

ATTACHMENT “E”

STORMWATER ENGINEER COMMENTS

FINAL

SUTHERLAND SHIRE COUNCIL

TO: Carolyn King
FROM: Guy C Amos
DATE: 10 January 2010
FILE REF: DN10/0007
SUBJECT: 566-594 Princes Highway, Kirrawee – Flooding and Stormwater

I refer to your memo dated 21 December 2010, regarding the proposed mixed use residential and commercial development in 566-594 Princes Highway, Kirrawee (the 'Brick Pit').

I note the documents submitted below in support of the application:

- *"Kirrawee Brick Pit Mixed-Use Development – 566-594 Princes Highway, Kirrawee Environmental Assessment for Concept Plan Part 3A EP&A Act"*, December 2010 by City Plan Services
- *"Part 3A Application for Concept Plan Approval Mixed-Use Development – 566-594 Princes Highway, Kirrawee Response to Drainage and Stormwater Management Matters"*, 12 November 2010 by Northrop Consulting Engineers, Pty Ltd

I have examined the documentation and offer comments for your consideration with respect to flooding and stormwater. Note that my comments are of a preliminary nature only owing to the general lack of detailed information in the applicant's submission.

I understand that this development application will be processed under Part 3A of the EP&A Act, 1979 and that Council is not the consent authority. Nevertheless, my comments can form the basis of conditions of approval should the NSW Department of Planning grant Council the opportunity to have input into an eventual consent.

Background

The existing 43,000 sqm (approximate) site is not serviced by the public drainage network. The undeveloped site drains internally to the brick pit. The proposed development will result in the need to discharge large quantities of urban stormwater and groundwater off-site. Some of the downstream drainage systems are already subject to flooding and water pollution under existing conditions. The proposed development has the potential to exacerbate flooding and water pollution affecting both public and private assets.

Concept Stormwater Management Plan

The stormwater management plan being contemplated by Northrop is largely based on the principles of Water Sensitive Urban Design (WSUD), generally consistent with SSDCP2006 and current urban design 'best practice'. The plan recommends that the generation of stormwater from the proposed development is minimised, reused on-site for beneficial purposes and treated through primarily natural processes prior to discharge off-site. It should be emphasised that the stormwater

management plan is strictly of a conceptual nature with few details or designs to demonstrate its viability. Whether or not the components of the plan can be integrated into the overall urban design of the proposed development without the necessity to make major changes is largely unknown. Thus, the Department of Planning can have little confidence that the concept stormwater management plan can actually be achieved and the necessary outcomes realised.

Groundwater

Northrop offers no definite strategy to manage groundwater flows from the proposed development, which could amount to 50 kL/day. Treatment would also be required prior to discharge off-site to protect the downstream environment, but nothing definite is put forward.

Flooding

Northrop advocates discharging stormwater from the northern one third (1/3) of the site to Oyster Bay catchment and the southern two thirds (2/3) of the site to Dents Creek catchment. **Figure 1** shows the location of the brick pit and downstream catchments currently at risk of flooding. While it is intended to limit the rate of stormwater flow from the proposed development through construction of large On-Site Detention (OSD) tanks, they do not appear to have been integrated into the overall urban design. Further, the suggested OSD capacity is not adequate to ensure that downstream public and private assets will not be subject to increased flooding as a consequence of the proposed development. The applicant had agreed to a maximum rate of stormwater flow to address Council's concerns, but is now proposing to discharge 0.52 m³/sec or 520 litres/sec from the southern 2/3 of the site – This is not acceptable. The extent and risk of flooding downstream needs to be fully identified along with what works would be required to upgrade the public drainage network at the developer's cost to compensate for the likely stormwater discharge from the proposed development.

Ornamental Lake/Compensatory Water-body

Northrop aims to maintain the supply of water to the ornamental lake/compensatory water-body with urban stormwater generated from the proposed development. The runoff will be treated to improve its quality through a variety of natural measures including bio-retention/infiltration. Northrop has used Council's historic water quality data from the inlet to Engadine constructed wetlands as the benchmark on the basis that the Grey-headed Flying Fox is claimed to drink from the open water area of the wetland. I understand that Council's ecological/environmental experts are of the opinion that the more appropriate water quality standard to apply is that at the outlet of Engadine wetland on the basis that it is a better representation of the quality of water that the bats would utilise. If Council's position is accepted then the applicant's proposed stormwater treatment measures will need to be reassessed to determine whether the higher water quality standard can be achieved and whether expanded or upsized measures can be integrated into the overall urban design of the proposed development.



