

12 December 2006.

**ITEM 20 NISSEN HUT AMENDMENT TO THE WHITES CREEK VALLEY
PARK PLAN OF MANAGEMENT**

C465/06 RESOLVED SHEEHAN/ALLEN

1. That Council approve the amendment to the Whites Creek Valley Park Plan of Management to allow for the community nursery to be located on the Nissen Hut site on Wisdom St Annandale.
2. That the funds for the construction of the Community Nursery at the Nissen Hut site form part of the budget considerations for the 07/08 Management Plan.
3. That should Council approve the amendment to the Whites Creek Valley Park Plan of Management, that Council grant consent to the lodgement of a Development Application for the construction of the Community Nursery on the Nissen Hut site
4. In the interest of coordinated planning for the Rozelle Bay Community Native Nursery and its operation, that that the General Manager contact his counterpart at the City of Sydney to discuss the planning by Centennial Park Stage 3 along The Crescent as open space and the Nursery's future.
5. Further, the Mayor write to the Lord Mayor of City of Sydney in relation to this matter.
6. That there be and on-site meeting with all interested parties.

CARRIED UNANIMOUSLY

WHITES CREEK VALLEY PARK MASTERPLAN AND MANAGEMENT STRATEGIES

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1.0 INTRODUCTION

1.1 Preamble

This document is a new Plan of Management for the section of Whites Creek Valley Park between Piper St and Moore St.

It is divided into six parts which generally reflect the evolution of the new masterplan and its associated management strategies through these stages :

- community requests for a masterplan to address issues related to the buildings at 29-31 White St and the garden allotments
- community meetings
- formulation of a list of community intentions and aspirations
- formulation of a brief reflecting those things
- establishment of a set of objectives for a new masterplan
- development of design responses to those objectives

Part 1 provides an account of the events that led to the commissioning of this Masterplan and Plan of Management. It also sets out a schedule of issues and proposals that arose from a series of community consultations about the future of the park.

Part 2 is an overview of the history of the park, its current condition and its existing uses.

Part 3 sets out the objectives that formed the basis of the brief for the new masterplan and provides an account of how the design addresses those objectives.

Part 4 is a matrix of activities and performance indicators.

Part 5 provides an indicative costing for stage 1 of the Masterplan.

Part 6 is a set of drawings illustrating the completed design and indicating the proposed development stages. These drawings are facsimiles of large scale sheets provided separately.

Appendix 7.1, prepared by Anne Clements and Associates, provides a schedule of plant species appropriate to the area and detailed advice about planting and revegetation. It also deals with issues related to water quality.

Appendix 7.2, prepared by Patterson Britton and Partners Pty Ltd, deals with engineering and hydrographic issues related to various proposals for treatment of the existing channel. It also examines aspects of a wetland scheme proposed by Friends of the Earth.

Appendix 7.3, prepared by Turpin Crawford Artists, addresses community artworks and interpretation.

1.2 Background to the masterplan and management strategies

The masterplan deals with the section of White's Creek Valley between the Moore St bridge and the Piper St aqueduct. It proposes various works on the site but also addresses matters concerning linkages with other parts of a future open space corridor along the creek line.

Under the provisions of the 1951 County of Cumberland Plan, which reserved various areas in the inner suburbs for future conversion to open space, several properties in this part of the valley were zoned for extension of the existing parkland.

As these properties have become available the Department of Urban Affairs and Planning [DUAP] has been acquiring them, demolishing the buildings and transferring the sites to Leichhardt Council for management as public open space under a previous masterplan.

Most of the properties have already been purchased and incorporated into the park. Four properties, 23, 35 and 39 White St and 22 Wisdom St are still occupied and will be acquired in future.

In 1996 DUAP purchased adjoining properties at 29 and 31 White St., intending to transfer them to Council together with some land along the channel behind 19-33 White St that was formerly managed by Sydney Water. Local residents were attracted to some of the buildings on this site, remnants of its earlier use as a dairy farm. In October 1996 they asked Council to delay demolition of the buildings so as to allow time for a public debate about their value and their possible inclusion in the developing parkland.

In response to that request Council resolved on 26.11.96 to :

- i *"Support the handover and consolidation of 29-31 White St Lilyfield and incorporation into Whites Creek Valley Park and seek an assurance that the Department will remain committed to the completion of this Reservation.*
- ii *Advise DUAP that council will support temporary occupancy of the house on 29-31 White St, subject to the occupant making a written agreement to vacate when required for Council purposes.*

Council also resolved to support a consultative process for the development of a masterplan that would take account of the matters put to it by the residents.

Residents were advised of these resolutions through a leaflet drop and through the Precinct Committees.

A series of four public meetings was convened by the Council to explore the range of views in the community about future development of the park and a residents group called 'Friends of Whites Creek Valley Park' [FOWC] was formed.

