Nyungar Values of the Collie River

Beckwith Environmental Planning

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Sincerely,

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Limitations

Beckwith Environmental Planning Pty Ltd has prepared this report for the use of the Department of Water in accordance with the usual care and thoroughness of the consulting profession. It is based on generally accepted practices and standards at the time it was prepared. The methodology adopted and sources of information used by Beckwith Environmental Planning Pty Ltd are outlined in this report.

This report was prepared between August and March 2009 and is based on the conditions encountered and information reviewed at the time of preparation. Beckwith Environmental Planning Pty Ltd disclaims responsibility for any changes that may have occurred after this time. No responsibility is accepted for use of any part of this report in any other context or for any other purpose or by third parties.

Report Authorship

This report has been prepared on behalf of and for the exclusive use of the Department of Water, and is subject to and issued in accordance with the agreed terms and scope between the Department of Water and Beckwith Environmental Planning Pty Ltd.

Executive Summary

Introduction

Waterways in the South West, including the Collie River, continue to play an important role in the lives of Nyungar people. Their connection to the Collie River is reflected in their mythological and spiritual beliefs and its role as a source of food and water, as well as recreation.

The Department of Water (DoW or Department) is the State Government agency responsible for water resource management in Western Australia (WA). The DoW has commissioned several technical studies to inform water resource management of the upper and lower Collie River.

This study examines the non-consumptive social values that local Nyungar people place on the Collie River and its environs. The study's objectives were to:

1. Evaluate Nyungar social values associated with the Collie River and the water conditions required to maintain these values.
2. Determine what engagement the DoW staff should undertake with Nyungar stakeholders for proposed restoration works along the Collie River.

The DoW will use the study's data to establish social water requirements for the upper and lower Collie River.

The area of investigation was the Collie River, from Lake Kepwari on the South Branch and Griggs Road Bridge on the East Branch to the Leschenault Estuary, and property within 300-metres of either side of the River. The primary source of data was site visits during which Nyungar representatives from the Collie and Bunbury areas shared their knowledge and memories with the study team.

Conclusions and recommendations

Social values and water conditions

- Participants identified 36 locations along the Collie River with associated social values. The social values fell into two categories: recreation (75%) and heritage (36%). Some sites had multiple values. The dominant values were swimming (69%), marroning (67%) and fishing (67%).
- Of the 36 locations identified by Nyungar representatives as having social values, only nine are on the WA Register of Aboriginal Sites. This highlights the importance of not relying solely on the Register to identify locations with social values.
- A number (42%) of the locations identified as having associated social values are no longer in use. This is primarily due to the closure of permanent camps, the introduction of mining and private property limiting access to the river.
- Upstream of Wellington Dam, participants indicated that a 'natural water regime' would support most of the identified social values. Downstream of the Burekup Weir, participants often used an indicator species (e.g. marron) to describe the water conditions needed to sustain the social values.
- Most of the water quality issues in the area of investigation are the result of land use practices within the catchment. This highlighted the value of water resource management agencies coordinating management efforts with agencies (e.g. NRM groups) able to influence land use practices at a catchment scale.

Restoration and required consultation

- As funding becomes available, the DoW and the Leschenault Catchment Council (LCC) would like to undertake restoration works along the Collie River. Study participants supported the intentions of the DoW and LCC to 'care for country' and to engage Aboriginal stakeholders in doing so.
- Study participants recommended restoration works at 12 (or 33%) of the locations. The most commonly identified issues were sedimentation of pools, loss of riparian vegetation, and stock access to waterways.
- The DoW developed the *Aboriginal Heritage and Native Title Guidelines for On-ground Works* (DoW 2008) to provide a transparent, consistent and systematic means for DoW staff to determine the appropriate level of Aboriginal stakeholder engagement for different types of restoration works (DoW 2008).
- Similar to the DoW guidelines, Aboriginal study participants applied the 'level of disturbance' as a guide in determining the appropriate level of engagement. The greater the disturbance to a location the higher the level of engagement required.
- Participants emphasised the importance of engaging with the 'right people' in the Nyungar community prior to any restoration works commencing and recommended Traditional Owners be engaged. The participants recommended the following individuals as the appropriate representatives for the Traditional Owners in the study area for initial communication:
    - Les Wallam for locations downstream of Burekup Weir
    - Joseph Northover for locations upstream of Wellington Dam
- Participants made a clear distinction regarding the roles of Traditional Owners, Aboriginal Elders and Native Title claimants when engaging with Aboriginal stakeholders. It was noted that Traditional Owners have a "right to speak for country" on cultural and heritage issues/values; Aboriginal Elders should be consulted on general issues affecting the Aboriginal community; and Native Title claimants are to be engaged on issues impacting native title.
- The trialling of the 'traffic light' system indicated that it might best be used as a tool to obtain an initial assessment of the sensitivity of a particular location vis-à-vis proposed restoration works. System refinements in the following areas would improve its effectiveness:
    - Providing definitions of terms such as 'highly sensitive, 'medium sensitivity', and 'low sensitivity'.
    - The explanation of a 'yellow zone' should clarify in what circumstances engagement may or may not be required.
    - Closer alignment of the traffic light system with the DoW guidelines would reduce the potential for confusion.