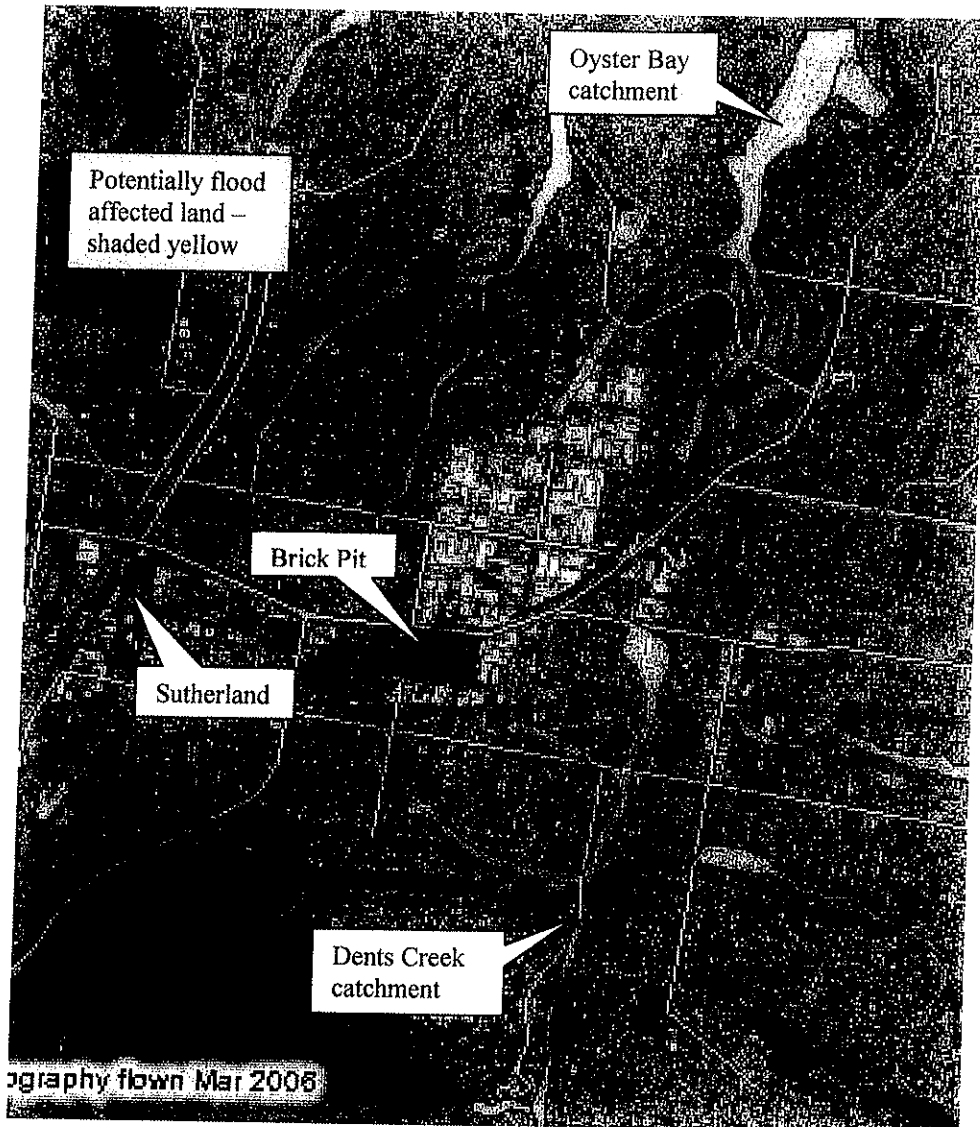


Figure 1 – Location of the brick pit and downstream catchments currently identified to be at risk of flooding.

ATTACHMENT “F”

HERITAGE ARCHITECT COMMENTS

SUTHERLAND SHIRE COUNCIL

TO:	Carolyn King - Development Assessment Officer Ext - 5846
FROM:	Claudia Miro – Senior Heritage Architect Ext - 5181
DATE:	05 January 2011
FILE REF:	DN10/0007
SUBJECT:	Application No. DN10/0007 Description: Concept Plan for Mixed Use Residential and Commercial Development at 566-594 Princes Highway, Kirrawee Brick Pit, Kirrawee Property: 566-594 Princes Highway KIRRAWEE NSW 2232

Carolyn,
Thank you for your referral and my comments are,

Summary

The site at 566-594 Princes Highway KIRRAWEE, known as the Brick Pit, contains the remains of rare "beehive" or down draught pipe kilns and quarry walls. These archaeological remains have associations to the history of pipe and brick manufacturing technology in general and to the development of the Industry in the Sutherland Shire in particular. The Kirrawee's Brick Pit kilns are the only surviving beehive kilns in a metropolitan area.

The Heritage report prepared for the current development application assessed the heritage significance of the site at Local level and potential State context and recommends the conservation in situ and interpretation of Kiln 1 and its setting, the brick pit.