The first meeting addressed issues, opportunities and problems related to the design, development and management of the open space. Suggestions put forward at that meeting were later incorporated into the brief for the new masterplan.

The second meeting dealt with similar matters but was held on site.

The third meeting was an information night, attended by guest speakers Malcolm Brown, Dept of Land and Water Conservation and Louise Brodie, National Trust. They discussed aspects of creek regeneration, habitat restoration, indigenous plantings and the wetland proposal prepared by Friends of the Earth.

The fourth meeting focussed on formulating a brief based on material from the earlier meetings. It also addressed issues of process, programming, budgeting and future management

During the course of these consultations a group of residents began using parts of the site for various horticultural, craft and social activities and a local person occupied the house at 29-31 White St as a caretaker in accordance with Council's resolution.

A steering committee of Council officers and elected representatives of FOWC compiled an eligibility list of five consultants to carry out initial studies, conduct further public consultations and develop the new masterplan and management strategies. A team of specialist consultants under the leadership of Schaffer Barnsley Landscape Architects was selected to carry out the work.

The consultants participated in a further series of meetings as part of their work.

At a FOWC meeting held on site on 21.2.98 two members of the consultancy team explained the parameters of the project and recorded suggestions and comments from participants. They also conducted a mapping exercise and a ranking exercise to explore views about the relative importance of the wide range of issues produced by the earlier meetings.

A public meeting of about 30 local residents at the Annandale Community Centre was attended by representatives of Schaffer Barnsley and of the hydraulic engineering and environmental consultants. It was also attended by Mr Bruce Lay, Environmental Planner and Mr Vince Caccavo Landscape Architect, both representing Leichhardt Council.

The consultants presented and explained the draft version of the new masterplan and distributed copies of the drawings to assist the ensuing discussion. A wide range of comment and suggestions was recorded during the meeting and the consultants were also provided later with written responses from Leichhardt Council and from number of residents.

A private meeting was held between Mr Ted Floyd, of Friends of the Earth, and representatives of the landscape architects and the environmental consultant to discuss details of the FOE proposal for a wetland in the park.

At various stages during their work on the plan the consultants met with Council officers to discuss issues related to planning and management and to community uses for the buildings at 29-31 White St.

Matters arising from all these meetings were incorporated in the development of the masterplan from its draft to its final stage.

The range of issues and suggestions produced by the public consultations are set out below in section 1.3.

1.3 Community proposals

In the brief the consultants were presented with a wide range of issues and suggestions from the first series of public meetings. These were listed in the brief for the new masterplan and reflected in its objectives.

Other matters arose during the course of the study, at meetings of FOWC and after the presentation of the draft masterplan.

All of these things are set out in this section, classified in the same way as are the objectives in Section 3.

1.3.1 Community proposals related to landscape and physical amenity

- maintain the overgrown appearance and the labyrinth character
- rehabilitate overgrown rear gardens
- maintain mown grass areas for picnics and games
- avoid flower gardens because of their vulnerability to vandalism
- integrate the rose gardens into the park more effectively
- reduce litter in the canal
- provide a path and cycle way along the valley
- provide better connections and new bridges across the canal
- provide more lighting at strategic points
- remove or cover dumped materials
- demolish houses other than 29-31 White St as they become available
- demolish 29-31 White St in accordance with DUAP policy

1.3.2 Community proposals related to social and cultural amenity

- maintain community gardens
- develop a productive landscape
- provide a social place or places
- provide community meeting places
- provide an amphitheatre for group activities
- address the problems of vandalism

- provide opportunities for artmaking and cultural activities
- provide heritage walks and develop a brochure
- develop nature study opportunities, especially using wetlands
- improve opportunities for picnics
- repair seats in the barbecue area
- provide better play equipment
- provide facilities for skateboarding
- provide facilities for children's cycling
- retain appropriate remnants of buildings for play areas
- provide for adventure play in wilder areas
- convert factory floor slab for basketball
- reduce traffic in Piper St to make it safe for skateboards and bikes
- reduce traffic in White St
- provide extra public toilets
- provide dog toilet areas

1.3.3 Community proposals related to ecology and hydrology

- restore the creek edges
- develop wetlands and ponds for frogs
- provide ephemeral or permanent water for habitat and water quality benefits
- ensure that wetlands do not increase flooding and mosquitos
- mitigate local flooding problems
- rejuvenate the park with indigenous plants
- provide dense vegetation for bird habitat
- provide nesting boxes and feeding platforms for birds

1.3.4 Community proposals related to management and community participation

- provide community gardens
- involve young people, including students from North Annandale Public School
- re-use all the buildings at 29-31 White St for community purposes
- use S.94 funds locally
- investigate the advantages and disadvantages of retaining the buildings at 29-31 White St
- undertake emergency repairs to the buildings at 29-31 White St
- seek heritage funding for restoration of the buildings at 29-31 White St

It can be seen from the foregoing that the consultants had a very wide range of aspirations and suggestions to consider. Many represented a general consensus at the meetings where they arose, some were put with considerable vigour by individuals or small groups and others were contradictory or even mutually exclusive.