Recommendations

- **Identifying social values:** Of the 36 locations identified by participants only eight are listed on the WA Register of Aboriginal Sites. This highlights why it is important to not rely solely on the Register when identifying locations valued by Nyungar people.
- **Water quality and SWRs:** Water quality is an important part of establishing social water requirements. Most of the water quality issues associated with specific locations in the area of investigation are the result of land use practices within the catchment. Water resource management agencies should coordinate their management efforts with those agencies (e.g. NRM groups) able to influence land use practices at a catchment scale.

- **Required engagement:** Participants generally supported the DoW's intentions to 'care for country' and engage Aboriginal stakeholders in doing so.

  Listed sites: In cases where restoration works could disturb a site, the DoW should contact the DIA to determine whether or not an application under Section 18 is required. It is recommended that the DoW also contact the Traditional Owners or their designated representative at the same time to make them aware of the DoW's activities.

  For restoration works that the DoW is confident that a Section 18 application is not required, study participants recommended that the DoW contact the Traditional Owners or their designated representative. The purpose of the contact would be to inform them of the proposed restoration works and discuss any issues they may have.

  Sites not listed: Even if a location is not listed on the WA Register of Aboriginal Sites, it does not mean that it is not a significant site. Where a proposed restoration work is at a location not listed, the DoW should follow the same engagement process as for listed sites that do not require a Section 18 application.

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1 Introduction

1.1 Background

From its headwaters north-east of the Collie town site, the Collie River flows westward for 154 km through the Shires of Collie, Dardanup and Harvey and the City of Bunbury before discharging to the Leschenault Estuary.

Waterways in the South West have long played an important role in the lives of Nyungar people. Their connection to the Collie River occurs in a variety of contexts including: mythological, spiritual, and as a source of food and water for subsistence and recreation.

The Department of Water (DoW or Department) is the State Government agency responsible for water resource planning in Western Australia (WA). Water resource management plans set ecological, social and economic management objectives for specific water resources (e.g. rivers, wetlands, aquifers). They establish the sustainable water yields and abstraction limits that guide the DoW's assessment of licence applications to use water for consumptive purposes (e.g. irrigated agriculture, industry, public water supply). The Department's management activities are guided by *Statewide Policy No 5 Environmental Water Provisions Policy for Western Australia* (WRC 2000a).

In 2007, the DoW released a draft management plan for the Upper Collie River (DoW 2007a). The plan covers the Collie River from its headwaters to Wellington Dam and includes the groundwater resources of the Collie Coal Basin. Presently, the lower Collie River (i.e. Wellington Dam to where the Collie River discharges to the Leschenault Estuary) does not have a water management plan.

The DoW is undertaking technical studies to inform water resource management of the Collie River (upper and lower sections). This includes investigations of ecological and social water requirements and the Aboriginal and other non-consumptive social values associated with the river.

1.2 Study objectives

This report evaluates the non-consumptive social values attributed to the Collie River by Nyungar stakeholders[1]. The study objectives were to consult with the appropriate Nyungar representatives in order to identify:

- Locations/features with Nyungar social values and their characteristics
- The water conditions required to maintain the social values (e.g. season, depth)
- Potential impacts on the social values if there are changes in the water conditions
- Locations where restoration works are needed[2] and the consultation required before any such work commences.

