisbane Water, ie. Possible new mains [extent unknown until use is known]

Sewerage

- Existing Pump Station is private and inadequate.
- New Pump Station is required
- Discharge to a large diameter sewer will be required,
  [a] Existing reticulation of sufficient capacity is some distance from the site
  [b] A detailed design analysis is required once densities are confirmed

Stormwater

- The development must address the "Brisbane River Corridors Planning Scheme Policy" located in *Appendix* 2 of Volume 2 of City Plan
- Two separate stormwater catchments exist over the development site
- There are existing stormwater pipes for both catchments that discharge to the river. The development must provide for overland flow and pipe drainage [QUDM & BCC Supplement]
- Natural channel design may be an option for the for the overland flow paths
- The Q100 flood level from the Brisbane River is 7.9m AHD
- Filling of site is possible.
- Significant filling of the site will be required to achieve minimum development levels as outlined in the Subdivision & Development Guidelines. Refer - Part B Design Requirements, Section 2.4 Earthworks Adjacent to Waterways and Flow Paths.
- The development must not prejudice the overland flow path or worsen upstream effects.

[redacted]

Bruce McArthur
Engineer
Development Assessment Team South
Development & Regulatory Services
Customer & Community Services

Brisbane City

Brisbane City Council
Development Assessment South
Floor 10 BAC

MEMORANDUM

TO			
CC	Peter Button		
FROM	Rory Kelly	DATE	6 August 2004
SUBJECT	Tennyson Power Station redevelopment incorporating some or all of the Animal Research Institute on land described as Lot 663 on SL2532, Lot 566 on SP104107, Lot 5 on RP206443, Lots 1 & 2 on RP100860, Lot 1 on RP37962 and Located at 9, 21A & 37 Softstone Street, 681 & 701 Fairfield rd, 44 Ortive Street, 137 Tennyson St having a combined area of approximately 378,220 square metres.		

The following advice has been prepared based on internal advice sought within Development Assessment and is given as preliminary advice only on the basis that a more detailed concept will be submitted for further consideration and investigation. The advice is given to assist in the preparation of a development proposal as part of the tender to State Government.

Consideration has not been given to the preferred height, density of the development or the uses proposed. I understand these matters will specifically be coordinated through the Tennyson PowerStation liaison officer, James Coutts, Principal Urban Designer, City Planning on [redacted]

In response to specific queries raised concerning development on the site, I wish to advise that:

Water Supply

- It has not been possible to determine the full extend of upgrading to water mains in area for the proposed use or for fire fighting purposes. Water is available in close proximity to the site however, Brisbane Water will need to model water consumption to determine extent of upgrading to ensure adequate water pressure.

Sewerage

- The existing Pump Station servicing the site is a private facility and it is considered inadequate to service the development. A new Pump Station will be required
- Discharge to a large diameter sewer will be required as the existing reticulation does not have sufficient capacity. A detailed design analysis is required once densities are confirmed as the closest main is some distance from the site.

Stormwater

- The Q100 flood level from the Brisbane River is 7.9m AHD. All residential is to have habital floor levels above Q100 and have flood free access. A lesser level may be considered for non residential uses.

- Filling of site would be permitted provided it can be demonstrated that it does not prejudice the overland flow path, worsen upstream effects or cause the ponding of water on adjoining lands. Significant filling of the site will be required to achieve minimum development levels as outlined in the Subdivision & Development Guidelines. Refer - Part B Design Requirements, Section 2.4 Earthworks Adjacent to Waterways and Flow Paths.

- Two separate stormwater catchments have been identified over the development site.

- There are existing stormwater pipes for both catchments that discharge to the river. The development must provide for overland flow and pipe drainage [QUDM & BCC Supplement]

- Natural channel design may be favourably considered for the overland flow paths through the site.

Traffic and Transport

- A structure plan setting out the constraints and addressing mobility issues including access to public transport via road, rail and water as well as walking and cycling. The site is well located to provide for access via water (Ferries and river cruise boats), public transport (bus and rail) and vehicle access. Also there is an opportunity to provide pedestrian and bicycle links through the site linking Fairfield Rd and Graceville Ave/King Arthur Tce.

- Details of proposed vehicular access including interfaces with adjacent areas if it is proposed to remove traffic signals or change access to adjacent streets.

- A traffic consultant's report examining the impact of traffic generated on the adjacent road system at the time of the uses commencing on the site and at 10 years into the future from the commencement of all uses on the site. Work proposed to offset impacts is to be outlined.

- The impact of the day to day operation of uses is to be identified and measures proposed as part of the development to offset any impacts are to be described.

- The constraints associated with both the horizontal and vertical alignment in particular with the rail overpass limit the extent to which a satisfactory intersection could be built to safely cater for the higher volumes of traffic generated by any proposal if vehicle access is obtained from Softstone Street.
- No vehicle access to Softstone St.

- The impact of a range of events at the proposed sports facility on the adjacent road network, adjacent area and proposed day to day uses within the site is to be examined and measures proposed to offset the impacts are to be identified.

- The likely level of parking required within the site to meet the needs of day to day uses within the site as well as major events.

- A transport management plan will need to be scoped and a draft outline submitted to encourage non-car travel to and from the sports facility for a range of events. The management of parking in and around the area will need to be considered and proposals for management outlined particularly to manage parking in nearby residential streets, transport to and from the site and marketing of access and parking restrictions.

- In addressing traffic issues under the City Plan codes, details of how this is being dealt with is to be outlined and referenced back to the appropriate sections within any reports submitted.

- Transport needs to be provided and upgraded. Works may include pedestrian and bicycle paths through the site connecting to the adjacent rail stations by grade separated crossings. Such paths leading to the sports facility and within the site are to be legible and of such width to cater for the expected pedestrian volumes.

- Parking within the site should be sufficient to cater for the day to day activities on the site with some additional parking for a major sports day. The feasibility of extending current ferry services further up river from the University should be considered

- Identify the extent works required for pedestrian access to adjacent rail stations, bus stops and boat terminals including pedestrian and cycle access through site.

Ecological

- The site is located along the Brisbane River Corridor (Precinct 2) . Protection of the vegetation along the Brisbane River Corridor and adhere to the intent of the Brisbane River Corridor Planning Scheme Policy. (Appendix 2 City Plan). This document refers to the river interface requirements and flooding.

- The removal of any existing mangroves would not be supported.

Other
Council records indicate that the site is listed on the EPA Contaminated Site or Environmental Management land register.

The power station building is considered to have industrial heritage values which should be incorporated into any design.

The site is identified as having wetland values (as per City Plan mapping) . A report identifying

whether these values exist should be submitted to ascertain if the mapping is correct.

ESD principles should be incorporated into any design

Please contact me if you have any further queries regarding the above information.

Rory Kelly
Senior Planner Assessment South

Tennyson Reach Development

Chronology

No.	Description	Date
1.	Commencement of pre-lodgement process on an informal basis	6 July 2005
2.	Pre-lodgement process formalised	4 October 2005
3.	Letter of consent from Department of Natural Resources and Mines to Mirvac for the lodgement of development approval	11 November 2005
4.	Letter of owner's consent from Department of Primary Industries and Fisheries to Mirvac for the lodgement of development approval (animal health station Lot 566 on SP104107)	14 November 2005
5.	Letter of consent from Department of Local Government Planning, Sport and Recreation to Mirvac for the lodgement of changed development approval as trustee of the sport and recreation reserve Lot 1 on SP164685	16 November 2005
6.	Brannock & Associates submit application on behalf of Mirvac for: • Preliminary Approval for a Material Change of Use overriding the planning scheme under section 3.1.6 of the IPA for Multi-unit Dwellings (191 units in 3 buildings), and Park; • Development Permit for Material Change of Use for Indoor Sport and Recreation (Tennis Centre Stadium) and Outdoor Sport and Recreation (outdoor courts) & associated uses including Office, Restaurant, Shop and Convention Centre (function rooms); • Development Permit for Material Change of Use for Multi-unit Dwelling (114 units in buildings E & F), and Park; • Development Permit for Material Change of Use for Multi-unit Dwelling (88 units in building D), Shop, Restaurant and Park; and • Development Permit for Operational Works for Disturbance to Marine Plants. **(Development Application)**	16 November 2005
7.	Acknowledgement Notice dated 30 November 2005 issued by Council	2 December 2005
8.	Referral Coordination letters from Brannock & Associates to the Department of Local Government and Planning, Queensland Transport, Department of Primary Industries and Fisheries, Environmental Protection Agency (Contaminated Land Unit), Environmental Protection Agency (Coastal Licensing), Department of Main Roads, Energex and Department of Natural Resources and Mines	8 December 2005
9.	Letter from Brannock & Associates to Council confirming referral of Development Application	9 December 2005

10.	Amended Acknowledgement Notice issued by Council	9 December 2005
11.	Referral Coordination - Request for Comments by the Department of Local Government, Planning, Sport and Recreation	13 December 2005
12.	Advice Agency Response - Powerlink Queensland	23 December 2005
13.	Further Advice Agency Response - Powerlink Queensland - no objection to Development Application (Easement B on SP184023)	4 January 2006
14.	Extension to Information Request Period	11 January 2006
15.	Council Information Request sent to the Department of Local Government, Planning, Sport and Recreation	24 January 2006
16.	Department of Local Government, Planning, Sport and Recreation - Referral Coordination Information Request	1 February 2006
17.	Response by Mirvac to Council in relation to the riparian setback	3 February 2006
18.	Response by Mirvac to Information Request	6 April 2006
19.	Public Notification commenced by Mirvac (end 30 May 2006)	10 April 2006
20.	Letter from the Environmental Protection Agency (Contaminated Land Unit) to Council regarding receipt of response to information request on 10 April 2006	18 April 2006
21.	Environmental Protection Agency (Contaminated Land Unit) to Mirvac regarding incomplete response on 10 April 2006	18 April 2006
22.	Department of Natural Resources, Mines and Water advice regarding Acid Sulfate Soil Investigation Report and Management Plan by Soil Surveys dated March 2006	27 April 2006 (dated 2005)
23.	Concurrence Agency Response from the Department of Primary Industries and Fisheries	2 May 2006
24.	Council notified of application proposing entry in the Queensland Heritage Register of the Tennyson Powerhouse, 27 Softstone Street, Tennyson	3 May 2006
25.	Submission of Traffic Management Plan (demolition and remediation works)	8 May 2006
26.	Extension of Assessment Period (to 8 June 2006)	9 May 2006
27.	Further Extension of Assessment Period (to 26 June 2006)	26 May 2006
28.	Notice of Compliance for public notification	31 May 2006
29.	Concurrence Agency Response - Queensland Transport	8 June 2006
30.	Concurrence Agency Response - Environmental Protection Agency	12 June 2006
31.	Extension of Decision Making Period (end 14 August 2006)	14 July 2006

32.	Owner's consent of Department of Primary Industries and Fisheries to the lodgement of changed development approval (animal health station Lot 566 on SP104107)	28 July 2006
33.	Consent of Department of Local Government, Planning, Sport and Recreation to the lodgement of changed development approval as trustee of the sport and recreation reserve Lot 1 on SP164685	31 July 2006
34.	Consent of Department of Natural Resources, Mines and Water to the lodgement of changed development approval	31 July 2006
35.	Amended Development Application - amendments involve a refinement of State Tennis Centre and redesign of the centre stadium to accommodate an increase in the coverage of the roofed area over the centre court and concourse, a reconfiguration of the State Tennis Centre buildings and a minor configuration to the court layout.	31 July 2006
36.	Acknowledgment Notice for Amended Development Application issued by Council	8 August 2006
37.	Referral of Amended Development Application to Department of Natural Resources and Mines, Powerlink Queensland, Environmental Protection Agency, Queensland Transport, Energex Limited, Department of Primary Industries and Fisheries, Department of Main Roads and Department of Local Government, Planning, Sport and Recreation.	8 August 2006
38.	Concurrence Agency response Environmental Protection Agency (Contaminated Land Unit) for Amended Development Application (same as 12 June 2006)	9 August 2006
39.	Energex letter regarding no objection to changed application	14 August 2006
40.	Referral Coordination - Information request from Department of Local Government, Planning, Sport and Recreation	17 August 2006
41.	Concurrence Agency Response - Queensland Transport	21 August 2006
42.	Advice Agency Response - Powerlink Queensland	22 August 2006
43.	Decision Notice approving the Amended Development Application	25 September 2006
44.	Request to suspend Applicant's appeal period to seek a Negotiated Decision Notice. Representations were made in relation to conditions regarding the following: • pathway in Riverside Parkland; • Supplementary Residential Code (car parking); • Gross Floor Area; • Landscape Management and Site Works plan; • timing for in ground building works for tennis centre;	29 September 2006

	• bicycle parking and associated support facilities at tennis centre; • water pressure and tank requirements for tennis centre; • site artworks at tennis centre; • timing of Landscape Management, Site Works and Planting Plan for tennis centre; • timing for Street Tree Planting Plan; • timing condition 63; • timing for construction of the cul-de-sac to the intersection of Ortive Street and Fairfield Road; • pathway; • Community Management Statement; • retaining walls; • noise emissions from pool filter and pump; • privacy screens for residential development; • sustainable components for the tennis centre; • Community Management Statement and noise emissions from pool filter and pump; • artworks or sculptures; • Landscape Management and Site Works Plan for Council parkland; • landscape plans; • safe pedestrian access; • colour scheme for building works; • Landscape Management Plan; and • footpath on site frontages.	
45.	Negotiated Decision Notice for Amended Development Application made 16 November 2005	6 October 2006
46.	Application for Compliance Assessment (Schedule 12) of Roadworks and Drainage plans	26 October 2006
47.	Application for Compliance Assessment (Schedule 12) of Roadworks and Drainage plans	26 October 2006
48.	Application for Compliance Assessment (Schedule 12) of Water	26 October 2006

	Reticulation plans	
49.	Application for Compliance Assessment (Schedule 12) of Signs and Linemarking plans	26 October 2006
50.	Application for Compliance Assessment (Schedule 12) of Erosion and Sediment Control plans	26 October 2006
51.	Application for Operational Works for Filling and Excavation / Bulk Earthworks plans	26 October 2006
52.	Application for Operational Works for Filling and Excavation / Bulk Earthworks plans	26 October 2006
53.	Application for Compliance Assessment (Schedule 12) of Landscape plans	26 October 2006
54.	Letter from Council to Mirvac advising that landscape plans do not comply with the Staging Plan for the Amended Development Approval (plans not approved)	13 November 2006
55.	Application to change development permit - alter design of the buildings to improve functionality. Height and gross floor area not proposed to be increased above the approved heights and gross floor area specified in the existing approval	20 December 2006
56.	Sewerage reticulation plans lodged for approval	21 December 2006
57.	Further sewerage reticulation plans lodged for approval	21 December 2006
58.	Request to change conditions of the Development Permit Stage 1 Residential Material Change of Use Multi-unit Dwellings - Buildings E & F under s. 3.5.24 and s.3.5.33 of the Integrated Planning Act 1997	21 December 2006
59.	Development Permit in respect of Sewerage Reticulation (plans approved)	12 January 2007
60.	Request for Detailed Design Compliance Assessment - On-Site Landscape Works (State Tennis Centre)	31 January 2007
61.	Development Permit in respect of Erosion and Sediment Control (plans approved)	1 February 2007
62.	Detailed Streetscape Works Plans lodged for approval	7 February 2007
63.	Development Permit in respect of Water Reticulation (plans approved)	9 February 2007
64.	Development Permit for Filling and Excavation / Bulk Earthworks (plans approved)	12 February 2007
65.	Development Permit for Filling and Excavation / Bulk Earthworks (plans approved)	19 February 2007
66.	Development Permit for Sewerage Reticulation (plans approved)	22 February 2007
67.	Request to Change an Existing Approval under s. 3.5.33 of the Integrated Planning Act 1997 in relation to stadium of State Tennis Centre - design and height of roof of stadium	28 February 2007

68.	Detail Design Compliance Assessment (On-site Landscape Works) approval	7 March 2007
69.	Changes to State Tennis Centre - design and height of roof	8 March 2007
70.	Request for compliance assessment of operational works for a sewerage pump station	1 April 2007
71.	Tennyson Sewer Pump Station SP313 plans lodged for approval	30 April 2007
72.	Approval of Detailed Streetscape Works Plans (Condition 39(a) of Development Permit DRS/USE/H05-933802)	1 May 2007
73.	Development Permit in respect of Signs and Linemarking (approval of plans)	3 May 2007
74.	Development Permit in respect of Roadworks and Drainage (approval of plans)	4 May 2007
75.	Application for Compliance Assessment (Schedule 12) - Development Permit - Landscape Works in Park	5 June 2007
76.	Application for Compliance Assessment (Schedule 12) of Landscape Works on Private Land (Stage 1 Residential) plans	5 June 2007
77.	Application for Operational Works for Bulk Earthworks plans	5 June 2007
78.	Application for Compliance Assessment (Schedule 12) for Erosion and Sediment Control Plans lodged for approval	5 June 2007
79.	Application for Compliance Assessment (Schedule 12) Roadworks and drainage plans lodged for approval	5 June 2007
80.	Approval of changes to conditions of the Development Permit Stage 1 Residential Material Change of Use Multi-unit Dwellings - Buildings E & F under s. 3.5.24 and s.3.5.33 of the Integrated Planning Act 1997	8 June 2007
81.	Development Permit in respect of Bulk Earthworks (plans approved)	20 June 2007
82.	Development Permit in respect of Erosion and Sediment Control (plans approved)	21 June 2007
83.	Development Permit in respect of Roadworks and Drainage (plans approved)	21 June 2007
84.	Pre-lodgement meeting regarding modification of current development approval, specifically design revisions for Building D - Stage 2 of Residential Development	22 June 2007
85.	Request for Compliance Assessment (Schedule 12) - Development Permit - Landscape Works in Park refused	26 June 2007
86.	Development Permit in respect of Landscape Works on Private Land (Stage 1 Residential)	12 July 2007
87.	Development Permit in respect of the Tennyson Sewer Pump Station SP313	13 July 2007

	(plans approved)	
88.	Letter from Lambert & Rehbein to Council regarding bicycle lanes	16 July 2007
89.	Request to Change an Existing Development Approval (Conditions)	13 August 2007
90.	Development Permit for Signs & Linemaking (plans approved)	24 August 2007
91.	Development Permit for Roadworks and Drainage (plans approved)	24 August 2007
92.	Vegetation Management Plan lodged for approval	24 September 2007
93.	Development Permit in respect of Vegetation Management Plan	2 October 2007
94.	Request for Compliance Assessment of Detailed Landscape Plan (Condition 126(a) and (b) and Condition 194(a) and (b) (Parkland in front of Building D only))	18 October 2007
95.	Noise Impact Assessment Report (Condition 202(a)) lodged for approval	14 November 2007
96.	Compliance Assessment Approval of Detailed Landscape Plan (Condition 126(a) and (b) and Condition 194(a) and (b) (Parkland in front of Building D only))	15 November 2007
97.	Approval of Request to Change an Existing Development Approval (Conditions) lodged 13 August 2007 under s.3.5.24 and s.3.5.33 of the Integrated Planning Act 1997. Approved amended conditions: **Condition 84** (Previously 4) - "Parkland Contribution" has been amended to reflect an update in names of the approved plans. The new named plan is *Pedestrian & Bicycle Pathways Plan M-SP-RP.DA, Rev H, amended in red 19 September 2006.* **Condition 87** (previously 10) - "Parkland Design Plan" has been amended to reflect an update in names of the approved plans. The new named plan is *Pedestrian & Bicycle Pathways Plan M-SP-RP.DA, Rev H, amended in red 19 September 2006.* **Condition 111** (new condition) - "Access Easements" has been added to the package as a consequence of the proposed temporary access easements. This condition has a sunset clause and will require the access easements to be "*created and surrendered upon completion of Stage 2 (Building D), or at the time of the endorsement of the Community Management Statement for Building D".* **Condition 112** (previously 95) - "Community Management Statement" • Part f) of this condition has been added as a consequence of the change to the application for an On-Site Managers Unit. • Part i) of this condition has been added as a consequence of the change to the application for an On-Site Managers Unit. **Condition 121** (new condition) - "On-Site Managers Unit" has been added to the package as a consequence of the change to the application for an On-Site Managers Unit.	5 December 2007

	Condition 128 (previously 126) - "Parkland Landscape Management Plan" • Part b) of this condition has been amended to reflect an update in names of the approved plans. The new named plan is *Pedestrian & Bicycle Pathways Plan M-SP-RP.DA, Rev H, amended in red 19 September 2006.* **Condition 130** (previously 128) - "Detailed Plan" has been amended to reflect an update in names of the approved plans. The new name of the plan is *Pedestrian & Bicycle Pathways Plan M-SP-RP.DA, Rev H, amended in red 19 September 2006.* **Condition 146** (previously 145) - "Access, Grades, Manoeuvring, Carparks, Signs" • Part f) of this condition has been added as a consequence of the change to the application for an On-Site Managers Unit. **Condition 178** (previously 169) - "Community Management Statement" • Part c) of this condition has been amended as requested, updating the number of parking spaces from 176 to 178 and the number of visitor spaces from 22 to 24, to reflect the increase in Multi Unit Dwellings. • Part d) of this condition has been added as a consequence of the change to the application for an On-Site Managers Unit. • Part q) of this condition has been amended to reflect the increase in the Shop and or Restaurant GFA from 100m² to 274.5m². • Part r) of this condition has been amended as consequence of the change to the application for an On-Site Managers Unit. **Condition 179** (new condition) - "Access Easements" has been added to the package as a consequence of the proposed temporary access easement. This condition has a sunset clause and will require the access easements to be "*created and surrendered upon completion of Stage 2 (Building D), or at the time of the endorsement of the Community Management Statement for Building D.*" **Condition 182** (previously 175) - "Overall Height - Survey Certification" has been amended as requested: • amending the plan numbers to reflect the new amended plans, stamped and approved as part of this modification; and • updating the condition to reflect the modification of the proposal in terms of its compliance with the original stated height. The proposed Building D complies with the heights stated in this condition, "*Except for the western end of Level 10 and the eastern end of Level 11 as illustrated on the approved Elevations 51-DA1600 Rev F and 51-DA1601 Rev F*". **Condition 185** (previously 180) - "Residential Development - Constructed with Requirements" has been amended as requested removing reference to "*fixed privacy screens up to 1.8m above floor level to the balconies as*	

	shown on the approved plan". The condition has been replaced to state that "*Privacy screens are to be in accordance with the approved plans...".* **Condition 189** (new condition) - "On-Site Managers Unit" has been added to the package as a consequence of eth change to the application for an On-Site Managers Unit. **Condition 190** (previously 185) - "Commercial Use" has been amended to reflect the increase in the Shop and or Restaurant GFA from 100m² to 274.5m². The condition also includes reference to the proposed 31m² of storage space, which is proposed to be accessible for general storage and refuse by both the Shop/Restaurant and the On-Site Managers Unit. **Condition 192** (previously 187) - "Sewerage Per ET" has been amended to reflect the increase in Multi Unit Dwellings. The ET's have increased from 81.6 to 86.40 ET's and the financials have been amended to reflect the 2007/2008 rate. **Condition 193** (previously 188) - "Water Per ET" has been amended to reflect the increase in Multi Unit Dwellings. The ET's have increased from 73.44 to 77.76 ET's and the financials have been amended to reflect the 2007/2008 rate. **Condition 216** (previously 212) - "Access, Grades, Manoeuvring, Carparks, Signs" • Part d) of this condition has been amended as requested, updating the number of parking spaces from 176 to 178 and the number of visitor spaces from 22 to 24. • Part f) of this condition has been amended as a consequence of the change to the application fro an On-Site Managers Unit.	
98.	Request to Change an Existing Approval - enclosure of roofed terrace area and cover of two show courts (permanent shade structure)	14 January 2008
99.	Detailed Landscape Plan (Condition 200(a)) lodged for approval	24 January 2008
100.	Vegetation Management Plan lodged for approval	24 January 2008
101.	Approval of Detailed Landscape Plan (Condition 200(a))	22 February 2008
102.	Approval of Request to Change an Existing Approval (Conditions). Approved amended conditions: **Condition 31** - "Permanent Shade Structures" has been imposed to limit the erection of permanent shade structures to the two show courts immediately west of the centre court. **Condition 78** (previously 47) - "Plant and Equipment Certification" has been amended to reflect an update in the requirements of the standard condition. The amendment of this condition is a direct consequence of the proposed enclosure of 252sq.m of the existing roof terrace area located on Level 3 of the Stadium. Drawing number 31 DA1018, Rev C "*General Arrangement Plan - Building F - Lvl07-08"*, dated 11 September 2006 and has been removed	14 March 2008

	from the Table of Plans. Drawing number 51 DA1600, Rev F "*Development Approval Elevations Sheet 1 - Building D*", dated 25 July 2007 has been included within the Table of Plans. **Condition 220** (previously 219) - "Construction of Footpath" has been amended to include the correct text.	
103.	Approval of Noise Impact Assessment Report (Condition 202(a))	20 March 2008
104.	Letter from Department of Primary Industries and Fisheries to Mirvac regarding owners consent for amended operational works (Streetscape) and building application building C	26 March 2008
105.	Application for amendment to Landscape Operational Works (Transport and Access) lodged	4 April 2008
106.	Application for amendment to Landscape Operational Works (Transport and Access) withdrawn	24 April 2008
107.	Submission of Pavement Design for roads	24 April 2008
108.	Request to Change an Existing Approval for Tennis Centre and residential Building D - changes to condition for construction hours	24 April 2008
109.	Submission of Pavement Design for roads	28 April 2008
110.	Detailed Landscape Plan (Condition 39(a)) lodged for approval	28 April 2008
111.	Approval of Detailed Landscape Plan (Condition 39(a)))	20 May 2008
112.	Application to change Development Permit for Stage 1 with the following modifications: • proposed maintenance workshop on the lower level of the gymnasium; • enclosure of the bulk bin recycling store adjacent to the gymnasium following approval of the waste management plan by City Waste; and • revised roof design of the compactor structure.	26 May 2008
113.	Compliance Assessment Approval of Vegetation Management Plan	10 June 2008
114.	Approval of Request to Change an Existing Approval (Conditions). Approved amended conditions: • **Condition 52** (Construction Management Plan) amended to change hours of construction to include Sunday for the Tennis Centre site only; • **Condition 114**, previously 115 (Community Management Statement) amened to include acoustic attenuation requirements for Restaurant in Building D;	1 August 2008

	• **Condition 202** (Amplified Music) amended acoustic levels for amplified music only and not the hours of use; • **Condition 204**(Plant and equipment certification) new condition; • **Condition 205** (Restaurant Noise) new condition; and • **Condition 206** (Acoustic Barrier - general) new condition with a illustrated sketch AB SK01.	
115.	Letter from Mirvac to BCC providing revised signal drawing 32099-001C (Fairfield Road Intersection)	7 August 2008
116.	Compliance Assessment Approval - Riverwalk and Balustrade Drawings required for Condition 126(a) and (b) of Development Approval (DRS/USE/H05-933802).	11 August 2008
117.	Approval of Request to Change an Existing Approval (Conditions). The following change was made to the condition: • **Condition (113)** Gymnasium was deleted and the requirement for the location and use of the gym are now in a separate component of the approved DA package. This will provide a more robust approval when other parts of the preliminary approval are exercised for residential development on the site. The following drawings were replaced: • Gymnasium Site Plan, Drawing Number 01 DA1000 Rev B • Gymnasium Lower Level Floor Plan, Drawing Number 01 DA1010 Rev C • Gymnasium Upper Level Floor Plan, Drawing Number 01 DA1011 Rev I • Gymnasium Elevations, Drawing Number 01 DA1600 Rev G:	11 September 2008
118.	Development Application for an Material Change of Use (Multi-unit dwellings, 81 Units, café/restaurant, temporary office and park) for 21 Softstone Street, Tennyson (Building C) (application withdrawn)	29 September 2008
119.	Event Traffic Management Plan lodged for approval	2 October 2008
120.	Development Permit in respect of Event Traffic Management Plan described on ttm - State Tennis Event TMP Reference 24591etmp5 dated 14 October 208	20 October 2008
121.	Letter from Lambert & Rehbein to BCC regarding fit for purpose inspection to facilitate the closing of Ortive Street to complete the construction of the cul-de-sac in that street and certificate of completion to cover the Fairfield Road entry and first roundabout.	21 October 2008
122.	Request for bonding of uncompleted work s (civil and landscaping works)	17 November 2008

123.	Request to Change an Existing Approval. Proposed modifications to the Material Change of Use Development Permit for Stage 1 Residential (Multi-Unit Dwelling - Buildings E & F and Park) only	30 March 2009
124.	Subdivisional Agreement between BCC and Mirvac for uncompleted landscaping works	6 April 2009
125.	Approval of Request to Change an Existing Approval. Proposed modifications to the Material Change of Use Development Permit for Stage 1 Residential (Multi-Unit Dwelling - Buildings E & F and Park) only	26 June 2009
126.	Request to Change an Existing Approval. Proposed modifications are specific to the Material Change of Use - Indoor Sport and Recreation, Outdoor Sport and Recreation, Convention Centre, Restaurant, Office and Shop	13 August 2009
127.	Request for release of uncompleted works bond in relation to Stage 1	3 September 2009
128.	Approval of Request to Change an Existing Approval. Proposed modifications are specific to the Material Change of Use - Indoor Sport and Recreation, Outdoor Sport and Recreation, Convention Centre, Restaurant, Office and Shop.	9 October 2009
129.	Request for modification to Development Approval for Stage 2 - change to condition 200 regarding timing of land dedication (request withdrawn).	13 October 2009
130.	Request for bonding of incomplete works (landscaping works) in relation to Stage 2	30 November 2009
131.	Request for Plan Sealing of Survey Plan and New Community Management Statement in relation to Stage 2	30 November 2009
132.	Letter from AECOM to Council regarding status of works for parkland in Stage 1B.	8 December 2009
133.	Stage 1 - On Maintenance notice	17 December 2009
134.	"Generally In Accordance" Advice regarding the proposed amendments to the approved floor plans identified as part of the plan sealing process.	17 February 2010
135.	Stage 1B - On Maintenance notice	3 March 2010
136.	Request to extend Relevant Period (Preliminary Approval for Buildings A, B and C and Park)	11 June 2010
137.	Approval of Request to extend Relevant Period (Preliminary Approval for Buildings A, B and C and Park)	14 September 2010
138.	Development Application for a Request for a Permissible Change to a Development Approval. Proposed changes: • A new Multi Purpose Room #3 (MPR) under the podium; • Expansion of Players Change Room and Level 1 Amenities; • Link Under Podium to provide improved player circulation	21 June 2011

	routes under the Stadium; • New Toilet Facilities for coaches and staff; • Reception Area Modification to increase office space on Level 2' and • Consolidation of Maintenance Shed and Site Offices. No decision has been made in relation to this Development Application.	

MIRVAC

29 June 2005

Michael Papageorgiou
Manager City Planning
Brisbane City Council
16th Floor, 69 Ann Street
BRISBANE QLD 4000

Dear Michael

RE: TENNYSON RIVERSIDE DEVELOPMENT

Further to our telephone discussion on Monday evening, I confirm Mirvac has been appointed preferred developer to construct the Tennyson Riverside Development.

The project on the former Tennyson Power Station site includes the State Tennis Centre, a public riverfront parkland and residential apartments.

Previously we have discussed the notion of having two or three workshops with your key team members to review the project, prior to a formal pre-lodgment meeting and the subsequent lodgment of the Development Application.

Accordingly, I write to request the first of these workshops at your earliest convenience. Would you please see if we could have the first workshop possibly on Wednesday 6 July from 2.00pm to 3.30pm? Mirvac has a suitable meeting room available or alternatively we could have it at your offices.

Mirvac would provide a comprehensive briefing on the project including proposed infrastructure, the State Tennis Centre, parkland and residential development.

Thank you for your assistance in the orgainising of the workshop.

Yours sincerely

[redacted]

Development Director – Acquisitions
Mirvac Queensland Pty Limited A.C.N. 060 411 207

The Mirvac Group
Mirvac Limited ABN 92 003 280 699 Mirvac Property Trust ARSN 29 769 181 534
Level 7 164 Grey Street South Bank QLD 4101 Australia
PO Box 3171 West End QLD 4101
Tel 61 7 3859 5888 Fax 61 7 3010 1600
www.mirvac.com.au
Mirvac's Privacy Policy is on our website or contact our Privacy Officer on 61 2 9080 8000
M:\New Business\Tennyson - 5170\CORRESPONDENCE CONTROL\Corro Out\05170-NB-001 to 100\05170-NB-060-L.doc

AGENGA

DATE & TIME:	6 July 2005 1-2
LOCATION:	Arbour Room
SUBJECT:	Tennyson Riverside Development
ATTENDEES:	**Mirvac:** [redacted]
	HPA: [redacted]
	Brannock Consulting: [redacted]
	Brisbane City Council: [redacted]
	Steve Schwartz
	Kevin Matthews
DISTRIBUTION:	All Above

NO:	ITEM
1.	Overview and Update
2.	Application
3.	Program
4.	Community Consultation

Prelim approval – MCU + Stg.
+ indiv applications for later stages.
Simultaneous DP for Stage 1 (1st 3 buildings)
Parklands
Tennyson corner
*Parkland to be delivered progressively
* Roadworks will be complete.
* 2 buildings in walkway corridor

State ✈ 30 July 2006 - Prelim approval in place.
Lodged by Nov 05

The Mirvac Group
Mirvac Limited ACN 003 280 699 Mirvac Property Trust ARSN 086 780 645
Level 2, 164 Grey Street, South Bank Qld 4101 Australia
PO Box 5121, West End Qld 4101
Tel 61 7 3859 5888 Fax 61 7 3010 1600
www.mirvac.com.au

NOTE TO FILE

Brisbane City Council

Development & Regulatory Services
Customer & Community Services

Development Assessment Team South

Telephone
Facsimile

FROM	Steven Schwartz Town Planner Development Assessment Team South
SUBJECT	Development Application over land at 21 Softstone St, Tennyson.

6 July 2005

Application No *DRS/USE/P04-898952*
Project No *DRS/PRO/P04-101886*

Initial meeting between council and the developer (MIRVAC)

Attendees: [redacted] MIRVAC
- HPA
Bra[redacted] * Primary Contact.
Bcc - [redacted]
Kevin Matthews
Steve Schwartz.

1. [redacted] gave an overview presentation and answered some preliminary questions.

2. They intend to apply for a Prelim Appr for MCU to entire site + simultaneous DP for Stage 1 of development including:-
   - 1st 2 ~~Res~~ buildings (NE of site)
   - Parkland in front of the 2 res buildings
   - Entire access road
   - Tennis Centre.

3. Timing - they want to lodge application by Nov 05 to get approvals by 30 July 2006.

4. Approach - Series of workshops with relevant people from both sides to sort out issues ~~early~~ prior to lodgement.

5. Initial issues → ① 1st 2 res buildings are in waterway corridor
   ② water/sewer capacity

Steven Schwartz - Pre-lodgement meeting on tomorrow

From: Dennis.A Kim
To: Steven Schwartz
Date: 7/09/2005 4:45 pm
Subject: Pre-lodgement meeting on tomorrow

Dear Steven,

The subject I like to discuss with you was about pre-lodgement meeting appointment you had sent to Ken Wood for Tennyson-Mirvac site.

Ken wood will be no longer involved in pre-lodgement meeting so either myself or [redacted] will be the person to talk to.

[redacted] and I had a discussion about this site and we do not have major issues except the following issues;

- Protect waterway health by improving stormwater quality and reducing run-off.
- Demand management initiatives utilised for all water supply issues and supplement with alternative sources eg. Rainwater tanks.
  Reduce property run-off by ensuring maximum absorption within property boundaries.
- Reduce road run-off by increasing absorption on roadsides and slowing velocity
- Maximising recycling opportunities

The rest of flood related issues are guided by Bob Adamson.
If you have any other questions, please contact me.

Regards

Dennis Kim

Program Officer
Water Resources, Brisbane City Council
Ph [redacted]
Fa[redacted]

From: Bob Adamson
To: Kelly, Rory; Matthews, Kevin; Schwartz, Steven
Date: 8/09/2005 11:59:16 am
Subject: Fwd: Brisbane River Conveyance - Tennyson power station

FYI

>>> Bob Adamson 08/09/05 11:04 >>>
Hi Evan

GHD will be contacting you to confirm that their proposed development will have negligible effect on Brisane River flood levels. They had identified a potential conveyance problem with their buildings being built within 6m of the river. Site is on UBD Map 179 G15. Plans are at attached web site. From what I could see it is unlikely to have a significant effect.

cheers

http://www.tennisattennyson.com.au/

Bob Adamson
Principal Hydraulic Engineer
Technical Specialist Team
Development Assessment Branch
[redacted]

Re: Brisbane_River_Cross_Section

From: [redacted]

To: [redacted]

Cc: James Charalambous [redacted]

Date: Fri, 09 Sep 2005 14:41:00 +1000

Thanks very much Erico and James for your quick response.

[redacted]
Senior Engineer - Hydrology/Hydraulics
GHD Pty Ltd
201 Charlotte Street, Brisbane, Qld, 4000
GPO Box 668, Brisbane, Qld, 4001
[redacted]

[redacted]

To [redacted]

09/09/2005 02:26 PM

cc "James Charalambous" [redacted]

Subject
Brisbane_River_Cross_Section

Andrew,

Attached are two extracted cross sections related to the proposed site.
The cross sections are facing left to right looking downstream.

Best regards,

[redacted]
Engineer
City Design
Brisbane City Council
Ph: [redacted]

Re: Tennyson Riverside Development: Request for BrisbaneRiver MIKE11 Model

From: James Charalambous [redacted]

To: Peter Barnes [redacted]

Cc: Bob Adamson [redacted] Evan Caswell [redacted]

Date: Thu, 15 Sep 2005 08:18:59 +1000

Attachments: Re_ Brisbane_River_Cross_Section.msg (25.09 kB)

Peter,

We have been in touch with the consultant (GHD) last Thursday, and following a detailed discussion, we initially provided them with two cross-sections and a plan showing their location from the Brisbane River model (the model). The cross-sections were specific to the development site and provided the following day (Fri 9/9). The consultant was pleased with our prompt response on the matter (refer attachment).

It is our understanding that GHD will contact or discuss with Development Assessment (DA) the requirement for modelling based on a cross-section analysis of the developments 'projection' into the Brisbane River. Based on the outcome of this discussion it may be necessary for City Design to supply a relevant section of the model.

So at this point no further work is planned to be undertaken, until further notice from either GHD or DA.

Kind Regards
JamesC.

>>> Peter Barnes 15/09/2005 7:52 am >>>
james
would you please confirm that you have made contact regarding the supply

peter b

>>> Evan Caswell 02/09/2005 9:47 >>>
James,

Would you please take care of this one. I expect you will need to discuss with Peter and Bob what is expected of us. If we are going to supply the model you will need to fill in the necessary paperwork for the quote etc.

Evan

>>> <[redacted]> 02/09/2005 9:21 >>>

Hi Evan,

GHD has been commissioned by Mirvac to undertake an assessment of the impact of the proposed Tennyson Riverside Development on the hydraulics of the Brisbane River.

Please find attached a letter requesting access to Council's Brisbane River MIKE11 model for the purpose of this investigation. This letter has also been sent to you by post.

I thought I would also email you this request to try to get the ball rolling as soon as possible. The timeline for Mirvac's development application is pretty tight!

Regards,

[redacted]
Senior Engineer - Hydrology/Hydraulics
GHD Pty Ltd
201 Charlotte Street, Brisbane, Qld, 4000
GPO Box 668, Brisbane, Qld, 4001
Ph [redacted]
Fa
M
Em

(See attached file: 328723.doc)

Re: Queries re Development related Flood Investigations

From: Bob Adamson [redacted]

To: Evan Caswell [redacted]>

Cc: Peter Barnes [redacted]

Date: Tue, 20 Sep 2005 17:03:41 +1000

Evan

They asked me about the development affecting flood conveyance for the Brisbane River, I said that I doubted if that would be an issue because it has only occured in one site that I have been involved with, however I said that they should check with you to rule it out. Am I correct in doing this? Don't we usually assume development outside the River channel,ie on the banks, will not significantly affect conveyance in the Brisbane River?

cheers

Bob

>>> Evan Caswell 20/09/05 15:07 >>>
Peter,

I have received a call from GHD who are undertaking investigations for the development at the Tennyson site for the new tennis centre. We have given them Bris River cross sections to assess the flooding impact. They are now wanting to discuss further at a meeting the need for modelling of the River taking into account the effects of the proposal. I think Bob has advised that flood storage is not an issue so they are considering loss of conveyance effects.

My question is, in such instances are you happy for us (W & E) to represent you WR at such meetings or is this something you have no interest in and consider purely a DRS responsibility in which case DRS would be paying for our time if they wanted us and not you?

For your timely advice please. The GHD person was hoping for a meeting tomorrow either morning or late afternoon. I held back my snickering.

Evan

Re: Queries re Development related Flood Investigations

From: Evan Caswell [redacted]
To: Bob Adamson [redacted]
Cc: Ken Morris [redacted], Peter Barnes [redacted]
Date: Wed, 21 Sep 2005 12:20:29 +1000

Bob,

I don't think it is up to us (CD) to say what they should or shouldn't do. This is not our (CD) responsibility as I see it. We are provider of technical advice to paying customers. So unless someone wants to pay for our time we can do nothing. I am still waiting for Peter to advise whether I am working for him in this instance but I would have thought that this as with other such queries are a DA responsibility and that it should be up to DA officers to arrange whatever meetings or make whatever enquiries are required to sort this out. If this doesn't happen and we deal with consultants directly I would have thought we would be at risk of giving conflicting and undocumented advice.