Under these circumstances it proved very difficult to tabulate or rank the proposals in any meaningful way. The proceedings of the public meetings were discussed extensively by the project team and the design was tested as it developed against what was seen to be a reasonable interpretation of community aspirations.

During these discussions the project team was mindful that the final design had to be workable, achievable and responsible not only as a reflection of local community wishes but also in terms of broader public policy.

2.0 CHARACTERISTICS AND RESOURCES OF THE PARK

2.1 History and physical characteristics

Whites Creek Valley Park is a broad parcel of open space within the creek corridor to Rozelle Bay. The valley is strongly enclosed by steep sides with sandstone bluffs on the Lilyfield side. It was formerly an estuarine reach between the Annandale and Lilyfield ridges but it has been substantially reclaimed and there has been extensive quarrying in the area.

In the 1920s the original creek line was replaced with a concrete lined channel. There has been extensive dumping and landfill along the banks, with residue from the canalisation of the creek, building rubble, furnace ash, rusted ironmongery, and garbage all in evidence.

Clearing for agriculture began in the Leichhardt area early in the nineteenth century. The buildings at 19-21 White St provide evidence of relatively recent dairying activities on the site and some of the land is currently still used for horticulture and agistment.

Small workshops and light industries were established on the flatter land in the valley but they have now been displaced, leaving only remnants of the buildings as evidence. Only one such operation remains in the study area, the builder's premises at the lower end of Wisdom St.

Close subdivision of the slopes for residential use began in about 1880, producing a variety of housing types including terraced, semi-detached and detached houses. Much development however, dates from early in this century. The low lying flood prone land along the valley floor was subdivided but not used for building and was occupied by long narrow back yards containing domestic gardens and orchards.

The northern end of the park is traversed by a sewage aqueduct which was built in 1896 and is one of the earliest examples of reinforced concrete construction in Australia. It has recently been listed on the register of the National Estate. The aqueduct provides strong definition to the northern end of this section of the park and effectively divides it spatially from the downstream part of the valley

The park in its present condition is a confused space, divided into separate strips by the canal, lacking definition at its eastern and western edges and fragmented by the remaining privately occupied houses on White St.

The current planting in the park lacks coherence and indicates a piecemeal approach to the landscaping design. The dense belt of Casuarinas along Smith St produces a dark uninviting atmosphere and an environment hostile to the growth of an understorey.

The former Sydney Water land on the western side of the channel is heavily overgrown with dense tangled groves of *cestrum parqui* [Green cestrum], a noxious weed. Although this area is extremely unkempt it provides a labyrinthine sense of enclosure much appreciated by local children.

Similarly, the house, outbuildings, gardens and animal enclosures in the vicinity of 29-31 White St are in various states of decay or disrepair. Although these premises are described with enthusiasm by those involved with their use and management they present a disorderly and neglected appearance which is at odds with general expectations of public open space.

The southern end of the covered channel, which forms a footway under the Moore St bridge, is currently an uncomfortable and alienated place, yet it will be an essential part of the proposed cycleway extending further along the corridor.

2.2 Soils

Soils in the park are described in detail in the report by Anne Clements and Associates, appendix 7.1 of this document. This section is a summary of parts of that report.

There is evidence of at least three distinct artificial soil horizons :

- slags on the soil surface In the SW corner
- an exposed coke layer along the eastern boundary near Smith Street
- building rubble and nonputrescible waste in the rear garden of 29-31 White Street

The nature of the fill in the centre of the valley is not known. The area was filled more than one hundred years ago, possibly with dredge fill which was commonly used at the time. Such material can pose limitations for plantings in that it may be saline, sodic, have a low available water capacity, have low fertility and be moderately alkaline with acid sulphate potential.

The surrounding area is mapped as Gynea soil landscape. The landscape is described as undulating to rolling rises and low hills on Hawkesbury Sandstone, with its soils defined as shallow to moderately deep. On the northern side of Ilka Street near White Street sandstone benches are still visible.

2.3 Vegetation

Vegetation in the park is described in detail in the report by Anne Clements and Associates, appendix 7.1 of this document. This section is a summary of parts of that report.

The mown areas in the northern area are exotic turf, mainly *Pennisetum clandestinum* [Kikuyu]. No native grass species were likely to occur due to the extent of clearing and the extent of fill. None were recorded.

High maintenance rose garden beds have been established in the SW corner in the past five years by a local resident, Arthur Ryan, with some assistance from Leichhardt Council. Planting of annuals, weeding and pruning is the full time occupation of Arthur Ryan. This garden is a relatively formal area.

The rear of the long back gardens are dominated by *Cestrum parqui* [Green cestrum], a category W2 declared noxious weed in Leichhardt LGA. *Cestrum parqui* is a perennial shrub with green berries that are toxic to animals including cattle, sheep, horses, pigs and poultry.