The DoW will utilise the information from this study when determining the social water requirements for the Collie River. This will include a description of the required flow rates, water levels and in some cases water quality targets (see Section 1.4).

[1] The DoW has commissioned a separate study to evaluate the social values attributed to the Collie River by non-Indigenous stakeholders (Beckwith Environmental Planning 2008).

[2] Restoration works within the study area will only be undertaken after the DoW, or other organisation, has acquired resources for that purpose.

The data collected on location characteristics will be included in DoW's Geographic Information System (GIS) water resource database.

1.3 Study area

The Collie River starts east of the Collie town site, upstream of where the Bingham River and the East Branch (of the Collie River) converge (Figure 1). It flows westward for 154 km through the Shires of Collie, Harvey and Dardanup and the City of Bunbury before discharging to the Leschenault Estuary. The Collie River has a number of tributaries. The largest are the East and South Branches, the Bingham, Harris, Brunswick, and Wellesley Rivers, and the Henty Brook. In total, the catchment covers 3,745 km^2.

The area of investigation was defined as the Collie River, from Lake Kepwari on the South Branch and Griggs Road Bridge on the East Branch to the Leschenault Estuary, and property within 300-metres of either side of the River.

1.4 Social values defined

In the context of *Statewide Policy No 5*, social values are limited to non-consumptive social values (WRC 2000a). The Policy classifies consumptive social values (e.g. irrigation and public water supply) as economic values.

The Policy identifies the following as social values that require consideration in determining social water requirements:

- Aboriginal and other Australian heritage
- recreational and tourist pursuits
- landscape and aesthetic aspects
- educational and scientific aspects.

In some instances, domestic and stock water uses are also considered social values.

> "Where there is small-scale domestic and stock water use of rivers and wetlands, it may be appropriate for this to be considered a part of the social water requirements … even though it is a consumptive use" (WRC 2000a, p. 16).

Draft Statewide Policy 4 – Waterways WA also highlights the social values of waterways[3], including the following statements:

> "Western Australia's waterways are an integral part of our heritage and a significant State asset with important social and cultural values. There is a mixture of social and cultural responses that people have to waterways" (WRC 2000b, p.17).

> "Waterways are a focus for recreation in our predominantly dry landscape offering relief and contrast" (WRC 2000b, p.17).

[3] A waterway is defined as: a stream system and its associated banks; wetlands that overflow to a stream or are predominantly stream fed (i.e. limited groundwater contribution); or the receiving lake, estuary or inlet at the base of the system; and the floodplains associated with these features.