IF I am wrong in all this I need for someone to state in writing what our responsibilities are and add an ITS number and we will gladly operate autonomously.

In relation to this request I don't think we should give advice as to whether they need to do modelling or not. Doesn't it come back to them demonstrating no adverse impact? So how about we say:

"If you want to do a model assessment we will give you a few extra sections and some flows and you can set up a HECRAS model and demonstrate the effects."

or
"If you don't want to do a model demonstrate to us (DRS) that there is minimal change in conveyance through some number crunching based on the cross section properties"

After all they are the consultants they should be providing the conclusions to us (BCC) shouldn't they?

Interested in your thoughts.

Evan

>>> Bob Adamson 20/09/2005 17:03 >>>
Evan

They asked me about the development affecting flood conveyance for the Brisbane River, I said that I doubted if that would be an issue because it has only occured in one site that I have been involved with, however I said that they should check with you to rule it out. Am I correct in doing this? Don't we usually assume development outside the River channel,ie on the banks, will not significantly affect conveyance in the Brisbane River?

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My question is, in such instances are you happy for us (W & E) to represent you WR at such meetings or is this something you have no interest in and consider purely a DRS responsibility in which case DRS would be paying for our time if they wanted us and not you?

For your timely advice please. The GHD person was hoping for a meeting tomorrow either morning or late afternoon. I held back my snickering.

Evan

Tennyson Riverside Development - Mike11 Model

From: [redacted]

To: [redacted]

Date: Wed, 28 Sep 2005 15:01:09 +1000

Evan,
We have been asked by Bob Adamson to undertake modelling of the Brisbane River in regard to flow conveyance at the proposed Tennyson Riverside Development Site (old Tennyson Powerstation). We therefore still require the information that [redacted] requested on the 01/09/05. If you no longer have a copy of this request I can email it again, just let me know.

Generally we would need:
Mike11 model of approx. 2 km upstream and downstream of site, boundary conditions at each end for 50, 100, and any greater ARI events that Council have. This will include in flow hydrographs, and tailwater (level-time) inputs for the critical duration (at the site) only.

This require this information quite urgently.

Thankyou

Regards

[redacted]
Environmental Engineer

GHD Pty Ltd

201 Charlotte Street, Brisbane Q 4000
GPO Box 668, Brisbane Q 4001

[redacted]

http://www.ghd.com.au

BRISBANE
CITY BUSINESS

MEMORANDUM

Brisbane City Council

To: [redacted] – GHD P/L Date: **3/10/2005**

Attn:

CC:

From: **Evan Caswell – City Design**

Re: **Tennyson Riverside Development**

City Design

Water and Environment

315 Brunswick St Mall
Fortitude Valley Qld 4006
Locked Mail Bag 6996
Albion Qld 4010

Phone: 07 3403 0430
Facsimile: 07 3403 0438
Email: [redacted]
Internet: www.brisbane.qld.gov.au

[redacted],

In response to your correspondence dated 28/9/2005 we confirm we can provide hydraulic engineering services in relation to extraction of a Brisbane River MIKE11 model for the above.

The Brisbane River MIKE11 model extracted will be a 'cut-down' version of Council's Brisbane River model. The model provided to GHD will extend 2 kilometres upstream and downstream of the subject site as per your request.

The scope of the works in relation to this matter is as follows:

- Provide complimentary cross-sections layout plans denoting the model extents
- Extract relevant cross-section data (*.xns file)
- Provide network and hydraulic parameter file (*.nwk and *.hd) for the cut-down model
- Provide boundary condition data for the 50yr, 100yr and 2000yr ARI design events (*.bnd11)
- Provide a results spreadsheet containing discharges and flood levels for the design events listed above for the extent of the model.

The estimate to undertake the proposed model extraction is estimated at between $1500 to $2500 (plus GST) to undertake the extraction. The works will be undertaken on a do and charge basis, and we may not expend the estimate indicated above. We will advise you if it is likely that we will exceed the upper estimate.

We can complete the extraction within 10 working days of receipt of the signed user agreement for use of the extracted model (attached). We trust this will be acceptable and look forward to your confirmation. Should you have any queries please do not hesitate to contact James Charalambous on [redacted].

Evan Caswell - Senior Engineer
Flood Management, Water and Environment
City Design

BRISBANE
CITY BUSINESS

MEMORANDUM

Brisbane City Council

City Design

Water and Environment

315 Brunswick St Mall
Fortitude Valley Qld 4006
Locked Mail Bag 6996
Albion Qld 4010

Phone: 07 3403 0430
Facsimile: 07 3403 0438
Email: [redacted]
Internet: www.brisbane.qld.gov.au

To: [redacted] – GHD Date: **04/10/2005**

Attn:

CC: **Evan Caswell – City Design**

From: **Ken Morris – City Design**

Re: **Brisbane River Model Extraction (Tennyson Riverside Development)**

Please find attached model data in relation to the above. The model data is based on the following sources:

- Brisbane River Flood Study: Recalibration of the MIKE11 hydraulic model and determination of the 1 in 100 AEP flood levels (SKM 2004); and
- Brisbane River Flood Study: Calculation of floods of various return periods on the Brisbane River
  (SKM 2004)

If required, further information pertaining to these studies can be found in the City Design library. If necessary please contact James Charalambous directly on [redacted] to discuss any further queries in relation to this matter.

Ken Morris
Product Manager, Flood Management
Water and Environment
City Design

BRISBANE CITY COUNCIL

ABN 72 002 765 795

Pre-lodgement Meeting Development Assessment Request

FEE $798.00
A05-928250

Site details

Address

TENNYSON POWER STATION SITE, CNR SOFSTONE ST, TENNYSON AND FAIRFIELD ROAD, TENNYSON. Postcode 4105 DRIVE A05/137649

INFORMATION MANAGEMENT

Real Property Description

LOTS 1 & 2 RP100860, LOT 1 RP37962, LOT 663 on SL2532, PART OF LOT 566 on SP104107 and ATTACHED ROAD RESERVE

City Plan Area Classification: CM 3 - Utility Installation

Site Area: 11.9 HA

Site Dimensions *If known*:

Applicant details

Name

MIRVAC QUEENSLAND

Address

C/- BRANNOCK & ASSOCIATES, GPO BOX 552 BRISBANE Postcode 4001

[redacted]'act's name

Phone no. [redacted]

Fax no.

Mobile no.

Meeting details

The purpose of meeting is to discuss:

- ☐ Initial concepts
- ☐ Detailed design issues
- ☐ Technical issues

Preferred Meeting date: MON. 3 OCTOBER

Time: : 10 am / pm

TIME PREORGANISED WITH STEVEN SWARTZ

Do you require an on-site meeting? Yes ☐

Proposal details

Description of proposed development

Proposed redevelopment of Tennyson Power Station site for State Tennis Centre and residential development

Current use

Disused power station

[redacted]

Proposal details *Continued*

Adjoining/surrounding uses

Mixed

Is demolition proposed?

No ☐ Yes ☒ *Give details*

Not part of proposed application

Issues for discussion

Design - building and landscape
Planning issues
Approach to application
Approach to riparian corridor

Submitting your request

To ensure the best outcome from the Pre-lodgement Meeting please complete as much detail as possible on this form and include the following:

- ☐ Plans of proposal
- ☐ Photographs of existing building on site and surrounding streetscape
- ☐ Written reports
- ☐ Site details
- ☐ Other

Submit by mail: Brisbane City Council
GPO Box 1434
BRISBANE QLD 4001

Submit by fax [redacted]

Brisbane City

BRISBANE CITY COUNCIL

Action Sheet

DRS/USE/P05-928258

Sec. Stor:

DEVELOPMENT & REGULATORY SERVICES

DEVELOPMENT APPLICATION

PRELODGEMENT

928258

21 SOFTSTONE ST TENNYSON

Related Files

(1) Date	(2) Referred to (Officer Coding)	(3) Folio	(4) Cleared By	(5) Date	DAY CODE	(1) Date	(2) Referred to (Officer Coding)	(3) Folio	(4) Cleared By	(5) Date	DAY CODE
5/9/05	PASIS		[redacted]	13/10	245						
13/10/06	BCCC				286						

INFORMATION MANAGEMENT USE ONLY													
Retention Period													
Destroy													
Authorised By													

CC1616 (10/98)

DTM Scoping Sheet (V2.1)

File No: 928258

Address: 21 Softstone Street, Tennyson

Lodgement Date: 04/10/05

Properly Made on:

DCM Date:

Internal Referrals (within Team)

Officer Code / Tick = yes/Cross = no / Advice attached	Architect	Ecologist	Engineer	Landscape	Pollution

External Referrals (outside Team)

		Concurrence	Advice	3rd Party/Other
City Planning				
Brisbane Water				
Technical Support				
Urban Management				Ref. Coord
Other				

Application (circle applicable aspect)

Material Change of Use		Carrying Out Building Work		Reconfiguration		Operational Works	
DP	PA	DP	PA	DP	PA	DP	PA

(1) Prelodgement (2) Acceptable (3) Performance (4) Major Project (5) Non Compliant (6) Modification

Code	Notifiable Code	Impact	Neg. Decision	Prelodgment	Modification	Extend Currency Period	Other

City Plan Purpose

MUD & Outdoor Sport & Recreation

Description of Proposal

DTM Minute Issues (maximum of 5 issues)

Issues

Series of meetings held - file created so that payment could be made.

ICP Charges (tick) ☐ History File/s Requested (tick) ☐

IDAS Timeframes		Referrals		Committees		Prelodgement	
Acknowledgement		Internal		Co ord Panel		Ack. Date	
Info Request		External		DAC		Mtg. Date	
Decision Notice	18/10/05			P&Guidance			

Turnaround time frame	Councillor Copy	External Referrals	Tasks Sent Yes	Tasks Sent No	Delegate	Assessment Manager
					RDM	Steve

Development and Regulatory Services

Minute of the daily team meeting for the Development Assessment Team South held on 6 October 2005

SITE:	**APPLICATION:**
Address of Site: **21 Softstone St, Tennyson Qld 4105** Real Property Description: **Lots 1-2 on RP100860, Lot 1 on RP37962 and Lot 663 on SL2532, Parish of Y'pilly** Area of Site: **117002** Area Classification: **Community Use Area Cu8 - Utility Installation** Name of Owner: **Queensland Power Trading Corporation** Name of Ward: **Dutton Park** Councillor: **Helen Abrahams**	Aspects of Development: **Prelodgement Meeting** Description/Purpose of Proposal: **Prelodgement** Applicant: [redacted] **Brannock And Associates** Application No.: **DRS/USE/P05-928258** Project No.: Lodgement Date: **5 September 2005**

The Development Assessment Team South reviewed the above application.

After considering the proposal, the Development Assessment Team made the following recommendation.

RECOMMENDATION OF DEVELOPMENT ASSESSMENT TEAM **(Sample Tick)** ✔

Assessment Process (code, notifiable code, impact or modification):	Code			
** Please note: animated fields shown above may require amendment in BIDS if incorrect				
`ategory of Application:	1. Pre-lodgement		4. Major Project	
	2. Acceptable solution		5. Non-compliance	
	3. Alternate solution		6. Modification	
Councillor Helen Abrahams Comment Required	Yes		No	
Application Properly Made:	Yes		No	
Has the applicant requested consideration under a superseded planning scheme (this includes amendments to City Plan)?	Yes		No	

Assessment Manager:	Steven Schwartz Town Planner Telephone [redacted] Facsimile:

TEAM REFERRALS AND TIMEFRAMES			
Name	Discipline	Advice required by (date):	No referral required condition/s set by (date):

Internal Strategic Advice		
Brisbane City Council-Urban Management		
Brisbane City Council-Other		
Decision Notice due date:	18 October 2005	

Advice/Concurrence Agencies			**Third Party Advice Agencies**	
The Council did not refer this application to any entity for its comment				Department of State Development
Due date of reply -	**Concurrence Agency**	**Advice Agency**		Department of Housing
partment of Emergency Services-CHEM Unit				Queensland Transport
epartment of Natural Resources & Mines				
Environmental Protection Agency – Contaminated Land Unit				
Environmental Protection Agency - Licensing				
Environmental Protection Agency – Waste & Technical Services				
Environmental Protection Agency – Queensland Heritage Council				
Queensland Rail				
Department of Primary Industries				
Department of Communications, Information, Local Government & Planning				
Department of Main Roads				
Department of Families				
epartment of Tourism, Racing & Fair Trading				
ducation Queensland				
Division of Workplace Health & Safety				
Queensland Fire and Rescue Authority				
Brisbane City Council				

Referral Coordination required	
:.	
Other Agencies	
Application requires assessment against Local Plan	
History relevant to application:	•
Identified Issues:	•

Delegate:	Rory Kelly Principal Planner
Chairperson	
Contact:	[redacted] Team Support Officer
	(Signature) (Date)

Brannock & Associates PTY LTD
PLANNING AND ENVIRONMENT CONSULTANTS

Director: John Brannock
MURP MSc BSurv FPIA FEIA MRAIPR FAICD
Adjunct Professor, University of Queensland

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ABN 64 853 471 204 ACN 081 303 111

16 November 2005

OUR REF: Mirvac TennyL01-v01

Chief Executive Officer
Brisbane City Council
69 Ann Street
Brisbane QLD 4001

Attention: Rory Kelly/Steven Schwartz – South DA Team

Dear Rory/Steve,

RE: APPLICATION FOR PROPOSED REDEVELOPMENT OF TENNYSON POWER STATION SITE

We are pleased to submit the enclosed Impact Assessment application on behalf of Mirvac Queensland Ltd for the proposed State Tennis Centre and Residential Development on the former Tennyson Power Station Site at Tennyson.

The application seeks approval of the following components:

- Preliminary Approval – for a Material Change of Use overriding the planning scheme for development of the subject site generally in accordance with:
  - The Tennyson Riverside Development Master Plan and Building Envelope Plans;
  - The Tennyson Riverside Development Level of Assessment and Applicable Codes Table; and
  - The Tennyson Riverside Development Supplementary Residential Provisions.
- Development Permit - for a Material Change of Use for a State Tennis Centre (Outdoor Sport and Recreation) and associated facilities including administration offices, conference facilities, café and outdoor lighting.
- Development Permit for a Material Change of Use for Multi-unit dwellings (including residents' gymnasium and recreation building), Park and Centre Activities (café/restaurant shop or office use to a maximum gross floor area of 200m2).
- Development Permit for Operational Works for the Disturbance of Marine Plants. The inclusion of this application is triggered by section 3.2.2A of *IPA*.

The application material comprises the following:

- Completed IDAS Forms A, D, O2, Attachment 2, the Referral Checklist and owners consent letter.
- A cheque for $92,007 representing the prescribed application fee for a Major Project based on the proposed gross floor area in the development. The fee has been calculated as follows:

Development Permit for Residential Buildings D, E, F and gymnasium building:
GFA – 45,755m2.
Fee is $20,000 for first 10,000m2 @$2/m2 plus 35,755m2 @$1/m2 = $55,755.

Preliminary Approval for Buildings A, B and C:
GFA – 42,324m2.
Fee is 80% x $1/m2 x 42,324m2 = $33,859.

Development Permit for State Tennis Centre:
GFA – 2,393m2
Fee is 2,393 x $1/m2 = $2,393.

TOTAL FEE: $92,007

- A copy of the latest survey plan registered over the site.
- 8 copies of the application documentation comprising:
  - Volume 1 Report – Project Overview
  - Volume 2 Report – Impact Assessment Report: Town Planning Analysis, Construction Management, Site Contamination Strategy, Preliminary ESD Report, Noise Impact Report, Community Consultation, State Coastal Plan
  - Volume 3 Report – Design Report: Urban Design, Landscape Design, State Tennis Centre Concept, Residential Built Form
  - Volume 4 Report – Transport and Traffic
  - Volume 5 Report – Engineering and Services
  - Volume 6 Report - Flooding and Stormwater Quality Management
  - Volume 7 Report – Ecological Assessment (includes Marine Plants Disturbance Report).
  - A3 Architectural Plans
- One A1 set of the Architectural Plans and Survey Plan showing existing ground levels across the site.

Please do not hesitate to contact me should you require any further information.

Yours faithfully

[redacted]

Brathock & Associates

Form 1 Development Application idas

Preliminary approval overriding the planning scheme

The completion of Attachment 2 is **mandatory** where an applicant is seeking approval under s3.1.6 of the IPA to vary the effect of a local planning scheme.

Proposed level of assessment

A preliminary approval may state that any development that may take place on the land, the subject of the approval, may be either assessable (requiring code or impact assessment), self-assessable or exempt development or any combination of assessable, self-assessable or exempt development.

1. It is proposed that development resulting from this approval be:

☒ (i) Code assessable development - *provide details below*

Development for residential purposes (multi-unit dwellings).

☐ (ii) Self-assessable development - *provide details below*

☐ (iii) Exempt development - *provide details below*

Proposed applicable codes

A preliminary approval may identify any codes applying to development on the land.

2. List below the codes proposed to be applicable to any development resulting from this approval - *details of these codes must be attached to this application.*

Residential development will be assessed against the Tennyson Riverside Development Masterplan and Supplementary Residential Code provisions in addition to existing City Plan Codes.

PLEASE NOTE

ATTACHMENT 2 of Form 1 **cannot** be accepted by the assessment manger unless accompanied by PART A of Form 1.

The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information requested by Part A and any other relevant part of Form 1.

OFFICE USE ONLY *(applicable to assessment manager)*

DATE RECEIVED		REFERENCE NUMBER/S	

Form 1 Development Application idas

IDAS Assessment Checklist

(Formerly the "Referrals Checklist")

PLEASE NOTE:

1. This checklist was formerly referred to as the "Referrals Checklist". Some of the 'Guides' to using the IDAS Application Forms continue to refer to this document as the "Referrals Checklist". The name of this checklist has changed to more accurately describe its function.
2. Under the IPA and IDAS framework, an application may require assessment by the local Council and/or certain Queensland State entities (e.g. Environmental Protection Agency, Dept. of Natural Resources and Mines, Queensland Heritage Council etc.).
3. This checklist is provided to assist applicants to determine when an application requires assessment by a Queensland State entity and may also assist the applicant to determine the assessment manager[1] for the application.
4. Therefore, the completion of **all questions** in section 1 of this checklist is mandatory for all applications *(other than those requiring the completion of Parts A & B only)*.
5. It is the responsibility of the applicant to accurately complete this checklist.
6. Depending on the nature of the application, an applicable State entity may be either the assessment manager or an IDAS referral agency for the application.
7. The assessment manager for the application will rely on the information provided by the applicant when completing this checklist *(as well as any material lodged in support of the application)* to identify in the Acknowledgement Notice, any applicable referral agencies for the application. The assessment manager will also rely on this information when identifying if the application triggers referral coordination[2].
8. To assist you in answering the following questions a series of guides are available free from www.ipa.qld.gov.au.
9. The other parts of Form 1 required to be completed by this checklist are available from the Council or the applicable State entity, or can be downloaded free from www.ipa.qld.gov.au.
10. Section 2 provides advice about the referrals that can be required for applications for building work assessable against the *Standard Building Regulation 1993* (SBR).

SECTION 1 - STATE ASSESSMENT (completion mandatory)

Note: The following state assessment triggers apply to development other than for building work assessable against the *Standard Building Regulation 1993* (SBR)).

Environmentally relevant activity

For more information refer to Guide 4.

Unless you answered "none of the above" to Q1, the application requires assessment by the administering authority[3].

If an entity, other than the administering authority, is the assessment manager for the application, the administering authority is a concurrence agency for the application in relation to this matter.

Note: An application involving ERA 19 and/or 20 will also require completion of Part K of Form 1 for approval where an allocation under the Water Act 2000 is required.

1. The application involves: *(tick applicable box/es)*
   - ☐ (i) an environmentally relevant activity (ERA) for which a code for environmental compliance has ***not*** been made - *complete Part G of Form 1*
   - ☐ (ii) a mobile or temporary ERA for which a code of environmental compliance has ***not*** been made - *complete Part G of Form 1*
   - ☒ (iii) none of the above

State-controlled road matters

For more information refer to Guide 3.

Unless you answered "none of the above" to Q2, the application triggers referral to the Department of Main Roads (DMR) as a referral agency.

In certain circumstances DMR will be an advice agency, while in other circumstances DMR will be a concurrence agency.

Schedule 2 of the IP Regulation will assist you to determine where DMR is an advice or concurrence agency for the application.

2. The application involves: *(tick applicable box/es)*
   - ☐ (i) development on land ***contiguous***[4] to a State controlled road and for -
     - ☐ (a) ***material change of use*** assessable against the planning scheme;
     - ☐ (b) ***reconfiguring a lot*** unless -
       - the total number of lots is not increased; and
       - the total number of lots abutting the State-controlled road is not increased;
     - ☐ (c) ***operational work*** *(not associated with a material change of use assessable against the planning scheme or reconfiguring a lot mentioned in (b) above)*–
       - associated with access to a State-controlled road; or
       - for filling or excavation; or
       - involving the redirection or intensification of site stormwater from the land, through a pipe with a cross-sectional area greater than 625 cm² that directs stormwater to a State-controlled road;

1 The assessment manager is responsible for assessing and deciding an IDAS application. The assessment manager for an application is prescribed in schedule 8A of the IPA.

2 For additional information refer to Guide 6 *'Does my application trigger the referral coordination process?'*

3 The 'administering authority' may be either the Environmental Protection Agency, the relevant local government (for a devolved ERA) or the Queensland Department of Primary Industries and Fisheries (for a delegated ERA).

4 Land contiguous to a State-controlled road is defined in schedule 14 of the IP Regulation to mean land - if part of the land is within 100m of the State-controlled road; or that is part of a future State-controlled road.

State-controlled road matters *(cont)*	☐ (ii) development on land ***not contiguous*** to a State-controlled road and - ☐ (a) ***material change of use*** – • assessable against the local government's planning scheme; and • mentioned in schedule 5 of the IP Regulation and exceeding the thresholds set by that schedule; ☐ (b) ***reconfiguring a lot*** for a purpose mentioned in schedule 5 of the IP regulation and exceeding the thresholds set by that schedule; ☐ (c) ***operational work*** *(not associated with a material change of use assessable against the planning scheme or reconfiguring a lot mentioned in (b) above)*– • assessable against the local government's planning scheme; and • mentioned in schedule 5 of the IP Regulation and exceeding the thresholds set by that schedule; ☒ (iii) none of the above
Clearing vegetation For more information refer to Guide 12. Unless you answered "none of the above" to Q3, the application requires assessment by the Department of Natural Resources and Mines (NR&M). If an agency other than NR&M is the assessment manager for the application, NR&M is a concurrence agency for the application in relation to this matter.	3. The application involves: *(tick applicable box/es)* ☐ (i) ***material change of use*** – (a) assessable against the planning scheme; (b) on a the lot containing – • a category 1, 2 or 3 area shown on a property map of assessable vegetation; or • if there is no property map of assessable vegetation for the lot - remnant vegetation; (c) where the existing use of the land is a rural or environmental use; and (d) where the size of the land is 2 hectares or larger - *complete Part J of Form 1* ☐ (ii) ***reconfiguring a lot*** – (a) on a lot containing a category 1, 2 or 3 area shown on a property map of assessable vegetation or, if there is no property map of assessable vegetation for the lot, remnant vegetation; (b) where the size of the lot before the reconfiguration is 2 hectares or larger; (c) where 2 or more lots are created; and (d) where the size of any lot created is 25 hectares or smaller - *complete Part J of Form 1* ☐ (iii) ***operational work*** - (a) for the clearing of native vegetation where the vegetation clearing is made assessable under Schedule 8 of the IPA; and (b) not associated with a material change of use assessable against the planning scheme mentioned in (i) or reconfiguring a lot mentioned in (ii) - *complete Part J of Form 1* ☒ (iv) none of the above.
Strategic port land For more information refer to Guide 11. If you ticked (i) - the relevant Port Authority is the assessment manager for the application. If you ticked (ii) Queensland Transport is a concurrence agency for the application.	4. The application involves: ☐ (i) development on strategic port land as defined in the *Transport Infrastructure Act 1994* (TI Act); - *complete Part I of Form 1* ☐ (ii) a ***material change of use*** that is ***inconsistent*** with the land use plan approved under the TI Act for the strategic port land - *complete Part I of Form 1* ☒ (iii) none of the above
Acid sulfate soils For more information refer to Guide 10. Unless you answered "none of the above" to Q5, the application requires assessment by Department of Natural Resources and Mines (NR&M). If an agency other than NR&M is the assessment manager for the application, NR&M is an advice agency for the application in relation to this matter.	5. The application involves development on land situated in an identified[5] local government area and where the surface of the land is: *(tick applicable box)* ☒ (i) below 20m AHD[6] and the development will involve the excavation of 1000m³ or more of soil or sediment at or below 5m AHD; or ☐ (ii) at or below 5m AHD and the development will involve filling the site with 1000m³ or more of material ☐ (iii) for none of the above

5 The identified local government areas are: Aurukun, Bowen, Brisbane, Broadsound, Bundaberg, Burdekin, Burke, Burnett, Caboolture, Cairns, Calliope, Caloundra, Cardwell, Carpentaria, Cook, Cootoola, Douglas, Fitzroy, Gladstone, Gold Coast, Hervey Bay, Hinchinbrooke, Isis, Johnstone, Livingstone, Logan, Mackay, Maroochy, Maryborough, Mirium Vale, Mornington, Noosa, Pine Rivers, Redcliffe, Redland, Rockhampton, Sarina, Thuringowa, Tiaro, Torres, Townsville, Whitsunday.

6 Australian Height Datum (AHD).

Major hazard facilities or possible major hazard facilities

For more information refer to Guide 17.

If you answered "YES" to Q6, the application requires assessment by the Department of Emergency Services (DES).

If an agency other than DES is the assessment manager for the application, DES is a concurrence agency for the application in relation to this matter.

6. Does the application involve a ***material change of use*** for a major hazard facility or possible major hazard facility as defined under the *Dangerous Goods Safety Management Act 2001*?

☒ NO

☐ YES - *complete Part L of Form 1*

Water related development under the Water Act 2000

For more information about items (i) – (iv), refer to Guide 15. For more information about item (v), refer to Guide 14 *Does my application involve assessment of a referable dam?*

Unless you answered "none of the above" to Q7, the application requires assessment by the Department of Natural Resources and Mines (NR&M).

If an agency other than NR&M is the assessment manager for the application, NR&M is a concurrence agency for the application in relation to this matter.

7. The application involves:

☐ (i) ***operational work***, for taking or interfering with water under the *Water Act 2000*, that is: *(tick applicable box/es)*

- ☐ (a) in a watercourse, lake or spring, or from a dam constructed on a watercourse *(eg. a pump, gravity diversion, stream re-direction, weir or dam) - complete Part K_2, K_3, K_4, K_5 or K_6 of Form 1 whichever is applicable*;
- ☐ (b) for an artesian bore anywhere in the State, no matter what the use - *complete Part K_1 of Form 1*;
- ☐ (c) for a subartesian bore, in declared groundwater area[7], for use for purposes other than stock and/or domestic use - *complete Part K_1 of Form 1*;
- ☐ (d) for a subartesian bore, in certain declared groundwater area, for use for stock and/or domestic purposes - *complete Part K_1 of Form 1*;
- ☐ (e) for constructing a referable dam[8] or that will increase the storage capacity of a referable dam by more than 10% - *complete Part K_5 of Form 1*; or
- ☐ (f) for taking or interfering with overland flow water - *complete Parts K_6 and G of Form 1*

☒ (ii) none of the above.

Removal of quarry material from a watercourse

For more information refer to Guide 16.

If you answered "YES" to Q8, the application requires assessment by the Department of Natural Resources and Mines (NR&M).

If an agency other than NR&M is the assessment manager for the application, NR&M is a concurrence agency for the application in relation to this matter.

Note: Part G of Form 1 is required to be completed as the activity of removing quarry material from a watercourse is also an Environmentally Relevant Activity (ERA).

8. Does the application involve development for the removal of quarry material from a watercourse[9] requiring an allocation notice under the *Water Act 2000*?

☒ NO

☐ YES - *complete Parts K_7 and G of Form 1*

Operational works in a tidal area or coastal management district

For more information refer to Guide 18.

Unless you answered "none of the above" to Q9, the application requires assessment by the Environmental Protection Agency (EPA) and you must complete Part M of Form 1.

If an agency other than EPA is the assessment manager for the application, EPA is a concurrence agency for the application in relation to this matter.

9. The application involves ***operational work*** that is: *(tick the applicable box/es)*

☐ (i) ***tidal work***[10] as defined under the *Coastal Protection and Management Act 1995* (the Coastal Act) – *complete Part M of Form 1*; or

☐ (ii) carried out within a ***coastal management district*** under the Coastal Act and for – *complete Part M of Form 1 if any box (a) to (i) below are ticked.*

- ☐ (a) constructing or installing works in a watercourse between MHWS and HAT (*i.e. other than those works in tidal water*) where the development has been determined not to be assessable against the *Water Act 2000* ;
- ☐ (b) constructing a canal[11] intended to be connected to tidal waters;
- ☐ (c) constructing an artificial waterway;
- ☐ (d) reclaiming land under tidal water;
- ☐ (e) disposing of dredge spoil or other solid waste material in tidal water;
- ☐ (f) interfering with quarry material on State coastal land above high-water mark;
- ☐ (g) draining or allowing drainage or flow of water or other matter across State coastal land above high-water mark;
- ☐ (h) removing or interfering with coastal dunes on land, other than State coastal land, that is in an erosion prone area and above high-water mark; or
- ☐ (i) constructing a bank or bund wall to establish a ponded pasture on land, other than State coastal land, above high-water mark.

☒ (iii) none of the above.

7 The declared ground water areas are listed in Guide 13 *Development in a declared catchment area.*
8 Referable dam is defined under the *Water Act 2000.*
9 Watercourse is defined in sch 10 of the IPA.
10 Tidal work is defined in sch 10 of the IPA.
11 Canal means canal as defined under the *Coastal Protection and Management Act 1995*

Tidal works and coastal management

For more information refer to Guide 18.

Unless you answered "none of the above" to Q10, the application triggers referral to Queensland Transport (QT) (Maritime Safety Qld) as a concurrence agency.

10. The application involves *operational work* that is: *(tick the applicable box/es)*

- ☐ (i) *tidal work*[12] as defined under the *Coastal Protection and Management Act 1995* (the Coastal Act) – *complete Part M of Form 1*; or
- ☐ (ii) carried out within a coastal management district[13] under the Coastal Act and for -
  - ☐ (a) disposing of dredge spoil or other solid waste material in tidal water – *complete Part M of Form 1*;
  - ☐ (b) reclaiming land under tidal water – *complete Part M of Form 1*; or
  - ☐ (c) constructing a canal[14], if the canal is associated with reconfiguring a lot – *complete Part M of Form 1*;
- ☒ (iii) none of the above.

Coastal management

For more information refer to Guide 18.

Unless you answered "none of the above" to Q11, the application requires assessment by the Environmental Protection Agency (EPA).

If an agency other than EPA is the assessment manager for the application, EPA is a concurrence agency for the application in relation to this matter.

11. The application involves: *(tick the applicable box/es)*

- ☒ (i) a ***material change of use*** assessable under a planning scheme ***involving operational work*** carried out completely or partly in a coastal management district[13]
- ☒ (ii) a ***material change of use*** assessable under a planning scheme ***involving building work,*** carried out completely or partly in a coastal management district that is –
  - the construction of a new premises with a GFA[15] of at least 1000m²
  - the enlargement of the GFA of existing premises by more than 1000m²
- ☐ (iii) ***reconfiguring a lot*** assessable under schedule 8 of the IPA where the land is situated completely or partly in a coastal management district
- ☐ (iv) ***reconfiguring a lot***[16] assessable under schedule 8 of the IPA and in connection with the construction of a canal[14] – *complete Part M of Form 1*
- ☐ (v) none of the above

Development below high water mark

For more information refer to Guide 18.

If you answered "YES" to Q12, the application triggers referral to the Port Authority.

The Port Authority is concurrence agency if the development is –

- within 200m of a shipping channel or an entry and exit shipping corridor for the port
- within 1000m of a swing basin, a commercial shipping wharf, a mooring, anchorage or spoil grounds;
- within 1000m of a planned port facility identified in a land use plan approved under the *Transport Infrastructure Act 1994*.

In all other situation the Port Authority is advice agency.

12. Does the application involve development below high water mark[17] and within the limits of a port under the *Transport Infrastructure Act 1994*?

- ☒ NO
- ☐ YES – *complete Part M of Form 1*

Marinas

For more information refer to Guide 18.

If you answered "YES" to Q13, the application triggers referral to Queensland Fire and Rescue Service as an advice agency.

13. Does the application involve *operational work* that is tidal work for a marina[18] with more than 6 vessel berths?

- ☒ NO
- ☐ YES - *complete Part M of Form 1*

Tidal works in strategic port land tidal areas

For more information refer to Guide 18.

If you answered "YES" to Q14, the relevant Port Authority is the assessment manager for the application and the Environmental Protection Agency (EPA) EPA and Queensland Transport (QT) are concurrence agencies for the application.

14. Does the application involve tidal works within the limits of strategic port land tidal areas[19]?

- ☒ NO
- ☐ YES - *complete Part M of Form 1*

Heritage

For further information refer to Guide 19.

If you answered "YES" to Q15, the application triggers referral to the Queensland Heritage Council as concurrence agency for the application.

15. Does the application involve development in a heritage registered place as defined under the *Queensland Heritage Act 1992*?

- ☒ NO
- ☐ YES – *complete Part C of Form 1*

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12 Tidal work is defined in sch 10 of the IPA.

13 Coastal management district is defined in sch 10 of the IPA and means a coastal management district under the *Coastal Protection and Management Act 1995*, other than an area declared as a coastal management district under section 47(2) of that Act.

14 Canal means canal as defined under the *Coastal Protection and Management Act 1995*

15 GFA is defined in sch 14 of the IPA to mean the gross floor area. For a definition of how to calculated GFA, go to the planning scheme against which the application is being assessed.

16 Under s117 of the *Coastal Protection and Management Act 1995*, an application for reconfiguration, where the reconfiguration is associated with the construction of an artificial waterway, must be accompanied by the application for the operational works to construct the artificial waterway.

17 High water mark is defined in the *Coastal Protection and Management Act 1995* and means the ordinary high water mark at spring tide.

18 Marina is defined in the *Transport Operations (Maritime Pollution) Regulation 1995*.

19 Strategic port land tidal areas are the areas generally 50 meters seaward of high water mark adjacent to strategic port land.

Declared catchment areas

For more information, including a list of the declared catchment areas within Queensland, refer to Guide 13.

Unless you answered "none of the above" to Q16, the application requires assessment by the Department of Natural Resources and Mines (NR&M).

If an agency other than NR&M is the assessment manager for the application, NR&M is a concurrence agency for the application in relation to this matter.

16. The application is in an area declared to be a catchment area under the *Water Act 2000* and involves: *(tick the applicable box/es)*

☐ (i) ***reconfiguring a lot***, if any lot resulting from the reconfiguration is less than 16 hectares;

☐ (ii) development assessable against the planning scheme involving the establishment or expansion of a waste water disposal system, other than a disposal system for carrying out an environmentally relevant activity under the *Environmental Protection Act 1994*;

☒ (iii) none of the above

Contaminated land

Applications involving material change of use and / or reconfiguring a lot may trigger this referral.

For more information refer to Guide 5.

Unless you answered "none of the above" to Q17, the application requires assessment by the Environmental Protection Agency (EPA). If an agency other than EPA is the assessment manager for the application, EPA will be a concurrence agency for the application in relation to this matter.

17. The application involves: *(tick the applicable box/es)*

☐ (i) ***reconfiguring a lot*** for which all of part of the premises are –

(a) premises mentioned in the IPA, schedule 8, part 1, table 2 –
- item 5, including the exemption otherwise provided for by paragraph (d);
- item 6, including the exemption otherwise provided for by paragraph (e); or
- item 7, including the exemption otherwise provided for a mining activity or petroleum activity; or

(b) in an area for which an area management advice has been given for unexploded ordnance - *complete Part N of Form 1*

☒ (ii) a ***material change of use*** –

(a) made assessable under the IPA, schedule 8, part 1, table 2, items 5 to 7; or

(b) assessable against the planning scheme and if all or part of the premises is in an area for which an area management advice has been given for unexploded ordnance - *complete Part N of Form 1*

☐ (iii) none of the above

Electricity infrastructure

For more information refer to schedule 2of the IP Regulation.

Unless you answered "none of the above" to Q18, the application triggers referral to the agency to which the easement is granted in favour of as advice agency.

18. The application involves: *(tick the applicable box/es)*

☐ (i) ***reconfiguring a lot*** where any part of the lot is –
- subject to an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* and the easement is for a transmission grid or supply network under that Act; or
- situated within 100m of a substation site;

☒ (ii) a ***material change of use***, assessable against a planning scheme and not associated with reconfiguring a lot if –
- any part of the premises is subject to an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* and the easement is for a transmission grid or supply network under that Act; and
- any structure or work that is the natural and ordinary consequence of the use is, or will be, located wholly or partly in the easement;

☒ (iii) a ***material change of use***, assessable against a planning scheme and not associated with reconfiguring a lot if any part of the premises is situated within 100m of a substation site;

☐ (iv) ***operational work*** that is filling or excavation assessable against the planning scheme, not associated with reconfiguring a lot, if –
- any part of the premises is subject to an easement in favour of a distribution entity or transmission entity under the *Electricity Act 1994* and the work is located wholly or partly in the easement;
- the work is located wholly or partly within 10m of a substation site;

☐ (v) none of the above.

Land designated for community infrastructure

Applications involving development on land designated for community infrastructure may trigger this referral.

For more information refer to schedule 2 of the IP Regulation.

If you answered "YES" to Q19, the application requires assessment by the chief executive of the department administering the Act authorising the development for the designated purpose.

If an agency other than the designator is the assessment manager for the application, the designating agency will be a concurrence agency for the application in relation to this matter.

19. Does the application involve development assessable against the planning scheme and on land designated for community infrastructure?

(i) intended to be supplied by a public sector entity; and

(ii) on land not owned by or on behalf of the State; and

(iii) other than development –

(a) for the designated purpose; or

(b) carried out by, or on behalf of, the designator.

☒ NO

☐ YES

SEQ Regional Plan

For more information refer to schedule 2 of the IP Regulation.

Unless you answered "none of the above" to Q20, the application requires assessment by the Office of Urban Management (OUM).

20. The application involves a ***material change of use*** of premises in the SEQ Region[20] for: *(tick the applicable box/es)*

- ☐ (i) urban activities[21], other than where the premises are zoned for urban activities under a planning scheme in a rural village[22] or the Mt Lindesay/North Beaudesert Study Area, for which all or part of the premises, the subject of the development, is in the –
  - (a) Regional Landscape and Rural Production Area;
  - (b) Rural Living Area;
  - (c) Investigation Area; or
  - (d) Mt Lindesay/North Beaudesert Investigation Area.
- ☐ (ii) rural residential purposes[23] where the premises are not zoned for rural residential purposes and the premises are in the –
  - (a) Regional Landscape and Rural Production Area;
  - (b) Investigation Area; or
  - (c) Mt Lindesay/North Beaudesert Investigation Area;
- ☒ (iii) none of the above

Fisheries matters

For more information refer to schedule 2of the IP Regulation.

Unless you answered "none of the above" to Q21, the application requires assessment by the Department of Primary Industries and Fisheries (DPI&F).

If an agency other than DPI&F is the assessment manager for the application, DPI&F is a concurrence agency for the application in relation to items (i) – (iv) and an advice agency in relation to item (v).

21. The application involves: *(tick the applicable box/es)*

- ☐ (i) an assessable ***material change of use*** for aquaculture - *complete Part O_1 of Form 1*;
- ☐ (ii) assessable ***operational work*** that is the construction or raising of a waterway barrier - *complete Part O_3 of Form 1*;
- ☐ (iii) assessable ***operational work*** completely or partly within a declared fish habitat area;
- ☒ (iv) assessable ***operational work*** that is the removal, destruction or damage of a marine plant - *complete Part O_2 of Form 1*;
- ☐ (v) development assessable under the IPA, schedule 8, part 1, on land that adjoins a declared fish habitat area;
- ☐ (vi) none of the above.

Integration of land use and public transport

For more information refer to Guide 23, schedule 8A of the IPA, & schedule 2 of the IP Regulation.

Unless you answered "none of the above", the application triggers referral to QT as a concurrence agency.