In the areas presently used as public parkland, at the northern end and continuing south along the east bank of the canal, there are belts of planted trees which appear to be about 15-20 years old. Close to the canal the majority of trees are *Casuarina cunninghamiana* [River she-oak]. They have thrived in this situation and are large and healthy. *Casuarina cunninghamiana* is not a local native species in this area and its aesthetic qualities are not to everyone's taste, but it has the advantage of shedding large quantities of 'needles' that form a dense mat on the ground and inhibits weed and grass growth. One of its major drawbacks as a street and park tree is that cones are shed in quantity by female trees and lie on paths, behaving like ball-bearings beneath the feet of pedestrians.

Other trees planted in numbers in the parkland are the *Melaleuca quinquenervia* [Broad leaved Paperbark], *Eucalyptus robusta* [Swamp mahogany] and *Eucalyptus botryoides* [Bangalay]. Only the latter two are likely to have been local natives. *Melaleuca quinquenervia* occurs as far south as Sydney but is confined to a few sites close to the ocean. *Eucalyptus robusta* grows along swampy freshwater streams not far above the tidal limit, and has been seen in equivalent situations around the Harbour. It is one of the eucalypts most tolerant of high soil nutrient levels and its high nectar yield when it is in flower from April to July makes it an important food tree for nectarivorous fauna.

There is a male *Ceratonia siliqua* [Carob tree] about 100 years old on White Street. It would produce fruit if a female tree were planted nearby.

2.4 Buildings

The study area currently contains a number of houses and outbuildings along White St and a builder's yard based around a Nissen hut at the end of Wisdom St. There appears to be general agreement in the local community that, with the possible exception of those at 29-31, all the buildings in White St, should be demolished as they become available. Their condition is therefore not an issue. These houses are inimical to a sense of unity and coherence in the park and their removal will produce a dramatic improvement.

There is no immediate prospect that the builder's shed will become available but the masterplan does envisage its future conversion to a shelter.

29-31 White St contains a brick cottage dating from the early years of this century, an earlier brick stable and a bank of timber framed corrugated iron sheds of uncertain age.

The house appears to be sound and in reasonably good structural condition but much cosmetic and finishing work would be needed to make it fit for any of the currently suggested uses.

The stable is a substantial building of considerable intrinsic interest, particularly in its context of stone paved hardstanding and a large overhanging tree. It is in very poor repair. Superficial external inspection indicates that the roof sheeting, all the roof timbers, all built-in timbers and the brickwork itself are badly decayed. It appears that the internal floor timbers are also decayed.

The corrugated iron sheds are very poorly constructed from re-used materials.

2.5 Current uses and activities

Uses of the park currently fall into two categories. In the open areas at the northern end and along the southern side people use it for the full range of individual or small group recreational and social activities normally associated with such areas. The concrete pad adjacent to the aqueduct is used by local youths for skate boarding and basketball and cricket and soccer is played in the flatter open grassed area parallel to White St. The existing pathways are used by walkers and cyclists. Barbecue facilities exist but are in a state of disrepair.

In the enclosed areas at 29-31 White St a different pattern of use prevails. Here local residents have set up a management regime based around the garden allotments and the outbuildings. Activities here include vegetable gardening, craft workshops, vehicle repair and poultry keeping. Although these areas are open to the general public, by arrangement with the management body, it appears that in practice they are used mainly by residents of the immediately surrounding area.

3.0 PROPOSALS IN RESPONSE TO THE OBJECTIVES OF THE BRIEF

3.1 Landscape and physical amenity

3.1.1 Objectives

- to retain and enhance a sense of naturalness and refuge in contrast to the urban surrounds
- to provide a balance between hidden spaces for children's play, dense planting for fauna, particularly birds, and reasonable visibility and access for security
- to create strong edges to the park along White and Smith Sts
- to improve north-south access along the creek for both pedestrians and cyclists
- to enhance east-west connections from the adjoining streets into the parklands
- to provide view corridors
- to enhance links with other parks and with the harbour green corridors
- to unify, physically or spatially, the eastern and western sides of the park
- to assess how the future development of the park would be affected by retention of some or all of the buildings at 29-31 White Street

3.1.2 Responses

The masterplan and plan of management propose to incorporate, modify or enhance appropriate existing elements within the park so as to retain as much as possible of the range of landscape types and spatial experiences currently available. It has been designed to do this in a manner that is compatible with normal standards for public open spaces and appropriate for the management and financial resources that can reasonably be expected to be available from Leichhardt Council and from the local community.

In order to provide a sense of unity in the park it is proposed to create along White and Smith Sts strong edge plantings of indigenous trees and under planting. These heavily vegetated edges will, together with the aqueduct, provide a cohesive framework for other introduced elements in the park.