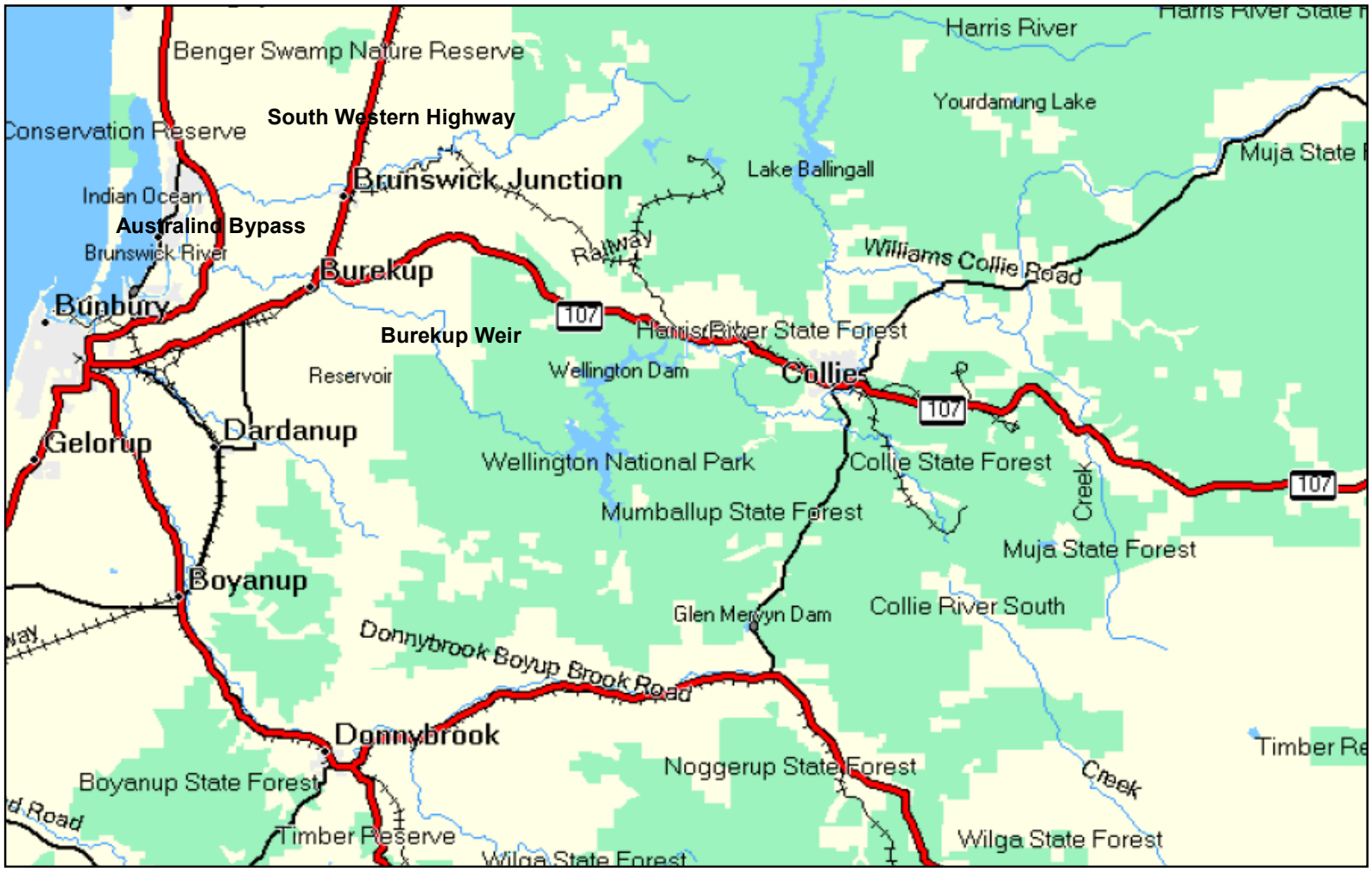

Figure 1 Study area

1.5 Social water requirements

Social water requirements (SWRs) are defined in *Statewide Policy No 5* as the "… elements of the water regime[4] that are identified to meet social (including cultural) values" (WRC 2000a, p.12). In other words, they are the water conditions or characteristics required to support a waterway's social values. SWRs can be expressed in a variety of ways including as flow rates, water depth and water quality conditions.

In some instances, if ecological water requirements are satisfied, the associated social values will automatically be maintained. For instance, the scientific and education values of a wetland are unlikely to diminish as long as the water conditions required for a healthy ecosystem are present.

It is not always the case that meeting the water requirements of the ecosystem will automatically maintain all social values. In some situations, the provision of water conditions above those needed to maintain the ecological values may be warranted. The example given in *Statewide Policy No 5* is where protection of recreational values is of high importance and may require the maintenance of water levels in river pools during periods of low rainfall (WRC 2000a). For example, a river reduced to a series of pools in summer may still be a healthy ecosystem but is unlikely to provide an acceptable canoeing experience.

The opposite can also be true. For instance, maintaining a scenic view may only require the presence of open water. However, maintaining a healthy ecosystem may require more water than that needed to support the social water requirement of a scenic view.

Where there is conflict between the ecological and social water requirements, *Statewide Policy No 5* provides the following guidance.

> "Water regimes identified to meet social value (i.e. social water requirements), will form part of EWPs [Environmental Water Provisions[5]] where they do not unacceptably impact on significant ecological values" (WRC 2000a, p. 4).

The policy also states that "water quality issues need to be considered in four main areas when establishing EWRs/EWPs" (WRC 2000a, p. 18). These are where:

1. Part of an EWR requires a water quality problem to be addressed that is caused by surface water diversions or groundwater abstraction.
2. EWP water regimes need specific water quality parameters to ensure appropriate protection of ecological and social values (e.g. when water is released from a reservoir)
3. Mitigation water requirements[6] are needed to flush algal blooms or dilute saline systems affected by dryland salinity
4. Implementation of EWPs would not make a significant improvement to wetland or river health unless other actions are taken to improve water quality problems associated with catchment or waterway management.