The proposed concept plan for the development for the Former Brickworks at Kirrawee has more opportunities for an acceptable conservation of the heritage significance of the site than previous schemes but lacks of a concise and detailed document to address conservation/maintenance works and interpretation issues.

The proposed works are of a scale and bulk that are not consistent with the history of the site and strong interpretation and display strategies shall be designed to ameliorate the loss of context.

It is recommended that proposed conservation in situ and interpretation of Kiln 1 as well as the retention of part of the brick pit should be described in an Interpretation Plan. Detailed conservation works including but not limited to plans, display strategies of kiln furniture and historical photographs and signage location should be agreed upon before the general scheme for the site is approved.

The Conservation Management Plan for Pipe Kiln at former Brickworks by Edward Higginbotham, 27 October 2010, should be revised and adopted as a working document, a detailed Interpretation Plan prepared for the site and a Heritage Consultant nominated to supervise the conservation works before works commencing.

Background

On November 2008 I commented on the findings of the "Summary of the Results of Archaeological Excavation" by Dr. E. Higginbotham that had been submitted as part of a Development Application for the abovementioned site.

The Report by Dr. Higginbotham showed that,

- I. The site has five surviving kilns relating to the former brick work site still in situ.
- II. Established the significance of the site as it illustrates the theme of the Development of Industry in Sutherland Shire.
- III. That these kilns are "Beehive" kilns, which are extremely rare in the Sydney Metropolitan Area and the nearest comparable kilns are located in the Hunter Valley.
- IV. Of the five kilns, the most intact is Kiln 1, followed by Kiln 2 and are worth preserving.

The report supported the applicants preferred option which was to deconstruct and reconstruct the kiln in the proposed park as part of an integrated art and aboriginal strategy.

However, I found that the archaeological significance of the place and the relics found, warranted the development of a conservation policy directed to the retention of the cultural significance of the site and the conservation in situ of the Kiln 1 which would have entail a relatively small design modification.

The Heritage Branch supported Council's view to conserve the Kiln in situ.

Further changes to the design were made in order to conserve Kiln one in situ although a satisfactory solution was never achieved.

A court judgement supported Council's request for conservation of the cultural significance of the place and, inter alia, the retention of kiln one in situ.

Currently there is a new proposal that is being assessed under Part 3A and Council is preparing a submission to the Department of Planning with comments on the proposed works.

An updated Heritage Impact Statement and a Conservation policy document by Edward Higginbotham & Associates is part of the application.

Full Report

The option of relocating Kiln 1 as identified in Edward Higginbotham's report was found not acceptable and Council with the support of the Heritage Branch requested the conservation in situ of kiln1 and interpretation of the site in response to the principles of the Burra Charter.

In response to the recommendations of the judgment and the Heritage Office the new scheme proposes to conserve the kiln in situ and part of the brick pit as its setting.

The 2008 Excavation Permit findings report and Statement of heritage Impact has been revised and amended and a Conservation Management Plan with policies for the conservation of the site has been prepared by Dr. Edward Higginbotham.

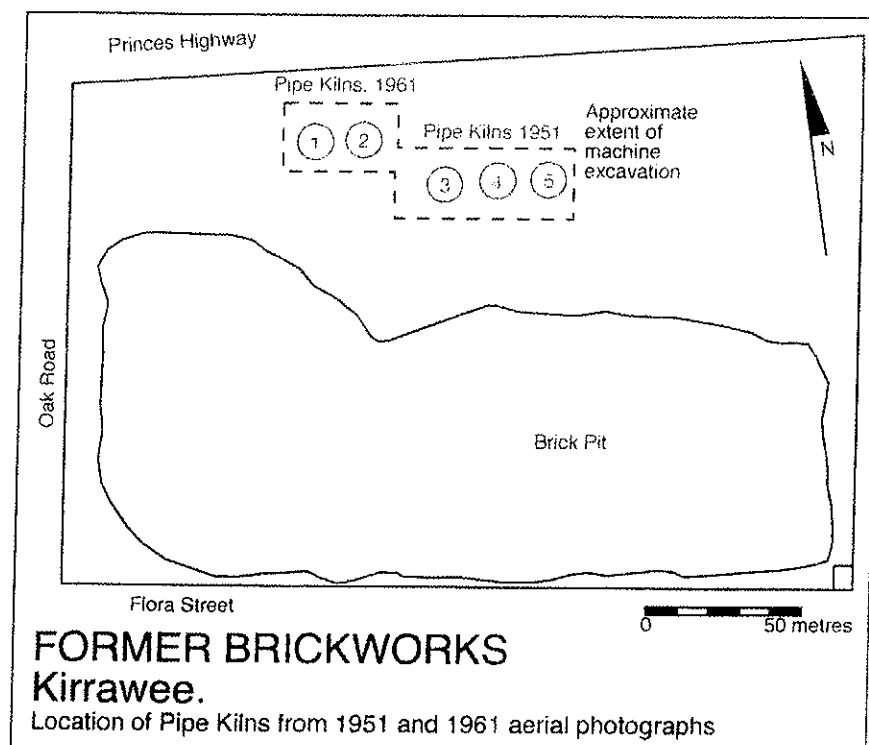
I have revised the abovemention documents and my comments are,