The masterplan and plan of management propose for the south western edge of the park a native forest characterised by three different plant communities :

- open woodland
- dense bushland
- restored riparian vegetation

The open woodland is proposed to flank the western edge of the park adjacent to White St and to provide an informal arrangement of trees in mown grass. It is to extend down the slope as far as the dense bushland of indigenous species which will replace the green cestrum labyrinth area. This area will provide the possibility of secret enclosed places for children's play and will also provide an ideal habitat for native birds.

Alongside the canal the vegetation will be based on riparian species appropriate to the locality but selected for their suitability within the highly modified environment along the creek line.

The house at 25 White St will be demolished as part of the first development stage and its site will be turfed for incorporation into the woodland.

A landbridge is proposed to connect the eastern and western sides of the park physically and visually. This will create a broad sweep of grass extending over the full width of the park at the northern end.

A raised mound will be created at the southern end of the grassed area along Smith St to provide a viewing platform looking down along the corridor through the aqueduct. It is proposed that the playgrounds here and at the north western corner of the park will be upgraded.

An installation of boulders and dense planting is proposed for the walkway under the Moore St road bridge to discourage accumulation of the detritus currently littering the area. This is intended to enhance that area so that it can become a safe and acceptable part of an extended cycleway. The cycleway will be further enhanced by a new and much more convenient bridge across the canal.

It is proposed to construct a linear wetland or grassland swale in conjunction with the cycleway in the central section of the park. This is discussed in 3.3

The masterplan and plan of management propose that in the long term the builder's yard and shed should be added to the park, with the Nissen hut being converted to a semi-translucent shelter and the yard being added to the open space.

3.2 Social and cultural amenity

3.2.1 Objectives

- to provide for a variety of recreational uses in the park for all age groups and for both informal and organized activities
- to offer explanation and interpretation of the history of the area and the processes of urban development
- to provide opportunities for cultural plantings, artwork and artmaking within the parklands
- to provide opportunities for community involvement with productive plantings and gardens

3.2.2 Responses

The masterplan and plan of management propose to provide a range of landscape types suitable for activities ranging from games on open grass to quiet contemplation in secluded bushland.

Existing constructed playgrounds will be retained and upgraded and new facilities in the south eastern corner of the park are proposed for roller blade skating. The existing concrete floor slab at the northern end of the site is to be upgraded as a basketball half court.

There is a considerable demand for BMX bicycle facilities. This is an activity which is incompatible with many of the other uses in the park and which has very particular requirements, yet is relatively cheap to provide. It is proposed that a working party of local cyclists be established to discuss with Leichhardt Council the design requirements for a satisfactory facility and to identify a suitable location. Terrain, erosion, proximity to other park users and to neighbours will all be matters for consideration.

As a means of interpreting and recording the history of development on the site the masterplan proposes that elements of the demolished houses be retained and incorporated into the park in functional or decorative roles. This will be subject to considerations of stability, durability and safety and each building will have to be inspected before demolition.

Art works, as proposed in the report prepared by Turpin and Crawford, appendix 7.3 of this document, will heighten understanding of the history of the park and the meanings of the proposed revegetation program.

Sections 3.4 and 3.5 of this document discuss matters related to possible retention of the house at 29-31 White St. A possible use for the building in the short or long term would be to provide affordable studio space for artists and artisans. There is an evidence of a demand for such accommodation in the Leichhardt LGA. Leichhardt Council has been approached by a the Glebe Chamber of Commerce, the Glebe Association for the Arts, the Blackwattle Tenants Association and various local artists, all seeking advice about council controlled buildings which might be suitable for studio based accommodation.

The masterplan proposes that such a use should be investigated by Leichhardt Council, but notes that it would have to be compatible with the objectives of public open space for which the site was originally acquired. These considerations are separate from those concerning the impact of the house upon the landscape quality of the park.

3.3 Ecology and Hydrology

3.3.1 Objectives

- to begin a process of restoration, within the current urban context, of elements of the former creek and its banks
- to incorporate appropriate elements of the FOE wetland proposal
- to incorporate appropriate elements of community proposals for modification of the channel
- to contribute to a long term improvement in the quality of water entering Rozelle Bay

- to reinstate elements of the valley's former flora
- to increase the extent and variety of habitat suitable for native birds
- to assist development of a wildlife corridor along the valley

3.3.2 Responses

In view of the radically altered nature of the land surface and the soils in the Whites Creek valley, and more particularly in the area proposed for parkland, it would be wrong to expect that any truly natural vegetation could be re-established in the area.

The masterplan is based on plantings of many of the local native species that adapt readily enough to cultivation in such altered habitats, and that if planted in sufficient density and diversity can eventually form something representing bushland. In particular it proposes species from less fire-prone, higher nutrient situations such as moist stream banks and rainforest patches which are found to give better long terms results in urban environments.