22. The application involves: *(tick the applicable box/es)*—

- ☒ (i) a ***material change of use*** assessable against the planning scheme for a purpose mentioned in schedule 13C of the IP Regulation and exceeding the thresholds set by that schedule.
- ☐ (ii) ***reconfiguring a lot***—
  - ☐ (a) on land that is completely or partly within a public transport corridor, and the total number of lots increases;
  - ☐ (b) on land that is completely or partly within a future public transport corridor or an airport's public safety area;
  - ☐ (c) on land that is within 400m of a public passenger transport facility or a future public passenger transport facility, and the total site area is 5000m² or greater;
  - ☐ (d) for a residential purpose within the 25 ANEF contour for an airport;
  - ☐ (e) for a residential purpose resulting in 100 or more allotments.
- ☐ (iii) ***operational work*** assessable against the planning scheme, but not associated with a material change of use mentioned in (i) above or reconfiguring a lot mentioned in (ii) above, on land that—
  - ☐ (a) is completely or partly within a public transport corridor or a future public transport corridor;
  - ☐ (b) will result in work that encroaches into an airport's operational airspace.
- ☐ (iv) none of the above.

20 Local Governments within the SEQ Region are identified in the South East Queensland Regional Plan as Beaudesert Shire, Boonah Shire, Brisbane City, Caboolture Shire, Caloundra City, Esk Shire, Gatton Shire, Gold Coast City, Ipswich City, Kilcoy Shire, Laidley Shire, Logan City, Maroochy Shire, Noosa Shire, Pine Rivers Shire, Redcliffe City, Redland Shire and Toowoomba City.

21 Urban activity means urban activity as defined in schedule 2, Part H Regulatory Provisions, South East Queensland Regional Plan. The term includes some facilities and purposes and excludes some purposes. A single residential dwelling on a lot is not included in urban activity.

22 Rural village means rural village as defined in schedule 2, Part H Regulatory Provisions, South East Queensland Regional Plan.

23 Rural residential purpose means rural residential purpose as defined in schedule 2, Part H Regulatory Provisions, South East Queensland Regional Plan.

Railway safety and efficiency

For more information refer to Guide 23, schedule 8A of the IPA & schedule 2 of the IP Regulation.

Unless you answered "none of the above", the application triggers referral to QT as a concurrence agency.

23. The application involves: *(tick the applicable box/es)*—

☒ (i) a ***material change of use*** assessable against the planning scheme for a purpose mentioned in schedule 13D of the IP Regulation and exceeding the thresholds set by that schedule.

☐ (ii) ***reconfiguring a lot***—

- ☐ (a) on land that is completely or partly within a future public transport corridor, future railway land or a railway tunnel easement;
- ☐ (b) on land that is within 400m of a Citytrain passenger railway station or a future Citytrain passenger railway station, and the total site area is 5000m² or greater;
- ☐ (c) on land that abuts rail corridor land, commercial corridor land or future railway land, and the total number of lots increases;
- ☐ (d) on land that abuts rail corridor land, commercial corridor land or future railway land and an easement abutting the corridor or future railway land is created;
- ☐ (e) on land that is completely or partly within 100m of, and abutting an approach to, a railway level crossing, and the total number of lots increases;
- ☐ (f) for a residential purpose resulting in 100 or more allotments.

☐ (iii) ***operational work*** assessable against the planning scheme, but not associated with a material change of use mentioned in (i) above or reconfiguring a lot mentioned in (ii) above, involving extracting, excavating or filling greater than 50m³, on land that—

- ☐ (a) is completely or partly within rail corridor land or commercial corridor land, and the work is not for rail transport infrastructure or other rail infrastructure;
- ☐ (b) is completely or partly within future railway land, or a railway tunnel easement;
- ☐ (c) abuts rail corridor land, commercial corridor land or future railway land, and the work is within 25m of the railway boundary.

☐ (iv) none of the above.

Referral coordination

An information request requires referral coordination if the application involves –

(i) 3 or more concurrence agencies; or
(ii) a facility or area assessable under a planning scheme and prescribed in schedule7 or 8 of the IP Regulation; or
(iii) development which is subject to an application for preliminary approval mentioned in s3.1.6 of the IPA.

For more information go to Guide2 and Guide 6.

24. Does the application trigger referral coordination?

☐ NO

☒ YES, as the application: *(tick the applicable box/es)*

- ☒ (i) triggers 3 or more concurrence agencies;
- ☒ (ii) involves a ***material change of use*** made assessable under a planning scheme and prescribed in schedule 7 of the IP Regulation;
- ☐ (iii) involves a ***material change of use*** (other than a dwelling house, outbuilding or farm building) made assessable under a planning scheme, or ***reconfiguring a lot***, in an area prescribed in schedule 8 of the IP Regulation;
- ☒ (iv) is for a preliminary approval mentioned in s3.1.6 of the IPA

Referral agency responses prior to lodgement

Under s3.3.2 of IPA a referral agency may give a referral agency response on a matter within its jurisdiction about a proposal before an application for the proposal is made to the assessment manager.

This is commonly the case where an application requires referral to a building referral agency (eg. Qld Fire and Rescue Service).

25. Did a referral agency give a referral agency response under s3.3.2 of the IPA ***before*** the application was made to the assessment manager?

☒ NO

☐ YES - *attach a copy of the referral agency/s response/s*

PLEASE NOTE: The assessment manager may refuse to accept an application, which, at the time of lodgement, fails to provide the completed IDAS Assessment Checklist (if applicable).

OFFICE USE ONLY *(applicable to assessment manager)*

DATE RECEIVED		REFERENCE NUMBER/S	

Form 1 Development Application idas

Contaminated land

Completion of **all questions** on Part N is **mandatory** for all applications involving assessment against the *Environmental Protection Act 1994* when development is proposed on contaminated or potentially contaminated land.

For further information refer to ***Guide 5 Contaminated land matters*** available free from www.ipa.qld.gov.au or the Environmental Protection Agency's (EPA's) information sheets available free from www.epa.qld.gov.au under Ecoaccess/ business and industry. Alternatively, contact the local government.

Nature of the application

Exemptions may apply to your proposal. Refer to *Guide 5 Contaminated land matters* for advice regarding development that is exempt from this assessable development trigger.

1. This application is for: *(Tick one (1) or both if applicable)*

Aspect of development	Type of approval being sort	
☒ Material change of use	☒ Preliminary approval	☒ Development permit
☐ Reconfiguring a lot	☐ Preliminary approval	☐ Development permit

2. Does this application require assessment against a planning scheme?
☐ NO ☒ YES – *complete other relevant parts of the IDAS Application Form 1*

The subject land

3. Has an Environmental Management Register (EMR) and/or Contaminated Land Register (CLR) search been conducted for the land the subject of the application?
☐ NO ☒ YES – *attach results of the search and complete Q4*

4. All or part of the land the subject of the application is:
☒ (i) on the EMR or the CLR under the *Environmental Protection Act 1994*;
☒ (ii) used for, or if the land is vacant, was last used for-
  ☐ (a) a notifiable activity
  ☒ (b) an industrial activity and the proposed use is for a child care centre, educational, recreational or residential purpose *(including a caretaker residence on industrial land)*;
☐ (iii) in an area for which an area management advice has been given for natural mineralisation or industrial activity and the proposed use is for child care, educational, recreational or residential purpose *(including a caretaker residence on industrial land)*;
☐ (iv) in an area for which an area management advice has been given for unexploded ordnance.

Plans and documents

For further information about preparing a proposal report, refer to *Guide 7 Preparing a proposal report*.

5. Confirm, by ticking the applicable box(es), that the following details are provided in plans and written information supporting this application:
☐ (i) plans showing where any Notifiable Activity, Hazardous Contaminant, or potentially contaminated activity / activities have occurred on site;
☒ (ii) if the application involves a material change of use from an industrial use to a more sensitive use *(eg. child care, educational, recreational or residential purposes)*, supply a detailed site history outlining previous potentially contaminated uses on the site

PLEASE NOTE

PART N of Form 1 **cannot** be accepted by the assessment manger unless accompanied by PART A of Form 1.

The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information requested by Part A and any other relevant part of Form 1.

OFFICE USE ONLY *(applicable to assessment manager)*

DATE RECEIVED		REFERENCE NUMBER/S	

Form 1 Development Application

idas

Disturbance of marine plants; and building or operational works within a declared Fish Habitat Area

Completion of all *applicable* questions on Part O_2 is mandatory for all applications involving the disturbance of marine plants, and building or operational works within a declared Fish Habitat Area. For further information refer to Guide 20 or go to www.dpi.qld.gov.au

Nature of the development)

All marine plants are protected, irrespective of the tenure of the lands on which they grow. Marine plants are defined in section 8 of the *Fisheries Act 1995* and include mangroves, salt couch, seagrass, saltmarsh species and algae.

Any works proposed within a declared Fish Habitat Area must first obtain approval for the allocation of the resource from the Department of Primary Industries and Fisheries (DPI&F).

Resource allocation forms are available through DPI&F offices and the DPI&F website at www.dpi.qld.gov.au.

Where DPI&F is the assessment manager for an application, the resource allocation and IDAS development application can be assessed concurrently.

1. This application is for: *(tick applicable box/es)*

☒ (i) the removal, damage or disturbance of marine plants;

☐ (ii) operational work within a declared Fish Habitat Area[1] as defined in the *Fisheries Regulation 1995* – *a Resource Allocation Authority must be obtained prior to lodgement of this application. Please provide the Resource Allocation Authority reference number below or submit a completed Resource Allocation Authority application form with this application;*

☐ (iii) building work within a declared Fish Habitat Area[1] as defined in the *Fisheries Regulation 1995* – *a Resource Allocation Authority must be obtained prior to lodgement of this application. Please provide the Resource Allocation Authority reference number below or submit a completed Resource Allocation Authority application form with this application.*

Details of the proposed disturbance and/or works

Plans and written information are required to accompany development applications for the disturbance of marine plants and/or work in a declared Fish Habitat Area.

Applications are assessed against fisheries legislation and policies.

2. Confirm, by ticking the applicable box(es) that the following details are provided in plans and written details accompanying this application

☒ (i) details of the purpose of the proposed disturbance and/or works *(e.g. public jetty, private jetty, boat ramp, pontoon, revetment, board walk, etc.)*

☒ (ii) a scaled site plan of the proposed disturbance *(including dimensions & GPS points)* showing the location, areas of impact and adjacent area in relation to –

- ☒ easily identifiable features *(i.e. roads, road intersections, waterway names, bends in the waterway etc.)*;
- ☒ Real Property (RP) boundaries adjacent to and in the vicinity of the proposed disturbance and/or water area;
- ☒ the location, extent, nature and dimensions of the area proposed to be disturbed and the locations, extent, nature and dimensions of any associated disturbance areas *(e.g. access paths, construction areas, moorings etc.)*;
- ☒ the location and extent of Highest Astronomical Tide (HAT), Mean High Water Springs and Mean Low Water Springs levels, by reference to easily identifiable fixed points;
- ☒ the location of all waterway features within the development area including creeks, drainage lines, lagoons, marshes etc.;
- ☒ the location and extent of any existing disturbances, structures, improvements, fill etc within, adjacent to, or associated with the proposed disturbance and/or works.

☒ (iii) a description of the fish habitats proposed to be impacted *(i.e. sand banks, mud banks, seagrass, mangroves, salt couch, rocky shore etc.)*;

☒ (iv) a description of the marine plants proposed to be disturbed *(e.g. number, type, height, area, density, health etc.)*;

☐ (v) a description of the method of works (e.g. equipment to be used);

☒ (vi) a description of the past uses and/or disturbances of the development site.

[1] Plans of declared Fish Habitat Areas are available from DPI&F or through the DPI&F website at www.dpi.qld.gov.au

Justification for the proposed disturbance Justification for the proposed disturbance is required to accompany applications for the disturbance of marine plants and/or works within a declared Fish Habitat Area.	3. Confirm, by ticking the applicable box(es) that the following details are provided in plans and written information accompanying this application: ☒ (i) justification for the proposed disturbance and/or works to be undertaken; ☐ (ii) a detailed description of the alternatives considered in order to reduce impacts to marine plants and fish habitat *(i.e. alternative designs, locations, setbacks/buffer distances etc.);* ☒ (iii) any on-site mitigation actions proposed to prevent the proposed disturbance and/or works contributing to fish habitat degradation, in and adjacent to the development area, during and after the development; ☒ (iv) a description of off-site compensation actions proposed to compensate for any permanent loss of marine plants or fish habitats *(e.g. any proposed rehabilitation or restoration of marine plants, land swap options, fish habitat research contribution etc.);* ☒ (v) extent of any future maintenance works required for the continued safe operation of the proposed structure or facility *(e.g. trimming of regrowth of marine plants, maintenance dredging);* ☒ (vi) any other justification and supporting information for the proposed disturbance and/or works.

PLEASE NOTE: ***PART O_2 of this form cannot be accepted by the assessment manger unless accompanied by PART A of the form.***

The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information requested by Part A and any other relevant part of Form 1

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Form 1 Development Application

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Material change of use

assessable against a local government's planning scheme

Completion of **all applicable questions** on Part D is **mandatory** for all applications involving assessment of a material change of use (MCU) assessable against a local governments planning scheme.

Nature of the application

A development permit authorises development to occur, while a preliminary approval is a step in the approval process and does not authorise development to occur.

1. This application is for: *(tick 1 or both if applicable)*

☒ **Preliminary approval** for a material change of use of premises including conceptual design for any associated works that require approval under the planning scheme *(i.e. consideration of the proposal concept)*

AND / OR

☒ **Development permit** for a material change of use of premises including conceptual design for any associated works that require approval under the planning scheme.

The subject land

For the definition of "gross floor area" go to the planning scheme against which the application will be assessed.

2. How the subject land is identified in the planning scheme *(name the zone, precinct etc.)*

Community Use Area CU8 -Utility Installation and Road Area

3. Existing gross floor area: *(if applicable)* Existing building to be demolished

4. Are there any existing easements on the land?

☐ NO

☒ YES – *attach plans of the location and details of the purpose of the easement*

Material change of use details

5. Details of the change to the use of the land: *(eg. vacant land to shopping centre, house to apartment building, vacant land to industry (tyre manufacturing) etc.)*

Decommissioned Power Station land to State Tennis Centre, residential units, road and park.

6. Number of employees: Unknown

7. Operating days and hours: Refer to application reports.

Associated building works details *(if applicable)*

For the definition of "site cover", "gross floor area" and "storey" go to the planning scheme against which the application will be assessed.

8. Site cover: Refer to application reports.

9. Gross floor area: 90,472m2

10. Number of on-site car parking spaces: Refer to application reports.

11. Number of storeys / maximum height above natural ground: Various - refer to application reports.

12. Number of employees Unknown.

13. Hours and days the use will operate Refer to application reports.

Associated operational works details *(if applicable)*

14. Details of associated operational works *(eg. landscaping, cut and fill, drainage, road works etc.)*

Application includes operational works - disturbance to marine plants. Landscaping, roadworks, provision of services, drainage works and tidal works subject to future operational works applications.

PLEASE NOTE

This application **cannot** be accepted unless accompanied by Part A of Form 1.

The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information requested by Part A and any other relevant part of Form 1.

INTEGRATED PLANNING ACT 1997

OFFICE USE ONLY *(applicable to assessment manager)*

DATE RECEIVED		REFERENCE NUMBER/S	

1,2,3,4,5.

DES/USE/HOS-933802.
X.REF MG650/27 MG790(68)

INTEGRATED PLANNING ACT 1997

Part A, Version 2.2, 25 July 2005

Form 1 Development Application

idas

INFORMATION MANAGEMENT
ATTACH No. DA 05 /183038.

Common details

The completion of **all applicable questions** on Part A is **mandatory** for all applications. Part A must be accompanied by the completed IDAS Assessment Checklist if required, and by one (1) or more other completed parts of the Form as required. For more information on the parts of the Form refer to www.ipa.qld.gov.au.
Any information requested in the form may be provided in an attachment to the application. For further information about completing the following details, refer to Guide 1.

Description of land

All land the subject of the application, must be identified. However, a description of the land is not required in relation to a mobile or temporary Environmentally Relevant Activity (ERA).

Advice for completing Q2 - Q2 applies if development is proposed within a water body or watercourse.

Advice for completing Q3 - Most land can be identified by a lot on plan description. These details can be obtained from title documents or through the local government.

However, if the land on which the development is proposed does *not* have a lot on plan description *(i.e. the development is proposed in a water body or watercourse)* provide –

(i) the lot on plan description for the adjoining/adjacent land; or
(ii) GPS coordinates where there is no adjoining/adjacent land *(eg. in Moreton Bay)*.

Advice for completing Q7 - Q7 does *not* apply if the development is within a water body or watercourse.

Advice for completing Q8 - Q8 applies if development is within a local government area.

Note: Areas below high water mark are not within a local government's area unless provided for under the Local Government Act 1993.

Advice for completing Q9 - Q9 applies if development is on strategic port land or a strategic port land tidal area. For more details refer to Guide 11

1. Street address: *(including house number, street name, suburb/locality name & postcode) (if applicable)*
   21 Softstone Street, Tennyson, QLD 4105
2. Name of water body or watercourse, within which the development is proposed: *(if applicable)*
   N/A
3. Lot on plan description *(eg. Lot 123 on RP 4567)* / GPS coordinates:
   Lot 1 on SP 164685 and part of Lot 566 on SP104107
4. The above description is for: *(tick applicable box)*
   - ☒ (i) the land on which the development is proposed; or
   - ☐ (ii) the land adjoining the water body or watercourse, within which the development is proposed; or
   - ☐ (iii) the water body or watercourse.
5. Shop / tenancy number: N?A
6. Storey / level: various
7. Total area of land: *(m² of ha)*: 11.9042 ha
8. Local government area in which the land is situated: *(eg. Esk, Hervey Bay, Woocoo etc.) (if applicable)*
   Brisbane City
9. Port authority for the strategic port land or strategic port land tidal area on which the development is proposed *(eg. Port of Brisbane, Port of Townsville) (if applicable)*
   N/A

Proposal details

If there is insufficient room available, details may be provided in an attachment to the application.

10. Existing use of the land: *(eg. vacant, single house, shop etc.)*
    Former Tennyson Power Station
11. Proposed use of the land: *(eg. 6 unit apartment building, 30 lot residential subdivision, ERA for aquaculture in ponds with a total area of 7 ha for which wastes are released into waters etc).*
    State Tennis Centre consisting of centre court stadium, 22 tennis courts and associated facilitites; 385 residential apartments in six buildings and residents' gymnasium and recreation building to be developed in stages; centre activities(200 m2 gross floor area of shop/café/restaurant/office) and proposed riverside park comprising 1.8 hectares.

Other applicable parts of Form 1

Part A must **always** be accompanied by other completed parts of Form 1. For information about when a part of Form 1 may apply refer to Guide 1.

12. Other parts of Form 1 completed as part of this application: *(eg. Part D, Part I, etc)*
    Part D, Part N, Part O2, Attachment 2 and referral checklist

Applicant details

Clearly identify who is making the application. The applicant need *not* be the owner of the land.

When signing and lodging this application

The applicant is responsible for ensuring the information provided is correct. The assessment manager, any referral agency & the Chief Executive *(where applicable)* will rely on this information when assessing and deciding the application.

If the applicant is a company - a contact person must be shown.

13. Applicant's name:
    Mirvac QueenslandLtd,
    c/-Brannock & Associates,
    Planning and Environment Consultants
14. Contact number: [redacted]
15. Contact person: [redacted]
16. Facsimile number/e-mail address: [redacted]
17. Postal address:
    GPO Box 552, Brisbane Qld 4001

Project No.: 11507
Application No.: 933802

	Yes	No
View Draft Conditions online? [redacted]	☑	☐
Email provided?	☑	☐

18. Signature: [redacted]

19. Date 16/11/2005

Land owner's consent *(if applicable)*

Section 3.2.1(10)(a) of the IPA prescribes that an application **cannot** be taken to be properly made without the land owner's consent.

An application **must** be supported by the consent of **all** land owner if the application involves:

(i) a material change of use;
(ii) reconfiguration of a lot;
(iii) work on land below high-water mark & not within a canal as defined under the *Coastal Protection and Management Act 1995*;or
(iv) work on rail corridor land defined under the *Transport Infrastructure Act 1994*.

For a mobile or temporary ERA - landowner's consent is **not** required.

For more information refer to Guide 1.

20. Land owner's consent to the making of this application:

Name	Signature	Date
(i) See attached owners consent letter.		
(ii)		
(iii)		
(iv)		
(v)		

Resource entitlement *(if applicable)*

Section 3.2.1(10)(b) of the IPA prescribes that an application **cannot** be taken to be properly made without evidence of the resource entitlement.

Advice for completing Q22

Refer to schedule 10 of the *Integrated Planning Regulation 1998* that prescribes the nature of evidence required by the State in support of the lodging of this development application.

21. Does this application involve taking or interfering with *(other than interfering with quarry material on State coastal land under the Coastal Protection and Management Act 1995)* a State resource?

☒ NO - *go to Q24* ☐ YES - *go to Q22*

22. This application is required by regulation to be accompanied by evidence: *(tick applicable box)*

☐ (i) of the **allocation** of, or entitlement to, the resource – *attach evidence*
☐ (ii) the chief executive of the department administering the resource is satisfied the development **is consistent with an allocation** of, or entitlement to, the resource – *go to Q23*
☐ (iii) the chief executive of the department administering the resource is satisfied the development application **may proceed in the absence of an allocation** of, or entitlement to, the resource – *go to Q23*

Advice for completing Q23

The information in (i) – (v) is mandatory if evidence is required under Q22 (ii) or (iii) above.

The official stamp of the Department of Natural Resources and Mines is mandatory where the application involves taking or interfering with water or riverine quarry material under the *Water Act 2000*.

23. Evidence of the resource entitlement:

(i) Resource entitlement / authority details

(ii) Name of delegated officer

(iii) Position of delegated officer

(iv) Signature of delegated officer

(v) Date

(iv) Official stamp of the department administering the resource *(if applicable)*

Assessment triggers

This checklist does **not** apply if the application requires the completion of Parts A and B of the Form **only**. It must be completed for all other applications.

24. Is the IDAS Assessment Checklist completed and attached to this application?

☐ YES ☐ NO – *the assessment manager may refuse to accept this application on the grounds that the application has not been properly made*

Plans / drawings / reports

An application should be accompanied by details to support the proposal & enable the assessment manager, referral agencies and any person viewing the application during public scrutiny or public notification to understand the scope of the proposal and any potential impact.

25. Plans/drawings/reports accompanying this application:

Plan / Drawing / Report Number	Title	Date
(i) Volume 1 Report	Project Overview	Nov 2005
(ii) Volume 2 Report	Impact Assessment Report	Nov 2005
(iii) Volume 3 Report	Design Report	Nov 2005
(iv) Volume 4 Report	Transport and Traffic	Nov 2005
(v) Volume 5 Report	Engineering and Services	Nov 2005
(vi) Volume 6 Report	Flooding and Stormwater	Nov 2005
(vii) Volume 7 Report	Quality	Nov 2005
(viii) A3 Architectural Plans	Ecological Assessment	Nov 2005

PLEASE NOTE: The assessment manager may refuse to accept an application that, at the time of lodgement, fails to provide all applicable information required by Part A and any other relevant part of Form 1.

OFFICE USE ONLY *(applicable to assessment manager's)*

FEE ($)	DATE RECEIVED		RECEIVING OFFICER'S NAME/S		REFERENCE NUMBER/S	

Notification of Engagement of Private Certifier *(Optional format)*

To_____ Council. I have been engaged as the private certifier for the building work referred to in this application.

Date of engagement: / / Accreditation Number:_____ Name:_____ Signature: _____

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1.1 Introduction

In June 2005 Mirvac was announced by the Queensland State Government as the preferred developer of the proposed State Tennis Centre and associated residential development on the former Tennyson Power Station site.

Mirvac is required to develop and construct the State Tennis Centre in accordance with the State Government's detailed and prescriptive brief by December 2008.

The proposal will necessitate the demolition of the former Tennyson Powerhouse building which exists on the site together with remediation of the site. These works are defined as 'early works' under Mirvac's contractual obligations to the State and will be carried out by Mirvac as a contractor on behalf of the State.

1.2 The Tennyson Riverside Development Site

At the time of lodgement it is anticipated that a reserve for sport and recreational purposes will have been granted to the Department of Local Government, Planning, Sport and Recreation over the subject site.

The real property description of the reserve is:

Lot 1 on SP 164685

County Stanley

Parish Yeerongpilly

Title Reference: 49104467.

It is expected that the following easements will be registered on the reserve at the time of application:

Queensland Electricity Transmission Corporation Limited (Powerlink)

- Easement B on SP 184023 benefiting Lot 2 on SP164685 for electricity and access purposes

Energex Limited

- Easement A on SP184022 for electricity purposes
- Easement B on SP184023 for electricity purposes
- Easement C on SP184024 for electricity purposes

Lot 566 on SP 104107, which accommodates the Department of Primary Industries and Fisheries Animal Research Institute (DPI&F site), is included in the subject application only for the purposes of the following components of the development:

- The main access road to the proposed development from Fairfield Road;
- The pedestrian/cycleway which connects the proposed main access road to the foreshore area of the subject site;
- The pedestrian pathway connecting the main access road to the proposed overbridge to Yeerongpilly Railway Station at the Fairfield Road frontage of the site;
- Carparking associated with the State Tennis Centre; and
- Visitor carparking. (Under the agreement between the State and Mirvac, an easement for public purposes in favour of Council is required to be registered over this area.)

Other than an amended access arrangement to the Institute, no changes to the Institute's activities are proposed as part of this application.

The site has an area of 11.9042 hectares and a frontage to the Brisbane River of approximately 550 metres.

The site is bounded by the Brisbane River to the north, Softstone Street and the eastern end of King Arthur Drive to the west, the Corinda Yeerongpilly Rail corridor and Tennyson Memorial Avenue to the south and the DPI&F site and Fairfield Road to the east.

An electricity substation exists on adjoining lot 2 SP 164658 which is located between the proposed tennis stadium and Tennyson Memorial Avenue. Access to this is provided from Softstone Street over lot 3. The site also contains significant underground electrical cables which run between the substation and the north eastern corner of the site and along the southern and western site boundaries.

1.3 The Proposal

The design philosophy behind the proposed development of the site is that of a tennis centre and residential community in a sub-tropical landscaped setting. The development of the site has been required to meet the specific requirements of the State's brief in addition to addressing the typical requirements of a development site. The Masterplan responds to the constraints of the site and utilises it's characteristics to provide a highly functional sporting facility, a multi-unit residential development with a high level of amenity, and a public riverside park facility for the benefit of the broader community. The design of the development aims to minimise impacts on the amenity of nearby residential neighbourhoods and mitigate the impacts of other surrounding non-residential uses on the development itself.

The overall development will be serviced by a tree lined access road which links Fairfield Road and Softstone Street with the principal access being from Fairfield Road. This road will be dedicated as a public road.

The development has been designed to provide vistas to the river from the centre court and from vantage points along the proposed access road. A linear park along the river frontage of the site will be dedicated as a public park. A combined pedestrian/cycle thoroughfare will be provided along the river frontage linking King Arthur Terrace and the main access road that joins Fairfield Road. This will also link up to the plaza area in front of the State Tennis Centre. It is intended that the riverside pathway will be used by recreational cyclists only, with speed cyclists using the generous road carriageway through the site.

1.3.1 The State Tennis Centre

The proposed development includes the establishment of an international standard tennis centre that will be capable of hosting major tennis events. It will be the only state tennis facility in Australia featuring all three grand slam surfaces.

The State Tennis Centre will have a centre court stadium, 16 hard courts, two grass courts and four clay courts. All courts are orientated on a north-south axis within 10 degrees due west of magnetic north.

The centre court will seat 7,000 spectators comprising 5,500 permanent seats and 1,500 temporary seats, and will be designed to convert to grass and clay surface as required. Two show courts to the west of centre court are designed to accommodate 300 spectators each.

Accessibility and security have been integral elements of the design of the State Tennis Centre. The Centre will be designed and constructed to be accessible to all people, including those with disabilities. The Centre will also be designed specifically to address the needs of wheel chair tennis players and to accommodate disabled spectators.

Tennis Queensland's headquarters will be based at the State Tennis Centre. Their facilities will be located in a glass pavilion within the centre court structure. The pavilion offers views to the river and creates an entry statement to the Centre.

The State Tennis Centre includes a Venue Management Facility that located to the west of the centre court. It will be a purpose built facility intended to serve the day to day operations of managing the tennis courts as a going concern by an independent operator. Located on the main access road, it the venue management facility will serve as a point of arrival for members of the public hiring and using the court facilities. A tennis pro-shop and café facilities will be located within the venue management facility.

16 courts are located to the west of the centre court stadium. All courts will be available for every-day use and will be managed by a commercial operator. It is anticipated that the everyday hire of courts together with coaching and local club competitions will comprise the typical use of the Tennis Centre for the majority of the time. Whilst it is envisaged that Tennis Queensland will be actively seeking to attract larger tournaments, such events will occur on an infrequent basis.

Tennis court lighting will be designed to national and international standards and in accordance with AS 2560.2.1 – 2003 and Tennis Australia Technical Instruction – Lighting for outdoor tennis. Light spill will be minimised as it represents wasted energy, affects the flight paths of insects and birds, and potentially impacts on the amenity of surrounding residences. Lighting will comply with Australian Standard 4282 as required by the City Plan Light Nuisance Code.

1.3.2 The Residential Development

The residential component of the development comprises 385 residential apartments in six buildings that are stepped ranging from 4 to 10 stories. The power house building has a height of RL45.52m to the top of the hoppers and all buildings within the development will be below this height.

The residential buildings have been positioned to take advantage of the northerly aspect and the riverside location. Breaks in the buildings provide vistas and linkages to the river. The design of the proposed residential buildings draws reference from the

existing power station building producing a tripartide building language comprising a base, middle and top with strong vertical elements passing though each element.

A residents' gymnasium and recreation facility is proposed within a building to be located adjacent to Softstone Street. This facility will be within common property of the residential community title scheme. It represents an ancillary residential building and will be for use of the residents only.

1.3.3 The Public Riverside Park

The proposed riverside park extends some 550 metres along the Brisbane River foreshore and will comprise an area of approximately 1.8 hectares. Existing riparian vegetation will be retained wherever possible. However, removal of some mangroves will be necessary to facilitate infrastructure and stabilisation work.

The Design Report in Volume 3 prepared by HPA Architects and EDAW Gillespies details the proposed design approach to the riverside park as well as the other landscape elements within the development.

Centrally located along the riverside park will be a large open area. This is aligned with the proposed park connection up to the plaza area and State Tennis Centre. This occurs between buildings C and D. Each of these two buildings is proposed to contain a café or commercial tenancy of 100m2 floor area at ground level to activate this space and enhance the function of this space as a riverside public gathering node.

All existing buildings within the proposed riverside park will be demolished with the exception of the eastern most pump house. Consideration will be given to future uses of the building.

Careful attention will be given to the delineation between areas of public and private ownership along the riverside area of the development. Of particular concern is the need to incorporate CPTED principles, including public surveillance and graffiti prevention in the building and landscape design.

1.3.4 Proposed Staging and Titling

The following tenure arrangements are proposed for the site.

The site will be contained within a reserve and it is understood that the site will be subdivided by DNRM under the *Land Act* to create freehold lots for the State Tennis Centre and the Residential development.

The main access road is proposed to be dedicated as public road reserve following construction and completion of the State Tennis Centre. Temporary closure arrangements for large tennis events will be the responsibility of the event organiser.

The residential development will be subdivided progressively by Mirvac as part of a community title scheme. The residents'gymnasium and recreation building located on the southern side of the proposed boulevard will form part of this community tilte scheme.

Public river park – this will be progressively dedicated to the crown in conjunction with the staged completion of the residential stages and adjacent pedestrian/cycle path and park embellishments.

1.4 Overview of the Application

In addition to the completed IDAS forms, the application material comprises seven volumes of information as follows:

Volume 1	**Project Overview**	
Volume 2	**Impact Assessment Report:**	Town Planning Analysis
		Construction Management
		Site Contamination Strategy
		Preliminary Ecologically Sustainable Development Report
		Noise Impact Assessment
		Community Consultation
		State Coastal Plan
Volume 3	**Design Report:**	Urban Design
		Landscape Design
		State Tennis Centre Concept
		Residential Built Form
Volume 4	**Transport and Traffic Report**	
Volume 5	**Engineering Services Report**	
Volume 6	**Flooding and Stormwater Quality Management**	
Volume 7	**Ecological Assessment:**	(includes Marine Plants Disturbance Report)

An **A3 set of Architectural Plans** including the Tennyson Riverside Masterplan also accompanies the application.

This application seeks approval of the Tennyson Riverside Development which comprises an international standard State Tennis Centre together with 385 residential units to be contained within six multi-unit dwellings. Development will occur in accordance with the Tennyson Riverside Development Masterplan. Approval of this Masterplan is sought by this application as part of a Preliminary Approval overriding the planning scheme.

Three of the proposed residential buildings have been designed to a level that would enable a Development Permit for a Material Change of Use to be issued. Similarly, the detailed design of the State Tennis Centre has progressed to a level appropriate for a Development Permit to be issued. The remainder of the residential development has not been subject to detailed design. Therefore, the application seeks approval of the Tennyson Riverside Development Code as part of the Preliminary Approval covering the site to provide design criteria against which any future application for a Development Permit would be assessed against. A Level of Assessment and Applicable Codes Table has also been prepared which nominates appropriate levels of assessment for future Development Permits for Material Change of Use and Reconfiguring a Lot applications.

Based on the above, this subject application seeks approval of the following components:

- Preliminary Approval – for a Material Change of Use overriding the planning scheme for development of the subject site generally in accordance with:
  - The Tennyson Riverside Development Master Plan (Drawing No.00-DA0001) and Building Envelope Plans (refer HPA Architectural Plans);
  - The Tennyson Riverside Development Level of Assessment and Applicable Codes Table provided in Appendix E to Volume 2; and
  - The Tennyson Riverside Development Supplementary Residential Provisions provided in Appendix F to Volume 2.
- Development Permit - for a Material Change of Use for a State Tennis Centre (Outdoor sport and Recreation) and associated facilities including administration offices, conference facilities, café and outdoor lighting.

- Development Permit for a Material Change of Use for Multi-unit dwellings (including residents'gymnasium and recreation building), Park and Centre Activities (café/restaurant shop or office use to a maximum gross floor area of 200m2).
- Development Permit for Operational Works for the Disturbance of Marine Plants. The inclusion of this application is triggered by section 3.2.2A of *IPA*.

The Tennyson Riverside Development Master Plan Drawing No.00-DA0001shows the proposed layout for the overall site. It sets the principles and is the guiding document for future development of each component of the development. Approval of the Landscape Masterplan provided in Volume 3 is also proposed to support the Masterplan.

The Level of Assessment and Applicable Codes Table specifies the level of assessment and the applicable City Plan Codes that are to be used in assessing future development permits lodged for development in accordance with the Preliminary Approval. It is anticipated that this Table will be approved as part of the Preliminary Approval.

The Tennyson Riverside Development Supplementary Residential Provisions detail supplementary Performance Criteria and Acceptable Solutions to the Residential Design-High Density Code against which future applications for Development Permits are to be assessed. These provisions reflect the Masterplan, the design intent for the development and the characteristics of the site.

The application triggers referral coordination and triggers the following referral agencies:

- EPA (Coastal Management) Concurrence agency
- EPA (Contamination) Concurrence Agency
- DPI&F(Disturbance to Marine Plants) Concurrence Agency
- Queensland Transport Concurrence Agency
- The Chief Executive of the entity under the Electricity Act 1994 (Energex) Advice agency.

The majority of the uses included in the application are Impact Assessable – Generally Inappropriate. This means that the application will follow the Impact Assessment IDAS process and will be publicly notified for 30 business days.

1.5 Town Planning Analysis

1.5.1 State Planning Policies

An assessment against all applicable State Planning Policies is contained in Volume 2. This assessment demonstrates that the proposed Tennyson Riverside Development is generally consistent with these Policies.

1.5.2 City Plan Provisions

A detailed assessment against the relevant provisions of the Strategic Plan, The Stephens District Local Plan and the Impact Assessment Generally Inappropriate provisions of the Brisbane City Plan 2000 is provided in Volume 2 of this application.

Under the City Plan Lot 1 has an Area Classification of Community Use Area CU8 – Utility Installation and the area adjacent to the river that was formerly road reserve is within the Road Area. The level of assessment for any development in Road Area is the same as for the land immediately adjoining. The area of Lot 556 on SP104107 (DPI&F site) affected by this application also has an Area Classification of Community Use Area CU8- Utility Installation.

1.5.3 City Plan Codes and Policies

Given that uses proposed in the application are generally Impact Assessable – Generally Inappropriate in the Area Classifications affecting the site, the City Plan does not prescribe applicable Codes to be assessed in this application. Notwithstanding this, a range of primary and secondary codes considered relevant to the proposal have been considered and addressed.

A summary of the City Plan Codes addressed and a reference to where they are included in this application is provided below.

CODES AND POLICIES	REPORT REFERENCE
Residential Design–High Density Code	Volume 2 – Impact Assessment Report -Town Planning Assessment – Appendix G
Supplementary Residential Provisions	Volume 2 – Impact Assessment Report -Town Planning Assessment – Appendix F
Outdoor Sport and Recreation Code	Volume 2 – Impact Assessment Report -Town Planning Assessment – Appendix H
Biodiversity Code	Volume 7 – Ecological Assessment Report – Appendix D
Energy Efficiency Code	Volume 2 – Impact Assessment Report – Preliminary ESD Assessment Report – Appendix D
Filling and Excavation Code	Volume 5 – Engineering Services Report – Appendix E
Landscape Code	Volume 3 – Design Report
Light Nuisance Code	Volume 2 – Impact Assessment Report – Lighting Impact Assessment – Appendix J
Industrial Areas – Adjacent Development Code	Volume 2 – Impact Assessment Report -Town Planning Assessment – Appendix I
Non-discriminatory Access Code	Volume 2 – Impact Assessment Report – Town Planning Assessment - Appendix K and Volume 3 - Design Report
Park Code	Volume 3 – Design Report
Services, Works and Infrastructure Code	Volume 5 – Engineering Services Report – Appendix D
Stormwater Management Code	Volume 6 – Flooding and Stormwater Quality Management Report – Appendix B
Transport, Access, Parking and Servicing Code	Volume 4 – Transport and Traffic Report
Waterways Code	Volume 2 – Impact Assessment Report – (setback requirements) and

	Volume 7 – Ecological Assessment Report – Appendix D
Wetland Code	Volume 7 – Ecological Assessment Report – Appendix D
Consultation Planning Scheme Policy	Volume 2 – Impact Assessment Report – Appendix M
Crime Prevention Through Environmental Design Planning Scheme Policy	Volume 3 – Design Report
Noise Impact Assessment Planning Assessment Policy	Volume 2 – Impact Assessment Report – Appendix L
Natural Assets Local Law 2003	Volume 7 – Ecological Assessment Report

1.5.4 Proposed Building Height

As part of the masterplanning for the development, the appropriate height of development for this site was investigated. This was considered in the context of:

- The expectations of the brief given that Mirvac is required to deliver an international standard State Tennis Centre comprising a centre court stadium and 22 outdoor courts to the State;
- The nature and proximity of surrounding uses and potential amenity impacts;
- Vantage points to the site;
- Proximity to public transport facilitites;
- Height and scale of the existing power station building; and
- Ability to dedicate the river foreshore area of the site into public ownership.

Having regard to these factors, it was considered that the height of the existing building was a good reference point for future development given that this building has existed in the landscape since the 1950s.

In relation to potential overshadowing of neighbouring properties, the site is of sufficient size to accommodate buildings of ten stories without causing adverse impact.

Given that the site is located on the outside bend of the Brisbane River, building height and scale do not restrict the views or vistas of the Brisbane River for any neighbouring properties or public places.

Finally, the State Government's requirement to provide an international tennis centre on the site severely limits the available area for development and dictates a development of limited site cover and greater height.

It is also important to note that the site generally satisfies the stated Intent and Desired Environmental Outcomes for the High Density Residentail Area classification in that the site is close to City with very good access to public transport and facilities, is in a location with outstanding views to the Central City or Brisbane River, takes advantage of attractive views and aspects, has extensive quality private and public open space and has recreation areas and landscaping to soften the dominance of buildings and provide breathing spaces.

1.5.5 Proposed Riparian Setback

The City Plan Waterways Code requires that buildings, parking and servicing areas are setback 20m from the High Water Mark.

The Tennyson Riverside Development Masterplan has two of the six residential buildings located within this distance. The Masterplan has been developed in response to the State Government's brief to provide a Queensland State Tennis Centre and required infrastructure. The associated residential development is required to fund the provision of the facilities.

The six residential buildings along the waterfront are located in order to take advantage of river views, provide site lines and respond to site constraints. Individual building setbacks are as follows:

Building A- 30m-44m

Building B- 27.7m-32m

Building C- 35m-75m

Building D- 65m-80m

Building E- 10m-16m

Building F- 6m-19m.

The proposed buildings have been setback a variety of distances from the River as part of the Masterplan design. The majority of buildings are setback well outside of the 20m distance and the average setback distance from the buildings to the river is 37m.

Buildings E and F are located inside the 20m distance due to the constraints of the site in this area. An Energex easement containing high power electrical cables runs from the sub station along the eastern boundary of the site before turning east and into the ARI site. The buildings in this location directly abut against this easement boundary. The buildings cannot be located behind the easement as this is part of the ARI site.

Whilst components of the proposed development are witin 20 metres of the river due to prevailing site constraints, this application demonstrates that the objectives of the riparian setback can be achieved in terms of water quality, biodiversity values, visual amenity and public access.