I found acceptable and agree with the following statements and recommendations of the Conservation Management Plan and Heritage Impact Statement for Pipe Kiln at former Brickworks by Edward Higginbotham, 27 October 2010,

1. Conservation in situ of "Beehive" or down draught pipe kiln, Kiln 1, as identified in the report as the one located western of the site, frontage to the Princess Highway and most intact. This option (Option 1) is compliant with the principles of the Burra Charter.

"It ensures that the significance, fabric and authenticity of Pipe Kiln 1 and its setting is retained." (Extract Conservation Management Plan and Heritage Impact Statement for Pipe Kiln at former Brickworks by Edward Higginbotham, 27 October 2010)

2. Conservation in situ of part of the brick pit and quarry walls to the west and south to retain the setting of the Kiln and strategies for its interpretation shall be incorporated to the Conservation Management Plan.
3. *Detailed works and policies related to conservation, interpretation and display of pipe Kiln 1 and its setting compromised by the brick pit, should be fully described in an Interpretation Plan, as required by Condition 16 of the excavation permit (21/11/2008).*
4. *An archaeological monitoring programme for the removal of fill layers during redevelopment should be undertaken to recover significant relics for interpretation and display.*
5. *Work to conserve Pipe Kiln 1 should be undertaken by persons with the relevant skills and trades, for example, archaeologist, engineer and person with skills in pipe kiln construction and repair.*



(diagram from Conservation Management Plan and Heritage Impact Statement for Pipe Kiln at former Brickworks by Edward Higginbotham, 27 October 2010)

The statements contained in the report that I do not find acceptable are,

The twin chimneys of the Kirrawee Brickworks were a landmark, until demolished in 1975. The proposed development should respect this former landmark in its design and appearance as a gateway to Sutherland.

The relationship between a high density development and the brick and pipe production has no historical or social associations and it is incorrect to interpret the excessive height of the development as an allegoric representation of the brick chimneys. There is no heritage justification for that statement and heritage significance of the place will be diminished if the interpretation plan contemplates such relationship or comparison.

8.2 Policy 2. Location and managing change.

Legitimate grounds for justifying relocation are the costs associated with conservation in situ or the practicality of changing the overall design.

Based on the kiln's rarity, the loss of significance from relocating the Kiln 1 will be difficult to be justified under "cost associated with conservation in situ". Simple changes in the design will allow in situ conservation and interpretation.

Policy 3 – Reconstruction

Reconstruction shall be only used with the meaning given by the Burra Charter which is returning to a known and documented former state and not as a possible dismantling and relocation of the kiln.

Conclusion

The proposed concept plan for the development of the Former Brickworks site at Kirrawee has more opportunities for an acceptable conservation of the heritage significance of the site than previous schemes but lacks of a concise and detailed document to address conservation/maintenance works and interpretation issues.

The proposed works are of a scale and bulk that is not consistence with the history of the site and strong interpretation and display strategies shall be put in place to ameliorate the loss of context.

The documentation provided is incomplete and does not provide information on the actual conservation works proposed for the site but the general policies for its management. A detailed works schedule shall be prepared and approved before works commencing.

Recommendations

1. Conservation in situ of "Beehive" or down draught pipe kiln (Kiln 1) and part of the brick pit quarry walls as its setting. This option (Option 1) is compliant with the principles of the Burra Charter.
2. Any reference in the Conservation Management Plan to the landmark qualities of the former twin chimneys of the Brickyard as being interpreted by the excessive height of the buildings or the bulky scale of the development shall be removed. (*recommendation 4 of the CMP*).
3. Proposed conservation works and interpretation of Kiln 1 in situ and part of the brick pit should de described in an Interpretation Plan and strong strategies created to ameliorate the unsympathetic use and scale of the development.
4. Detailed conservation works including but not limited to plans, display strategies of kiln furniture and historical photographs and signage location should be agreed upon before the general scheme for the site is approved.
5. The Conservation Management Plan for Pipe Kiln at former Brickworks by Edward Higginbotham, 27 October 2010, should be revised and adopted as a working document and a Heritage Consultant nominated to supervise the conservation works.

Claudia Miro
Senior Heritage Architect