The plantings proposed in the masterplan are designed to intercept water on its way down the slope to the creek and will perform an effective nutrient removal function. This reinstatement of an element of the former ecosystem, although less apparent and perhaps less immediately appealing than a wetland, will make an important contribution to a general improvement in water quality and is an appropriate response to the necessity for environmental management in hostile surroundings.

Friends Of The Earth have proposed a wetland in the park, designed to treat water diverted from the channel. It has been widely publicised in the local community and is well described in appendix 7.2 of this document.

This wetland scheme was closely considered in terms of its ecological and its hydraulic properties. As proposed, it would have very little water storage capacity and a maximum area of 0.3 ha. Engineering analysis indicted that to be effective in removing pollutants from water in the channel it would require a substantial water storage volume and an area of about 5ha.

In the light of this analysis the masterplan proposes a linear wetland or grassland swale associated with the cycleway, designed to intercept and clean local stormwater runoff from the vicinity of Smith St. Such a wetland would operate in conjunction with well designed edge planting and riparian revegetation to effectively clean water entering White's Creek from the park and the surrounding streets.

It is proposed that construction of the wetland should occur in the final stage of the park's development and that resources should initially be concentrated on establishing the planting belts which will produce a substantial improvement in water quality relatively quickly and relatively cheaply. This is discussed in detail in appendices 7.1 and 7.2.

A number of aesthetic requirements for the canal were included with the ecological objectives, ranging from complete restoration of the natural creek line to removal of the fence. Several options were investigated by Patterson Britton and a summary of their recommendations follows.

Option 1

Removal of the existing concrete channel and realignment to create a more natural creek line. Removal of the existing fence. Planting of the base of the channel with macrophytes to enhance habitat and provide pollutant assimilation.

Option 2

Removal of the sides of the existing concrete channel but retention of the base for low flows and to facilitate creation of a wetland within the channel. Removal of the existing fence. The channel in this option would be wider than that for Option 1 in order to provide an increased area for creation of a larger wetland adjacent to the low flow channel

Option 3

Covering of the existing concrete channel with a galvanised grid decking or timber boardwalk, enabling removal of the existing fence.

Option 4

Removal of the existing fence but retention of the concrete channel. Creation of shallow linear wetlands approximately 500 deep along each side of the existing channel. Stormwater runoff from the local catchment would be diverted to the wetlands. The wetlands would 'treat' local runoff and also provide a buffer to the existing channel to ensure public safety.

Option 5

This was the proposal prepared by Friends of the Earth. The existing channel would be retained and a freshwater wetland would be created adjacent to the channel, within land owned by Sydney Water. Low flows from the covered section of the channel would be diverted into the wetland.

Preliminary construction cost estimates were developed for the five alternative options. A summary of the construction costs is given below.

Option 1	\$820 000
Option 2	\$1200 000
Option 3	\$240 000
Option 4	\$210 000
Option 5	\$330 000

Although a number of the options include freshwater wetlands, these would provide only marginal water quality improvements. The Whites Creek catchment has an area of 160ha. A wetland that would be effective in removing pollutants would require a substantial water storage volume and an area of about five hectares, or about 3% of the catchment area.

The most appropriate application of a wetland in this context is for treatment of local runoff only. A linear form intercepting the local flow towards the canal would be the most effective.

Option 1 would provide a water quality benefit during dry weather but during wet weather, the near negligible effective flow retention time in the macrophyte area would result in minimal water quality improvement. The vegetated banks at a slope of 1 vertical : 3 horizontal would be difficult to maintain.

Option 2 would provide less water improvement than Option 1 because most of the low flow in dry weather would be contained in the concrete base channel.

Option 3 would provide no water quality benefit.

Option 4 would provide a significant improvement in the water quality of local runoff entering the canal because it could be retained in the wetland cells for a reasonable period. This would include both dry and wet weather flows.

Option 5 would have a similar water quality benefit to that of Option 1. It would provide water quality improvements during dry weather low flows. However during wet weather the water quality improvements would be negligible.

Given the limited opportunities for water quality improvements in the study area, Option 4 would maximise the benefits by concentrating on treating local runoff and is the preferred option.

3.4 Management and Community participation

3.4.1 Objectives

- to reflect community aspirations in the design of the park
- to facilitate collaboration between Council and local residents in the future development, management and operation of the park
- to provide opportunities for local residents to explore possible and appropriate communally managed uses for some of the existing buildings at 29-31 White St
- to recognize and extend the community involvement focussed on the existing gardens, orchards and chicken yard
- to provide a coherent framework for future expansion of the park as existing residential allotments are relinquished or as links with other parklands along the creek are enhanced

- to develop a physical environment that will be compatible with future developments in total catchment management
- to provide flexibility in the planning for 29-31 White St so that changes in community resources or aspirations may be accommodated
- to develop systems which will be self sustaining as far as possible after an establishment period
- to accommodate works related to the proposed demonstration sand filter
- to allow for use of the park for community based events and uses subject to Council approval and policies

3.4.2 Proposals

The buildings and gardens at 29-31 White St are currently the focus of lively and stimulating communal activities. The management strategies acknowledge the value of this community focus and propose to maintain and support it for as long as it remains effective and viable.