The foreshore of this section of Brisbane River is largely colonised by mangroves with occasional native trees. This character will be retained following the completion of the development. The foreshore area of the site (1.8 hectares) will be dedicated into public ownership following rehabilitation works including the removal of existing weeds and the substantial amount of litter that has accumulated in this area.

Due to the location of the site on the outside bend of the River, river views from the surrounding properties will not be impacted upon. Similarly, views of the river from public vantage points will lot be restricted. Rather, the creation of the public park along the frontage of the site with access points back to the road will enhance public accessibility and views to the river.

1.6 Transport and Traffic

1.6.1 Access and Roadworks

A roundabout is proposed at the Softstone Street / King Arthur Terrace intersection to provide access from the west whilst a new signalised intersection is proposed on Fairfield Road (approximately 70m south of Ortive Street) to provide access from the east. An analysis of the performance of the intersections indicates that both will operate at an acceptable level of service and will provide safe and efficient access to the subject development. The access arrangements proposed to service the Tennyson Riverside Development can be effectively integrated with the external road network without creating any adverse impacts.

An internal road linking the site to Fairfield Road and Softstone Street will be treated with devices that will create a significant deterrent for non - local traffic to use the route as a "rat run" between King Arthur Terrace and Fairfield Road. It is intended that Ortive Street also be linked to the proposed internal road, allowing the intersection of Ortive Street and Fairfield Road to be terminated.

1.6.2 Car Parking

The proposed parking supply of 449 residential parking spaces (including 49 visitor spaces) for the 200 apartments for which a Development Permit is sought, and 163 spaces for the State Tennis Centre, satisfies Brisbane City Council's minimum parking requirement for both the uses proposed, even without including the on-street parking on the internal road system.

The car park design for both the residential development and the tennis centre comply with the minimum dimensions specified in the Traffic, Access, Parking and Servicing Policy.

1.6.3 Servicing

Refuse collection and furniture truck facilities provided in the development plan for the residential component are adequate to meet the access requirements for such vehicles. The servicing for the tennis centre will be distributed between the plaza area on the internal road adjacent to the State Tennis Centre and an area at the rear of the main stadium.

1.6.4 Transport Management Plan

An indicative Transport Management Plan has been prepared for a major event attracting a capacity crowd of 7000 at the State Tennis Centre. The indicative plan demonstrates that the existing transport infrastructure surrounding the site and the proposed internal road system, can accommodate the transport demands generated by such an event without compromising the amenity of local residents in terms of parking intrusion or traffic congestion in the surrounding area. The plan is focused on public transport as the prime mode of access for an event, with the Yeerongpilly Station the focus of the rail transport and a bus set down facility (capacity of 4 buses) on Softstone Street the focus of the bus transport. A pedestrian overpass on Fairfield Road is also proposed, linking Yeerongpilly Station to the internal pedestrian system to provide safe access from the station to the Tennyson Riverside Development.

The Transport and Traffic Report provided in Volume 4 of this application concludes that the proposed development will not create an adverse impact on the surrounding road network during both normal day to day operations, or during an event on the basis that a Transport Management Plan is implemented that focuses on public transport as the primary mode of transport to the event.

1.7 Noise Impacts

As part of the assessment of noise impacts, seven potential noise sources have been identified as requiring assessment in order to avoid noise problems. These are:

- Construction noise emissions onto nearby residences, including demolition of the existing building;
- Noise impacts from the stadium and tennis courts, including crowds, public address system, and tennis, onto both the existing neighbouring residences and the proposed residential site;
- Noise from mechanical plant installed as part of the tennis centre development onto both existing and proposed residences;
- Noise intrusion from nearby roads onto the proposed residential units;
- Noise from mechanical plant installed as part of the residential development onto the proposed residences and the existing residences; and
- Carpark noise emissions onto the proposed residences.

The Noise Impact Assessment Report provided as Appendix L to Volume 2 assesses each of these items and makes the following conclusions and recommendations:

- Construction hours should comply with the requirements of the Environmental Protection Act, and a construction noise management plan should be adopted for the site;
- Noise from the general daily activities of the proposed State Tennis Centre will generally comply with noise limits at the existing and proposed residences, however large scale events with a capacity crowd will exceed these limits;
- Building façade detailing for some noise affected dwellings withn the development will need to address noise impacts from the proposed State Tennis Centre;
- It is recommended that the Council accept that exceedances of the noise limits will occur for one or two events per year, where a capacity crowd is expected;
- Mechanical plant installed as part of the proposed State Tennis Centre or the residential units should be designed to meet 41dB(A)$L_{Amax\ adj\ T}$ during the nighttime period and 45dB(A) $L_{Amax\ Adj\ T}$ during the daytime period at the nearest noise sensitive receptors;
- The PA System should be designed to meet a limit of 50dB(A) $L_{Amax\ Adj\ T}$ at the nearest noise sensitive receptors.
- Carparking associated with both the proposed State Tennis Centre and the residential component complies with the Council limits and no further treatments are required; and
- Residential Building A will be exposed to road traffic noise levels of up to 65dB(A) $L_{A10(18\ hour)}$. To control the traffic noise intrusion to acceptable levels, the building façade will be required to address these impacts. At this stage, specific unit designs have not yet been completed for this building, therefore based on a worst case scenario, a glazing requirement of Rw 25 has been determined.

1.8 Flooding and Stormwater Quality Management

The proposed development is located on the banks and within a confined floodplain backwater area of the Brisbane River. The development also encroaches into the Brisbane River Corridor. Accordingly, the provisions of the Stormwater Management Code of the Brisbane City Plan are applicable.

BCC have estimated that the Wivenhoe Dam has reduced the 100 year ARI river flood at the site to 7.9m AHD and estimated the 1974 peak flood level to be 10.8m AHD.

The site grades from the River High Astronomical Tide (HAT) level of 1.8mAHD to levels generally in the order of 12.0 mAHD.

Portions of the site, together with portions of the abutting Lot 566 on SP 104107, which accommodates the Department of Primary Industries and Fisheries ARI site, form an 'off stream' ineffective-flow-area or backwater (the site floodplain) to the Brisbane River of approximately 7.5 ha.

Existing floodplain storage on the site for 100 year ARI floods is approximately 111,400 m^3.

The primary hydrologic and hydraulic functions of the Brisbane River that are potentially impacted due to development are:

- Floodplain storage; and
- Flood conveyance.

1.8.1 Brisbane River Floodplain Storage

In order to accommodate the proposed development and, at the same time meet the design requirements in respect of flood immunity, a combination of site filling and cut will be required. Such earthworks alter the pattern of flooding on the site and floodplain storage available on the site.

Analysis of the net effect of cut and fill on the site shows that a loss of floodplain storage of approximately 40000 m^3 will result on the site.

Analysis of total works on both the subject site and on DPI&F land shows that loss of floodplain storage will be approximately 36,000 m^3.

Such storage volume represents a minimal percentage of total available floodplain storage in this reach of the Brisbane River. Further, the minimal loss of floodplain storage (approximately 36,000 m^3) represents only 0.0015% of the total volume of a 100 year ARI flood (approximately 2.4 x 10^9 m^3 as taken from BCC supplied data) at this point in the River.

Accordingly, due to:

- Minimal loss of floodplain storage; and
- The relative 'disconnectedness' of the site floodplain from the River,

it is expected that the proposed development will have no measurable adverse impact upon flood afflux or peak flood flow rate due to loss of floodplain storage.

1.8.2 Brisbane River Flood Conveyance

The southern limit of the existing active flow area of the Brisbane River is largely confined by existing power plant structures and associated flood free fill areas fronting the River. These structures result in the boundary of active flow area having an alignment similar to that of the existing power station building.

The proposed development includes river frontage residential buildings and public open space. Four of the proposed buildings (Buildings A,B,C and D) do not encroach forward of the alignment of the existing power station building to the river, and will result in a widening of available active flow path of the River in the upstream portions (Buildings C and D).

Buildings E and F project forward of the alighnment of the power station building and into the fringe of the active flow path of the River. Loss of available active flow path at this location is approximately 5% and is located in a region of low velocity and disturbed flow.

Such reduction in active flow area where velocities are lowest (due to increased friction and various obstructions discussed above) is not expected to result in afflux that will cause worsening of flooding to upstream properties.

Further detailed hydraulic modelling using Council's Brisbane River Mike 11 model is currently being completed in order to quantify any afflux due to the proposed development layout.

1.8.3 Flood free access

Flood free access will be provided for the proposed residential buildings, the State Tennis Centre, entry to the DPI Animal Research Institute and for the alternative access to Ortive Street.

1.8.4 Stormwater Quality

The water quality treatment measures proposed for the Tennyson Riverside Development aim to treat the site stormwater three month ARI discharge to meet the Council's Water Quality Objectives (WQOs) requirements. All water quality and quantity requirements will be addressed internally to the development as no downstream treatment is available prior to the receiving environment. The stormwater runoff will be treated before entering the trunk stormwater network which will discharge directly into the Brisbane River.

For this development a distributed treatment philosophy is proposed, with gross pollutant traps and bioretention filters in the form of basins, landscaped gardens and kerb gardens. These devices will be incorporated throughout the development site.

Presently the bioretention locations are indicative only. The final layout will depend upon issues to be resolved during the detailed design stage.

Bioretention devices are proposed primarily due to their high total nitrogen removal efficiency. Proprietary style gross pollutant traps are proposed where bioretention devices are impractical, as they are effective at removing suspended solids.

Stormwater quality modelling demonstrates that the currently proposed biofiltration and gross pollutant trap combinations will meet Council's WQOs. Pollutant load reductions are also in the order of, or better than desirable industry standards.

1.9 Engineering Services

1.9.1 Stormwater

It is proposed to discharge all stormwater for the subject site directly to the Brisbane River utilising the existing outlets located within the site. Runoff from STC, the Residential Precinct and the road network will be collected and treated prior to discharge.

It is proposed to divert the existing 1050mm diameter Council stormwater pipe traversing the subject site. A new 1200mm diameter stormwater pipe will be provided through the subject site to cater for the upstream external catchment located to the south of the site and the existing drainage from the existing Electrical Substation for the local 10 year ARI storm event. This will achieve a 'non-worsening effect' on the existing upstream catchment as required by Council.

Two piped connections will be provided to service the STC with treatment of runoff occurring prior to discharging into the council owned infrastructure. The western portion of the STC site will be collected and discharged to the north directly to the Brisbane River via the 1200mm diameter pipe from the external catchment. The eastern portion will be collected and discharged to the existing drainage infrastructure that traverses the ARI site. Piped drainage within the STC will be designed to cater for a 20 year ARI in accordance with the State Government design brief.

Overland flow drainage generated on the western catchment of the STC site during major storm events will be collected by the road network and discharged overland to the Brisbane River via a designated overland flow path located between buildings C & D. The eastern catchment will flow into the natural depression located on the ARI site. Overland flow drainage within the STC will be designed to cater for a 50 year ARI in accordance with the State Government design brief.

Runoff from the carpark areas of the residential component of the development will be collected and treated prior to connection to the Council owned infrastructure and subsequently be discharged to the Brisbane River.

The runoff captured from building roof areas is considered as clean and will not be included in the treatment train. This will be discharged via existing outlets to the Brisbane River and one new pipe outlet. It is intended to construct the new pipe outlet near the existing jetty which is to be removed so as to minimise any disturbance of the river bank.

Stormwater runoff from the road network will be collected and treated prior to discharge to the Brisbane River. The piped system will collect and convey runoff up to and including a Q10 storm event. Overland flow drainage will be conveyed along the road network and the designated overland flow paths to the Brisbane River. The access road linking the site to Fairfield Road will drain towards the central median area. The median will be used for treatment of runoff prior to collection and discharge to the Brisbane River.

The Softstone Street access will be conventional two way cross fall with drainage pits along both sides of the carriageway. This runoff will be piped through a GPT and then outlet to a landscaped treatment area located to the north of Building C. For storm events above a Q3 month event, runoff will bypass the low flow outlet and discharge directly to the Brisbane River.

No detention is proposed for the site. The proposed development will result in no detrimental drainage effect on adjoining properties.

1.9.2 Sewer Reticulation

It is proposed to provide a Council standard gravity reticulation main, pump station and rising main to service both the STC and the residential component of the site. Construction of this infrastructure will be necessary to service both components of the development.

The site will gravitate to a new pump station located adjacent to the STC which will then discharge via a new rising main underneath the railway line and Tennyson Memorial Avenue to an existing 225mm diameter gravity sewer and eventually to the Moolabin Creek Branch Sewer.

Augmentation of the existing gravity pipe network will be necessary to cater for the development. This will consist of approximately 280m of new 300mm diameter gravity main within Allawah Street and Moolabin Crescent. It is proposed to credit these augmentation works to the existing external sewer mains against the sewer headworks contributions for the development.

1.9.3 Water Reticulation

It is proposed to provide a new Council water main along the length of the new access road. This will link the existing water mains located in Fairfield Road and Softstone Street. Connections for the STC and residential components will be provided from this new main as required. It is anticipated that the size of this main will be a 150 or 200mm diameter pipe subject to further detailed design. It is anticipated that no augmentation of existing external mains will be necessary.

The detailed assessment of engineering services for the Tennyson Riverside Development carried out by Lambert and Rehbein is provided in Volume 5 of this application. The report concludes that services are available or can be provided to adequately cater for the requirements of the proposed development.

1.10 Ecological Values

The area of greatest ecological significance on the Tennyson Riverside Development site is the riparian vegetation community that aligns the Brisbane River. This encompasses both the lower bank that is dominated by mangroves and the upper bank that is vegetated by canopy species including several large Forest Red Gums. It is noted however that this area is infested with exotic species and will benefit from rehabilitation as part of the development. The tidal area of the lower bank will also benefit from the removal of the extensive amount of rubbish that has accumulated.

The riparian vegetation is significant for the following reasons:

- the habitat it provides to fauna (including food resources, cover, protection and nesting / denning sites);
- the potential role it has as a wildlife movement corridor;
- the role it plays in riverbank stabilisation; and
- the role it plays in buffering pollutants before they enter the river.

All other areas on site are of relatively low ecological significance. Most of the land area has been cleared and features mown grasses that are of minimal value to fauna. The section of planted native trees on the DPI ARI site, at the proposed entry point for the access road, is of some value as a refuge to locally present wildlife and for provision of food resources.

The vegetation on site that is designated for protection under the BCC Natural Asset Local Law has also been assessed. It is considered that the not all of these designations are appropriate to the site, most notably the Waterway and Wetland Vegetation designated in the central area of the DPI ARI site and a small section of the eastern boundary of the Power Station site. The Significant Native Vegetation designation is most relevant to the riparian vegetation aligning the river. It may apply to the trees on the DPI ARI site, however it is noted that these trees have been planted and comprise species not native to the locality.

Overall, to preserve the ecological values of the site, Mirvac propose to preserve and enhance the riparian vegetation aligning the river to the greatest extent possible. Any losses of vegetation will be compensated for by landscaping using local, native species. It is also proposed that appropriate measures will be put in place to ensure water quality of the Brisbane River is not degraded by the development during the demolition, construction and operational phases.

1.11 Site Remediation and Demolition

As the existing power station building and associated structures are not subject of any heritage listings, approval for demolition is not required to be sought as part this application. It is anticipated that demolition will occur prior to determination of this application.

The site is listed on the EPA's Environmental Management Register (EMR). Preliminary assessments of the site in the past have identified contaminated material on the site. GHD has been engaged by Mirvac to carry out the works necessary to have the site removed from the EMR or a Suitability Statement to proceed with the proposed development. The proposed strategy for achieving this is outlined in Appendix C to Volume 2 of this application. It is envisaged that remediation works will occur in association with demolition works on the site.

1.12 Construction Management

A construction environmental management plan will be prepared to ensure construction activities are managed in a manner that minimises impacts on the amenity of the surrounding area including control of dust, noise and haulage routes, and that ensures environmental impacts such as erosion and sediment control, water quality and impacts on riparian vegetation are also managed. A complaints management process will also be incorporated in to the document.

1.13 Community Consultation

Mirvac has prepared a Community Consultation Strategy to address consultation and communication process for the Tennyson Riverside Development. This strategy has been developed by Mirvac with input from the Department of Local Government, Planning, Sport & Recreation and sets out the way forward for consultation for the development of the site. The consultation process will be implemented by Mirvac and Promedia, Mirvac's consultation consultants.

An overview of the community consultation carried out to date and the proposed process from here on is outlined in a report provided as Appendix M to volume 2 of this application. This report addresses the principles of the City Plan Consultation Planning Scheme Policy.

1.14 Conclusion

The proposed development represents the outcomes of a detailed and lengthy masterplanning process based on an analysis of the site's constraints and opportunitites and in response to the specific requirements of the State Government's brief.

In addition to proposing a high quality development outcome, Tennyson Riverside Development will offer the following community benefits:

- The delivery of an international standard State Tennis Centre and headquarters for Tennis Queensland. It is proposed that the tennis courts will be available for hire and use on an everyday basis.
- Dedication to the public of a 1.8 hectare riverside park providing public access to 550 metres of the Brisbane River foreshore. The existing semi-natural state of the river foreshore will be retained with the retention of most mangroves and trees except where requiring removal for infrastructure such as stormwater outlets and construction of the public boardwalk. Rehabilitation of the riparian zone by removal of existing weeds and the substantial amount of litter will also benefit the ecological values of this area.
- An important pedestrian/cycle linkage in the regional network between King Arthur Terrace and Ortive Street/Fairfield Road.
- A significant improvement to pedestrian access to Yeerongpilly Railway Station for residents and workers west of Fairfield Road with the construction of an overbridge, including a lift, across Fairfield Road. Access to this overbridge will be provided through the site by way of a 4 metre wide footpath within the proposed tree lined boulevard road linking King Arthur Terrace and Fairfield Road.

In conclusion, the Tennyson Riverside Development proposal is the result of a comprehensive masterplanning process and is proffered as a high quality development outcome for the site.

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2.1 Introduction

2.1.1 Background

In June 2005 Mirvac was announced by the Queensland State Government (the State) as the preferred developer of the proposed State Tennis Centre and associated residential development at Tennyson following a lengthy bid process coordinated by Sport and Recreation Queensland.

Mirvac is required to develop and construct the State Tennis Centre in accordance with the State Government's detailed and prescriptive brief by December 2008.

The proposal will necessitate the demolition of the former Tennyson Powerhouse building which exists on the site together with remediation of the site. These works are defined as 'early works' under Mirvac's contractual obligations to the State and will be carried out by Mirvac as a contractor on behalf of the State.

Given that the existing powerhouse building is not listed as a Heritage Place under the Brisbane City Plan or the Queensland Heritage Act, demolition of the building does not require assessment as part of this application. Notwithstanding this, Mirvac will carry out the required works in compliance with relevant legislative requirements applicable to the demolition and remediation works.

2.1.2 The Site

At the time of lodgement it is anticipated that a reserve for sport and recreational purposes will have been granted to the Department of Local Government, Planning, Sport and Recreation over the subject site.

The real property description of the reserve is:

Lot 1 on SP 164685

County Stanley

Parish Yeerongpilly

Title Reference: 49104467.

It is expected that the following easements will be registered on the reserve at the time of application:

Queensland Electricity Transmission Corporation Limited (Powerlink)

- Easement B on SP 184023 benefiting Lot 2 on SP164685 for electricity and access purposes

Energex Limited

- Easement A on SP184022 for electricity purposes
- Easement B on SP184023 for electricity purposes
- Easement C on SP184024 for electricity purposes

Lot 566 on SP 104107, which accommodates the Department of Primary Industries and Fisheries Animal Research Institute (DPI&F site), is included in the subject application only for the purposes of the following components of the development:

- The main access road to the proposed development from Fairfield Road;
- The pedestrian/cycleway which connects the proposed main access road to the foreshore area of the subject site;
- The pedestrian pathway connecting the main access road to the proposed overbridge to Yeerongpilly Railway Station at the Fairfield Road frontage of the site;
- Carparking associated with the State Tennis Centre; and

- Visitor carparking. (It is an agreement between the State and Mirvac that an easement for public purposes in favour of Council be registered over this area.)

Other than an amended access arrangement to the Institute, no changes to the Institute's activities are proposed as part of this application.

The site has an area of 11.9042 hectares and a frontage to the Brisbane River of approximately 550 metres.

The site is bounded by the Brisbane River to the north, Softstone Street and the eastern end of King Arthur Drive to the west, the Corinda Yeerongpilly Rail corridor and Tennyson Memorial Avenue to the south and the DPI&F site and Fairfield Road to the east.

The site upon which the State Tennis Centre and proposed residential development is to be developed currently contains the now decommissioned Tennyson Power Station and other ancillary buildings and structures. Survey plans accompanying this application show the footprint of the power station building and the other ancillary buildings and structures on the site.

An electricity substation exists on adjoining lot 2 SP 164658 which is located between the proposed tennis stadium and Tennyson Memorial Avenue. Access to this is provided from Softstone Street over lot 3. The site also contains significant underground electrical cables which run between the substation and the north eastern corner of the site and along the southern and western site boundaries.

A range of photos of the site and the surrounding area are provided at **Appendix A**.

2.1.3 The Locality

The Tennyson Power Station site sits within an area characterised by a mix of uses. As stated above, the DPI&F Animal Research Institutes adjoins the power station site and forms part of the development site. The buildings on this site are principally located adjacent to Fairfield Road. Vehicular access to the Institute is provided from Fairfield Road via Ortive Street.

A residential area exists to the north of DPI&F site. This includes a mix of houses and multi-unit dwellings which reflects its Low Medium Density area classification.

Fairfield Road and the Beenleigh rail corridor follow the eastern boundary of the DPI&F site. Yeerongpilly railway station is located directly to the east of the site.

Development on the eastern side of the rail corridor is generally residential with industrial uses further to the south.

South of the Tennyson Power Station site on the southern side of the Corinda Yeerongpilly railway corridor and Tennyson Memorial Avenue is the Brisbane Golf Club which is adjoined on both the western and eastern sides by pockets of industrial development. Further to the south west of this are the Moolabin Rail Yard and Brisbane Markets. The Tennyson Railway Station is located immediately west of the Softstone Street over-bridge.

Immediately to the west of the site is a Low Density Residential classified area which principally contains detached residences. Oxley Creek corridor is further to the east of this.

2.2 The Proposal

2.2.1 Tennyson Riverside Development

The design philosophy behind the proposed development of the site is that of a tennis centre and residential community in a sub-tropical landscaped setting. The development of the site has been required to meet the specific requirements of the State's brief in addition to addressing the typical requirements of a development site. The Master Plan responds to the constraints of the site and utilises it's characteristics to provide a highly functional sporting facility, a multi-unit residential development with a high level of amenity, and a public riverside park facility for the benefit of the broader community. The design of the development aims to minimise impacts on the amenity of nearby residential neighbourhoods and mitigate the impacts of other surrounding non-residential uses on the development itself.

The overall development will be serviced by a boulevard style access road which links Fairfield Road and Softstone Street with the principal access being from Fairfield Road. As detailed in the Transport and Traffic Report prepared by TTM and included in

Volume 4, appropriate speed design controls will be incorporated to prevent this road from being used as a 'rat-run' for through traffic. This road will be dedicated as a public road.

The development has been designed to provide vistas to the river from the centre court and from vantage points along the proposed access road. A linear park along the river frontage of the site will be dedicated as a public park. A combined pedestrian/cycle thoroughfare will be provided along the river frontage linking King Arthur Terrace and the main access road that joins Fairfield Road. This will also link up to the plaza area in front of the State Tennis Centre. It is intended that the riverside pathway will be used by recreational cyclists only, with speed cyclists using the generous road carriageway through the site.

The proposed public park area will link the State Tennis Centre and the river's edge and provide a generous and pleasant park node between buildings C and D.

2.2.2 The State Tennis Centre

The proposed development includes the establishment of an international standard tennis centre that will be capable of hosting major tennis events. It will be the only state tennis facility in Australia featuring all three grand slam surfaces.

The State Tennis Centre will have a centre court stadium, 16 hard courts, two grass courts and four clay courts. All courts are orientated on a north-south axis within 10 degrees due west of magnetic north.

The centre court will seat 7,000 spectators comprising 5,500 permanent seats and 1,500 temporary seats, and will be designed to convert to grass and clay surface as required. Two show courts to the west of centre court are designed to accommodate 300 spectators each.

Accessibility and security have been integral elements of the design of the State Tennis Centre. The Centre will be designed and constructed to be accessible to all people, including those with disabilities. The Centre will also be designed specifically to address the needs of wheel chair tennis players and to accommodate disabled spectators.

Particular attention has been given to the pedestrian and traffic flows around the State Tennis Centre, both during events and in an everyday situation. During events, the objective has been to minimise congestion and maximise segregation between different user groups.

The centre court will be countersunk into the plaza, creating a tennis theatre to maximise the atmospheric acoustics and enhance the spectator experience. This countersinking of the centre court also reduces the mass of the centre court structure.

Tennis Queensland's headquarters will be based at the State Tennis Centre. Their facilities will be located in a glass pavilion within the centre court structure. The pavilion offers views to the river and creates an entry statement to the Centre.

The State Tennis Centre includes a Venue Management Facility that located to the west of the centre court. It will be a purpose built facility intended to serve the day to day operations of managing the tennis courts as a going concern by an independent operator. Located on the main access road, it the venue management facility will serve as a point of arrival for members of the public hiring and using the court facilities. A tennis pro-shop and café facilities will be located within the venue management facility.

16 courts are located to the west of the centre court stadium. All courts will be available for every-day use and will be managed by a commercial operator. It is anticipated that the everyday hire of courts together with coaching and local club competitions will comprise the typical use of the Tennis Centre for the majority of the time. Whilst it is envisaged that Tennis Queensland will be actively seeking to attract larger tournaments, such events will occur on an infrequent basis.

Tennis court lighting will be designed to national and international standards and in accordance with AS 2560.2.1 – 2003 and Tennis Australia Technical Instruction – Lighting for outdoor tennis. Light spill will be minimised as it represents wasted energy, affects the flight paths of insects and birds, and potentially impacts on the amenity of surrounding residences. Lighting will comply with Australian Standard 4282 as required by the Light Nuisance Code.

2.2.3 The Residential Development

The residential component of the development comprises 385 residential apartments in six buildings that are stepped ranging from 4 to 10 stories. The power house building has a height of 45.52m to the top of the hoppers and all buildings within the development will be below this height.

The residential buildings have been positioned to take advantage of the northerly aspect and the riverside location. Breaks in the buildings provide vistas and linkages to the river. The design of the proposed residential buildings draws reference from the existing power station building producing a tripartide building language comprising a base, middle and top with strong vertical elements passing though each element.

A residents' gymnasium and recreation facility is proposed within a building to be located adjacent to Softstone Street. This facility will be within common property of the residential community title scheme. It represents an ancillary residential building and will be for use of the residents only.

2.2.4 The Public Riverside Park

The proposed riverside park extends along the 550 metre river frontage of the site and will comprise an area of approximately 1.8 hectares. Existing riparian vegetation will be retained wherever possible. However, removal of some mangroves will be necessary to facilitate infrastructure and stabilisation work. This issue is addressed further in Lambert and Rehbein's Ecological Assessment Report.

The Design Report prepared by HPA Architects and EDAW Gillespies details the proposed design approach to the riverside park as well as the other landscape elements within the development.

In summary, the design of the riverside park draws references from the site's past uses and will contain areas of varying levels. Within the park, riparian tree species will be planted in open grassed areas, with swathes of native grasses on the sculptural landforms.

The riverside park includes a lookout and active node area at the western end. This area is accessible to Softstone Street and King Arthur Terrace. The pedestrian/cycle ramp at this end of the park will be graded and designed to achieve equitable access between the park and the adjacent road reserve.

Centrally located along the riverside park will be a large open area. This is aligned with the proposed park connection up to the plaza area and State Tennis Centre. This occurs between buildings C and D. Each of these two buildings is proposed to contain a café or commercial tenancy of 100m2 floor area at ground level to activate this space and enhance the function of this space as a riverside public gathering node.

All existing buildings within the proposed riverside park will be demolished with the exception of the eastern most pump house. Consideration will be given to future uses of the building.

Careful attention will be given to the delineation between areas of public and private ownership along the riverside area of the development. Of particular concern is the need to incorporate CPTED principles, including public surveillance and graffiti prevention in the building and landscape design.

2.2.5 Access, Parking and Servicing Arrangements

Access to the site from Fairfield Road will be provided as a signalised intersection located approximately 70 metres south of Ortive Street. It is proposed that the existing signalised intersection at Ortive Street will be closed and converted to a cul-de-sac with Ortive Street residents accessing Fairfield Road via the new intersection.

Access to the site from Softstone Street and King Arthur Terrace will be via a proposed roundabout. A roundabout at this location is considered the best form of control as it provides safe and efficient access to the site, particularly for right turn movements, and will control traffic speeds around the bend.

A four metre wide pedestrian pathway will be provided within the internal access road along the southern side of the carriageways for the length of the site.

As discussed in TTM's Transport and Traffic Report, the internal access road will be designed to discourage rat-running between King Arthur Terrace and Fairfield Road. This will involve construction of a raised plaza area at the entry to the State Tennis Centre that will also provide a focal point within the development and provide visual and physical linkages down to the riverside park. The access road will also contain traffic management devices to reduce convenience of through access.

As highlighted above, the site has good access to public transport being located within close proximity to both Tennyson and Yeerongpilly Railway Stations, with the latter providing regular services to the City and to the south, being on the Beenleigh Line. Both Fairfield Road and Tennyson Memorial Avenue are bus routes with bus stops existing in Softstone Street adjacent to the proposed entry to the site and in Fairfield Road near Ortive Street. The Sofstone Street bus stop will be upgraded in association with the development of the State Tennis Centre.

The TTM Transport and Traffic Report includes an indicative Transport Management Plan which details proposed access arrangements for the State Tennis Centre for various modes of operation from everyday use through to a capacity event such as a Davis Cup tie.

Carparking and servicing areas for the State Tennis Centre are provided in the south-eastern part of the site. 163 spaces are proposed for the State Tennis Centre use. These will be limited to VIP usage during larger events. However, they will be available to visitors to the Centre on a day to day basis. Onstreet spaces along the internal access road will also be available to users of the riverside park, the proposed cafes, and the State Tennis Centre on a day to day basis. No public parking will be available onsite for large events. Implementation of a Traffic Management Strategy during these events will concentrate on public transport with a temporary resident parking scheme implemented at such times.

Carparking will be provided the proposed residential buildings within sub-terrain basements with visitor parking also provided at grade between the buildings and the access road.

2.2.6 Works External to the Site

As part of the competitive bid process, the following external works were identified as being required as part of the Tennyson Riverside Development. These works include:

- The provision of an upgraded bus stop and shelter in Softstone Street with sufficient queuing space for four buses at any one time;
- The connection of the proposed riverside pedestrian/cycle path from the site to the proposed roundabout at the Softstone Street and King Arthur Terrace intersection;
- The construction of the pedestrian/cycle path from the site through the DPI&F site via the main access road to Ortive Street and Fairfield Road reserve;
- Construction of a pedestrian path from the proposed overbridge north along Fairfield Road to the entrance to the site;
- Construction of a roundabout at the junction of King Arthur Terrace and Softstone Street;
- Constuction of the cul-de-sac closing Ortive Street;
- A new signalised intersection, including road widening on Fairfield Road, as required, to provide access to the new access road;
- Removal of the existing signals from the Ortive Street and Fairfield Road intersection; and
- Construct external sewage works as required.

These works will be carried out by Mirvac as part of the proposed development.

- The construction of a proposed lift and over-bridge across Fairfield Road to Yeerongpilly Railway Station.

These works will be carried out by Queensland Rail. Mirvac's obligation towards such works is the payment of a monetary contribution.

2.2.7 Proposed Staging and Titling

The following tenure arrangements are proposed for the site.

The site will be contained within a reserve and it is understood that the site will be subdivided by NRM under the *Land Act* to create freehold lots for the State Tennis Centre and the Residential development.

The main access road is proposed to be dedicated as public road reserve following construction and completion of the State Tennis Centre. Temporary closure arrangements for large tennis events will be the responsibility of the event organiser.

The residential development will be subdivided progressively by Mirvac as part of a community title scheme. The residents'gymnasium and recreation building located on the southern side of the proposed boulevard will form part of this community tilte scheme.

Public river park – this will be progressively dedicated to the crown in conjunction with the staged completion of the residential stages and adjacent pedestrian/cycle path and park embellishments.

Given that each component of the development will ultimately be owned and maintained under separate title, it is requested that conditions of any approval relate to each respective component of the development. This will ensure ongoing responsibility for compliance with conditions is clearly defined.

2.3 Proposed Construction Management

A construction management plan will be prepared to ensure construction activities are managed in a manner that minimises impacts on the amenity of the surrounding area including control of dust, noise and haulage routes, and that ensures environmental impacts such as erosion and sediment control, water quality and impacts on riparian vegetation are also managed. A complaints management process will also be incorporated in to the document. An outline of the proposed Construction Management Plan is provided at **Appendix B.** It is envisaged that preparation of the document will be a condition of the approval of this application and will be approved by Brisbane City Council prior to commencement of construction activities.

2.4 Site Contamination

The site is listed on the EPA's Environmental Management Register. Preliminary assessments of the site in the past have identified contaminated material on the site.

GHD has been engaged by Mirvac to carry out the works necessary to have the site removed from the EMR or to obtain a Suitability Statement to proceed with the proposed development. The proposed strategy for achieving this is outlined in GHD's Tennyson Power House Remediation Strategy attached as **Appendix C** to this report.

As mentioned earlier in this report, the proposed remediation works will occur as part of the 'early works' for the development.

2.5 Ecologically Sustainable Development Initiatives

Mirvac Queensland has committed to reviewing ESD opportunitites for the development. The process of review and opportunities being considered are outlined in the ESD Report provided at **Appendix D**. The report also highlights the passive design ESD principles underpinning HPA Architects' design approach to the development.

2.6 Town Planning Analysis

2.6.1 Overview of Application

This application seeks approval of the Tennyson Riverside Development which comprises an international standard State Tennis Centre together with approximately 385 residential units to be contained within six multi-unit dwellings. The proposed development layout reflected in the Master Plan is the result of a lengthy and detailed constraints analysis and design process. Approval of this Master Plan is sought by this application as part of a Preliminary Approval overriding the planning scheme.

Three of the proposed residential buildings have been designed to a level which would enable a Development Permit for a Material change of Use to be issued. Accordingly, a Development Permit is sought for these stages of the development. Similarly, the detailed design of the State Tennis Centre has progressed to a level appropriate for a Development Permit to be issued. The remainder of the residential development has not been subject to detailed design. Therefore, the application seeks approval of the Tennyson Riverside Development Code as part of the Preliminary Approval covering the site to provide design criteria against which any future application for a Development Permit would be assessed against. A Level of Assessment Table has also been prepared which nominates appropriate levels of assessment for future Development Permits for Material Change of Use and Reconfiguring a Lot applications.

It is envisaged that following the granting of a Preliminary Approval over the site, the site could be reclassified by Brisbane City Council to Special Purpose Centre Area, High Density Residential Area, and the Parkland Area.

Based on the above, this subject application seeks approval of the following components:

- Preliminary Approval – for a Material Change of Use overriding the planning scheme for development of the subject site generally in accordance with:

- The Tennyson Riverside Development Master Plan (Drawing No.00-DA0001)and Building Envelope Plans (refer HPA Architect Plans);
- The Tennyson Riverside Development Level of Assessment and Applicable Codes Table (refer **Appendix E**); and
- The Tennyson Riverside Development Supplementary Residential Provisions (refer **Appendix F**).

- Development Permit - for a Material Change of Use for a State Tennis Centre (Outdoor sport and Recreation) and associated facilities including outdoor lighting.
- Development Permit for a Material Change of Use for Multi-unit dwellings (including gymnasium and recreation building), Park and Centre Activities (café/restaurant shop or office use to a maximum gross floor area of 200m2).

It is proposed that the Development Permits will be consistent with the approved Master Plan for the site.

- Development Permit for Operational Works for the Disturbance of Marine Plants. The inclusion of this application is triggered by section 3.2.2A of *IPA*.

The Tennyson Riverside Development Master Plan shows the proposed layout for the overall site. It sets the principles and is the guiding document for future development of each component of the development.

The Level of Assessment and Applicable Codes Table specifies the level of assessment and the applicable City Plan Codse that are to be used in assessing future development permits lodged for development in accordance with the Preliminary Approval. It is anticipated that this Table will be approved as part of the Preliminary Approval.

The Tennyson Riverside Development Supplementary Residential Provisions detail supplementary Performance Criteria and Acceptable Solutions to the Residential Design-High Density Code against which future applications for Development Permits are to be assessed. These provisions reflect the Masterplan, the design intent for the development and the characteristics of the site. These provisions refer to the Building Envelope Plans for which approval is also sought as part of the Preliminary Approval for the overall development. It is proposed that future applications for Development Permits must ensure development is contained within these envelopes.

The majority of the uses included in the application are Impact Assessable – Generally Inappropriate. This means that the application will follow the Impact Assessment IDAS process which includes Public Notification.

2.6.2 Referral Requirements

Referral Coordination is triggered by the following:

- The application is for a preliminary approval in accordance with section 3.1.6 of IPA;
- The application triggers 3 or more concurrence agencies;
- The proposal includes a large outdoor sport and recreation facility specified in Schedule 7 of the Integrated Planning Regulation; and
- The proposal shares a common boundary with an area of permanent inundation as detailed in Schedule 8(c)(vi) of the Integrated Planning Regulation.

The following referral agencies are triggered by the application:

- EPA (Coastal Management) Concurrence agency
- EPA (Contamination) Concurrence Agency
- DPI&F(Disturbance to Marine Plants) Concurrence Agency
- Queensland Transport Concurrence Agency
- The Chief Executive of the entity under the Electricity Act 1994 (Energex) Advice agency.

2.6.3 State Planning Policies

A range of existing and draft State Planning Policies provide guidance to planning and development in South East Queensland and are required to be considered in the assessment of an application. A summary of the existing State Planning Policies is provided as follows:

State Planning Policy 1/05 (Conservation of Koalas in South East Queensland) and the Draft Nature Conservation (Koala) Conservation Plan 2005

The site is identified as being within the A5 Koala Management Area of the Draft Plan which has no specific requirements for new development. Additionally, as highlighted in the Ecological Assessment report in Volume 7 of the application, no evidence of koalas or koala habitat has been found on the site.

State Planning Policy 1/03 (Mitigating the Adverse Impacts of Flood, Bushfire and Landslide)

This Policy aims to minimise the risk of flooding, bushfire and landslide to people, property, economic activity, and the environment. In relation to flooding, GHD has prepared a report which addresses the impacts of flooding on the site.

Part of the site is affected by flooding from the Brisbane River. The proposed development has been designed to ensure that all residences are above the Q100 flood level and flood free access is provided to the residences and basements. Access to the Animal Institute will be constructed to achieve Q100 immunity. The majority of the facilities within the State Tennis centre will also have Q100 immunity.

The site is considered not to be subject to bushfire or slip risk. The geotechnical characteristics of the site will be considered in building construction, including the stability of the river bank.

State Planning Policy 1/02 (Development in the vicinity of certain airports and aviation facilities)

Development of the subject site would not be inconsistent with this Planning Policy.

State Planning Policy 2/02 (Planning and Managing Development involving Acid Sulphate Soils)

Construction of the basements for the residential buildings will result in excavation below 5 metres in some areas. Management of any acid sulphate soils encountered will ensure that development occurs in a manner consistent with this State Planning Policy.

The State Coastal Plan and the Draft South East Queensland Regional Coastal Management Plan

These documents provide policy direction in relation to coastal management issues with the latter document providing a regional perspective to the implementation of these policies.

The following policy guidelines of the State Coastal Plan relevant to this development include:

- Policy 2.2.2 Erosion-prone areas
- Policy 2.4.1 Water quality management
- Policy 2.4.4 Stormwater Management
- Policy 2.3.1 Future Need for access
- Policy 2.3.2 Design for Access
- Policy 2.8.3 Biodiversity

An assessment against the State Coastal Plan is provided at **Appendix N**.

State Planning Policy 1/92 (Development and Conservation of Good Quality Agricultural Land)

Not applicable.

Draft State Planning Policy for the protection of extractive resources

The site is not affected by any Key Resource Areas identified in the Policy.

2.6.4 Brisbane City Council – Strategic Plan

The Brisbane City Plan 2000 Strategic Plan comprises the following three components:

- The Vision
- Desired Environmental Outcomes(DEOs) and Strategies for the City
- Elements of the City

The Strategic Plan states that the Elements of the City:

"express the DEOs for the City in terms of the overall land use structure, for example Brisbane Green Space System, Residential Neighbourhoods, Industrial Locations, Centres and the Movement System. The elements allow users of the Plan to see how the City is intended to develop to the year 2011."

The Strategic Plan divides the City into several different spatial elements. These elements provide a broad expression of how the City should be developed up to 2021. Map A – City Structure identifies the site within the *Residential Neighbourhoods* element with a *Green Space Corridor* identified along the site's frontage to Brisbane River.