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[4] A water regime is defined as "a description of the variation of flow rate or water level over time; it may also include a description of water quality" (WRC 2000a, p. 12).

[5] Environmental Water Provisions (EWPs) are the water regimes defined as a result of the water allocation decision making process.

[6] Mitigation water requirements are "elements of the water regime that are identified to improve diminished water quality resulting from land use practices and developments in the catchment" (WRC 2000a, p. 12).

For 1 and 2 above, the water quality problems are assumed to be the result of regulation/abstraction activities (WRC 2000a). The policy indicates that "it is appropriate that water quality criteria are specified as part of the EWRs and EWPs … to ensure acceptable quality" (WRC 2000a, p.19).

For 3 and 4 above, the water quality problems are related mostly to landowner activities in the catchment. "In these cases, mitigation water requirements may be considerable and should not be considered to be part of the EWPs. Land use practices should be addressed through land planning and management processes" (WRC 2000a, p.19).

In summary, in establishing EWPs, water quality problems resulting from regulation/abstraction activities are considered, while those arising from land use activities are not.

2 Connections to water

Draft Statewide Policy No. 4 – Waterways WA recognises the connections Aboriginal people have to water.

> "Many waterways provide water and food resources for Aboriginal peoples, as well as places of spiritual and cultural significance for which custodial responsibilities are still being recognised. Therefore, it is important that the wider Western Australian community appreciates the interests of Aboriginal people in respect to their connections to land and water" (WRC 2000b, p17).

During the study, the Nyungar participants described their strong connection to the Collie River in a variety of contexts: mythological, spiritual, and as a source of food and water.

2.1 Mythological

Some Aboriginal people associate a serpent type deity with the Collie River. They refer to this serpent as the Waugal (or Marchant) and believe it has both punitive and creative force. 'Punitive' in its powers to harm and 'creative' because it shaped the landscape during the dreaming (Brad Goode and Associates 2007) (Box 1).

Box 1 Dreamtime

The term 'Dreamtime' is typically used to describe the 'time before time' or 'the time of the creation of all things'. An individual's (or group's) set of beliefs or spirituality is often referred to as the 'dreaming'.

The dreamtime occurred when the ancestor spirits came to Earth. As the spirits travelled across Australia, they created the flora, fauna and landscape (e.g. rivers, hills etc) that are seen today. The ancestor spirits, and their powers, are still present, in whatever form the spirits took after their work was done.

The stories about the dreamtime do not belong to individuals but to groups. The Elders appoint a 'custodian' of the stories, someone who is a particularly skilful storyteller. The custodians are responsible for passing the stories down through generations.

Source: http://www.dreamtime.net.au/dreaming/dreamtime.htm

Some study participants spoke of the punitive force of the Waugal and attributed the illnesses of some Nyungar people to the Waugal. The sick individuals had either not been proactive in 'caring for country' or did not follow cultural protocols (e.g. ensuring the appropriate people speak for country). As a result, the Waugal had made them ill (i.e. took punitive action).

Some water features have stories that describe the deity's creative force. Joe Northover, the contemporary custodian of the Collie River mythology, speaks of the *Ngarngungudditj Walgu*, the hairy faced rainbow serpent. The *Ngarngungudditj Walgu* came from the north of Collie, passed through the Collie area and moved towards Eaton, forming the Collie River. When the serpent reached Eaton, it turned its body creating the Leschenault Estuary and then travelled back up the river to rest at Minninup Pool.

Some stakeholders described a spiritual connection to the Collie River based on the mythological values of the river. Each time they visit the river, they toss in a small handful of dirt to let the Waugal know they are present, "so that nothing bad happens". This is followed by a verbal explanation to the river as to why they are visiting.

"It is like coming home when I visit Minninup Pool."

Minninup Pool[7] was identified as a particularly important spiritual location because it is where the *Ngarngungudditj Walgu* rests. A participant provided the following insight regarding the significance of Minninup Pool. When a relative dies his family travels to the pool. "We build a fire. The fire is a beacon for the deceased family member. It brings them to the pool so that they can cross over to the afterlife". They "speak with those who have died" via the wind, as it carries the spirit's message.