Recognising that these communal activities will be maintained in the context of a more coherent landscape used by many more people from outside the immediate locality, the management strategies propose that the level of local interest and the success of the communal activities be audited at the end of stages 1 and 2. Appropriate determinations can then be made about the continuation of these uses.

It is proposed that Council support the community and relevant community groups to seek new uses for the house that are broadly compatible with DUAP open space objectives. It is also proposed that Council seek out and coordinate contributions from other community groups towards activities such as design development, gardening, maintenance, tree planting and propagation. In this respect the management strategies assume that the level of community support and interest described during the public consultations will be sustained and that there will be a significant community contribution towards the development, care and management of the park.

The management strategies propose that high maintenance elements such as the rose garden should be retained for as long as the community wishes to contribute usefully to their maintenance but that these elements should not be allowed to draw disproportionately upon public resources.

In many of its details the masterplan can be adjusted to reflect the degree of community interest. It is complex enough to provide for a high degree of direct community involvement in its development and maintenance but it can also be simplified should there be a diminution of interest. For example, activities in the orchard and allotments can be expanded or reduced to reflect the extent of local involvement and tree plantings can be arranged either to draw upon local resources or to proceed independently.

During the public consultations there were many representations from young people about the need for a BMX bicycle facility.

The management strategies propose that Council should facilitate a process whereby local children may participate in the detail design of their own circuit.

With respect to vandalism, the staged development process allows details of the design to reflect the effectiveness of community care and supervision that occurs in practice. High maintenance and relatively vulnerable elements such as the orchard, allotments and rose garden may be offered to the local community for care and maintenance during the first stages of the development but can be replaced by more robust elements if that arrangement proves ineffective.

The design of the park is sufficiently flexible for sections of it to revert to a low maintenance and relatively self sustaining state should there be changes in the focus of the local residents. It has been designed so that in either case it will fulfil its environmental objectives in the context of total catchment management.

The design is also workable and coherent at any of its development stages, so that it will not present an unfinished quality should there be delays in proceeding beyond Stage 1.

4.0 MATRIX

WHITES CREEK VALLEY PARK PLAN OF MANAGEMENT
4.0 MATRIX

ISSUE	OBJECTIVE	ACTION	COMMENTS	PRIORITY	PERFORMANCE	REFERENCES
Vegetation	Develop detailed designs for the planting of the open woodland, bushland labyrinth, riparian restoration, edge planting, orchard and demolition areas	Appoint consultants to carry out designs	Appoint consultants following development and consideration of submissions made on a prepared brief	Stage 1	Brief prepared and consultants engaged	
		Review designs		Stage 1	Designs reviewed and completed	
	Schedule revegetation works	Carry out review of approved planting patterns	This will be in accordance with the report prepared by Anne Clements and Associates	Stage 1	Revegetation works scheduled	Plan of Management Appendix 7.1
	Protect, enhance and restore existing vegetation	Preservation and enhancement of existing native and ornamental vegetation	Areas of the park consisting of remnant native and ornamental trees and revegetation sites will be preserved, maintained and enhanced in accordance with the Plan of Management	Stage 1	5 yearly check to assess vegetated areas	
		Replacement of trees which have been removed for risk management reasons		Stage 1	Implementation of a revegetation programme	
	Control noxious, environmental and turf grass weeds in the park	Identification of the major weeds in the Park	Special attention to weeds on regeneration areas	Stage 1	List prepared	
		Further implement and develop programmes of weed control and removal methods in a sound environmentally sensitive		Stage 1	Reduction in level of weeds in the park	
		Implement the Noxious Weed Act 1993, consistently and effectively		Stage 1	Noxious Weeds Act implemented	Noxious Weed Act 1993

WHITES CREEK VALLEY PARK PLAN OF MANAGEMENT
4.0 MATRIX

ISSUE	OBJECTIVE	ACTION	COMMENTS	PRIORITY	PERFORMANCE	REFERENCES
Existing buildings	Remove unwanted buildings from the park in accordance with DUAP recommendations	Prepare a demolition and remediation plan for the buildings sites on White St		Stage 1	Demolition and remediation plan completed	
		Demolish 25 White St		Stage 1	Demolition carried out	
29-31 White St	Retain the Wishaw dairy complex at 29-31 White St as a whole, including the community garden, chook yard and the house at 31 White St.	Remediate demolition areas	This would involve actions such as removal of rubbish, covering of dumpings, turfing and planting	Stage 1	Remediation carried out according to the demolition plan	
		Assessment of the condition and stability of the house, dairy and stables		Stage 1		
		Obtain cost estimates for emergency structural stabilisation works to house and outbuildings	Determine priority of works for public safety	Stage 1	Brief prepared and cost estimates obtained. Priority of works scheduled	
	Determine future uses for the house and dairy	Pursue consultations with the community to find appropriate community and educational uses which will benefit the wider community.		Stage 1	Maintenance work of community allotments and associated buildings undertaken by community users	
		Develop guidelines for maintenance of allotments and associated buildings		Stage 1		
		Seek expressions of interest and develop a schedule of potential users of the house and dairy		Stage 1	Report identifying schedule of appropriate uses	
		Determine the availability of funding for restoration of the house		Stage 1	Report identifying schedule of appropriate users	
				Stage 1	Funding options clarified. Commitment by Council or other funding bodies confirmed	