An extract from the Map A – City Structure is provided at **Figure A.**

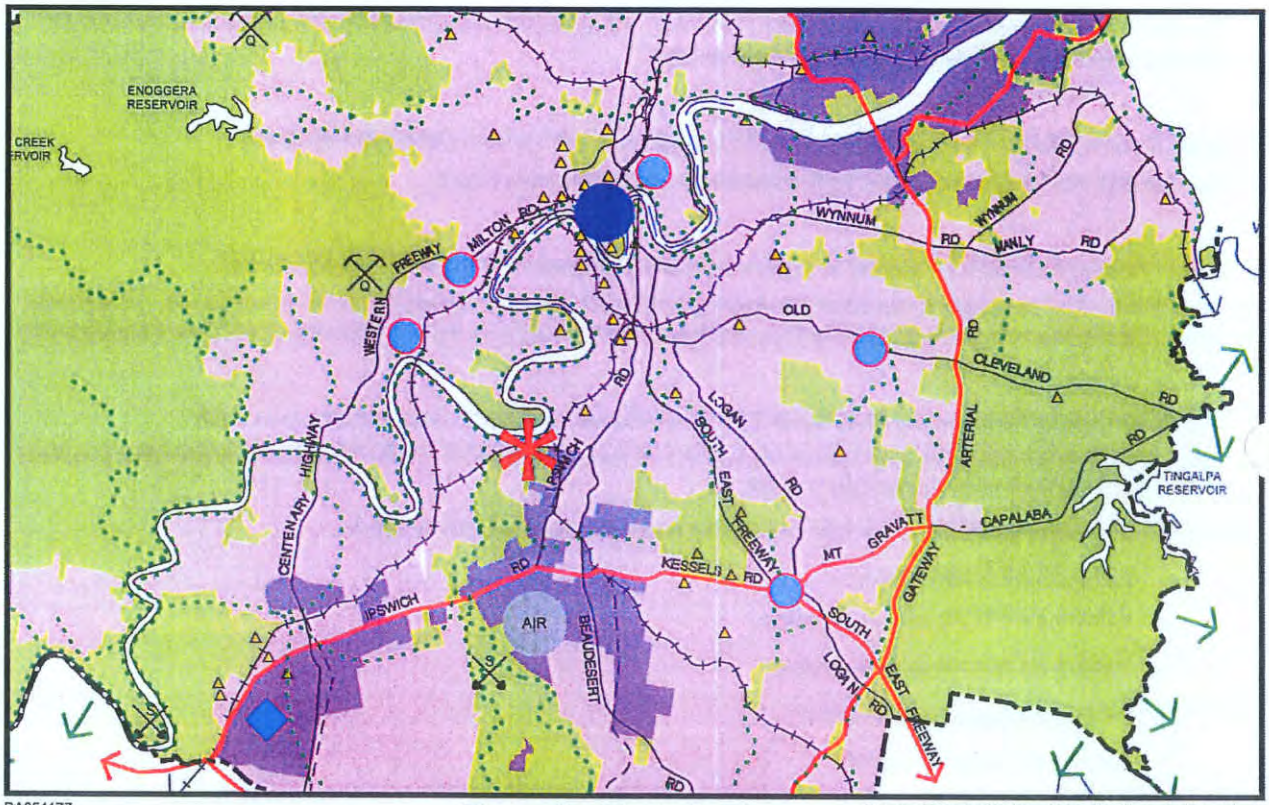

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Figure A - Strategic Plan

Source: Brisbane City Plan 2000, The Strategic Plan, Map A

Residential Neighbourhoods are the most extensive of the City Structure elements. They contain various elements such as the residential areas and related amenities and facilities such as convenience shopping, local parkland, schools, churches, hotels, and clubs.

In relation to Residential Neighbourhoods, the Plan recognises the critical elements as being liveability, residential character, safety, servicing and accessibility – developing a sense of community.

The components of the Residential Neighbourhoods strategy identified in City Plan are to:

- meet realistic expectations of future amenity;
- ensure housing choice and affordability;
- promote increases in density near high quality public transport and close to the City Centre;
- maintain character;
- provide access to services and facilities;
- maintain lands of environmental or scenic value;
- discourage isolated subdivisions in developing areas and encourage land amalgamation and forward planning of neighbourhoods;
- provide for some mixed use development;
- coordinate the orderly and cost effective provision and augmentation of infrastructure.

The proposed development is consistent with the components of the Residential Neighbourhoods Strategy because:

- The site neighbours established residential areas with appropriate levels of commercial and community facilities.
- The size and proximity of the site allow it to be developed as a high density infill site in a manner that achieves separation between the proposed development and existing neighbouring residences, thereby minimising privacy, amenity and overlooking impacts.
- The development will provide higher density housing on a site which is accessible to public transport. Pedestrian paths through the site together with a proposed rail overbridge to Yeerongpilly Station together with the upgrading of the existing bus stop in Softstone Street will ensure efficient and equitable access to public transport.
- The proposed State Tennis Centre will be well serviced by public transport. It will provide a high quality sporting facility for the benefit of both local residents and the broader community. The design of the centre will also ensure all potential impacts on surrounding areas are minimised.
- The height of the proposed residential development will not exceed that of the existing Tennyson Power Station building. The design of the buildings will complement their setting and will ensure existing vistas to the river from both surrounding and public vantage points are preserved.
- The site's most significant environmental values exist along the riparian corridor. It is proposed that most of the site's river frontage will remain in its existing vegetated state.
- Existing services (such as reticulated water, sewerage, drainage, electricity and telephone services) all exist in the locality. However, augmentation of some existing services will be required to support the development. Comparatively, this is a more efficient provision of infrastructure than many new green field development areas.

Section 4.1 of the Strategic Plan addresses the Brisbane Green Space System and identifies the major components of the Green Space System. The subject site is in the Green Space Corridor which comprises a network of ecological, waterway, recreation and foreshore corridors linking major conservation, parkland and recreation areas in the City.

The Brisbane River Corridor is the City's most significant green space corridor. The Strategic Plan states that development within the Brisbane River Corridor is to:

- "provide a unique subtropical waterfront space that evokes the image of the subtropical lifestyle of the City and respects the prevailing form and character of the riparian landscape along the Brisbane River Corridor;
- provide for well designed community access to diverse recreational, environmental, spiritual and cultural experiences;
- balance economic needs and other community aspirations regarding the use of the river and its banks with the environmental protection and restoration of the river;
- conserve and protect river landscape values, notable habitats and dispersed examples of remnant riparian vegetation and exotic species in certain places, that make major contributions to the character of the waterways

and the river. These landscapes and habitats may vary considerably and may have value for ecology, amenity, bank stabilisation and protecting water quality;

- provide for the implementation of the Brisbane River Walk Strategy which will enhance the role that the river plays as a recreational, transport and landscape resource"

The proposed development is generally consistent with the components of the Green Space Corridor Strategy and the Brisbane River Corridor Strategy because:

- Both sides of this section of Brisbane River are characterised by mangrove covered foreshores with scattered trees along the riverbank. The proposed development seeks to retain the existing riparian vegetation wherever practicable and to enhance this with riparian species in the proposed landscape design. This will ensure the riparian values and character of the river foreshore area is preserved.
- As detailed in the EDAW Gillespie Landscape Design Principles contained in the Design Report, landscaping throughout the site is intended to recognise the site's river setting and reinforce the subtropical character of the locality.
- This section of the Brisbane River will be made accessible to the public with the provision of a 1.8ha linear park along the site's entire river frontage. This park will contain a pedestrian/cycle pathway connecting King Arthur Terrace and Fairfield Road. It will provide a range of experiences including a play area at the western end and a large open area that links up to the plaza area at the front of the State Tennis Centre. The park will provide an attractive destination on the Brisbane River for local residents and the broader community to enjoy.

Strategic Plan Map C – Brisbane Green Space System in the Brisbane City Plan identifies that the subject site is within Precinct 2 of the Brisbane River Corridor. Precinct 2 is the Residential Parkland Precinct and is:

"characterised by its open riverside parklands and its quiet residential areas. The key outcome intended is the establishment of community recreational uses in a semi natural setting in key locations, consistent with the conservation of major remnant habitat, and compatibility with quiet residential amenity".

The proposed development is generally consistent with the intent for Precinct 2. The site's existing habitat values are limited to the riparian corridor. This will be retained in its natural state wherever possible. As highlighted above, the design of the State Tennis Centre and the associated residential development seeks to recognise the influence of the River on the site and to create a subtropical landscaped setting.

2.6.5 Stephens District Local Plan

The site is within Precinct 3.11 of the Stephens District Local Plan. This Plan contains relevant Development Principles which include:

"2.3 The District's proximity to the Brisbane River continues to provide opportunities for public access to open space along the river frontage, especially where redundant uses have changed and new parkland has been established."

"2.5 Use of redundant sites such as the Brisbane Gaol and the Tennyson Power Station for residential redevelopment is to be supported by public transport, utilising the District's close proximity to Brisbane's Central business area and other services. Any redevelopment of these sites for residential purposes is to carefully consider the need for affordable housing types in this locality."

The Precinct Intents relevant to this site state:

"3.11 Residential development that maximises use of the existing rail access from Tennyson Railway Station and provides community parkland will be preferred on the Tennyson Power station site. Any proposal will address impacts of large increases in population on social and physical infrastructure.

Due to the site's considerable physical constraints, non-residential uses with minimal impact on residential areas may be supported. Development may not adversely affect water quality of the Brisbane River and must provide public access to the waterfront and a cycle way through the site. Use of the site may be optimised by the relocation of the substation.

Any redevelopment that generates large volumes of traffic will provide vehicular access from Tennyson Memorial Avenue adjacent to Brisbane Golf Club, crossing the railway line, to prevent the impacts of increased traffic volumes on surrounding residential streets.

There should be convenient and separate pedestrian access over/under the railway line to bus stops on Tennyson Memorial Avenue. Provision of bus stops, shelters and seating compatible with the development should be encouraged."

The proposed development is generally consistent with the Plan's Development Principles as it realises an opportunity to create a new parkland on the river in this locality.

The State Tennis Centre together with the proposed residential development will be supported by a high level of accessibility to public transport facilities.

In terms of housing affordability, the State's offer of the land for development is dependent upon the delivery of an international standard State Tennis Centre. This has dictated the provision of housing that best supports the tennis centre and realises the value of the site.

The Stephens District Local Plan does not change the level of assessment of uses proposed on the site.

2.6.6 Designation for Community Infrastructure

Land immediately to the south of this site is affected by Designation D49 identified in the Brisbane City Plan Land designated for Community Infrastructure Schedule. The designation relates to Easement B on SP 158956 within Lot 1 on RP 37704 and Easement C on SP158956 within Lot 2 on SP155716 and relate to a 100kV electricity transmission line which feeds into the substation located ion adjoining lot 2 on SP 164685.

Under section 2.6.5 of the Integrated Planning Act, the designation has the effect of making development under the designation exempt if the development was otherwise self-assessable or assessable development under the planning scheme.

This designation does not affect the subject proposal in that works under the designation are not proposed in this application. Furthermore, the electricity interests over this land are being protected. Finally, the subject application is required to be referred to Energex as an Advice Agency due to the existence of the transmission easements over the site.

2.6.7 Area Classification

Under the City Plan Lot 1 has an Area Classification of **Community Use Area CU8 – Utility Installation** and the area adjacent to the river that was formerly road reserve is within the **Road Area**. The level of assessment for any development in Road Area is the same as for the land immediately adjoining. The area of Lot 556 on SP104107 (DPI&F site) affected by this application also has an Area Classification of **Community Use Area CU8- Utility Installation**. A very small area in the far north eastern corner of Lot 556 is classified Low-Medium Density Residential. However, this part of the site is not affected by the subject proposal and so this area classification has not been addressed in this application.

An extract from Brisbane City Plan showing the Area Classifications of land in the locality is provided at **Figure B.**

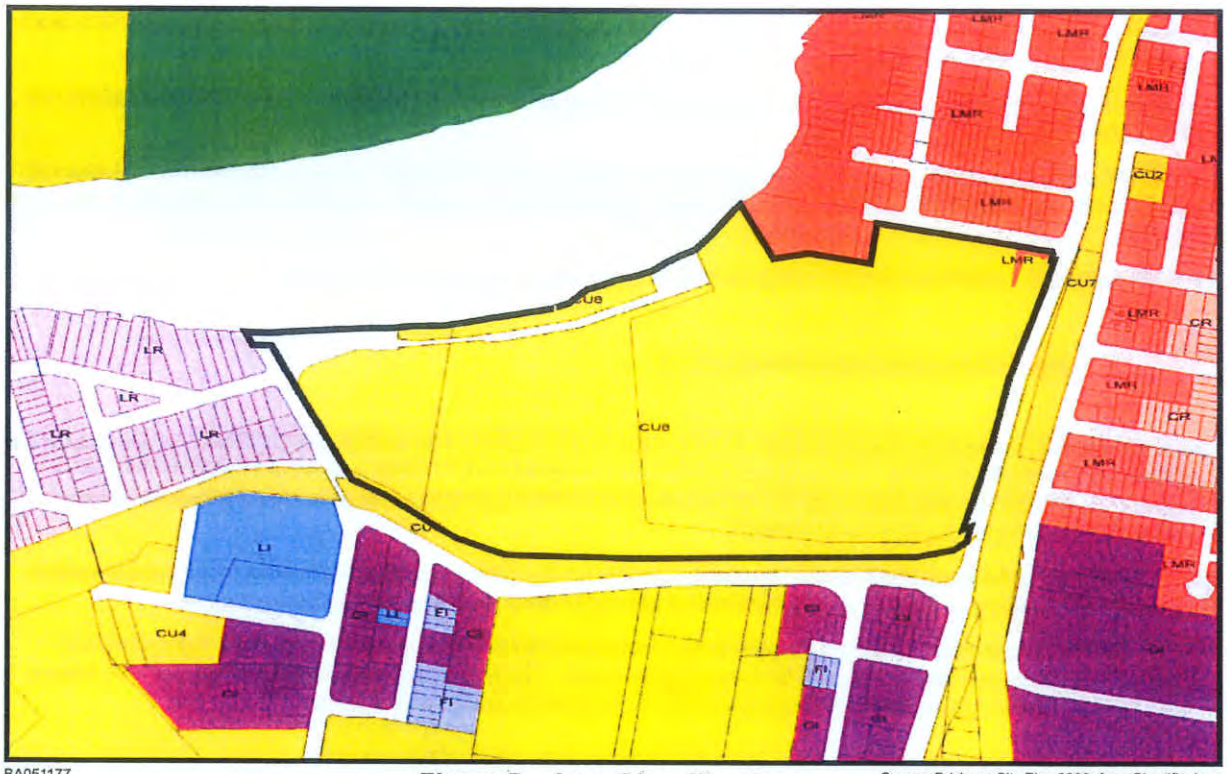

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Figure B - Area Classifications

Source: Brisbane City Plan 2000, Area Classificaions

The Intent for the Community Use Area specifies that:

"When a Community Use Area is no longer being used for it's intended purpose, its replacement should be another community use, particularly in an area where there is a demonstrated need for these services."

The proposed State Tennis Centre could be considered to be satisfying this intent in that it is replacing a former utility installation.

The Desired Environmental Outcomes for this Area are:

"The City is well provided with community based buildings and activities meeting the diversity of community needs.

Facilities are in highly accessible locations, commensurate with employment and visitation rates.

The built form is consistent in scale, height and bulk with that of surrounding areas.

Community benefits are provided without impacting adversely on neighbours.

Incompatible uses do not compromise the ongoing operation of existing community facilities.

Community uses preserve or enhance heritage buildings, semi-natural to natural habitats and/or landscape values of the land."

The proposed development is consistent in a broad sense with these DEOs. However, this application does include development that is inconsistent with the Area and it is envisaged that the Area classification will change in the future.

The abovementioned DEOs are addressed below to the extent that they are relevant:

- The establishment of a State Tennis Centre in this locality will provide an elite standard sporting facility benefiting both the local and broader community.
- The State Tennis Centre will be in a highly accessible location.
- The height of proposed buildings on the site will not exceed the height of the existing power station building. The buildings will be articulated and of a high architectural finish.

- The proposed buildings are setback considerable distance from existing neighbouring residences with overlooking and overshadowing unlikely to occur. Extensive noise assessments have been undertaken to ensure the proposed tennis activities do not adversely impact on surrounding residents.
- The existing power station building will not be retained as part of the redevelopment of the site. However, the site's river frontage will be retained in a semi-natural state and dedicated into public ownership as a linear park, thereby providing an asset to the local and broader community.

2.6.8 Impact Assessment Development – Generally Inappropriate Provisions

The City Plan 2000 states that the proposed uses in this development are not specifically envisaged for this Area and are therefore classed as Impact Assessable (Generally Inappropriate). The acceptability of such uses is dependent on location, design and impacts. For generally inappropriate impact assessable development, proposals need to demonstrate that the issues specified in Section 2.5.2 of the Plan can be satisfied. An assessment of the proposal against these requirements is provided as follows:

The character, location, siting, bulk, scale, shape, size, height, density, design, and external appearance of the proposal accords with the reasonable expectations and DEOs for the Area in which the land is classified.

Response

In considering an appropriate height and scale of development on the site as part of the master planning process, reference has been taken to the existing Tennyson Power Station, which has existed on the site since the 1930s. The proposed residential development does not exceed the height of the power station and includes buildings of up to ten residential storeys with tapered ends. Factors considered in the design approach include the size of the site, the mix of uses in the surrounding area and therefore a lack of distinctive character and the considerable distance between the proposed development and neighbouring residences. For these reasons, it is considered appropriate that the design of the development draw reference to the site's contextual setting rather than any other particular built form in the area. The design approach to the development is articulated in the Design Report prepared by HPA Architects and EDAW Gillespies.

In addition to responding to the site's constraints and opportunities, the siting, scale and form of the proposed State Tennis Centre has largely been determined by the need to meet the detailed design brief and to ensure it is designed and functions as an international standard sporting facility.

An assessment of the DEOs for the Area to the extent that they are relevant to the proposal is included earlier in this report.

The proposal has a positive impact on the landscape, scenic quality and streetscape of the locality.

Response

The Tennyson Riverside Development will include an attractive boulevard style entry road that links King Arthur Drive to Fairfield Road. The design of the proposed residential and tennis stadium buildings, together with the proposed landscaping of all public and private open space areas within the development will be of a high quality architectural and aesthetic standard.

The extensive amount of accumulated rubbish and weed infestation and will be removed from the river foreshore and most riparian vegetation will be retained. The continuous cover of mangroves that dominates the character of this section of Brisbane River will be retained.

The proposal does not detract from the appearance, environment or amenity of the locality. These effects may relate to issues such as hours of operation, display of goods or release of any contaminant.

Response

Potential impacts of the proposed development on the amenity and environmental quality of this locality will be appropriately managed.

In relation to the State Tennis Centre, attenuation measures include the following:

Hours of Operation – It is a requirement of the Development Agreement between Mirvac and the State that the State Tennis Centre's hours of operation will cease at 10.30pm with the exception of major events which may necessitate operation extending beyond this time

Lighting Impacts – A preliminary assessment of lighting has been carried out by Lincolne Scott. Lincolne Scott confirm that lighting for the development wil comply with the requirements of Australian Standard AS 4282 relating to the control of obtrusive lighting and light spill.

Noise Impacts – Palmer Acoustics has carried out an assessment of the potential noise impacts from the State Tennis Centre on both existing adjacent residential areas and the future residents within the development. This report addresses potential noise impacts from traffic on nearby roads and generated by various components of the development itself.

The report concludes that noise generated by everyday activities at the State Tennis Centre will comply with the relevant noise limits. Howewver, for large events which attract a capacity crowd, the standards will be exceeded. It is anticipated that this will occur on an infrequent basis and on these occasions, local residents will be given prior warning of events. This will also be necessary to successfully implement the temporary parking permit system.

Building façade detailing for some noise affected units within the development will need to consider the impacts of the State Tennis Centre. Similarly, the building façade detailing of Building A located closest to King Arthur Terrace, will require upgrading of façade materials to address traffic noise intrusion.

Traffic Impacts – During everyday operation, users of the State Tennis Centre will be able to park in the car park located to the east of the centre court stadium or in the main access road to be constructed as part of the development. During the major events which are likely to occur only a few times a year, parking in the local streets will be restricted by a local parking permit system with public transport provided by way of rail and bus services. These are detailed in TTM's Transport and Traffic Report.

Upgrading the accessibility to Yeerongpilly Railway Station by the provision of a pedestrian bridge over Fairfield Road and an attractive footpath along the access road through the site will potentially improve accessibility to public transport services to the City for residents in this area.

Accessibility to the riverside park – The proposed development will provide an enhanced level of amenity for residents and workers in the locality by providing access to a 1.8ha riverside park with half a kilometre frontage to the Brisbane River. The park will provide enhanced pedestrian and cycle connectivity, a children's playground at the western end of the site and an attractive open area linking the Tennis Centre and the river which may include cafes to enliven the area.

The proposal does not generate greater traffic movement or hazard than is reasonably expected in the surrounding locality by reason of:

- *on-site and on-street parking*
- *number or type of vehicle movements*
- *manner of access to the site*

Response

The Transport and Traffic Report prepared by TTM details proposed carparking, access and traffic movements for the proposed Tennis Centre in both event mode and on a day to day basis. The report also addresses access, parking and servicing arrangements for the proposed residential development. The report demonstrates that the proposed approach to traffic related issues is appropriate and reasonable for this site.

The capacity of the road system in the locality is suitable for the proposed activity.

Response

The Transport and Traffic Report prepared by TTM contains existing and predicted future traffic movements in this locality. The report demonstrates that the capacity of the road system able to accommodate the proposed development.

The site has a reasonable level of accessibility by all modes of transport, including pedestrian, cyclist, public transport and private vehicular access, that is appropriate to the proposed activity.

Response

The location of the site together with infrastructure upgrading works proposed in association with the development will provide a high level of accessibility to rail and bus public transport, good road access and enhance a wider pedestrian/cycle network system.

An adequate level of utilities and telecommunications infrastructure is available and that any utility upgrading carried out as a consequence of the proposal is within limits reasonably expected for the Area in which the land is classified.

Response

The site represents an infill development within an existing serviced urban area. Services provided to the development will be commensurate with its location.

The shared use of telecommunications infrastructure occurs to minimise disruptions and adverse impacts on amenity, communities and the environment.

Response

The proposed development can be adequately serviced by existing telecommunications infrastructure and no adverse impacts on amenity, communities or the environment will be caused.

Noise generated by the proposal is within levels expected for the Area in which the land is classified.

Response

The site is located within an area of mixed uses including residential, industrial, rail infrastructure and recreational activities. Noise impact assessment carried out as a part of the planning of this development has included both the impacts of the proposed development on adjacent areas and the impacts of the nearby activities on the proposed development. Recommendations have been made in relation to noise attenuation measures in that report.

The proposal does not result in unreasonable risk or hazard on site or adjoining lands.

Response

The proposed development is considered not to represent a risk or hazard to adjoining properties.

The site itself is known to contain some contamination from past activities. Remediation of the site in compliance with the requirements of the *Environmental Protection Act* will occur prior to the new uses occupying the site.

Where the proposal is of a nature or scale not reasonably expected in the Area in which the land is classified, that sufficient land is dedicated for public open space to offset or mitigate impacts. In particular, buffers should be provided along waterways, wetlands, and areas of biodiversity importance.

Response

As highlighted earlier in this report, the proposed development will result in the creation of a 1.8ha public park along the 550 metre river frontage of the site. The proposal will protect most of the site's riverside vegetation except where unavoidable to provide infrastructure and the public pedestrian/cycle riverside linkage. The proposed treatment of the riparian corridor will ensure it's character and biodiversity values are preserved.

The disposal or storage of wastes and other materials will not result in visual blight, environmental degradation or nuisance.

Response

Waste storage associated with the proposed development will be limited to domestic waste and general waste generated by tennis activities. Options for waste storage and pick-up arrangements are detailed in TTM's Transport and Traffic Report. It is anticipated that a suitable solution will be negotiated with City Waste Services prior to determination of the application.

Negative community impacts are not generated including impacts on:

- *community identity, cohesion and cultural practices*
- *community health and well-being*
- *access to community services and facilities required to support need*
- *personal safety*
- *housing choice, mix, cost and location*
- *access to employment and education*

Response

It is considered that the proposed development will not adversely impact on the community identity, community health, well-being or personal safety of adjacent residential areas. The proposed development is also unlikely to generate negative impacts on the community in terms of accessibility to community services, employment and education given that the site is situated in a highly accessible urban location.

2.6.9 City Plan Codes and Policies

Given that the proposed uses are generally Impact Assessable – Generally Inappropriate in the applicable area classifications affecting the site, the City Plan does not prescribe applicable Codes to be assessed in this application. Notwithstanding this, a range of primary and secondary codes considered relevant to the proposal have been considered and addressed.

A summary of the City Plan Codes addressed and a reference to where they are included in this application is provided below.

CODES AND POLICIES	REPORT REFERENCE
Residential Design–High Density Code	Volume 2 – Impact Assessment Report -Town Planning Assessment – Appendix G
Supplementary Residential Provisions	Volume 2 – Impact Assessment Report -Town Planning Assessment – Appendix F
Outdoor Sport and Recreation Code	Volume 2 – Impact Assessment Report -Town Planning Assessment – Appendix H
Biodiversity Code	Volume 7 – Ecological Assessment Report – Appendix D
Energy Efficiency Code	Volume 2 – Impact Assessment Report – Preliminary ESD Assessment Report – Appendix D
Filling and Excavation Code	Volume 5 – Engineering Services Report – Appendix E
Landscape Code	Volume 3 – Design Report
Light Nuisance Code	Volume 2 – Impact Assessment Report – Lighting Impact Assessment – Appendix J
Industrial Areas – Adjacent Development Code	Volume 2 – Impact Assessment Report -Town Planning Assessment – Appendix I
Non-discriminatory Access Code	Volume 2 – Impact Assessment Report – Town Planning Assessment - Appendix K and Volume 3 - Design Report
Park Code	Volume 3 – Design Report
Services, Works and Infrastructure Code	Volume 5 – Engineering Services Report – Appendix D
Stormwater Management Code	Volume 6 – Flooding and Stormwater Quality Management Report – Appendix B
Transport, Access, Parking and Servicing Code	Volume 4 – Transport and Traffic Report
Waterways Code	Volume 2 – Impact Assessment Report – (setback requirements) and

	Volume 7 – Ecological Assessment Report – Appendix D
Wetland Code	Volume 7 – Ecological Assessment Report – Appendix D
Consultation Planning Scheme Policy	Volume 2 – Impact Assessment Report – Appendix M
Crime Prevention Through Environmental Design Planning Scheme Policy	Volume 3 – Design Report
Noise Impact Assessment Planning Assessment Policy	Volume 2 – Impact Assessment Report – Appendix L
Natural Assets Local Law 2003	Volume 7 – Ecological Assessment Report

This section includes assessment against the following:

Residential Design – High Density Code

Supplementary Residential Provisions

Waterways Code – building setback requirements

Outdoor Sport and Recreation Code

Industrial Areas – Adjacent Development Code

Light Nuisance Code

Non Discriminatory Access Code

Residential Design – High Density Code and the Supplementary Residential Provisions

Mirvac Queensland and it's consultants have been through a lengthy masterplanning process that has resulted in the development of the masterplan and supporting documents accompanying this application. Whilst compliance with existing City Plan Codes has been achieved where practicable, it has been necessary to draft site specific provisions to reflect the design intent and the characteristics and constraints of the site.

An assessment of the proposal against the provisions of the Residential Design – High Density Code is provided at **Appendix G.** Certain aspects of the development do not align with this Code and therefore supplementary provisions to replace particular Performance Criteria and Acceptable Solutions of this Code have been drafted. Where this is proposed, an explanation is provided against the relevant Criteria in the assessment against the Residential Design – High Density Code. The proposed supplementary provisions are included at **Appendix F.**

It is envisaged that the overall development will have a total gross floor area not exceeding 88,079m2. This represents a plot ratio of 0.74:1. Of this buildings D, E and F and the gymnasium/recreation building comprise 45,755m2. This includes the gross floor area for storage space in the basements of the buildings.

As part of the masterplanning for the development, the appropriate height of development for this site was investigated. This was considered in the context of:

- The expectations of the brief given that Mirvac is required to deliver an international standard State Tennis Centre to the State;
- The nature and proximity of surrounding uses and potential amenity impacts;
- Vantage points to the site;
- Proximity to public transport facilitites;
- Height and scale of the existing power station building; and
- The ability to dedicate the river foreshore area of the site into public ownership.

Having regard to these factors, it was considered that the height of the existing building was a good reference point for future development given that this building has existed in the landscape since the 1950s.

In relation to potential overshadowing of neighbouring properties, the site is of sufficient size to accommodate buildings of ten stories without causing adversely impact. Given that the site is located on the outside bend of the Brisbane River, building height and scale do not restrict the views or vistas of the Brisbane River for any neighbouring properties or public places.

Finally, the State Government's requirement to provide an international tennis centre on the site severely limits the available area for development and dictates a development of limited site cover and greater height.

It is also important to note that the site satisfies the stated Intent and Desired Environmental Outcomes for the High Density Residentail Area classification in that the site is close to City with very good access to public transport and facilities, is in a location with outstanding views to the Central City or Brisbane River, takes advantage of attractive views and aspects, has extensive quality private and public open space and has recreation areas and landscaping to soften the dominance of buildings and provide breathing spaces.

Waterways Code

An assessment against the requirements of the Waterway Code is provided in the Ecological Report in Volume 7 of this application. Additional to this, a detailed assessment against the performance criteria and acceptable solutions relating to the siting and design of buildings is provided below. In assessing the proposed development against the provisions of the Waterway Code, consideration has been given to the guidelines for Precinct 2 of the Brisbane River Corridor Planning Scheme Policy.

The Waterways Code requires that buildings, parking and servicing areas are setback 20m from the High Water Mark.

The Tennyson Riverside Development Masterplan has two of the six residential buildings located within this distance. The Masterplan has been developed in response to the State Government's brief to provide a Queensland State Tennis Centre and required infrastructure. The associated residential development is required to fund the provision of the facilities.

The six residential buildings along the waterfront are located in order to take advantage of river views, provide site lines and respond to site constraints. Individual building setbacks are as follows:

Building A- 30m-44m

Building B- 27.7m-32m

Building C- 35m-75m

Building D- 65m-80m

Building E- 10m-16m

Building F- 6m-19m.

The proposed buildings have been setback a variety of distances from the River as part of the Masterplan design. The majority of buildings are setback well outside of the 20m distance and the average setback distance from the buildings to the river is 37m.

Buildings E and F are located inside the 20m distance due to the constraints of the site in this area. An Energex easement containing high power electrical cables runs from the sub station along the eastern boundary of the site before turning east and into the ARI site. The buildings in this location directly abut against this easement boundary with the upper levels of the buildings cantilevering over the easement area in accordance with Energex clearance requirements. The buildings cannot be located behind the easement as this is part of the ARI site.

Performance Criteria 1 of section 4.6 of the Waterways Code specifies a range of issues to be addressed regarding the setback and design of buildings in relation to the High Water Mark. These issues are addressed in turn below.

- The attractive appearance from the Brisbane River and its banks, when viewed from the Brisbane River, from development near the Brisbane River, or other public vantage points must be maintained and enhanced

Buildings will be of a high architectural standard with a variety of plan shapes, vertical profile and façade treatment.

The location of the two buildings with the 20m is considered not to adversely impact on the attractiveness of the River or its bank. The foreshore of this section of Brisbane River is largely colonised by mangroves with occasional native trees. This character will be retained following the completion of the development. The foreshore area of the site (1.8 hectares) will be dedicated into public ownership following the removal of existing weeds and the substantial amount of litter that has accumulated in this area.

Due to the location of the site on the outside bend of the River, river views from the surrounding properties will not be impacted upon. Similarly, views of the river from public vantage points will lot be restricted. Rather, the creation of the public park along the frontage of the site with access points back to the road will enhance public accessibility and views to the river.

- Materials must compliment the visual character of the area

As detailed in the Design Report, design elements of the proposed residential buildings do reference the existing power station building. Given the size of the site and the mix of uses in the neighbouring areas, a consistent and predominant built form

character does not prevail. As stated above, the riparian zone along this section of the river is visually dominated by the mangrove lined foreshore and this character will be retained.

- Setbacks must be no less that the surrounding buildings. Buildings should be of a similar height and bulk to the surrounding buildings and substantially shielded from view by vegetation. Ancillary structures between the building and the River should be restricted.

The 12ha site is large enough to create it's own context within theMaster plan

The height of the residential buildings is already established by the height of the existing Powerhouse Buildings.

The residential buildings will be under the height of the existing power station and they are of a considerably smaller scale in width and depth reflecting their residential use.

The majority of the riparian vegetation- both mangroves and established trees will be maintained except where their removal is required for infrastructure purposes (such as stormwater outlets, boardwalks etc).

The vegetation will be enhanced by the landscaping of the riverfront parkland which will run along the length of the site. This is shown in Volume 3: Design Report.

Ancillary structures along the waterfront will be minimised. It is proposed to maintain one of the existing pump houses along the Riverfront as a reminder of the former uses of the site and this structure will be integrated into the public parkland. There are no other major structures proposed within the parkland.

Overall, it is considered that whilst components of the proposed development are witin 20 metres of the river due to prevailing site constraints, the objectives of the riparian setback can be achieved in terms of water quality, biodiversity values, visual amenity and public access.

Outdoor Sport and Recreation Code

An assessment against the provisions of this Code is provided at **Appendix H**. The assessment shows that the proposed development is consistent with the Code insofar as it is relevant to the proposal.

Industrial Areas – Adjacent Development Code

An assessment against this Code is provided at **Appendix I.** It confirms that the proposed development complies with the Code.

Light Nuisance Code

Lincolne Scott has been engaged to address the design of lighting and in particular the control of light spill and obtrusive lighting. Correspondence provided at **Appendix J** confirms that compliance with Australian Standard AS 4282 which is the Acceptable Solution for the Light Nuisance Code will be satisfied.

Non-discriminatory Access Code

Correspondence from John Deshon Architect provided at **Appendix K** confirms that the requirements of Council's Non Discriminatory Access Code will be satisfied.

2.7 Noise Impacts

A detailed report addressing the requirements of the Noise Impact Assessment Planning Scheme Policy is provided at **Appendix L**. The report addresses the impact on the proposed development from potential external noise sources, and the potential noise impacts generated by various components of the development itself.

The report concludes that noise from everday activities at the State Tennis Centre will comply with noise limts. However, such limits will be exceeded during large events with a capacity crowd. It is anticipated that these will occur on an infrequent basis and on these occasions, local residents will be given prior warning of such events. This will also be necessary to implement the temporary parking permit system.

Building façade detailing for some noise affected units within the development will need to consider the impacts of the State Tennis Centre. Similarly, the building façade detailing of Building A located closest to King Arthur Terrace, will require upgrading of façade materials to address traffic noise intrusion.

2.9 Community Consultation

As the MCU application triggers referral coordination, the application is required under the IPA to be advertised for public comment for 30 business days.

However, given the potential community interest in the project, Mirvac has launched an extensive community consultation process to ensure local residents are kept informed of the progress of the Tennyson Riverside Development and given an opportunity to express their concerns at particular issues associated with the development. This applies to both the proposed implementation phase and the construction phase of the development.

An overview of the community consultation carried out to date and the proposed process from here on is outlined in the report provided as **Appendix M** to this volume. This report addresses the principles of the City Plan Consultation Planning Scheme Policy.

2.10 Conclusion

Mirvac Queensland has been successful in winning the bid to redevelop the former Tennyson Power Station site in accordance with the detailed brief set by the Queensland State Government.

Mirvac proposes to develop the site in accordance with the brief to deliver an international standard State Tennis Centre by the end of 2008, a quality residential development to be progressively built in stages, and significant community infrastructure.

To facilitate this, this application seeks approval for the following components of development:

Preliminary Approval for a Material Change of Use overriding the Planning Scheme for development of a State Tennis Centre (Outdoor Sport and Recreation), Residential Development (Multi-unit dwellings and residents gymnasium and recreation building), Park and Centre Activities (cafe/restaurant, shop or office use to a maximum gross floor area of 200m2) generally in accordance with the:

The Tennyson Riverside Development Master Plan and Building Envelope Plans;

The Tennyson Riverside Development Level of Assessment and Applicable Codes Table; and

The Tennyson Riverside Development Supplementary Residential Provisions;

Development Permit for a Material Change of Use for Multi-unit dwellings (including residents gymnasium and recreation building), Park and Centre Activities (café/restaurant, shop or office use to a maximum gross floor area of 100m2);

Development Permit for a Material Change of Use for a State Tennis Centre (Outdoor Sport and Recreation) and associated facilitites including administration offices, conference facilitites, café and outdoor lighting; and

Development Permit for Operational Works for the Disturbance to Marine Plants.

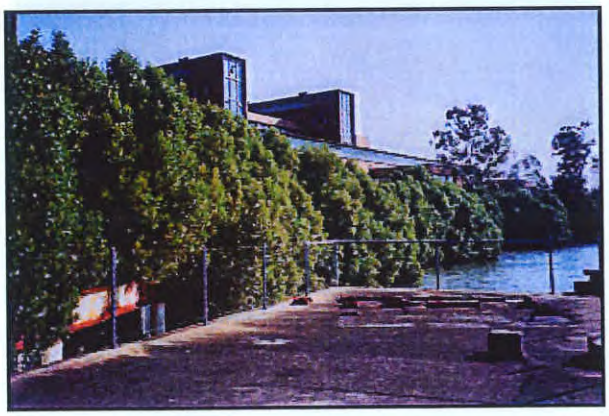
Approval of these components will enable Mirvac to proceed to develop the State Tennis Centre and the first two stages of the residential development (comprising buildings D, E and F and the residents' gymnasium and recreation building) subject to receipt of applicable operational works and building works approvals. The further stages of residential development comprising buildings A, B and C will be subject to fututre Development Permits for Material Change of Use.

It is proposed that all development on the site will accord with the Tennyson Riverside Development Masterplan and associated documents including building envelope plans, supplementary provisions, and the table of assessment. In particular, it is proposed that future Development Permit for the residential development will be Code Assessable. In this regard, it is considered that Mirvac and it's consultants have undertaken sufficient assessment and design work to demonstrate that the development can proceed within the proposed controils without undue impacts on the surrounding area and will achieve a high quality outcome for the site.

APPENDIX A - PHOTOGRAPHS

Picture 1: Existing Drainage Channel on site

Picture 2: Site foreshore area looking east



Picture 3: Site foreshore area from existing wharf – to be demolished

Picture 4: Existing pump station building – to be retained

Picture 5: End of Softsone Street (unformed road reserve)

Picture 6: Development to west wide of Softstone Street

APPENDIX A - PHOTOGRAPHS

Picture 7: View of site from Yeronga Street, Yeronga

Picture 8: View of site from Nadine Street, Graceville

Picture 9: End of Ortive Street

Picture 10: Ortive Street – existing entry to DPI Institute

Picture 11: Softstone Street looking south

Picture 12: View of Power Station from King Arthur Terrace

APPENDIX B – CONSTRUCTION ENVIRONMENTAL MANAGEMENT

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APPENDIX B – CONSTRUCTION ENVIRONMENTAL MANAGEMENT

2.1 Introduction

This report forms a part of the Development Application for a Material Change of Use for the development of the State Tennis Centre and multi-unit dwellings and associated facilities on the site of the former Tennyson Powerhouse located on Tennyson Memorial Avenue and Softstone Street Tennyson.

The report is a summary of environmental issues and impacts and how Mirvac propose to address them via a Construction Environmental Management Plan (CEMP). A detailed CEMP will be prepared in conjunction with the finalisation of the detailed construction methodologies and programming of the project.

2.2 Construction Environmental Management Plan

Mirvac propose to develop a site specific CEMP to enable construction personnel to be guided by the management actions required. The purpose of the CEMP will be to facilitate compliance with the intent of the Environmental Protection Act, 1994 for all construction related activities through the implementation of the following objectives:

- To encourage good management practices through planning, commitment and continuous improvement of environmental practices;
- To define how the management of the environment is reported, and performance is evaluated;
- To provide rational and practical environmental guidelines so as to:
    - minimise disturbance to areas of archaeological and anthropological significance;
    - prevent the pollution of land, air and water;
    - protect native flora and fauna;
    - prevent soil erosion and facilitate revegetation;
    - to implement waste management practices based on prevention, minimisation, recycling, treatment and disposal of wastes
    - comply with all applicable laws, regulations, standards and guidelines for the protection of the environment; and
    - adopt the best practices available to prevent or minimise adverse environmental impact.
- To describe all monitoring procedures required to identify impacts on the environment; and
- To train employees and contractors in regard to environmental obligations.

It is proposed that the CEMP will be a dynamic document that will be regularly updated to incorporate changes in environmental management procedures in response to ongoing monitoring results, new techniques and legislation.

2.2.1 Structure of the CEMP

This CEMP will break up the environmental issues associated with the Project into a number of elements. These include:

- Water Quality;
- Flora and Fauna;
- Erosion and Sedimentation;
- Contaminated Land;
- Noise and Vibration;
- Air Quality;
- Landscape / Visual Amenity;
- Socio-economic;
- Access; and
- Waste Management.

The environmental management controls for each of the Environmental Elements listed above will be addressed using the following format:

APPENDIX B – CONSTRUCTION ENVIRONMENTAL MANAGEMENT

Existing Situation	–	Existing characteristics of the relevant environmental aspect.
Potential Impacts	–	Potential design, construction and operational impacts of the project as identified in the Specialist Investigations.
Management Objectives	–	The environmental management objective to be achieved during all phases of the project.
Statutory Provisions	–	Relevant statutes applicable to the project.
Performance Criteria	–	Desirable criteria to be met during design, construction and maintenance of the project.
Management Actions	–	Actions, procedures and requirements to be implemented during the relevant phase of the project to safeguard the environment.
Responsibility	–	Person designated to undertake the activity.
Monitoring and Reporting	–	The proposed monitoring and reporting action relevant to the management action.
Corrective Action	–	Revised actions, procedures and recommendations to meet the proposed performance criteria and objective where initial actions are unsuccessful.

The detail of the CEMP will be highly dependent on the outcomes of other investigations proposed for the site including:

- Ecological Assessment;
- Geotechnical Investigations;
- Acid Sulfate Soil Investigations;
- Contamination Investigations; and
- Acoustic Assessments.

2.3 Potential Environmental Impacts

An initial assessment of the likely environmental impacts associated with the project has been undertaken. Each of the impacts identified below will be addressed by the CEMP in accordance with the format detailed in Section 2.1.

2.3.1 Water Quality

Deterioration of Water Quality via the:

- mobilisation of sediments from exposed soil areas, stockpiles, batters and temporary drains;
- introduction of demolition or construction wastes to the riparian corridor;
- pollution through the accidental release of hydrocarbons or chemicals; and
- importation of nutrient enhanced soils and fertilizers which may cause excess nutrients to enter the local water catchment.

2.3.2 Flora and Fauna

Impacts associated with site Flora and Fauna values would include:

- Clearance of site and riparian vegetation and habitat associated with demolition and construction activities;
- Disturbance to the mangrove community within the riparian zone of the Brisbane River;
- Alterations to the current drainage patterns on site may impact on the riparian community;
- Unmanaged run off from the site may impact on the marine environment during both the demolition and construction phases;
- The rehabilitation and revegetation proposed through landscape plans may increase site biodiversity and habitat value; and
- Management of river born detritus and litter within the riparian corridor may reduce negative impacts on site flora and fauna.

2.3.3 Erosion and Sedimentation

Sediment laden runoff from construction and demolition activities could be discharged into the river and stormwater system or the wetland and waterway corridor to the east of the site. Construction and Demolition activities that may promote erosion and sedimentation may include:

- vegetation clearance;
- demolition/waste material stockpiles;
- topsoil/soil stockpiles;
- disturbance of Brisbane River sediments;
- bulk earthworks;
- construction traffic; and
- stormwater works.

2.3.4 Contaminated Land

Potential site and off-site impacts due to mobilisation of contaminants on site.

2.3.5 Noise and Vibration

Construction and demolition activities may give rise to a temporary increase in background noise and vibration levels within the vicinity of the site. It is likely there will be significant short term noise and vibration impacts during the demolition of the existing buildings.

During the initial site preparation stage the major noise producing activities will include demolition works, grading, and excavating. Such activities may necessitate the use of concrete crushers, bulldozers, graders, front end loaders , pile drivers and trucks and powered tools.

Noise and vibration levels generated by construction activities are often difficult to quantify, as they vary in intensity and character depending upon the combination of plant in operation at any one time and the location and duration of the individual activities.

APPENDIX B – CONSTRUCTION ENVIRONMENTAL MANAGEMENT

2.3.6 Air Quality

It is likely that negative impacts on local air quality would be limited to the demolition and construction phases and will primarily come from the generation and disturbance of dust and emissions from heavy vehicles and machinery.

2.3.7 Landscape and Visual amenity

During the construction and demolition phases there is likely to be some short term impact on visual and landscape amenity due to excavation, demolition and deconstruction activities. Overall, however, the proposed development is likely to significantly improve the visual amenity of the site and it's surrounds.

2.3.8 Socio-Economic

The development is unlikely to adversely affect the socio – economic environment in the local area in the long term. There may be some disruption to local traffic flows due to increased heavy vehicle movements during construction activities and special events. It is likely that a positive impact will be experienced as a result of increased employment and recreational opportunities associated with the Tennis facility and the riverfront precinct.

2.3.9 Access

Access points and haulage routes will be nominated for each stage of development. Eventually construction access will be via Fairfield Road, but the timing of this will depend on the programme for the road construction. In the interim, construction access will be via Tennyson Memorial Avenue and Softstone Street. King Arthur Terrace will not be used as a main haulage route for construction related traffic.

Temporary access and congestion impacts associated with the demolition and construction phase may be experienced. Impacts associated with the operational facility are likely to be limited to major event based traffic and access restrictions.

2.3.10 Waste Management

Waste impacts generated from the development, during both the construction and operational phases, have the potential to impact on both the natural and human environment surrounding the site. Potential receptors include:

- The aquatic ecosystem of the Brisbane River;
- The wetland and water way corridor to the east of the site; and

The adjacent residential and commercial areas, including homes, roadways, parks and gardens.

Build up of litter and debris can have a negative impact on the visual quality of the site and have safety implications for staff and visitors to the site. Improper waste management during demolition and construction could impact on the human environment through the production of odours and visual pollution.

APPENDIX C– REMEDIATION STRATEGY

19 September 2005

To	Mirvac		
Copy to			
From	[redacted]	Tel	[redacted]
Subject	**Tennyson Power House Remediation Strategy**	Job no.	41/09028/44

This document outlines the Remediation Strategy for the Tennyson Power House Site.

1. Basis of the Remediation Strategy

- *Tennyson Power Station, Tennyson – Supplementary Site Contamination Assessment*, GHD, April 2003;
- *Tennyson Powerhouse Site – Review of Land Contamination Documentation*, GHD, August, 2002;
- *Preliminary Environmental Site Assessment Sub Station 51, Former Power Station, Tennyson, Qld*, ERM, April 2002;
- *Final Report – Supplementary soil sampling at Tennyson Power Station*, Simtars, Feb 1997;
- *Final Report – Soil Testing at Tennyson Power Station*, Simtars, Jan 1997;
- *Stage 1 Contaminated Land Assessment – Tennyson Power Station Site*, GHD, November 1996;
- *Soil Samples – Tennyson Power House*, Simtars, July 1996;
- Informal Site Discussions held with the EPA, and EPA correspondence dated 8 August 2003; and
- Scope of Works & Cost Estimate – Stage 2 Assessment & Remediation for the removal of the site from the EMR, GHD.

2. Third Party Reviewer

In line with EPA expectations, a Third Party Reviewer (TPR) will be engaged to provide independent certification of the remediation works. The TPR will report directly to the EPA, who remain the regulatory authority for the works.

3. Goal of the Remediation Strategy

Remediate all significant contamination and obtain a Suitability Statement from the EPA stating that the site is suitable for any use and may be removed from the Environmental Management Register (EMR), in accordance with the *Environmental Protection Act 1994*.

4. Further Site Assessment Required

The EPA has undertaken a preliminary review of the above reports, and confirmed that further site assessment is required to provide additional assurances prior to removing the site from the EMR. An allowance for this assessment has been made.

5. Identified Remediation Requirements (Two Areas)

Based upon the assessment works undertaken to date, the remediation of two areas will be required in order to remove the site from the EMR:

- Historic underground fuel tank; and
- Former machinery maintenance area.

The total volume of material to be remediated is estimated to be around 100 m^3, and an allowance for these remediation works has been made. No significant truck movements or heavy equipment required.

6. Potential Additional Remediation Requirements

The further assessment has potential to identify unforeseen contamination that may require remediation prior to removing the site from the EMR. A remediation contingency has been allowed for, however, this contingency may not be sufficient to cover significant or large scale unforseen contamination. The key risks are:

- ***Contamination Under the PowerStation*** – this area represents one of the largest areas of the site that has not been subject to assessment (some 20,000 m^2). It is possible that there is contamination underlying the building.
- ***Asbestos Cement Fragments*** - the area of the former sub-station and above ground diesel storage tanks identified occasional asbestos cement sheeting fragments at depth within a fill layer. It is likely that the EPA/TPR will require some form of intensive assessment and/or remediation in this area.
- ***Groundwater*** - some elevated heavy metal and petroleum hydrocarbon impact previously identified within the groundwater, however there are no levels requiring immediate intervention. Possibility that the proposed groundwater assessment will identify significant groundwater contamination cannot be ruled out.
- ***Other*** - Possibility that the further assessment will identify other unforeseen contamination requiring remediation.

In the event of significant unforseen contamination, it may be possible to leave part of the site on the EMR and still obtain a Suitability Statement to proceed with the development. Whilst this is not the goal of the remediation works, it may be examined should time and budget considerations be limited with respect to addressing significant unforseen contamination.

7. Timing

The key to determining any requirement for additional remediation works will be to undertake the further assessment works. These **assessment works should be undertaken as soon as practicable**, to allow the maximum time to deal with unforseen or unexpected issues.

Whilst the area beneath the buildings will not be available until after demolition, expediting the assessment / remediation works over other site areas will significantly reduce the overall project risk without adding any significant additional assessment costs. The indicative timing for the works is:

- 1 to 2 weeks – liaise with EPA and appoint TPR
- 1 to 2 weeks – TPR reviews site information and provides comment
- 2 to 3 weeks – site assessment (excluding building footprint) and identified remediation works
- 1 to 2 weeks – submit samples to laboratory and obtain certificates of analysis
- 2 to 4 weeks – reporting and TPR liaison and determination of any unforseen remediation issues
- ***Timeline break for demolition of buildings, and commence resolving any unforseen issues***

APPENDIX C– REMEDIATION STRATEGY

- 1 to 2 weeks – complete site assessment under demolished buildings
- 1 to 2 weeks - submit samples to laboratory and obtain certificates of analysis
- 2 to 4 weeks – complete reporting and TPR liaison
- ***Possible timeline break to finalise resolution of unforseen issues, if any***
- 4 to 6 weeks – TPR sign-off, EPA concurrence and issue of Suitability Statement

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

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LAMBERT & REHBEIN
ENGINEERS • MANAGERS • SCIENTISTS

MIRVAC

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

2.1 Introduction

This report forms part of the Development Application for a Preliminary Approval for a Material Change of Use for the development of the State Tennis Centre (STC) and multi-unit dwellings and associated facilities on the site of the former Tennyson Powerhouse.

The report is a preliminary assessment of Ecological Sustainability Development (ESD) inclusions and actions that will be further investigated during the planning and detailed design phases. This report intentionally highlights what initiatives have been considered and the processes that will be undertaken to further identify ESD opportunities. The actions highlighted in this report are not conclusive and as a result of further detailed investigations may be modified, added to, or rejected.

This preliminary assessment of potential ESD inclusions has been developed by the cumulative efforts of the Mirvac Tennyson Riverside Development ESD Committee. This Committee is made up of representatives from Mirvac, HPA, Lambert and Rehbein, Lincolne Scott, EDAW Gilliespies, Thomson Kane and Steve Paul and Partners.

2.1.1 The Project

The project involves the development of a new STC and the Tennyson Residential Development (TRD) on the site of the former Tennyson Powerhouse located at Tennyson Memorial Avenue and Softstone Street Tennyson. The development includes the following components:

State Tennis Centre

- World class tennis centre with a 7,000 seat capacity;
- 22 match and training courts (grass, clay and acrylic hard court "grand slam" surfaces);
- Facilities for community tennis;
- Tennis Queensland Headquarters ;
- Home base for Queensland Academy of Sports tennis program; and
- Car parking.

Residential, Retail and Commercial Development

- 6 residential apartment buildings (385 apartments);
- Retail and commercial space on the lower floor;
- Gymnasium;
- Swimming pool/s; and
- Car parking.

2.1.2 Site Description

At the time of lodgement it is anticipated that a reserve for sport and recreational purposes will have been granted to the Department of Local Government, Planning, Sport and Recreation over the subject site.

The real property description of the reserve is:

Lot 1 on SP 164685

County Stanley

Parish Yeerongpilly

Title Reference: 49104467.

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

It is expected that the following easements will be registered on the reserve at the time of application:

Queensland Electricity Transmission Corporation Limited (Powerlink)

- Easement B on SP 184023 benefiting Lot 2 on SP164685 for electricity and access purposes.

Energex Limited

- Easement A on SP184022 for electricity purposes
- Easement B on SP184023 for electricity purposes
- Easement C on SP184024 for electricity purposes

Lot 566 on SP 104107, which accommodates the Department of Primary Industries and Fisheries Animal Research Institute (DPI&F site), is included in the subject application only for the purposes of the following components of the development:

- The main access road to the proposed development is from Fairfield Road;
- The pedestrian/cycleway which connects the proposed main access road to the foreshore area of the subject site;
- The pedestrian pathway connecting the main access road to the proposed overbridge to Yeerongpilly Railway Station at the Fairfield Road frontage of the site; and
- Car parking associated with the State Tennis Centre.

Other than an amended access arrangement to the Institute, no changes to the Institute activities are proposed as part of this application. The site is bounded by the Brisbane River to the north, Softstone Street and the eastern end of King Arthur Terrace to the west, the Corinda Yeerongpilly Rail corridor and Tennyson Memorial Drive to the south and the DPI&F site to the east.

The site upon which the State Tennis Centre and proposed residential development is to be developed currently contains the now decommissioned Tennyson Power Station and other ancillary buildings and structures.

2.2 Mirvac's ESD Policy

"Mirvac Queensland is committed to being an industry leader in introducing new technology and design practices related to sustainable development. Our passion remains to deliver innovative residential communities, individual dwellings and services consistent with community, environmental and government expectations. Mirvac Queensland currently approaches the design of each house or apartment building as a site-specific response with an integrated consideration of environmental sustainability through orientation, energy efficiency, special arrangement and fenestration. Through ongoing research and development into sustainability issues, we will further seek to understand and anticipate our markets, customers and competitors and respond with innovative solutions. Working with state government, local authorities, special interest groups and the communities in which we develop will help us achieve our goals. We are committed to continuing this long journey toward the smart and sustainable development of Queensland and contributing to our envied way of life."

Chris Freeman, CEO Queensland.

2.3 Aims

The design and construction of the STC and the multi-unit residential development are to adopt the following ESD principles:

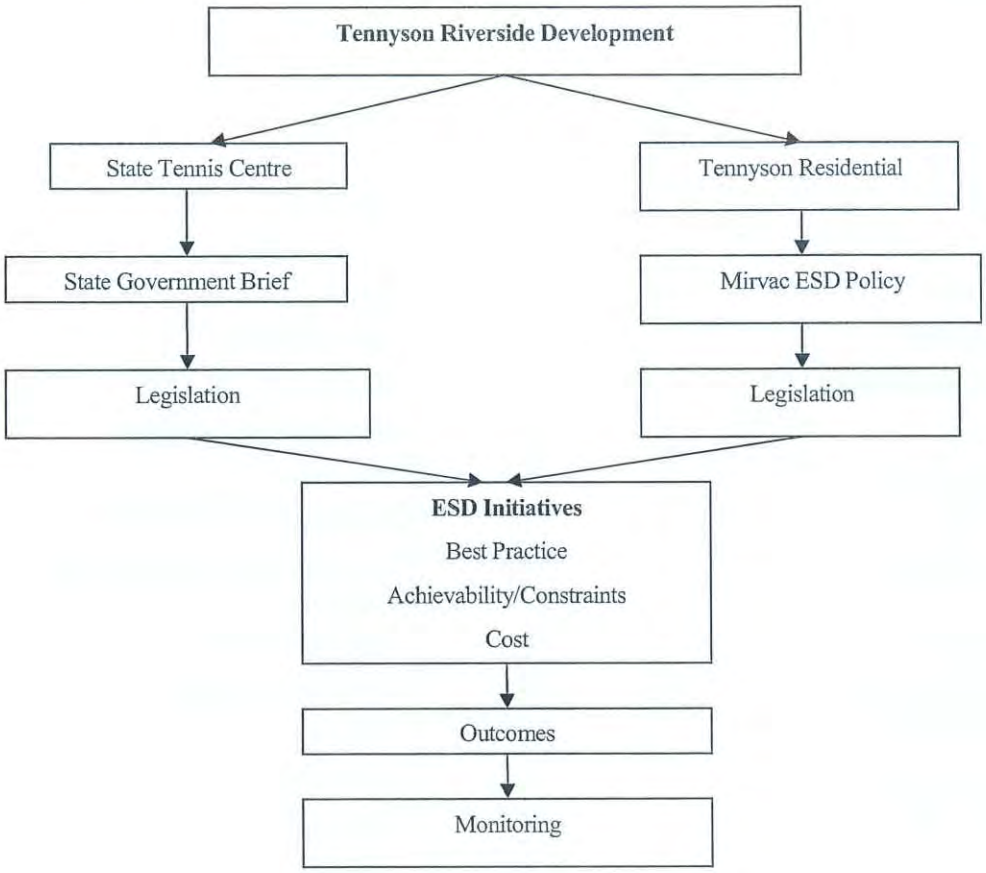
- Passive design;
- Energy conservation;
- Water conservation;
- Minimisation of fossil fuel usage associated with transport;
- Preservation of natural features;
- Protect and improve biodiversity;
- Building materials conservation;
- Waste minimisation; and
- Enhancement of indoor air quality.

A major aim of Mirvac is to set the benchmark for sustainable large scale development/redevelopment projects. Ongoing monitoring and reporting to local and state government authorities is viewed as a key component of benchmarking and assessment of initiatives. Monitoring and assessment will assist in future planning for similar projects.

2.4 Process

The Project Development Team consists of specialists in Architecture, Landscape Design, Engineering, Environment, Construction and Planning. ESD is a core component of the project brief and team members meet to address ESD initiatives on a regular basis. Specialist expertise is used to identify and evaluate ESD initiatives. Initiatives are addressed using a set criterion that includes meeting the goals of ESD, meeting all local, state and federal legislative requirements, achieving best practice, cost competitiveness, practical achievability, constraints and innovation.

The following framework has been used in the assessment of ESD initiatives:



2.5 ESD Inclusions

Mirvac established an ESD Committee for this project to oversee and drive the process of identifying, assessing and incorporating a range of ESD inclusions into this project. It is Mirvac's experience that ESD opportunities must be assessed against specific project parameters to determine their viability. For the successful inclusion and integration of ESD initiatives into a project such as the Tennyson Riverside Development, this assessment must be commenced early, be assessed rigorously and be documented and monitored throughout the project.

Equally as valuable within this process is past experience on similar projects. Mirvac is fortunate to have recently completed their riverside Cutter's Landing project and are currently working their way through the Development Approval process for their Newstead Riverpark Project. Lessons learned through both these projects have been tabled and will be invaluable to ongoing assessment programs.

To date, a preliminary assessment of potential ESD initiatives has been undertaken with a number of potential initiatives identified. The preliminary assessment of potential inclusions has been developed via a number of ESD workshops, discussions with Cutters Landing and Riverpark personnel and based on the experience of the specialist consultants on the ESD Committee. To date the initiatives identified for assessment in accordance with the relevant category headings are:

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

Categories and Potential ESD Initiatives

1	**PASSIVE DESIGN**		**4**	**ENERGY USE**
1.1	Design for climate		4.1	White goods
1.2	Choosing a site		4.2	Hot water service
1.3	Orientation		4.3	Solar hot water
1.4	Passive solar heating		4.4	Heating and cooling
1.5	Passive cooling		4.5	Lighting
1.6	Insulation		4.6	Renewable energy general
1.7	Thermal mass		4.7	Photovoltaic systems
1.8	Glazing		4.8	Wind systems
1.9	Shading		4.9	Micro hydro/tidal systems
1.10	Rating tools		4.10	Batteries and inverters
2	**WATER USE**		**5**	**SITE IMPACTS**
2.1	Reducing water demand		5.1	Biodiversity on site
2.2	Rainwater		5.2	Erosion and sediment control
2.3	Wastewater re-use		5.3	Noise control
2.4	Stormwater		5.4	Sustainable landscape
2.5	Outdoor water use		5.5	Rehabilitate riparian zone (litter, bank stabilisation etc)
2.6	Sewer mining		**6**	**OTHER IMPACTS**
3	**MATERIALS USE**		6.1	Streets and communities
3.1	Embodied energy		6.2	Transport
3.2	Waste minimisation		6.3	Health and Safety
3.3	Indoor air quality		6.4	The adaptable house
3.4	Construction systems		**6**	**MISCELLANEOUS**
3.5	Biodiversity off-site		6.1	Monitoring
3.6	Re-use recycling of demolition materials		6.2	Marketing

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

2.5.1 Concept Design

As stated earlier, Mirvac's Tennyson Riverside Development ESD Committee have met on a number of occasions to workshop ESD opportunities and potential inclusions and to discuss past experience in relation to these opportunities. The outcome of these workshops has been the recognition that a number of current design strategies incorporate sustainable principles and practices and the identification of a range of potential ESD inclusions to be assessed for inclusion in this project.

To explain Mirvac's position on Passive Design principles, we have referred to the Commonwealth of Australia's publication (2004) Your Home Design for Lifestyle and the Future.

This publication breaks passive design up into ten different fundamental principles; design for climate, choosing a site, orientation, passive solar heating, passive cooling, insulation, thermal mass, glazing, shading and ratings tools.

Where ever possible Mirvac have incorporated the ten principles into the design as they will improve the comfort levels for occupants, reduce heating / cooling bills and reduce greenhouse gas emissions from heating, cooling, mechanical ventilation and lighting.

The following is an explanation of each principle for the STC and associated development at Tennyson. Further, Mirvac and HPA have developed sketches to graphically demonstrate how these initiatives and concepts have been incorporated into design

CATEGORY	ESD INCLUSION IN CONCEPT DESIGN
PASSIVE DESIGN	**Design for Climate.** Refers to the climate of South East Queensland. Brisbane's climate is characterized by hot and sometime humid summers with mild winters with a moderate to low diurnal (day/night) temperature range. The key design principles employed provide a comfortable, liveable building focused on the following: • Maximise external wall areas (plans ideally one room deep) to encourage cross ventilation; • Site buildings northerly for exposure to breezes; • Shade whole building where possible in summer; • Allow passive solar access in winter months only; • Shade all east & west walls & glass year round; • Use reflective and bulk insulation and vapour barriers; • Use of elevated construction with enclosed floor space, to capture breezes; • Choose light coloured roof and wall materials; and • Provide screened and shaded outdoor living.
	Choice of Site. The following have be considered: • An assessment of the sites microclimate has been undertaken to inform the design; • The buildings footprints have been optimised to increase the area available for landscaping, to catch cooling summer breezes and solar penetration; and • The buildings footprints reduce impacts on site.
	Orientation. The northerly orientation of the residential buildings is to exclude sun in the summer, allow it to penetrate in winter and expose to cooling breezes in the summer. These cooling breezes are typically from the north – east and site specifically from the river.

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

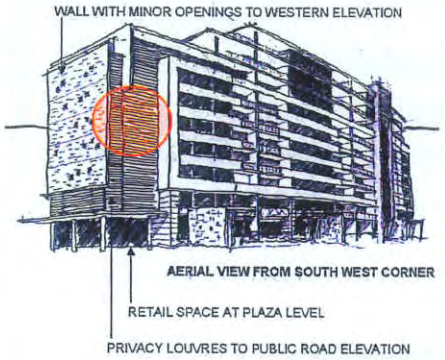
CATEGORY	ESD INCLUSION IN CONCEPT DESIGN
	Passive Solar Heating. Methods to be used include: • Northerly orientation of daytime living areas; • Appropriate areas of glass on northern facades; • Passive shading of glass; • Insulation and draught sealing; • Floor plan zoning based on heating needs; • Advanced glazing solutions; and • Careful selection of floor finishes.
	Passive Cooling. Consideration must be given to: • Encouraging air movement through the internal spaces; and • Capturing cooling breezes.
	Insulation. Where required external walls, floors and roofs shall have bulk insulation with reflective foil to meet or exceed requirements of energy assessment.
	Thermal Mass. Where appropriate for achieving a comfortable living environment further investigation is required into: • Protection from summer sun and exposed to cooling night breezes; and • Shading of thermal mass from summer sun.
	Glazing. Consideration will be given to: • Low U-Value Windows; • Solar control (tinted) glazing to reduce solar heat gain; • Shading of glass; and • Aluminium-framed windows and doors.
	Shading. Methods employed will include: • Shading of the building and outdoor living spaces throughout the year; • North fixed or adjustable shading placed horizontally above window; • East and west adjustable vertical screens outside window; • NE & NW adjustable shading; • SE & SW planting; • Veranda design; • Eaves design; and • External surfaces light in colour.

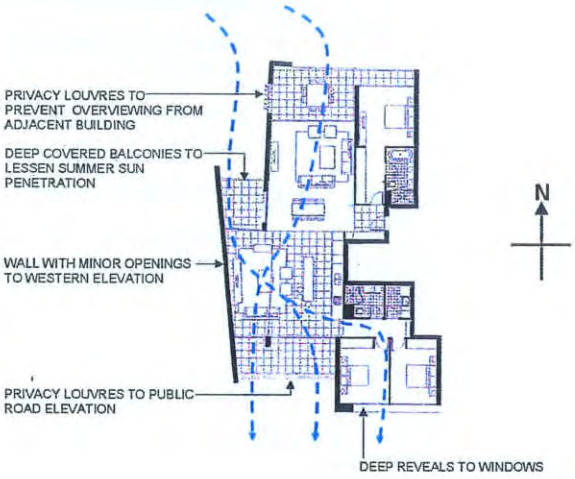
APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

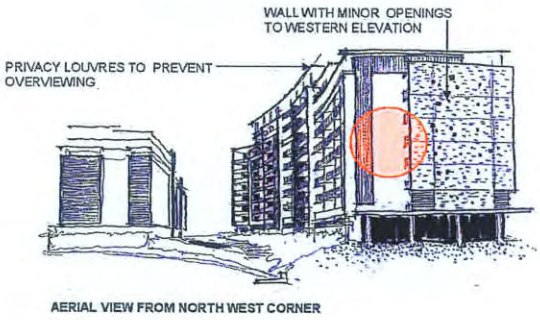
	Ratings Tools. As part of further development of the project, ratings systems and targets will be established including: • Achieving or exceeding current Queensland BCA legislation of 3.5 stars; • Assessment of energy performance of the building envelope; • Inclusion and implementation of energy efficiency of appliances and services; • Analysis of performance of individual components (eg. windows, insulation and wall construction); • Evaluation of lifecycle environmental impact of the materials used in terms of emissions and depletions; • Investigation of ratings tools and appropriate targets; and • Employment of an energy consultant in the design development phase to maximise the buildings performance.

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

Tennyson Residential - Passive Design Principles







hpa architects planners interior designers

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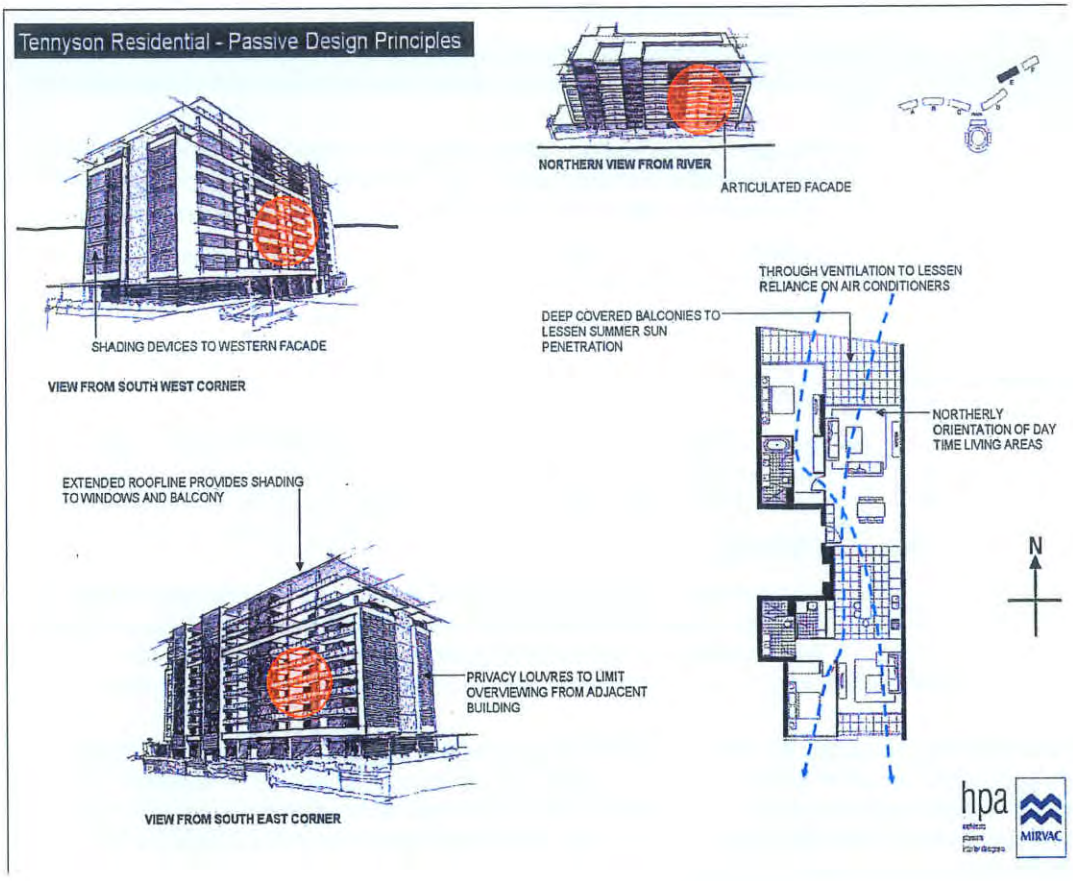
APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT



APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

2.5.2 Landscape Design

Further to the Passive Design inclusions within the concept design, Mirvac's Landscape Architect Team Edaw Gillespies, have incorporated a number of ESD inclusions within their design to date.

CATEGORY	ESD INCLUSION IN LANDSCAPE DESIGN
LANDSCAPING	**Planting.** • The park planting strategy utilises hardy, low maintenance species suited to this riparian corridor. All public garden areas are easy to access for maintenance and will be contoured to harness site overland flow, thus reducing irrigation requirements. • Generally, the plant palette incorporates native species suited to South-East Queensland conditions. Plant selection will be appropriate to the location of the particular garden bed to reduce irrigation requirements.
	Bio-retention. • Species located within bio-retention and bio-remediation zones are selected for tolerance to periodic inundation. The plants and soil matrix used act as part of the overall system to treat surface runoff prior to discharge into the stormwater system.
	Reuse and Recycling. • It is proposed to incorporate bricks from the demolished power station within the landscape design, eg: as brick gabion walls. Iconic remnants of building fabric, such as rivetted steel sections could also be incorporated, perhaps to public areas..

2.5.3 ESD Opportunities

In addition to the above design inclusions, the ESD Committee have workshopped the ESD categories and inclusions for implementation opportunities specific to this site. The following table details these opportunities. It is these potential inclusions that will undergo the assessment process detailed in the following Sections. It should be noted that this list is not exhaustive and should additional opportunities be identified through the design and construction phases of the project, assessment of their individual cost and non-cost merit would be undertaken.

CATEGORY	POTENTIAL INCLUSION
WATER	**Rainwater:** • Rain water harvesting; • Stormwater runoff treatment and collection; and • Runoff water's directed through Landscaping or bioretention.
	Grey /Black Water: • Grey water collection and reticulation; • Air-conditioning condensate; and • Sewer mining.
	Rain/Stormwater Re-Use Opportunities: • Capture, treatment and re-use of storm water decreasing the need for town water supplies for irrigation of site and grass tennis courts and will minimise the loss of top soil and fertilisers into the river. • Reticulate through residential and tennis centre buildings for use in toliet cisterns and other non-potable needs; • Irrigation – road reserves, landscaped areas, tennis courts; • Car washing; and • Heat Transfer for HVAC (utilise stormwater storages).

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	River Water Use Opportunities: • Use in pools; and • Heat transfer.
	Water Minimisation Opportunities: • Flow restrictors; • AAA Rated Shower Heads (9litres/min); • AAAA Rated Dual flush cisterns (4.5/3L); • Water efficient appliances; • Cisterns connected to rainwater storage; • Waterless Urinals at Tennis Centre; • Irrigation of landscaping with captured stormwater; and • Efficient irrigation systems.
	Infrastructure Reuse Opportunities: • Existing stormwater outlets and head walls; • Concrete channels and storages for stormwater; and • Investigate extending capacity of Fire Sprinkler tank within the building as a storage option.
	Storage Facility Opportunities: • Reuse existing infrastructure (as detailed above); • Tanks, cells, bladders, modular systems; • Slow release options; and • Large capacity rainwater tanks.
	Storage Location Opportunities: • Under concourse STC; • Under road reserve corridor; • Residential basements, visitor car parking; • Existing pump house locations; and • Existing trench locations.

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CATEGORY	POTENTIAL INCLUSION
ENERGY	**HVAC Opportunities:** • Central A/C plant residential and STC Admin facilities utilising river water or stormwater storages cooling; • Opportunistic heat transfer from A/C to hot water system; • Reverse cycle A/C – Residential; • Mixed mode A/C with natural ventilation to supplement STC Admin facilities; • Wind assisted ventilation (turbines toilet exhaust, power generation); • Automated veresol blind system with performance glass to assist passive design solutions; • Clothes dryers versus drying court; • Carpark exhaust ventilation – ducts vs more air; • Energy efficient appliances; • Operable Louveres placed horizontally at first meter above and below windows STC Admin facilities; • Solar hot water collectors for STC Admin facilities; • Trickle vent facades on living spaces in Residential; • Core shaft ventilation system for single sided apartment design; • Smart meters installed in each apartment; and • Independent Energy Audit early in design phase.
	Hot Water Opportunities: • Solar Hot Water • Heat exchange opportunity with HVAC system; • Gas hot water – solar boosted; • Solar hot water – gas boosted; • Solar hot water – electric boosted; and • Centralised heat pump with solar assistance;
	Lighting Opportunities: • Maximise natural lighting; • Investigate lighting design options; • Skylights – standard, laser-cut or prismatic; • STC solar collectors; • Red powerpoint for guaranteed supply; • Residential solar collectors; • Gym solar collectors; • Energy efficient lighting; • Landscape lighting (solar); and

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

	• Tennis Centre off peak or emergency lighting being solar powered.
	Alternative Energy Source Opportunities: • Photovoltaic cells; • Green electrical supply; • Natural gas; • Wind turbines; and • Tidal/hydro power.
	Opportunities Specific to the Resdiential Gymnasium: • Sub-terrain pipe work within slab to provide ground cooled air to gym; • Polished concrete floor; • Ceiling fans and ceiling height of 3.5m; • Glazing component approximately 30%; • Mirrors ideally placed on western wall; • Translucent polycarbonate clerestory roof component to facilitate passive cooling and provide filtered natural light (approx. 30% of total roof area); • Use of Louvres for manual control of air movement through space; and • Independent energy audit early in design phase.

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

CATEGORY	POTENTIAL INCLUSION
MATERIAL USE	**Opportunities:** • Select materials that will minimise maintenance and replacement; • Where possible use building materials that are made and sold locally, with low embodied energy; • Use of recycled and reusable materials from the Power Station where possible; • Use of plantation timbers; • Use of water based. Low volatility paints; • Use of low VOC floorings; • Minimise use of over packaged goods; and • Investigate materials such as: o Bamboo flooring; o Lifestyle timber decking (Gym); and o Pre-cast concrete boardwalk system.
WASTE	**Opportunities:** • Re-use of demolition wastes within construction; • Re-use of demolition material as landscaping highlights; • Minimise construction wastes through reduction in packaging, and reuse of materials on or off site; • Bulk recycling at STC and Residential; • Waste collection options - bulk or other; • Green wastes chipped and mulched on site; and • Clean up and ongoing maintenance of tidal areas from litter and debris.
SOCIAL	**Internal Opportunities:** • Orientation/insulation/shading; • Daylight within apartments; • Apartment mass and cross-ventilation; • Low VOC bedroom finishes; • Social sustainability- accessibility to apartments, corridor widths, wheelchair access; • Indoor air quality reduction/elimination of: o MDF o VOCs
	External Opportunities: • Public access to open space and sporting facility; • Options for public transport; • Cycle facilities; and • Walkways.

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

CATEGORY	POTENTIAL INCLUSION
SITE IMPACTS	**Opportunities:** • Remediation of site – reuse of materials if not contaminated; • Sustainable planting options; • Native planting schemes; • Recycled landscaping; • Shade and Shadow; • Pathways and permeable pavements; and • Grass type suited to SE Qld climate.
BIODIVERSITY	**Opportunities:** • Rehabilitation of Riparian Corridor; • Preservation of Riparian corridor for habitat and fauna movement; • Remediation and Rehabilitation of balance of site; • Incorporate low maintenance, native species endemic to the region throughout landscaping; and • Selection of shade species.

2.6 Assessment of Potential Inclusions

Initially, Mirvac propose that through their regular ESD workshops to document an extensive range of potential ESD inclusions specific to this site and it's location. Inclusions would generally follow the categories and sub categories listed above, including a miscellaneous category to capture innovative, "out of the box" possibilities not suited to a particular category.

Mirvac envisage that the initial assessment of each potential inclusion will be undertaken in three steps being a Cost Assessment, Non-Cost Assessment and a Combined Cost Non-Cost Assessment. For each item, each assessment will result in a score (eg 1-10 with 1 being worst case). The combined Cost and Non-Cost will enable a priority ranking of potential inclusions for further ongoing assessment.

Cost Assessment – assessment of the proposed inclusion against the industry standard alternative. The assessment will include Capital and Ongoing costs where known or where a reasonable estimate can be made against the industry standard.

Non-Cost Assessment – assessment of the social and environmental benefits of the proposed inclusion in direct comparison to the industry standard.

Combined Cost Non-Cost Assessment – involves the combination of the two scores to provide a priority ranking of inclusions for this development.

The Priority Ranking of inclusions will be the basis of further more rigorous assessment. For example, the top ten ranked potential inclusions in each category will progress to the next stage of assessment. Each of the prioritised inclusions will then be reviewed in detail. It is likely that the review will incorporate at least the following assessments:

- Real and Life Cost assessment – including pay back periods;
- Valuation of social and/or environmental benefit;
- Constructability; and
- Maintenance and operational requirements.

In addition to the above assessments, Mirvac propose to explore the opportunities recently developed by the Urban Development Institute of Australia (UDIA) through their Enviro-development concept. This concept aims to harness existing support for sustainable development by providing practical solutions to the obstacles facing potential sustainable developers.

The UDIA website states "*Enviro-development is a market-driven incentive-based framework to harness the commitment and enthusiasm of governments, councils, developers and suppliers and encourage more sustainable developments.*

It is designed as a partnership between local government, state government, developers (through UDIA) and other stakeholders. Enviro-development is designed to be applicable to a range of situations including greenfield and infill sites, detached housing, high-rises and industrial developments."

With the information and support available through the Enviro-development concept combined with "Lesson's Learned" on previous projects, Mirvac and HPA propose to conduct the assessment through the conduct of ongoing workshops with the committee, designers, specialist consultants, construction personnel and the Mirvac Development Team.

Once the range of inclusions are determined, Mirvac's ESD Committee propose to establish appropriate Performance Criteria, KPI's and a process of monitoring and recording the process of each inclusion. Mirvac have established an "excel" based assessment tool to record this process and this is referred to in the following Section.

Mirvac propose to document this process through comprehensive monitoring and recording and the development of an Interim and Final ESD Report summarising the inclusions, monitoring, performance to date and any "Lessons Learned".

APPENDIX D – ECOLOGICAL SUSTAINABLE DEVELOPMENT

2.6.1 ESD Assessment Tool

Mirvac are committed to the integration of ESD principles in all of our developments, as stated in our ESD policy document. Our current ESD database is a tool to monitor projects against a recognisable set of criteria. These criteria are based on a set of parameters established by the Commonwealth Government through the Institute for Sustainable Futures and the Sydney University of Technology and published as the "Your Home" Technical Manual.

These criteria are not seen in any way as being exhaustive, and will be added to in time. More importantly, the database is seen as only one tool used to monitor and benchmark the project as it progresses from conceptual design through to construction completion, occupation and operation.

Mirvac and HPA will continue to monitor the identification, investigation, evaluation and adoption or rejection of ESD initiatives by means of external consultation, reference to legislation and recording against the criteria of our database and other standards, tools and publications such as the Melbourne Dockland ESD Guide, the NSW Basix program, the BCC Sustainability Home Checklist for Units & Apartments, Accurate, BERS and Green Star assessment tools, amongst others.

At this early stage of conceptual design, we are not necessarily excluding any ESD initiatives nor setting unrealistic benchmarks or ratings beyond legislatives requirements. However, we are adopting a tiered approach to ordering ESD initiatives in terms of the ability to reasonably deliver on them for the residential component. We see that a minimum energy rating of 4 Stars and a target of 50 points of more against the BCC Sustainability Checklist are realistic goals to set.

Mirvac's National ESD Committeee and the newly formed State Committees will closely monitor the progress of the Tennyson Project and the implementation of ESD initiatives as part of our National ESD policy.

A copy of the "Excel" based tool is attached for your information.