WHITES CREEK VALLEY PARK PLAN OF MANAGEMENT
4.0 MATRIX

ISSUE	OBJECTIVE	ACTION	COMMENTS	PRIORITY	PERFORMANCE	REFERENCES
29-31 White St cont		Determine the availability of funding for restoration of the dairy		Stage 1	Funding options clarified. Commitment by Council or other funding bodies confirmed	
		Decide, in consultation with all relevant community groups, whether to retain or demolish the house		Stage 2		
		Decide, in consultation with all relevant community groups, whether to retain or demolish the dairy				
Nissen hut	Acquisition of builders yard and Nissen hut for inclusion into park					
Equipment and installations	Provide equipment and facilities for local residents of all ages	Investigate, in collaboration with DUAP, acquisition and rezoning of the industrial lot for inclusion into public open space	The design and siting of these facilities should be determined in consultation with the local community, particularly potential users	Stage 1	Designs and locations finalised	Minutes of public consultations
		Investigate the placement and design of recreational facilities in the park, such as BMX track, basketball half-court and skateboard ramp		Stage 1	Facilities constructed on time and within budget	
	Maintain and preserve existing structures where appropriate	Construct facilities in accordance with advice gathered by the consultation process	Repairs planned in accordance with Councils overall asset management programme	Stage 1	Repair and maintenance plan developed.	
		Survey existing structures and facilities and schedule repairs to those that are suitable for inclusion in the developed park			Repairs completed in accordance with asset management programme	
Interpretation	Facilitate an understanding and awareness of the historic and environmental values of the park	Carry out repairs to structures that are retained in the park	Interpretation works will be in accordance with concept prepared by Turpin Crawford Artists	Stage 1	Community arts programme scheduled	Plan of Management Appendix 7.2
		Engage community artist to develop proposal				

WHITES CREEK VALLEY PARK PLAN OF MANAGEMENT
4.0 MATRIX

ISSUE	OBJECTIVE	ACTION	COMMENTS	PRIORITY	PERFORMANCE	REFERENCES
Community allotments	Determine the future use of the community allotments area	Determine appropriate management system for community allotments	Consult with all relevant community groups concerning the future of the allotments. The determination will be based on the extent of community use and involvement and on the maintenance standard of the area	Stage 2	Well maintained allotment gardens compatible with the developed park	
Cycleway and associated areas	Develop detail design and tender documents for the cycleway, footbridge, boulder installation, mounded playground, melaleuca grove and Nissen hut areas Schedule construction works	Engage consultants to prepare the design Conduct review of approved plans	Appoint consultants following development and consideration of submissions made on a prepared brief	Stage 2	Brief prepared and consultants engaged	
Landbridge	Conduct hydrographic investigations for design development work for landbridge	Engage consultants to conduct hydrographic investigations Review design	Council to appoint consultants following development and consideration of submissions	Stage 2	Designs developed and completed. Funding sources identified. Cycleways and footbridge constructed.	
				Stage 3	Mounded playground constructed	
				Stage 3	Brief prepared and consultants engaged	
Wetland	Develop detailed design work for wetland or grassland swale	Engage consultants to prepare the design Review design	Appoint consultants following development and consideration of submissions made on a prepared brief		Designs developed and completed. Funding sources identified. Construction work scheduled.	
				Stage 3	Brief prepared and consultants engaged	
					Design developed and completed	

5.0 PRELIMINARY ESTIMATE OF COST OF WORKS FOR STAGE 1

The estimate for Stage 1 is for the cost of works only. There is no allowance for consultants fees.

Planting to riverine and labyrinth areas	\$51 200
Removal of soil - retained on site	\$35 000
Provision of topsoil	\$21 500
Removal of weeds	\$1 800
Cultivation	\$2 200
Mulching	\$15 400
Erosion control	\$6 200
Planting to White St edge	\$3 750
Planting to Smith St edge	\$4 500
Turfing to 25 White St	\$1 300
Turfing to 29-31 White St	\$5 300
Provision of basketball facility	\$6 000
Provision of skateboard facility	\$25 000
Provision of BMX facility	\$8 000
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	\$187 150