Level of Assessment and Applicable Codes Table and Supplementary Residential Provisions

Tennyson Riverside Development Level of Assessment and Applicable Codes Table	
Level of Assessment	**Applicable Codes**
Self Assessable:	
Park where it is consistent with the intent of the approved Masterplan for the site	Park Code
Home Business where complying with the Acceptable Solutions of the Home Business Code	Home Business Code
Code Assessable:	
Centre Activity where constituting a café, restaurant, shop or office located on the ground floor level of a multi-unit dwelling and resulting in a total gross floor area for such purposes outside of the State Tennis Centre not exceeding 200m²	Supplementary Residential Provisions for the Tennyson Riverside Development
Multi-Unit Dwelling	Residential Design – High Density Code except as varied by the Tennyson Riverside Development Masterplan and the Supplementary Residential Provisions
Operational Works for **Filling or Excavation**	Filling and Excavation Code
Reconfiguring a Lot where entailing a subdivision of existing or approved buildings or for the purposes of an access easement, rearranging boundaries, road or park dedication or a utility installation	Subdivision Code

Tennyson Riverside Development
Supplementary Residential Code Requirements

It is proposed that residential development within the Tennyson Riverside Development site be assessed against the Residential Design – High Density Code with the exception of the following replacement provisions. These provisions will apply in lieu of the corresponding Performance Criteria and Acceptable Solutions of the High Density Code.

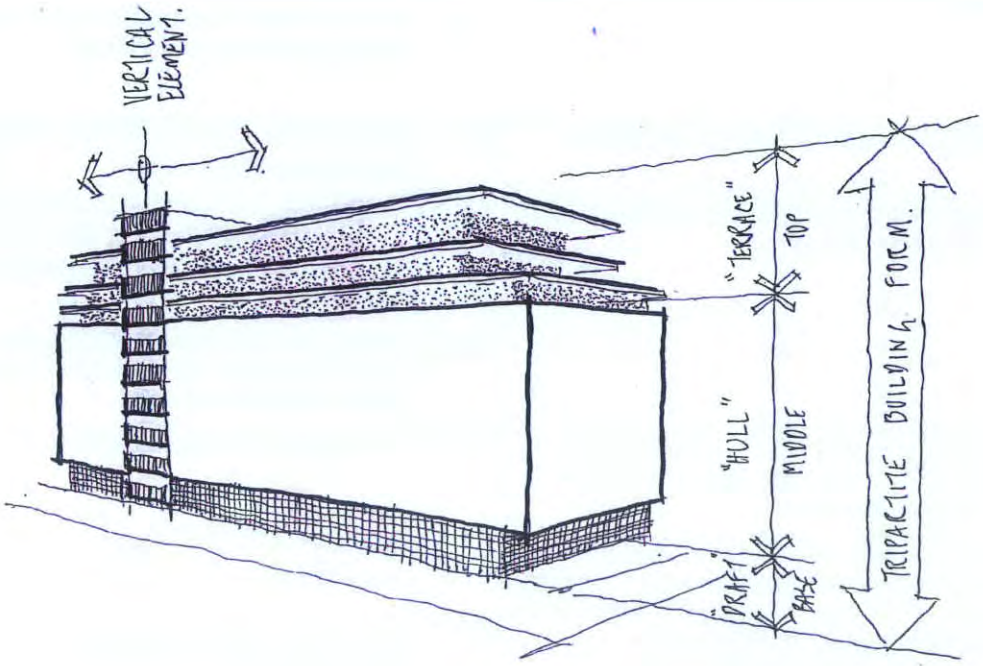
Purpose:

The purpose of these replacement Code provisions is to facilitate development that is consistent with the approved Tennyson Riverside Development Masterplan.

	Performance Criteria		Acceptable Solution
P2	Building size and height must be consistent with the principles of the Tennyson Riverside Development Masterplan.	A2.1	The maximum gross floor area for residential purposes on the site does not exceed 88,079 m2.
		A2.2	Buildings are to be contained within the approved building envelope plans 00-DA0002 and 00-DA0003.
P3	The appearance of building bulk is reduced by design elements	A3.1	Building design adopts principles shown in *diagram a.*
		A3.2	Service structures and mechanical plant are screened or designed as part of the building.
P4	Buildings are designed to address the street and the river.	A4	Buildings have windows and balconies that overlook both the street and the river.
P11	Development must provide sufficient communal and open space for residents' needs.	A11.1	The provision of communal and public open space on the site complies with the approved Tennyson Riverside Development Masterplan and Landscape Masterplan.
		A11.2	Private open space for dwellings complies with the requirements o f A11.3 and A11.4 of the Residential Design – High Density Code.
P12	Clothes drying facilities are to be provided for all dwellings. Such facilities are not to be visible from surrounding public places.	A12	No Acceptable Solution is prescribed.
P13	Screening and partial enclosure of balconies is limited to privacy and comfort for residents without resulting in unattractive buildings or the appearance of excessive bulk or restricting opportunities for passive surveillance of the street or public park areas.	A13.1	Screening of balconies occurs only in situations where needed to prevent noise, overlooking or shading.
		A13.2	Screening devices are incorporated into the design of the building and do not detract from design principles shown in *diagram a.*
P16	Buildings setbacks are not to unduly detract from the amenity of neighbouring residences. Relevant development must maintain adequate levels of natural ventilation and light penetration to neighbouring habitable rooms, balconies and private open space.	A16	Buildings are to be contained within the approved building envelope plans 00-DA0002 and 00-DA0003.
P20	Pedestrian spaces, courts, landscaping or recreation areas must be more prominent than vehicle movement areas and utility spaces.	A20.1	Each building has a prominent pedestrian entry that connects a foyer directly with a footpath.
		A20.2	Resident parking is contained within basements, the top of which do not exceed 1 metre above the adjacent

			vehicle movement and hardstand areas.
		A20.3	Where the basement extends above ground level, this is integrated into the landscaping and/or building articulation.
P21	Vehicle access and parking must be safe and convenient for residents, visitors and service providers.	A21.1	Two parking spaces are provided for each dwelling within the basement of the building.
	Resident and visitor parking must be provided according to : • The number, size and type of dwellings provided • The availability and acceptability of kerbside parking adjacent to the site • Local traffic or parking management The likely preference of the occupier or target market.	A21.2	0.25 visitor parking spaces per dwelling are provided in an open and unenclosed area located generally in accordance with the approved Masterplan.

Diagram A –



APPENDIX G – RESIDENTIAL HIGH DENSITY CODE

RESIDENTIAL DESIGN - HIGH DENSITY

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
Building size and orientation		
P1 Buildings built prior to 1900 must be retained (whether in a Demolition Control Precinct or not)	**A1** Buildings built prior to 1900 are reused, refurbished and retained	Not Applicable
P2 Building size must be consistent with the intentions for the Area	**A2.1** Maximum gross floor area is no more than: ▪ GFA = (1.8 times site area) – 500 (where GFA and site area are both expressed in square metres) OR ▪ 1.5 times site area, whichever is less **A2.2** The site area is a minimum of 800sqm and has a minimum frontage of 20m. **A2.3** Building height at any point is no more than: ▪ 30m from ground level to the underside of the ceiling of any habitable room ▪ 10 storeys above ground level Refer to *Figure a* **A2.4** Building length is no more than 30m in any direction	Refer to P2 of the Supplementary Residential Provisions. This specifies that building size and height will be controlled by way of building envelopes and a maximum gross floor area. A total gross floor area for the residential component of the development has been specified. This excludes the gross floor area of the State Tennis Centre as this will be constructed in accordance with plans approved as part of a Development Permit. A Masterplan has been prepared which has resulted from an extensive planning exercise. The height of the proposed residential buildings does not exceed the height of the existing power station building at RL45.520m. However, as illustrated in the design principles diagram and the architectural elevations, the buildings are generally stepped down at the end. The buildings contain up to ten residential levels with 2 levels of basement below. Due to the variable ground levels and the Q100 flood level being set at RL 7.9m and the habitable floor levels set at RL 8.4metres, there are some components of the residential buildings that exceed 10 storeys above natural ground level on the river side of the buildings.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
		It should also be noted that the Building Envelope Plans use the RL 8.4m as a base datum. This is due to the variation of ground levels occurring on the site. Notwithstanding this, this proposed height limits of all buildings are based on RL levels.
P3 The appearance of building bulk must be reduced by design elements	**A3.1** The building bulk is reduced by a combination of: ▪ balconies and recesses ▪ variations in materials and building form	Refer to P3 of the proposed Supplementary Residential Provisions. These provisions are considered to reflect the design principles to be adopted in the design of the residential buildings within the development. As reflected in the architectural elevations, a combination of balconies, recesses and variation in forms and materials assist in articulating and reducing building bulk. The design philosophy is also addressed in the Volume 3 Design Report accompanying the application.
	A3.2 Setback from a road alignment is a minimum of: ▪ 8m for building walls ▪ 4m for balconies, eaves, awnings, garden structures, etc.	The building setbacks are set by the proposed building envelopes. Setbacks to the proposed access road are variable.
	A3.3 Elevations show variation in materials, colours, and/or textures between levels	Refer to comments in response to A3.1 above.
	A3.4 Roofs include pitches, gables, skillions or other features	

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
P3 continued	**A3.5** Services structures and mechanical plant are screened or designed as part of the building	Services and mechanical plant will be incorporated in to the design of the building.
P4 The development must be orientated to the street Refer to *Figures c and d* *Note:* *North or north-east facing windows, balconies or decks may be permitted to provide lesser levels of privacy than would otherwise be allowed by this Code where this will significantly improve passive solar design*	**A4.1** Building front elevation is parallel or nearly parallel to the road frontage **A4.2** Building is not set back more than 10m from a road alignment **A4.3** Building has living area windows or balconies that face the street or are on the front of the building **A4.4** Basement parking structures between a street frontage and the main front elevation are no more than 1m above ground level at any point	Refer to P3 of the proposed Supplementary Residential Provisions. Given that the design of the residential buildings forms part of an overall Masterplan of the site, it is considered appropriate that this Performance Criteria be replaced with provisions that are more specific to the site and the buildings positioning between a proposed road and Brisbane River. Notwithstanding this, the residential buildings will have openings and balconies that face both the road and the river. The façade treatment facing the street needs to balance the need for surveillance of the street and presentation of an interesting and articulated elevation with the need to provide occasional noise attenuation to activities at the State Tennis Centre and sun screening towards the west. An alternative provision is proposed in the Supplementary Residential Provisions to reflect the constraints of the site. Due to the minimum habitable floor level being set at RL 8.4 metres, areas of basement protrude above existing ground level. In these situations, it is proposed that regrading of the ground level and landscaping or edge planting will occur.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
P5 Building elevations must visually balance the height of the building	**A5** A number of the following design elements are introduced: ▪ variations in plan shape, such as curves, steps, recesses, projections or splays ▪ variations in vertical profile, with steps or slopes at different levels ▪ variations in the treatment and patterning of windows, sun protection devices, or other elements of a facade ▪ elements of a finer scale than the main structural framing ▪ a layered facade effect, where the planes containing most windows are recessed behind penetrated planes, structural framing, balustrades, friezes, grilles or sun shading devices ▪ balconies, verandahs or terraces ▪ planting at any or all levels, particularly on podiums or low level roof decks ▪ light coloured materials	Refer to P5 of the Supplementary Residential Provisions. These describe the proposed design elements proposed for the residential buildings.
P6 Roofscapes must be attractive and not marred by a cluttered display of plant and equipment	**A6.1** Service structures and mechanical plant are designed as part of the building or screened effectively **A6.2** Building caps and rooftops contribute to the architectural distinction of the building	Service structures and mechanical plant will be incorporated in to the design of the buildings so as not to be visible from outside the site.
Building appearance and setting		
P7 Landscaping must be consistent with the established landscape character of the area and accommodate the retention of existing vegetation, including street trees	**A7** Established trees are retained where removal is not required to site new buildings	The Ecological Report in Volume 7 of the application details vegetation to be removed. The report confirms that the vegetation on the site of most significance is within the riparian corridor. Most of this vegetation will be retained. The need for its removal is addressed in the Ecological Report.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
P8 The development must include landscaping that contributes to a pleasant and safe environment and integrates well with the neighbourhood	**A8.1** Landscape design allows the overlooking of the street and pedestrian entry areas **A8.2** Landscape design emphasises a clear pedestrian entry point	The Landscape Design principles in the Volume 3 Design Report address these requirements.
P9 Fencing and walls must: ▫ assist safety and surveillance of the street and entry areas ▫ enable use of private open space abutting the street ▫ assist in highlighting entrances	**A9.1** High solid front fences are avoided so that dwellings can observe the street **A9.2** Height of fences/walls on any road alignment does not exceed: ▫ 1.5m if 50% transparent ▫ 1.2m if solid **A9.3** Solid front fences/walls above 1.2m high are provided only on arterial and suburban routes and: ▫ Fences longer than 10m have gates, indentations or detailing to provide visual interest ▫ Fences are limited to 60% of the frontage where private open space fronts the street.	Compliance with these Acceptable Solutions is achieved by the proposed design.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
P10 The location, height, extent, and materials of retaining walls must be designed to minimise visual impact	**A10.1** Combined height of retaining wall and fence does not exceed 2m **A10.2** Retaining walls are set back from any boundary and are stepped or terraced so that landscaping can soften visual impact	A retaining wall is proposed at the western end of the residential site adjacent to the proposed roundabout and road reserve. This is unavoidable due to the existing level changes and the need to achieve flood immunity for the road reserve. The proposed retaining structure will be incorporated into the landscape design to ensure an acceptable visual outcome is achieved. Where possible it will be stepped and it will contain a feature finish. It is proposed that the design of this area will be included in the detailed landscape design to be submitted to Council for approval.
P11 Development must provide sufficient communal and private open space for residents' needs	**A11.1** A minimum 25% of the site is provided as open space each with a minimum dimension of 5m **A11.2** A landscape area of minimum dimension of 2m is provided along the full frontage of any road frontage (excluding cross-over and pedestrian access only) **A11.3** For a ground floor dwelling, ground floor private open space is provided with: ▪ A minimum area of 35sqm ▪ Minimum dimension of 3m **A11.4** For a dwelling unit above ground level, private open space for each dwelling unit is provided in the form of a balcony with minimum dimension of 3m	Refer to P11 of the Supplementary Residential Provisions. The Masterplan identifies extensive private and public open space areas around the development that will be available for the passive and active use of residents. Balconies and ground floor courtyards will comply with these private open space requirements.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
P12 Communal open space for clothes drying and common recreation facilities must be provided where a significant proportion of dwellings do not have access to ground floor private open space	**A12** Where more than 25% of dwellings do not have access to ground floor private open space, communal open space for clothes drying and common recreation facilities is provided with at least one continuous area a minimum of 50sqm with a minimum dimension of 4m	Refer to P12 of Supplementary Residential Provisions. The residential buildings within this development will be highly exposed to the surrounding public areas. For this reason, it is considered that communal drying areas within the landscaped setting of the site will detract from its amenity. All dwellings within the development will be provided with drying facilities.
P13 Screening and partial enclosure of balconies is limited to provide privacy for neighbours and comfort for residents without resulting in unattractive buildings or an appearance of excessive bulk or restricting opportunities for passive surveillance of the street	**A13.1** Screening of balconies is limited to the side and rear boundaries and the sides of balconies between those units where needed to prevent noise and overlooking of other units or dwellings and recreation areas **A13.2** Street frontages of balconies are not screened or enclosed by shutters, glazing, louvres, or similar permanent structures	Refer to P13 of the Supplementary Residential Provisions. These provisions have been modified slightly to reflect the proposed siting of residential buildings between the State Tennis Centre and a riverside park.
P14 Proposals must be designed to incorporate graffiti prevention measures *Note: For guidance on assess the incorporation of graffiti prevention measures refer to the* ***Graffiti Prevention Guidelines Planning Scheme Policy***	**A14** Building design and layout provide for non graffiti-friendly development, structures and layout by incorporating the following features where practical: • access control measures of vegetation, fencing, lighting, or sprinklers • designs with an absence of 'natural ladders' • minimal unbroken vertical surface areas • graffiti deterrent surface treatments	Wherever possible building walls will be edged with landscaping or garden beds. Alternatively, a range of textures and finishes will be incorporated into the building facades.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
Privacy and access to sunlight		
P15 Habitable spaces must not directly overlook dwellings on adjacent land Energy efficiency and solar access to proposed dwellings must be maintained *Note:* *North or north-east facing windows, balconies or decks may be permitted to provide lesser levels of privacy than would otherwise be allowed by this Code where this will significantly improve passive solar design*	**A15** Where habitable room windows look directly at habitable room windows in an adjacent dwelling within 2m at ground floor level or 9m at levels above ground floor, privacy is protected by: ▪ sill heights a minimum of 1.5m above floor level OR ▪ Fixed opaque glazing in any part of the window below 1.5m above floor level OR ▪ Fixed external screens OR ▪ Fencing to a minimum 1.5m above ground level (only applies to over-looking from windows at ground floor level) OR Achieving the privacy solution shown in *Figure e* OR ▪ Where screening of balconies or decks is required, it is solid translucent screens, perforated panels or trellises that are permanent and durable and have a maximum of 25% openings Refer to *Figures e, f and g*	Complies. Units within the proposed residential buildings will not contain habitable room windows that directly overlook other habitable windows within 9m.
P16 Relevant development must maintain adequate levels of natural ventilation and light penetration to neighbouring habitable rooms, balconies and private open space	**A16.1** Any part of a building higher than 3m is set back from a side or rear boundary a minimum 3m, or half the height of the building at that point, whichever is greater **A16.2** A wall built to a side boundary has: ▪ A maximum height of 3m, unless it abuts a higher existing or simultaneously constructed wall ▪ A maximum length of 15m where it does not abut an existing boundary wall	Refer to P16 of the Supplementary Residential Provisions. Setbacks are established by the Building Envelope Plans and will not result in any adverse impacts on the amenity of surrounding properties. The closest neighbouring residential properties are as follows: The distance from the building envelope of Building A to the property boundary of the closest residential lot in King Arthur Terrace is 28.6m.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
P16 conintued	*Note:* *Where a wall built to the boundary has a height less than 2m measured on the adjacent property, it can extend the full length of the boundary, less any front or rear boundary setback*	The distance from the building envelope of Building F to the property boundary of the nearest residential property to the east, being the residence at the end of Ortive Street is 81 metres. Building F will have a zero setback at its base to the DPI riverfront land immediately adjoining to the east of the site. As can be seen in the HPA elevation, the building will be highly articulated and the BCA requirements will be met.
P17 Development must achieve a pleasant, attractive and manageable living environment Dwellings must receive adequate daylight and allow passage of cooling breezes through habitable rooms *Note:* *North or north-east facing windows, balconies or decks may be permitted to provide lesser levels of privacy than would otherwise be allowed by this Code where this will significantly improve passive solar design*	**17.1** The optimal number of units are orientated to within 20 degrees either side of north **A17.2** Orientation to main living area windows to within 20 degrees either side of north is maximised **A17.3** The majority of private open space has good access to sunlight **A17.4** Window placement and internal layout allows cross ventilation	Residential units satisfy these Acceptable Solutions with regard to orientation, access to sunlight and cross ventilation.
P18 Fenestration and sun control devices must be used effectively to: ▫ shade buildings ▫ reduce glare ▫ assist in maintaining comfortable temperatures"	**A18** Effective sun shading devices are provided to windows	A range of sun and privacy control elements have been designed into the northern and western elevations of the residential buildings. These will include a mix of screening devices and solid elements incorporated into the design of the building.
Specular reflectivity		
P19 Buildings must not incorporate any type of glass or other surface likely to reflect specular rays that could create undue nuisance, discomfort or hazard to any part of the surrounding locality	**A19** Any reflective glass material has: ▫ a level of light reflectivity of not greater than 20% ▫ a level of heat transmission of not less than 20%"	Proposed materials will comply with these requirements.

<table>
<tr><th colspan="3">Residential Design - High Density Code</th></tr>
<tr><th>Performance Criteria</th><th>Acceptable Solutions</th><th>Assessment</th></tr>
<tr><td colspan="3">Car accommodation and vehicular access</td></tr>
<tr><td>P20
Pedestrian spaces, courts, landscaping or recreation areas must be more prominent than vehicle movement areas and utility spaces</td><td>A20.1
The proposal has at least one prominent pedestrian entry that connects a foyer directly with a footpath

A20.2
Any parking structures are contained underground or within a building and are not more than 1m above natural ground level at any point</td><td>Refer to P20 of Supplementary Residential Provisions.</td></tr>
<tr><td>P21
Vehicle access and parking must be safe and convenient for residents, visitors and service providers

Resident and visitor parking must be provided according to:
▪ the number, size and type of dwellings proposed
▪ the availability and acceptability of kerbside parking adjacent to the site
▪ local traffic or parking management
▪ the likely preference of the occupier or target market

Note:
Resident parking provision may be reduced from the rate specified in the Acceptable Solution where public transport is available within a reasonable walking distance or where low demand is indicated</td><td>A21
Off-street parking spaces are provided:
▪ where qualifying for a subsidy for aged persons or persons with disabilities accommodation under any law, 1 car space per 3 dwellings
▪ otherwise, as in Table 1, the total rounded up to the nearest whole number

Table 1 Vehicle spaces for different dwelling sizes
Dwelling unit size (gross floor area) / number of bedrooms — Average vehicle spaces per dwelling

Location | A(1) | B(2)
Small (<75m² or 1 Bedroom | 0.75 | 1
Medium (75-110m²) | 1 | 1.25
Large (>110m²) or 3 Bedroom | 1.25 | 1.5
Plus per dwelling for Visitors | 0.25 | 0.25</td><td>Refer to P21 of the Supplementary Residential Provisions.

The proposed number of carparking spaces for the residential dwellings reflects the target market for the development as specified in the performance criteria.

The target market is dictated to some extent by the location of this site on the Brisbane River, having a northern outlook towards the city mean that the development will target the upper end of the housing market.

As detailed in the Transport and Traffic Report in Volume 4, the proposed number of carparking spaces can be appropriately managed by the local street network and the proposed access arrangements into the site.

Two spaces per dwelling will be provided in the basement of buildings D, E and F for the 200 dwellings. 49 visitor parking spaces will be provided</td></tr>
</table>

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
	Note: Tandem parking may be used where 2 spaces are provided for 1 dwelling *(1) A means any part of the site is within 200m of a pedestrian entry to a railway station, busway station, or ferry terminal, or within 100m of a major road except where the site has its only access to a road where on-street parking restrictions apply* *(2) B means any other circumstances*	at grade on the southern side of the building E in a landscaped setting. It is proposed that some 1300m2 of additional space in the basements will be available for storage. Some of this space could be utilised for storage of motorised vehicles. This would potentially total 27 spaces.
P22 Vehicle access, parking design and location and screening treatment must minimise noise and visual impacts on neighbouring dwellings	**A22.1** Vehicle parking is: ▪ screened to minimise reflection of car headlights onto dwelling windows and attenuate noise ▪ lit at night ▪ separated from habitable windows to minimise noise and fumes disturbance **A22.2** Vehicle parking structures are designed and located: ▪ Behind the building setback, or ▪ Behind or below the building so they are not visually dominant from a public street ▪ To be compatible with overall building design in terms of height, roof form, detail, material and colours ▪ As close as possible to the dwellings to be served **A22.3** The location of visitor parking is discernible from the street **A22.4** Vehicle movement areas are located a minimum of 3m from any adjoining dwellings and acoustic screening is provided next to any vehicle movement or parking areas along the side or rear boundary	The combination of level differences and landscaping will ensure that dwellings are not affected by car headlights. Similarly, the proposed separation will ensure residents are not affected by vehicle noise and fumes. The proposed visitor parking areas are located between the residential buildings and the road. This is the most appropriate location for them given the configuration and characteristics of the site and the development. The visitor parking spaces will be appropriately landscaped to minimise the visual impact of these hardstand areas. The proposed location of the visitor parking areas will be discernible from the street and convenient to residents and their visitors.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
P22 continued	OR A 2m wide vegetated buffer is provided next to any vehicle movement or parking areas along the side or rear boundary Refer to *Figure h*	
P23 Vehicle access to the site and neighbouring sites must not impede the traffic flow on arterial routes. The development must have safe and convenient vehicle access to dwellings and the street network"	**A23.1** The proposal does not use an arterial route for vehicle access to the site **A23.2** Vehicle access is provided to abutting sites that only have frontage to an arterial route, to facilitate access to the abutting site via an alternative street	Not Applicable
Managing light and noise impacts		
P24 Light nuisance must be minimised	**A24** Outdoor lighting complies with the requirements of AS4282 – *Control of the Obtrusive Effects of Outdoor Lighting*	As indicated in the correspondence by Lincolne Scott provided at Appendix J, it is intended that all lighting will be designed to comply with Australian Standard AS4282 and the Light Nuisance Code.
P25 Noise from the development must not affect existing or likely future dwellings on adjacent land unreasonably	**A25.1** Vehicle movement areas are located a minimum of 3m from any adjoining dwellings, or acoustic screening treatment provided to the boundary **A25.2** Any air conditioning plant is located toward the centre of the site **A25.3** Communal open space is located a minimum of 3m from adjoining dwellings or provided with acoustic screening	Complies. Air conditioning plants will be incorporated into the design of the buildings and will not be visible from around the site. This can be appropriately conditioned as part of any development permit. The proposed residential buildings will be in a setting of publicly accessible park and recreation areas. This forms part of the design concept and will be apparent to any prospective purchasers of dwellings within the development.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
P25 continued	**A25.4** The development complies with the **Noise Impact Assessment Planning Scheme Policy**	A Noise Impact Assessment has been carried out and is provided at Appendix M to this volume. The report addresses the requirements of this Policy and concludes that the development generally complies with applicable noise limits. The exceptions to this and proposed noise attenuation requirements are included in the report.
P26 Exposure of new dwellings to noise must be minimised	**A26.1** Noise impacts on dwellings located within 150m of a Centre, Industrial Area, rail corridor, road corridor (suburban routes, motorways and arterial routes) or within a noise exposure contour of 20 ANEF or greater are mitigated to comply with the requirements of the **Noise Impact Assessment Planning Scheme Policy**	As detailed in the assessment against the Industrial Areas – Adjoining Development Code, the proposed residential buildings on the site are not located within 150 metres of Industrial zoned land. Impacts on the dwellings from the proposed State Tennis Centre and the nearby traffic noise are addressed in the Noise Impact Assessment Report provided in Appendix L of this volume.
Utilities and services		
P27 Waste disposal and collection areas must be unobtrusive, and adverse impacts on neighbouring properties must be mitigated	**A27.1** Garbage bin storage and collection areas are located on-site and are screened from view **A27.2** For buildings of ten or more units, on-site bin storage: ▪ Is not located within 5m of a property boundary ▪ Is located within the main building ▪ Is located where it can be accessed by refuse collection services	An integrated garbage storage and delivery arrangement for the residential development is proposed.. This will ensure that garbage bins are appropriately screened from all public places. Discussion is occurring with City Waste Services and a Strategy will be developed which satisfies their requirements in addition to the visual and amenity concerns.

Residential Design - High Density Code		
Performance Criteria	**Acceptable Solutions**	**Assessment**
Affordable housing outcomes		
P28 Low cost housing is encouraged through development bonuses but only if it does not compromise local amenity	**A28** If accommodation provides lodging for permanent residents or is administered by a housing cooperative, a Government or Council agency or charitable organisation to provide low cost, special needs housing or aged care accommodation for at least 10 years and height limits and setbacks are complied with: ▪ The plot ratio of low cost and special needs housing may exceed the plot ratio applicable to multi-unit dwellings in the area ▪ On-site parking may be less than otherwise stated in this Code provided it meets expected requirements	Not Applicable. The proposal development is responding to the requirements of the State Government Brief. As part of the overall development package, Mirvac is providing a substantial contribution to community infrastructure in the form of an important lineal park linkage of some 500 metres which connects to the broader cycle network, improved access to the Yeerongpilly Railway Station for residents of Tennyson, and delivery of a State Tennis Centre.
Design for safety		
P29 Proposals must be designed incorporating crime prevention through environmental design (CPTED) principles *Note: For guidance on assessing the incorporation of crime prevention through environmental design principles refer to the **Crime Prevention Through Environmental Design (CPTED) Planning Scheme Policy***	**A29** Building design and layout incorporates the following features: ◦ Opportunities for casual surveillance and sightlines (e.g. windows overlooking parking and communal areas) ◦ Exterior building designs which promote safety (e.g. clearly visible foyers) ◦ Adequate definition of uses and ownership (e.g. landscaping to define private and communal space) ◦ Adequate lighting (e.g. lighting of potential entrapment locations) ◦ Appropriate way finding mechanisms (e.g. signage) ◦ Minimisation of predictable routes and entrapment locations (e.g. concealed spaces near building entry)	The proposed residential buildings will provide for a high level of surveillance of public areas around the buildings. It is acknowledged that the proposed river park pedestrian pathway will require particular attention to CPTED principles, particularly in the constrained areas. Proposed landscape treatment will recognise the need to differentiate between the private and public realm. Lighting and signage will be incorporated into the design as required.

APPENDIX H – OUTDOOR SPORT AND RECREATION

OUTDOOR SPORT AND RECREATION CODE

Outdoor Sport and Recreation Code		
Performance Criteria	**Acceptable Solution**	**Assessment**
P1 The proposal must provide all overall community benefit	**A1.1** Public access is not restricted by fencing **A1.2** Facilities are located on a district or larger sized park **A1.3** The use includes sporting or athletic grounds used on a non-profit basis	Tennis courts and other areas not intended for public access will be fenced as required. Other areas intended for unrestricted public access will be available as appropriate. N/A N/A
P2 Any buildings associated with the proposal must be ancillary to the outdoor sport and recreation use and must be of a suitable scale	**A2.1** Buildings are limited to less than 10% of the park, are less than 8.5m in height and only include: ▫ Stands and carparking ▫ Shelters and other public conveniences ▫ Kiosks ▫ Clubhouses OR **A2.2** Buildings are identified on a Master Plan adopted as a Planning Scheme Policy	The size and scale of buildings on the State Tennis Centre have been determined by the nature and proposed usage of the facility and the requirements of the State Government's brief. Buildings comprising the State Tennis Centre are included in the Tennyson Riverside Development Masterplan.
P3 The surrounding road system must be capable of accommodating additional traffic generated by the proposal without adverse impacts	**A3** No Acceptable Solution is prescribed	The Transport and Traffic Report prepared by TTM and provided as Volume 4 of this application provides an assessment of the proposed traffic movements generated by the proposal on the local road and transport network. It concludes that the development will not have an adverse impact.

P4 The proposal and its scale, design and character must not adversely impact on and must be compatible with the existing and likely future amenity of the surrounding area Refer to *Figure a*	**A4** No Acceptable Solution is prescribed	The potential impacts from the proposed State Tennis Centre including traffic, noise, lighting and visual impact are addressed in detail in this application. Refer to volume 2 – Appendix L re noise, volume 2 – Appendix J re lighting, Architectural plans for visual images, and volume 4 for traffic impacts.
P5 The nature and type of noise generated must be within the realistic expectations of any affected resident/s	**A5** The use will not generate noise likely to cause an ongoing nuisance *Note: For information on the assessment of noise impacts refer to the **Noise Impact Assessment Planning Scheme Policy***	Refer to Noise Impact Assessment at Appendix L.
P6 Proposals must be designed incorporating crime prevention through environmental design (CPTED) principles *Note: For guidance on assessing the incorporation of crime prevention through environmental design principles refer to the **Crime Prevention Through Environmental Design (CPTED) Planning Scheme Policy***	**A6** Building design and layout incorporates the following features: ▪ Opportunities for casual surveillance and sightlines (eg windows overlooking car parking and communal areas) ▪ Appropriate locations for activity generators (eg communal / recreation space near public pathways) ▪ Exterior building designs which promote safety (eg active frontages and entrances) ▪ Adequate definition of uses and ownership (eg landscaping to define private and public space) ▪ Adequate lighting (eg lighting of potential entrapment locations)	 Surveillance of outdoor areas around the State Tennis Centre will be available from the proposed Tennis Queensland administrative facilites which overlook the site and the proposed residential buildings adjacent to the facility. The State Tennis Centre itself will be an activity generator. Additionally, the proposed venue management building with proposed pro-shop and kiosk will attract people as will the proposed commercial tenancies at the base of buildings C and D which link the tennis centre to the proposed riverside park. Landscape design will define and relate to the proposed usage and tenure of areas within and around the facility. Mirvac has engaged Lincolne Scott to assess the lighting needs of the proposed facility and its

		surrounds. Security in all areas will be a consideration in the proposed design.
	▪ Appropriate way finding mechanisms (eg signage)	Signage will be incorporated in to the facility including signage required for equitable access to and use of facilities.
	▪ Minimisation of predictable routes and entrapment locations (eg concealed spaces near public pathways)	This is an important aspect for EDAW Gillespies in their detailed landscape design for the development.

APPENDIX I – INDUSTRIAL AREAS – ADJACENT DEV. CODE

INDUSTRIAL AREAS – ADJACENT DEVELOPMENT CODE

INDUSTRIAL AREAS – ADJACENT DEVELOPMENT CODE		
Performance Criteria	**Acceptable Solution**	**Assessment**
P1 The level of risk to public safety, property and the environment from technological hazards (including fire, explosion and chemical release) must be within acceptable limits *Note:* *Level of risk can be determined using methodology outlined in the **Hazard and Risk Assessment Planning Scheme Policy***	**A1.1** Uses involving an increase in the number of people on site are not within: • 1,500m of a Major Hazard Facility • 500m of a Heavy Industry Area • 500m of an Extractive Industry Area • 150m of a General Industry Area OR **A1.2** Where uses are within the distances outlined in A1.1, the level of risk from adjacent industry is within acceptable limits	Land to the south of the site on the southern side of Tennyson Memorial Drive is zoned General Industry. The nearest residential building to this GI land is Building A which is 168metres away. Whilst the State Tennis Centre is within 150 metres of the GI zoned land, users of this facility will generally only be occasional visitors to the site.

APPENDIX J – LIGHT NUISANCE CODE

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Friday, 4 November 2005

Lincolne Scott

[redacted]
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Australia

Tennyson Development Application

Dear Jill

We confirm that we have been appointed by Mirvac Pty Ltd as Consultants for the above project and to act on their behalf on technical matters with regard to lighting of the proposed State Tennis Centre.

We confirm that our lighting design for the State Tennis Centre will include the control of obtrusive lighting or spill lighting to adjacent properties. Obtrusive lighting and spill lighting will be minimised by selection of appropriate luminaires, computer modelling to determine aiming angles and location of luminaires and the provision of glare shielding where necessary to achieve compliance with the BCC Light Nuisance Code and AS 4282.

Spill lighting will be designed to the standard AS 4282 for boundaries between commercial and residential properties and for full operation until 10.30 pm. After 10.30pm operation will be restricted as necessary to reduce spill lighting. In summary the lighting system will comply with the following parameters. The Australian Standard AS 4282 forms the basis for acceptable solutions to the BCC Light Nuisance Code.

- Maximum of 25 lux vertical illuminance before 10.30 pm at the site boundaries of adjacent residences.
- For major events where colour television broadcasting is installed, a maximum of 25 lux vertical illumination until completion of the event.
- Maximum 4 lux vertical illuminance after 10.30 pm at the site boundaries of adjacent residences except during major events where the 25 lux vertical illuminance limit will apply for the duration of the event.
- Maximum luminous intensity from each luminaire shall be less than specified levels in Table 2.2 of AS 4282.
- The majority of luminaires shall be total cut-off type (Type C). Luminaires which are note type C will be modified with appropriate glare shields or structure shielding to comply with AS 4282.

It is noted that AS 4284 does not apply when colour television broadcasting is installed. Such instances will occur with major events. In these conditions however spill lighting will still be restricted to a maximum of 25 lux vertical illuminance at the site boundaries of adjacent residences until completion of the event.

Please advise if we can be of further assistance in this matter.

Yours sincerely

[redacted]
Senior Electrical Engineer RPEQ 2817

cc [redacted] - HPA Architects Pty Ltd - ([redacted]

APPENDIX K – NON-DISCRIMINATORY ACCESS CODE

THE ROYAL AUSTRALIAN INSTITUTE OF ARCHITECTS

JOHN DESHON ARCHITECT
ABN 35 100 228 037

19 September 2005 my reference; 056001

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Dear [redacted]

Re: STATE TENNIS CENTRE
NON-DISCRIMINATORY ACCESS AND USE CODE

The Code's Acceptable Solutions require that the design of access be managed in accordance with *AS1428-Design for Access and Mobility*.

Although that suite of Standards includes particular design criteria when designing for children and adolescents with disabilities (AS1428.3-1992), conventional interpretation holds that the Acceptable Solutions did not intend this to be included. As an example, the length of walkways at 1 in 22 gradient would be limited to 4.2 metres because that is the maximum nominated for an age range of 3 to 6.5 years (Table 1). No precinct under the control of the Brisbane City Council meets this Standard.

The suite of Standards also includes design criteria for configuration and location of tactile ground surface indicators (AS1428.4-1992 and AS1428.4-2002). The Brisbane City Council's own design standards contradict their requirements. This design follow the Council's standards.

In all other respects, the design exceeds the Code's Acceptable Solutions. The Draft Access Code, a part of the Draft Disability Standards for Access to Premises (Buildings) published for review in January 2004, contains provisions for the application of Australian Standards which, quite properly, are absent from the Standards themselves. These provisions are applied in the design. The technical requirements embodied in AS1428.1-2001 and AS1428.2-1992 - the remaining Standards in the suite – are observed.

Furthermore, the particular design disciplines imposed by the needs of wheelchair tennis are recognised. In a developing discipline, the design of the Centre intends to demonstrate world's best practice in this respect.

RAIA
PRACTICE REPERA

J Deshon Pty Ltd
ACN 100 228 037

Yours sincerely

[redacted]

[redacted] AM
BArch(Hons) LFRAIA, ARIBA, MIAMA, ACAA
Board of Architects of Queensland Roll Number 753

JOHN POPHAM DESHON AM B ARCH(HONS) LFRAIA ARIBA MIAMA ACAA

MIRVAC

APPENDIX L – NOISE IMPACT ASSESSMENT

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2.0 Executive Summary

This report is in response to a request from Mirvac Pty Ltd for Palmer Acoustics to conduct a noise impact assessment for a proposed State Tennis Centre, and adjoining residential development located at Softstone Street, Tennyson.

It is proposed to construct a Tennis Centre and residential units on the site. The proposed State Tennis Centre will be located to the south of the site. It will include 22 external tennis courts, and a 7000 seat stadium overlooking a centre court. The proposed residential component of the site comprises six residential towers, stepped from 4 to 10 stories high, located adjacent to the Brisbane River.

Following a review of the current plans, and a site inspection, a total of seven noise concerns have been identified as requiring attention in order to avoid noise problems:

- Construction noise emissions onto nearby residences, including demolition of the existing building;
- Noise from stadium and tennis courts, including crowds, public address system, and tennis, onto both the existing neighbouring residences and the proposed residential site;
- Noise from mechanical plant installed as part of the tennis centre development onto both existing and proposed residences;
- Noise intrusion from nearby roads onto the proposed residential units;
- Noise from mechanical plant installed as part of the residential development onto the proposed residences and the existing residences; and
- Carpark noise emissions onto the proposed residences.

From the results presented in this report, the following recommendations and conclusions are made:

- Construction hours should comply with the requirements of the Envonrmental Protection Act, and a construction noise management plan should be adopted for the site;
- Noise from the general daily activities of the proposed State Tennis Centre will generally comply with noise limits at the existing and proposed residences, however large scale events will exceed these limits;
- Building façade detailing will need to consider the impact of noise from the proposed State Tennis Centre onto the proposed residential units, the extent to which will be determined following completion of the building designs;
- It is recommended that the Council accept that exceedances of the noise limits will occur for one or two events per year, where a capacity crowd is expected;
- Mechanical plant installed as part of the proposed State Tennis Centre or the residential units should be designed to meet 41dB(A)$L_{Amax\ adj\ T}$ during the nighttime period and 45dB(A) $L_{Amax\ Adj\ T}$ during the daytime period at the nearest noise sensitive receptors;
- The PA System should be designed to meet a limit of 50dB(A) $L_{Amax\ Adj\ T}$ at the nearest noise sensitive receptors;
- Carparking associated with both the proposed State Tennis Centre and the residential component complies with the Council limits and no further treatments are required;
- Residential Building A will be exposed to road traffic noise levels of up to 65dB(A) $L_{A10(18\ hour)}$. To control the traffic noise intrusion to acceptable levels, the building façade will be required to be upgraded. At this stage, specific unit designs have not yet been completed for this building, therefore based on a worst case scenario, a glazing requirement of Rw 25 has been determined;

2.1 Introduction

This report is in response to a request from Mirvac Pty Ltd for Palmer Acoustics to conduct a noise impact assessment for a proposed State Tennis Centre, and a proposed adjoining residential development located at Softstone Street, Tennyson.

The locality of the site is illustrated on Sketch 1. At the time of lodgement it is anticipated that a reserve for sport and recreational purposes will have been granted to the Department of Local Government, Planning, Sport and Recreation over the subject site.

The real property description of the reserve is:

Lot 1 on SP 164685

County Stanley

Parish Yeerongpilly

Title Reference: 49104467.

It is expected that the following easements will be registered on the reserve at the time of application:

Queensland Electricity Transmission Corporation Limited (Powerlink)

- Easement B on SP 184023 benefiting Lot 2 on SP164685 for electricity and access purposes.

Energex Limited

- Easement A on SP184022 for electricity purposes
- Easement B on SP184023 for electricity purposes
- Easement C on SP184024 for electricity purposes

Lot 566 on SP 104107, which accommodates the Department of Primary Industries and Fisheries Animal Research Institute (DPI&F site), is included in the subject application only for the purposes of the following components of the development:

- The main access road to the proposed development is from Fairfield Road;
- The pedestrian/cycleway which connects the proposed main access road to the foreshore area of the subject site;
- The pedestrian pathway connecting the main access road to the proposed overbridge to Yeerongpilly Railway Station at the Fairfield Road frontage of the site; and
- Car parking associated with the State Tennis Centre.

Other than an amended access arrangement to the Institute, no changes to the Institute activities are proposed as part of this application.

The aim of this report is to present an assessment of the noise impacts associated with the proposed State Tennis Centre and the proposed residential units and assess the impact of noise from nearby noise sources, including road traffic noise from Softstone Street, and assess noise emissions from the proposed State Tennis Centre. The aim is also to recommend noise amelioration measures to ensure compliance with the Brisbane City Council "Noise Impact Assessment Planning Scheme Policy".

Rail noise from the nearby Tennyson Rail corridor has not been assessed in this report as the corridor is located a minimum distance of 210m from the nearest residential unit. Attenuation from intervening buildings including the Tennis Stadium, and also from the significant distance will be sufficient to ensure that noise from the rail corridor is not an issue at the proposed residences.

2.1.1 Existing Site Description

The site is bounded by the Brisbane River to the north, Softstone Street and the eastern end of King Arthur Terrace to the west, the Corinda Yeerongpilly Rail corridor and Tennyson Memorial Drive to the south and the DPI&F site to the east.

The site upon which the State Tennis Centre and proposed residential development is to be developed currently contains the now decommissioned Tennyson Power Station and other ancillary buildings and structures.

2.1.2 Proposed Site Description

The State Tennis Centre will be located to the south of the site. It will include 22 external tennis courts, and a 7000 seat stadium overlooking a centre court. In addition to the tennis courts, the site will also include a gym located along the Softstone Street. Adjoining the Stadium to the north will be an office building, housing a Member's Function area on the third floor. To the west of the stadium will be a Venue Management Building, including catering areas, a café and pro shop.

The proposed residential component of the site comprises six residential towers, stepped from 4 to 10 stories high, located adjacent to the Brisbane River. Parkland will be located between the residences and the River.

The residential development will be constructed over 5 Stages, commencing with Stage 1 located to the east of the site. Sketch 5 outlines the staging of the residential development. Stage 1 will encompass Buildings E F, and the parkland to the north of the building, as shown on Sketch 5. Stage 2 will include the construction of Building D and its associated parkland area. It is located to the southwest of Building E, as shown on Sketch 2. Buildings C, B and A will be constructed during Stages 3, 4 and 5, respectively.

It is understood that all residential units will be air conditioned.

The site layout is shown on the following sketches:

- Sketch 1 Site layout
- Sketch 2 Tennis Stadium floor plan
- Sketch 3 Residential Elevations
- Sketch 4 Sections
- Sketch 5 Staging Plan

2.1.3 Noise Issues Associated with the Site

Following a review of the current plans, and a site inspection, a total of seven noise concerns have been identified as requiring attention in order to avoid noise problems:

i) Construction noise emissions onto nearby residences, including demolition of the existing building;
ii) Noise from stadium and tennis courts, including crowds, public address system, and tennis, onto both the existing neighbouring residences and the proposed residential site;
iii) Noise from mechanical plant installed as part of the tennis centre development onto both existing and proposed residences;
iv) Noise intrusion from nearby roads onto the proposed residential units;
v) Noise from mechanical plant installed as part of the residential development onto the proposed residences and the existing residences; and
vi) Carpark noise emissions onto the proposed residences.

2.2 Equipment and Procedures

2.2.1 Instrumentation

The following instruments were used to measure the ambient noise levels.

- ARL Environmental Noise Logger (s/n 194442)
- ARL Environmental Noise Logger (s/n 194555)
- Rion NC 73 calibrator

The operation of the sound level measuring equipment was field calibrated before and after each measurement session and was found to be within 0.3dB of the reference signal. All instrumentation used in this assessment hold a current calibration certificate from a certified NATA calibration laboratory.

2.2.2 Measurement Procedures

Ambient noise levels were obtained generally to Australian Standard AS1055 - 1997 'Acoustics – Description and Measurement of Environmental Noise Parts 1 to 3'. Measurement location ML1 (Ref Sketch 1) was located adjacent to Softstone Street, along the western property boundary of the site. The logger was located at ground level, with the microphone approximately1.3m above the ground. It was approximately 10m from the nearest running edge of Softstone Street.

The logger located at ML1 was set to monitor the road traffic noise levels between the 21st September and 23rd September 2005. The weather conditions during the survey were generally fine with a temperature range of 10 to 25° C and wind speeds less than 5m/s. The results of the road traffic noise survey are used to quantify the $L_{A10(18\ hour)}$ and $L_{Aeq,T}$ road traffic noise levels impacting onto the site. The $L_{A10(18\ hr)}$ noise level is the average of the $L_{A10(1\ hour)}$ sound pressure levels measured between 6am and midnight and is used to verify the road traffic noise. The prediction model, Pen3D2000, was used to determine future increases in road traffic noise at locations other than the logging location. The Pen 3D2000 modelling software is based upon the 'Calculation of Road Traffic Noise' (CRTN model) produced by the U.K. Department of Transport, copyright 1992. The road traffic noise model is used to derive future road traffic noise impacts at various locations over the proposed development. Further the model is used to predict the effect of noise amelioration measures.

Measurements were also conducted at location ML2 (refer to Sketch 1) to determine the ambient noise levels in the absence of road traffic noise. The noise logger was located along the eastern property boundary, adjacent to the DPI&F site. Noise logging was conducted at Location ML2 over an 8-day period commencing on 15th September 2005. During the measurement period, high levels of wind were present on 16th and 17th September. Measurements recorded during these days have been omitted from the dataset.

To determine the extent of the acoustic treatment required to comply with the internal noise criteria the Rw value for a particular building component (eg windows) is determined by following the procedures set out in Australian Standard AS3671 1989 *'Road Traffic Noise Intrusion – Building Siting and Construction'*.

2.3 Measured Noise Levels

2.3.1 Ambient Noise Levels

Table 1 presents a summary of the measured ambient noise levels at ML2 over the 8-day period. A Graphical representation of the results is presented in Appendix 1. The ambient noise in the area is dominated by insects, birds, and distant traffic.

Table 1: Measured Ambient Noise Levels at ML2 (ref Sketch 1)

Time of Day	Noise Parameter, dB(A)[1]				
	L_{Amax}	L_{A01}	L_{A10}	L_{Aeq}	L_{A90}
Day 6am to 6pm	70.0	60.6	53.0	51.5	41.2
Evening 6pm to 10pm	60.9	53.6	46.9	45.7	39.5
Night 10pm to 6am	61.4	53.8	47.1	44.7	37.5

2.3.2 Measured Road Traffic Noise Levels

Table 2 presents the existing $L_{Aeq,T}$ noise levels measured at ML1. The noisiest night-time $L_{Aeq,1hr}$ period occurred between 6am and 7am. The noisiest daytime $L_{Aeq,1hr}$ period occurred between 7am and 8am. A graphical representation of the results obtained at ML1 is presented in Appendix 2.

Table 2: Measured Traffic Noise Levels at ML1 (ref Sketch 1)

Road Traffic Noise Descriptor	Measured Noise Level dB(A)	Offset to $L_{A10\ 18\ hour}$
$L_{A10\ (18\ hour)}$	62.9	-
$L_{Aeq\ (day)}$	62.5	-0.4
$L_{Aeq\ (night)}$	61.0	-1.9
$L_{Aeq,24Hr}$	59.3	-3.6

[1] Noise levels represent the average noise levels over the time period except for the L_{A90}, this level represents the average noise level below the median

2.4 Noise Criteria and Limits

2.4.1 Road Traffic Noise Limits for the Proposed Residential Units

The road traffic noise criteria for the proposed development are pursuant to Methodology 2 of the BCC City Plan Noise Impact Assessment Planning Scheme Policy (NIAPSP). The internal noise limits are the maximum recommended design sound levels from Australian/New Zealand Standard AS/NZS2107. The site is located within an R3 noise area category under the BCC City Plan. This equates to a limit of 40 dB(A) $L_{Aeq,1hr}$ inside bedrooms and 45 dB(A) $L_{Aeq,1hr}$ in living and work areas. Kitchen and studies are deemed work areas.

Since AS/NZS2107 does not include limits for outdoor recreation areas Section B.2.3 of the NIAPSP draft Noise Methodologies Guideline states that:

'...in areas where outdoor recreation may occur. In such areas the maximum Leq in any one hour period should not exceed 60 dB(A) and the Leq averaged over a 24 hour period should not exceed 55 dB(A).'

2.4.2 Intermittent and Fluctuating Noise Sources from the State Tennis Centre

The proposed State Tennis Centre is scheduled to operate between the hours of 6am and 10:30pm. Based on this, the following NIAPSP methodologies are appropriate:

- "Comparison of Like Parameters" during the daytime, 6am to 10pm
- "Sleep Disturbance" limit during the nighttime, 10pm to 6am

Under the Comparison of Like Parameters criterion, the noise from the chosen parameter should not exceed the ambient noise (in the absence of noise from the commercial premises) by more than 3dB(A). Due to the nature of the Tennis Centre, the appropriate parameter is the L_{A01}. The resultant noise limits during the daytime are presented in Table 3.

Table 3: Derivation of Noise Limits based on Comparison of Like Parameters

Time of Day	Measured Noise Level (from Table 1) dB(A) L_{A01}	Noise Limit, dB(A) L_{A01}
Daytime 6am to 6pm	61	64
Evening 6pm to 10pm	54	57

During the nighttime, it is appropriate to apply the Sleep Disturbance limits. Based on the R3 category, the noise level inside a residential building should not regularly exceed 45dB(A) L_{Amax}.

It is understood that the proposed residential units will be air conditioned. According to NIAPSP an "Attenuation Correction" of 20dB(A) can be added to determine an external noise limit of 65dB(A) L_{Amax} at the building façade.

It is assumed that the existing neighbouring residences along Softstone Street have openable windows facing the noise source. According to NIAPSP, an "attenuation correction" of 5dB(A) can be added to determine an external noise limit of 50dB(A) L_{Aemax}.

2.4.3 Mechanical Plant Noise Intrusion into Proposed Residential Units

The mechanical plant noise intrusion criteria for the proposed development are pursuant to Methodology 2 of BCC City Plan NIAPSP. This methodology applies to the assessment of noise intrusion from mechanical plant. *AS2107 Acoustics – Recommended design sound levels and reverberation times for building interiors* specifies recommended internal ambient noise levels for occupied space. The site is located within an R3 noise area category under the BCC City Plan, due to the commercial and industrial surroundings. This equates to limits of 40dB(A) $L_{Aeq(night)}$ inside bedrooms and 45 dB(A) $L_{Aeq(day)}$ in living and work areas. Kitchen and studies are deemed work areas.

The external limiting criterion for mechanical plant is calculated, by adding the internal limit and attenuation correction. The outcome of this will be the external limit. This limit is adjusted for tonality and impulsiveness.

As the proposed units are to be air conditioned, according to NIAPSP, a correction of 20dB(A) is applied. Due to the tonal nature of the mechanical plant noise, a 5 dB(A) reduction is applied to the limiting criterion. Therefore the external criterion of the mechanical plant noise is 60dB(A) for living areas and 55dB(A) for bedrooms.

2.4.4 Mechanical Plant Noise Emission

The appropriate methodology for assessing noise emissions from mechanical plant is also pursuant to Methodology 2, 'AS2107 – Recommended design sound levels and reverberation times for building interiors' given in NIAPSP. The site is located within an R3 noise area category under the BCC City Plan, due to the commercial and industrial surroundings. The noise limits apply at the nearest existing residential neighbours, located along Softstone Street, namely Residences R1 to R5. The appropriate limits are 40dB(A) $L_{Aeq(night)}$ inside bedrooms and 45 dB(A) $L_{Aeq(day)}$ in living and work areas. Kitchen and studies are deemed work areas.

Assuming that the neighbouring residences have openable windows facing the noise source, a 5dB(A) transmission loss is applied across an open window. A tonality correction of 5dB(A) is added to the source. Based on these, the appropriate limit is 40dB(A) $L_{Aeq\,(night)}$ and 45 dB(A) $L_{Aeq(day)}$ at the façade of the nearest noise sensitive location.

Under the Environmental Protection Regulation (1998), refrigeration and mechanical plant must comply with the following offence noise limits:

- 50 dB(A) between 6am and 10pm, and
- The higher of (between 10pm and 6am) 40 dB(A) or background + 5dB

It is not appropriate to apply offence limits when designing to control mechanical plant noise. Instead, constant noise sources are often designed to achieve a more stringent level of:

- Between 7am and 10pm, Background (L_{A90}) plus 5dB(A)
- Between 10pm and 7am, Background (L_{A90}) plus 3dB(A)

These levels equate to the following design limits when measured at the nearest noise sensitive receptor:

- Between 6am and 10pm, 40dB(A) + 5dB(A) = 45dB(A) $L_{Amax(adj.T)}$
- Between 10pm and 6am, 38dB(A) + 3dB(A) = 41dB(A) $L_{Amax(adj.T)}$

The following limits have been adopted for this assessment:

- Between 6am and 10pm: 45dB(A) $L_{Amax(adj.T)}$
- Between 10pm and 6am: 40dB(A) $L_{Amax(adj.T)}$

2.4.5 Public Address System

It is an Environmental Protection Policy (Noise) requirement that noise from public address systems does not exceed 10dB(A) above background at residential buildings. This level is measured at an affected dwelling as the average maximum level adjusted for tonality. Based on the measured ambient noise levels, this equates to a noise level of 50dB(A) during the daytime and evening and 48dB(A) during the nighttime.

2.5 Assessment of Construction Noise

Whilst the demolition does not form part of the application to Council, a construction management plan is recommended. A construction noise management plan based on "best-practice" is recommended. Construction noise will be controlled through a combination of hours of operation and use of equipment referenced to operation maximum noise levels. Maximum noise levels from proposed equipment will be identified in the construction noise management plan. Elements within this plan will include:

- The restriction of noise-producing activities to the times 7:00am to 6.00pm Monday to Saturday;
- Mobile air compressors, pavement and rock-breakers with the lowest noise rating to meet the job requirements will be used. Recommended maximum sound power levels for compressor and pavement breakers used in noise-sensitive places are 70dB(A) and 101dB(A) respectively. Mechanical plant will be operated using 'best-practice' technology. Noise-suppression devices will be maintained to manufacturers' specifications. Internal-combustion engines will be fitted with appropriate, well-maintained, high-efficiency mufflers;
- Mobile air compressors will operate with doors closed;
- Equipment that is very noisy and/or able to transmit ground vibration, such as jackhammers, compaction rollers and concrete cutters will only be used Monday to Friday. Where possible, acoustic screening will be used. Further reductions in hours of use may be necessary where noise levels on affected premises are high;
- Onsite buildings, plant and equipment will be placed to minimise local disturbance. Plant and equipment near adjacent dwellings will be enclosed and screened to reduce noise;
- Vehicle movements to and from sites will be within standard working hours, that is 7am to 6pm Monday to Saturday. Earlier movements, such as between 6am and 7am, will be discouraged and potentially affected residences will be advised prior to early morning activities such as concrete pours;
- Trucks will not be left with engines running;
- Aspecific operating hours will be allocated for noisy activities;
- Use of noise barriers between the source of the noise and the nearest noise sensitive place, such as sealed enclosures for particularly noisy items of equipment;
- Use of visual signals and mobile telephones instead of horns, hooters and telephone bells in open areas; and
- Efficient exhaust mufflers will be fitted to vehicles, compressors and air-powered tools.

2.6 Assessment of Proposed State Tennis Centre

There are a number of noise sources that will be present from the proposed State Tennis Centre. These include:

- General tennis playing, such as ground strokes and service;
- Loud talking from referee's, coaches and players;
- Whistle blowing;
- Crowd noise such as clapping and cheering;
- Mechanical plant noise; and
- Noise from the public address system.

The proposed Tennis Stadium has a capacity of 7000 people. It is understood that such the general use of the Tennis Centre will be a series of regular, smaller fixtures, with spectators of up to around 100 people. It is our understanding that large scale tennis tournaments, filling the stadium to capacity, will occur irregularly, averaging one or two per year.

2.6.1 Assessment of Tennis Matches, Including Spectator Noise

Measurements of tennis playing, whistle blows and spectator noise have been taken from our extensive database and are presented in Table 4.

Table 4: Measured Noise Levels

Source	Measurement Distance	Noise Level, dB(A) $L_{Amax\ adj\ T}$
Ground Strokes*	5m	78
Service*	5m	79
Loud Talking	5m	65
Whistle Blowing*	1m	95
Clapping / Cheering 100 people	100m	60

* includes penalty for tonality or impulsivity

Noise levels from spectators are directly related to the crowd size. The appropriate relationship between crowd size and noise level has been found to follow the standard of "Doubling crowd size equals a 3 dB(A) rise in noise level". This relationship has been confirmed by measurements completed by Sydney based acoustic consultants, Wilkinson Murray Pty Ltd, who where extensively involved in the prediction of noise from Olympic venues in New South Wales for the Sydney 2000 Olympics. Based on this relationship, it is anticipated that a capacity crowd of 7000 people would produce a noise level of 78dB(A) at 100m.

Prediction of Noise Levels at the Proposed Residential Building Facades

The source noise levels presented in Table 4 have been extrapolated to the façade of each of the proposed residential buildings. The calculations include distance attenuation, shielding from intervening buildings (where applicable), and directivity effects. The resultant noise levels are presented in Table 5. The predictions represent the worst affected façade noise levels. For Buildings C and D, the upper floors will be located above the height of the stadium, therefore, no attenuation will be provided by the stadium walls.

Table 5: Predicted Noise Levels at the Worst Affected Façades of the Proposed Residential Units

Noise Locality	Noise Source	Noise Level @ 10m	Predicted Noise Level at Residential Buildings					
			Building A	Building B	Building C	Building D	Building E	Building F
Tennis Stadium	Ground Strokes*	72	25	30	38	38	27	24
	Service*	73	26	30	39	38	28	25
	Whistle Blowing*	75	29	33	41	41	30	28
	Clapping / Cheering 7000 people	98	52	56	79	79	53	51
	Clapping / Cheering 100 people	80	34	38	46	46	35	33
External Courts	Ground Strokes*	72	56	55	57	57	48	47
	Service*	73	57	56	58	58	49	47
	Loud Talking	59	43	43	44	44	35	34
	Whistle Blowing*	75	59	59	60	60	51	50
	Clapping / Cheering 10 people	70	54	54	55	55	46	45

*Includes adjustment for tonality/impulsivity

From Section 4.2, the appropriate limits at the building façades are:

- Daytime: 64dB(A)
- Evening: 57dB(A)
- Nighttime: 65dB(A)

From the results presented in Table 5, it can be seen that the noise limits are exceeded at the worst affected façades of Buildings C and D for a capacity crowd cheering in the stadium, for a service event in the closest external tennis court, and for whistle blows in the closest external courts.

In addition to this, the evening limits are exceeded at the worst affected façades of Buildings A and B for whistle blows occurring in the closest external court.

It is recommended that the building façade be upgraded to ensure that the internal noise levels from the proposed State Tennis Centre comply with the internal limits discussed in Section 4.2.

Prediction of Noise Levels at the Existing Residential Building Facades

The source noise levels presented in Table 4 have been extrapolated to the façade of each of the existing residential buildings located along Softstone Street. The locality of these residences is shown as RL1 to RL5 on Sketch 1. The calculations include distance attenuation, shielding from intervening buildings, including the proposed gym, attenuation from the proposed retaining wall, and directivity effects. The resultant noise levels are presented in Table 6. The predictions represent the worst affected façade noise levels.

Table 6: Predicted Noise Levels at Existing Residential Façades

Noise Locality	Noise Source	Noise Level @ 10m	Predicted Noise Level at Existing Residences (Ref Sketch 1)				
			RL1	RL2	RL3	RL4	RL5
Tennis Stadium	Ground Strokes*	72	22	23	23	24	24
	Service*	73	22	24	24	24	25
	Whistle Blowing*	75	25	26	27	27	27
	Clapping / Cheering 7000 people	98	48	49	50	50	50
	Clapping / Cheering 100 people	80	30	31	32	32	32
External Courts	Ground Strokes*	72	29	32	35	38	48
	Service*	73	30	33	36	39	48
	Loud Talking	59	33	36	39	41	51
	Whistle Blowing*	75	28	31	34	36	46
	Clapping / Cheering 10 people	70	29	32	35	38	48

*Includes adjustment for tonality/impulsivity

From Section 4.2, the appropriate limits at the building façades are:

- Daytime: 64dB(A)
- Evening: 57dB(A)
- Nighttime: 50dB(A)

From the results presented in Table 6, it can be seen that the noise from the proposed State Tennis Centre complies with both the daytime and evening noise limits for all scenarios at the nearest existing houses located along Softstone Street.

At full capacity, the noise from the stadium exceeds the nighttime limit by 1dB(A) at Residences RL3, RL4 and RL5. It is recommended that during such events where the Stadium is anticipated to be at full capacity, the neighbouring residences be notified of the event. These events are likely to occur one to two times per year. It is recommended that the Council accept that minor exceedances of the noise limits will occur during these occasional major events.

2.6.2 Mechanical Plant Noise Emissions

At this stage of the development, the designs for mechanical services have not yet been completed. Plant selections and locations are unknown. All that can be done is to recommend design limits for the control of mechanical plant noise emissions at the nearest noise sensitive receptors.

It is recommended that mechanical plant installed as part of the State Tennis Centre be designed to meet the following limits:

- Nighttime10pm to 6am: 40dB(A) $L_{Amax\ adj\ T}$; and
- Daytime 6am to 10pm: 45 dB(A) $L_{Amax\ adj\ T}$

To comply with these limits, there are a number of engineering solutions available. Low noise levels are achieved by the engineered selection and application of:

- Low sound power level equipment
- Silencers
- Acoustic enclosures
- Noise barriers
- Vibration isolation systems

The application of such principals and treatments, along with providing maximum separation distances between noise sources and sensitive areas will ensure that noise from plant and equipment.

2.6.3 Public Address System

The PA System must be designed to meet a limit of 50dB(A) $L_{Amax\ adj}$ at the proposed residential units. This can be achieved by careful placement of a distributed speaker system to allow low operating noise levels.

2.6.4 State Tennis Centre Carpark Noise Emissions

A limited number of carparking spaces are to be provided for the State Tennis Centre. This carparking is to be located to the south west of the site, adjacent to the DPI&F site. The carparking has provisions for 163 vehicles, 138 of which will be available for the public, and 25 will be available for staff only.

Typical carpark noise levels measured by this office are presented in Table 7. Predicted impacts at the proposed building façades of Buildings D, E and F are also shown in Table 7. The calculations include distance attenuation.

Table 7: Predicted Carpark Noise Levels

Source	Measured Noise Level at 10m L_{A01} dB(A)	Predicted Noise Level at Building D Façade dB(A)	Predicted Noise Level at Building E Façade dB(A)	Predicted Noise Level at Building F Façade dB(A)
Car start and drive	61	43.1	38.6	37.6
Car Door Closure	64	45.6	41.1	40.2

As can be seen in Table 7, the noise from carparking complies with the Council daytime, evening and nighttime limits at the façade of the proposed residences. No further treatments are required.

2.7 Assessment of Residential Development

2.7.1 Road Traffic Noise Assessment

Existing and Future Traffic Flows

The existing and future traffic flows for Softstone Street were obtained from TTM Traffic Consultants. Predicted traffic flows are based upon projections for the year 2015 and assume a 6% commercial vehicle component. The traffic flows are presented in Table 8.

Table 8: Road Traffic Volumes for Softstone Street

2005 AADT	2015 AADT	% Commercial Vehicles	Speed Zone
11,500 vpd	15,900 vpd	6 %	50km/h

Verification of Traffic Noise Model

The road traffic prediction model was set to calculate existing noise levels at the logging location using the traffic data from Table 8, the location for the logging location and gradient information. The inputs into the PEN3d2000 traffic noise model are presented in Table 9.

Table 9: Inputs into the Road Traffic Noise Prediction Model for the Existing Scenario

Parameter	Softstone Street
18 hr Road Traffic Volume (Vehicles) (based on 94% AADT)	10,810
Traffic Composition (%CV)	6%
Traffic Speed (km/h)	50
Road gradient (%)	4%
Free field/façade corrected	Free field
Receiver Height (m)	1.3
Distance road to receiver (m)	10m

The predicted noise level at ML1 is 63.3dB(A) $L_{A10\ (18\ hour)}$. The measured level was 62.9dB(A) $L_{A10\ (18\ hour)}$. The difference of 0.4 dB is within the modelling tolerance limit of ±2 dB.

Predicted Future Road Traffic Noise Exposure

Table 10 shows the predicted future traffic noise levels noise at the façade of Building A, the closest building to Softstone Street. Due to the separation distances between Buildings B, C, D, E and F and Softstone Street, and the presence of intervening buildings, it is considered that the noise levels at these facades will comply with the Council limits. These buildings have not been assessed.

Table 10: Predicted Future Traffic Noise Levels Across Building A

Location (Ref Sketch 1)	Height above ground	Predicted Noise Levels, dB(A)			
		$L_{A10(18\ hr)}$	$L_{Aeq(day)}$	$L_{Aeq(night)}$	$L_{Aeq(24\ hr)}$
A: Western Facade	1.8	57.8	57.4	55.9	54.2
	4.8	61.9	61.5	60.0	58.3
	7.8	64.4	64.0	62.5	60.8
	10.8	64.8	64.4	62.9	61.2
	13.8	64.9	64.5	63.0	61.3
	16.8	64.8	64.4	62.9	61.2
	19.8	64.7	64.3	62.8	61.1
	22.8	64.4	64.0	62.5	60.8
	25.8	64.3	63.9	62.4	60.7
B: South Western Building Façade	1.8	57.8	57.4	55.9	54.2
	4.8	59.6	59.2	57.7	56.0
	7.8	62.7	62.3	60.8	59.1
	10.8	63.5	63.1	61.6	59.9
	13.8	63.9	63.5	62.0	60.3
	16.8	63.9	63.5	62.0	60.3
	19.8	64.0	63.6	62.1	60.4
	22.8	63.9	63.5	62.0	60.3
	25.8	63.8	63.4	61.9	60.2
C: South Eastern Building Façade	1.8	54.3	53.9	52.4	50.7
	4.8	55.6	55.2	53.7	52.0
	7.8	57.4	57.0	55.5	53.8
	10.8	58.3	57.9	56.4	54.7
	13.8	58.9	58.5	57.0	55.3
	16.8	59.3	58.9	57.4	55.7
	19.8	59.5	59.1	57.6	55.9
	22.8	60.0	59.6	58.1	56.4
	25.8	60.0	59.6	58.1	56.4

Location (Ref Sketch 1)	Height above ground	Predicted Noise Levels, dB(A)			
		$L_{A10(18\ hr)}$	$L_{Aeq(day)}$	$L_{Aeq(night)}$	$L_{Aeq(24\ hr)}$
D: Northern Building Façade	1.8	46.0	45.6	44.1	42.4
	4.8	50.3	49.9	48.4	46.7
	7.8	57.9	57.5	56.0	54.3
	10.8	57.8	57.4	55.9	54.2
	13.8	57.6	57.2	55.7	54.0
	16.8	57.1	56.7	55.2	53.5
	19.8	57.0	56.6	55.1	53.4
	22.8	56.4	56.0	54.5	52.8
	25.8	56.8	56.4	54.9	53.2

According to NIAPSP, an "Attenuation Correction" from outside to inside of 20dB(A) can be applied for a building with air conditioning. Applying this correction to the external noise levels, the internal noise levels are presented in Table 11.

Table 11: Predicted Future Traffic Noise Levels Inside Building A

Location (Ref Sketch 1)	Height above ground	Predicted Internal Noise Levels, dB(A)	
		$L_{Aeq(day)}$	$L_{Aeq(night)}$
A: Western Facade	1.8	37.4	35.9
	4.8	41.5	40.0
	7.8	44.0	42.5
	10.8	44.4	42.9
	13.8	44.5	43.0
	16.8	44.4	42.9
	19.8	44.3	42.8
	22.8	44.0	42.5
	25.8	43.9	42.4
B: South Western Building Façade	1.8	37.4	35.9
	4.8	39.2	37.7
	7.8	42.3	40.8
	10.8	43.1	41.6
	13.8	43.5	42.0
	16.8	43.5	42.0
	19.8	43.6	42.1
	22.8	43.5	42.0
	25.8	43.4	41.9

Location (Ref Sketch 1)	Height above ground	Predicted Internal Noise Levels, dB(A)	
		$L_{Aeq(day)}$	$L_{Aeq(night)}$
C: South Eastern Building Façade	1.8	33.9	32.4
	4.8	35.2	33.7
	7.8	37.0	35.5
	10.8	37.9	36.4
	13.8	38.5	37.0
	16.8	38.9	37.4
	19.8	39.1	37.6
	22.8	39.6	38.1
	25.8	39.6	38.1
D: Northern Building Façade	1.8	25.6	24.1
	4.8	29.9	28.4
	7.8	37.5	36.0
	10.8	37.4	35.9
	13.8	37.2	35.7
	16.8	36.7	35.2
	19.8	36.6	35.1
	22.8	36.0	34.5
	25.8	36.4	34.9

As can be seen from the results presented in Table 11, the predicted internal noise levels, comply with the daytime internal noise limit of 45dB(A). Units located on Floors 2 to 8 along Facades A and B, shown shaded in Table 11, exceed the nighttime limit 40dB(A) inside the building. At these locations, the building façade will need to be upgraded to ensure compliance with the noise limit. At this stage of the development, the Buildings A, B and C have not yet been designed. All that can be done is to recommend indicative treatments, and reassess these treatments following completion of their design.

Acoustic Treatments to Control Road Traffic Noise

Table 11 indicated that the internal noise limit of 40dB(A) would be exceeded inside the units located on Floors 2 to 8 along Facades A and B. As discussed in Section 7.1.3, Building A has not yet been designed. Indicative building façade treatment has been based on the following worst case scenario:

- Master bedroom, 5m x 5m;
- Full height glazing, ie 5m x 2.1m;
- External noise level of 63dB(A) $L_{Aeq\ night}$ (from Table 10); and
- Calculations based on the methods set out in AS3671.

Based on this scenario, the required acoustic performance rating of the glazing would be Rw 25. This equates to an indicative treatment of 6mm glass in commercially rated frames.

It is recommended that following completion of the building design, the exact performance requirement be determined by a suitably qualified acoustic consultant.

2.7.2 Mechanical Plant Noise Emissions

At this stage of the development, the designs for mechanical services have not yet been completed. Plant selections and locations are unknown. All that can be done is to recommend design limits for the control of mechanical plant noise emissions at the nearest noise sensitive receptors.

It is recommended that mechanical plant installed as part of the State Tennis Centre be designed to meet the following limits:

- Nighttime10pm to 6am: 40 dB(A) $L_{Amax\ adj\ T}$; and
- Daytime 6am to 10pm: 45 dB(A) $L_{Amax\ adj\ T}$

To comply with these limits, there are a number of engineering solutions available. Low noise levels are achieved by the engineered selection and application of:

- Low sound power level equipment
- Silencers
- Acoustic enclosures
- Noise barriers
- Vibration isolation systems

The application of such principles and treatments, along with providing maximum separation distances between noise sources and sensitive areas will ensure that noise from plant and equipment complies with limits.

2.7.3 Residential Carpark Noise Emissions

Carparking is to be provided to the proposed residential units. This carparking is located to the south of Building B, and has provisions for approximately 40 to 50 vehicles.

Typical carpark noise levels measured by this office are presented in Table 12. Predicted impacts at the proposed building façades of Buildings B and C are also shown in Table 12. The calculations include distance attenuation.

Table 12: Predicted Carpark Noise Levels

Source	Measured Noise Level at 10m L_{A01} dB(A)	Predicted Noise Level at Building B Façade dB(A)	Predicted Noise Level at Building C Façade dB(A)
Car start and drive	61	58	60
Car Door Closure	64	60	63

As can be seen in Table 12, the noise from carpark complies with Council nighttime limit of 65dB(A) at the façade of the proposed residences. No further treatment is required.

2.7.4 Acoustic Treatments to Control Noise from State Tennis Centre

As discussed in Section 6.1.1, the predicted noise levels at the worst affected building façades of the proposed buildings will exceed the external noise limits for a number of events each year. At this stage, building designs have not yet been finalised for the residential buildings. All that can be done is to determine the required acoustic performance requirement for the worst affected façade, based on a worst-case scenario design.

Similar to Section 7.1.4, the following has been assumed:

- Master bedroom, 5m x 5m;
- Full height glazing, ie 5m x 2.1m; and
- External noise level of 80dB(A) L_{A01} (from Table 5).

An internal noise level of 45dB(A) L_{Amax} is required to ensure sleep preservation. To meet this, the glazing will be required to achieve an acoustic performance rating of Rw 40. This would mean that double glazing would be required for those worst affected bedrooms. As an alternative to this any bedrooms located on the upper floors, namely 8 through to 10, of Buildings C and D, overlooking the stadium, should have minimal glazing along the southern façade. In addition to this, it is important to understand that this design is for events that are likely to occur once or twice per year. It is recommended that the Council accept that exceedances of the noise limits will occur during these occasional major events. The buildings should be designed to ensure that the noise from general everyday activities of the proposed State Tennis Centre comply with the Council noise limits.

2.8 Conclusions and Recommendations

Mirvac propose to construct a State Tennis Centre and residential units on a parcel of land located at Softstone Street at Tennyson.

Following a review of the current plans, and a site inspection, a total of seven noise concerns have been identified as requiring attention in order to avoid noise problems:

- Construction noise emissions onto nearby residences, including demolition of the existing building;
- Noise from stadium and tennis courts, including crowds, public address system, and tennis, onto both the existing neighbouring residences and the proposed residential site;
- Noise from mechanical plant installed as part of the tennis centre development onto both existing and proposed residences;
- Noise intrusion from nearby roads onto the proposed residential units;
- Noise from mechanical plant installed as part of the residential development onto the proposed residences and the existing residences; and
- Carpark noise emissions onto the proposed residences.

From the results presented in this report, the following recommendations and conclusions are made:

- Construction hours should comply with the requirements of the Envonrmental Protection Act, and a construction noise management plan should be adopted for the site;
- Noise from the general daily activities of the State Tennis Centre will generally comply with noise limits at the existing and proposed residences, however large scale events will exceed these limits;
- Building façade detailing will need to consider the impact of noise from the Tennis Centre onto the proposed residential units, the extent to which will be determined following completion of the building designs;
- It is recommended that the Council accept that exceedances of the noise limits will occur for one or two events per year, where a capacity crowd is expected;
- The proposed residential buildings should be designed to ensure that the noise from general everyday activities of the proposed State Tennis Centre comply with the Council noise limits.
- Mechanical plant installed as part of the proposed State Tennis Centre or the residential units should be designed to meet 41dB(A)$L_{Amax\ adj\ T}$ during the nighttime period and 45dB(A) $L_{Amax\ Adj\ T}$ during the daytime period at the nearest noise sensitive receptors;
- The PA System should be designed to meet a limit of 50dB(A) $L_{Amax\ Adj\ T}$ at the nearest noise sensitive receptors;
- Carparking associated with both the proposed State Tennis Centre and the proposed residential component complies with the Council limits and no further treatments are required;
- Residential Building A will be exposed to road traffic noise levels of up to 65dB(A) $L_{A10(18\ hour)}$. To control the traffic noise intrusion to acceptable levels, the building façade will be required to be upgraded. At this stage, specific unit designs have not yet been completed for this building, therefore based on a worst case scenario, a glazing requirement of Rw 25 has been determined.

Subject to the recommended acoustic treatments, it is the opinion of this consultancy that the proposed development will generally comply with the requirements of the BCC "Noise Impact Assessment Planning Scheme Policy.

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2.9 Glossary of Acoustic Terms and Definitions

"AS" means Australian Standard published by Standards Australia.

"AS 1055" means Australian Standard AS 1055.1 1997 Acoustics – Description and measurement of environmental noise.

"AS 1259" means Australian Standard AS 1259 – 1990 Acoustics – Sound level meters, part 1: Non-integrating and part 2: Integrating averaging.

"AS 2021" means Australian Standard AS 2021 – 1994 Acoustics – Aircraft noise intrusion – Building siting and construction.

"AS 2107" means Australian Standard AS 2107 – 1987 Acoustics – Recommended Design Sound Levels and Reverberation Times for Building Interiors.

"AS 3671" means Australian Standard AS 3671 – 1989 Acoustics – Road Traffic Noise Intrusion – Building Siting and Construction

"affected persons" for an activity, means the persons affected, or who may be affected, by noise from the activity.

"ambient level" at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

"A-weighted sound pressure level" means the A-weighted sound pressure level worked out under AS1055.1.

"background level" for a specified time interval, in relation to an investigation of a noise, means the A-weighted sound pressure level that is equalled or exceeded for 90% of that part of the interval in which the investigated noise is absent.

"data logger" means an instrument capable of storing a digital representation of recorded sound pressure levels for subsequent processing

"daytime" means 6:00 am to 6:00 pm.

"dwelling" means any of the following structures or vehicles that is principally used as a residence

- a house, unit, motel, nursing home or other building or part of a building;
- a caravan, mobile home or other vehicle or structure on land;
- a watercraft in a marina.

"environmental values" means the environmental values to be enhanced or protected under the Environmental Noise (1997) Policy.

"evening" means 6:00 pm to 10:00 pm.

"hertz (Hz)" the SI unit of frequency. One hertz is the frequency of a periodic phenomenon of which the period is 1 s.

"immission" for noise at a place, means the receiving of the noise at the place from external noise

"impact" of a noise, means its effect on people and the environment.

"impulsive sound" is sound consisting of one or more very brief and rapid increases in sound pressure.

"intrusive noise" means noise that, because of its frequency, duration, level, tonal characteristics, impulsiveness or vibration –

1. is clearly audible to, or can be felt by, an individual; and
2. annoys the individual.

"L_{A10}" for a specified time interval, means the A-weighted sound pressure level that is equalled or exceeded for 10% of the interval.

"$L_{A10\ (18\ hour)}$" for a specified day, means the arithmetic average of 18 individual $L_{A10\ 1\ hour}$ levels measured between 6:00 am and midnight on the day.

"$L_{Amax,T}$" means the A-weighted sound pressure level obtained by using time-weighting 'F' and arithmetically averaging the maximum levels of noise under investigation, unaffected by extraneous noise, during time interval 'T'.

"$L_{Amax,adj,T}$" is obtained by making adjustments for tonality and impulsiveness as specified in AS1055-1997.

"$L_{A\%,adj,T}$" means the adjusted percent exceedance A-weighted sound pressure level.

"$L_{A90,T}$" means the A-weighted sound pressure level obtained using time-weighting 'F' exceeded for 90 percent of the measuring period 'T'. This is a commonly accepted method for describing the background or quietest times of day.

"L_{Aeq}" for a specified time interval, means the time average A-weighted sound pressure level, within the meaning given by AS 1055.1, for the interval.

"$L_{Aeq\ (day)}$" for a specified time interval, means the maximum time average A-weighted sound pressure level, within the meaning given by AS 1055.1, for the interval 6am to 10pm.

"$L_{Aeq\ (night)}$" for a specified time interval, means the maximum time average A-weighted sound pressure level, within the meaning given by AS 1055.1, for the interval 10pm to 6am.

"L_{OCT10}" for a specified time interval, means the linear (flat) frequency rating for a stated octave band that is equalled or exceeded for 10% of the interval.

"L_{OCT90}" for a specified time interval, means the linear (flat) frequency rating for a stated octave band that is equalled or exceeded for 90% of the interval.

"maximum sound pressure level" means the highest momentary sound pressure level from a single noise event.

"night-time" means 10:00 pm to 6:00 am.

"noise" means unwanted sound.

"perceived noise level" of a sound: the sound pressure level of a reference sound which is assessed by observers having standard auditory response as being equally noisy.

"Rw - the weighted sound reduction index" of a building element is a single number evaluation of its ability to attenuate sound. Rw takes into account the sound transmission loss in each band of a specified set of one-third octave bands. To determine the Rw rating of a building element tests should be conducted in accordance with AS1276-1999 *'Acoustics – Rating of sound insulation in buildings and of building elements Part 1: Airborne sound insulation'*. For windows and doors Rw ratings must take into account the acoustic isolation performance of the frame and not just consider the performance of a fixed piece of glass.

"sound absorption"

(a) Reduction of intensity of sound waves on reflection.

(b) The property possessed by materials, objects or media of dissipating sound energy.

"sound level" means the level of the frequency-weighted and time-weighted sound pressure, as determined by a sound level meter.

"sound level meter" is an instrument consisting of a microphone, amplifier and indicating device, having a declared performance, and designed to measure a frequency-weighted and time-weighted value of the sound pressure level.

"sound pressure level (SPL) dB(A)" of a sound: 20 times the logarithm to the base 10 of the ratio of the r.m.s. sound pressure to the reference sound pressure obtained by the use of the A-weighting network.

"tonal characteristic" of a noise, means the presence of an audible tone that can be identified by third-octave or narrow- band analysis.