Although the Collie River has a specific mythological story (i.e. the hairy faced rainbow serpent), not all water features do. Some stories have been lost over time, because families have been torn apart (e.g. via the stolen generation) and unable to pass the stories down from generation to generation. As a result, for some water features the Waugal is thought to be present, but without a specific story (Goode and Irvine 2006).

Not all Aboriginal people believe the Collie River was created by the *Ngarngungudditj Walgu*. Some rely on a Christian philosophy (i.e. God) to explain the River's creation.

2.2 Spiritual

"The river is a part of me."

Some stakeholders described a spiritual connection, but not one stemming from the mythological story of the Collie River. They described a connection to the water itself, rather than the Waugal that resides in the water. Their connection is borne out of a "deep respect for the river", as both an entity and a provider (e.g. food and water). To demonstrate their respect, each visit to the river begins with the tossing of a handful of dirt into the river. This "lets the river know we are present".

[7] Minninup Pool is a permanent registered site (Site ID 15330).

2.3 Food and water

"The river provides us life – food, water, recreation …"

Water features continue to be important sources of food (e.g. marron, fish and long-necked turtles) and water for Aboriginal people. Historically, Aboriginal people often chose to camp in close proximity to waterways; thereby providing easy access to food and water. This is why so many artefact sites identified on the WA Register of Aboriginal Sites are located near waterways.

Participants described the establishment in the early- to mid-1900s of permanent camps along the Collie River. Nyungar people established 'homes' at the camps, made from scraps of tin, logs, branches, and white canvas provided by the Government. The residents used the river for food (e.g. fish, marron), water and recreation (e.g. swimming).

> *"….swimming holes were always located downstream of where we collected our drinking water."*

> *"You could hear the roar of the river at night. It was a comforting sound."*

One of the first camps was located at Wall's End, a site on the northern foreshore of the Collie River in the Collie town site, across from today's Soldiers Park.

> *"There was a curfew for Aboriginal people. We were not allowed into Collie [townsite]. We camped at Wall's End, at the time it was just outside Collie, and at 8:00 am, when the curfew ended we would go into Collie to buy food".*

Over time other camps were established around Collie, including Boronia Gully and High Chaparral, on the river's foreshore.

> *"When white people discovered that one of our campsites was valuable we would be forced to move on to a new site. Over time we were pushed further and further from Collie [town site]".*

The Gravel Pit was a permanent camp established in the Burekup area. The camp was home to 50-60 people during the 1950s and 1960s, many of whom worked on local farms "doing the work that made the area" (e.g. planting potatoes, erecting fencing). The camp was located along a small tributary of the Collie River that provided "water and a bathroom" for the camp. The residents caught fish and marron and swam in the Collie River. "They caught just enough to eat and no more" to ensure the next fishing trip would be fruitful and "… out of respect for the river".

Box 2 Bush food

The changing seasons signified when certain types of food were most plentiful.

> *When the "….yellow wattle is in full bloom (i.e. spring) we know the kangaroos and emus are fat; this is the best time to hunt for these animals".*

> *"Berries were most plentiful in October and November (i.e. spring). In winter, we used to eat wild onions, wild potatoes, and rhubarb".*

Today, Aboriginal people still use the changing seasons to indicate when bush food is available (e.g. berries) or plentiful (e.g. marron).

During the 1970s, many Nyungar people left the permanent camps and moved into Government built housing. However, they continued to marron, fish and recreate (e.g. swimming) along the Collie River as many Nyungar people still do today.

> *"In summer we used to ride our bikes down to Peppies Crossing every weekend. We fished, marroned and camped. We used the bark from the paperbark trees as ground coverings and blankets".*

3 Methodology

3.1 Desktop analysis

A desktop analysis of available data (e.g. anthropological studies) assisted in the identification of locations/features along the Collie River with social values. Appendix A contains a list of the documents reviewed.

The desktop analysis included a search of the Aboriginal Heritage Inquiry System, which includes the WA Register of Aboriginal Sites[8]. The Register provides a list of sites with significance to Aboriginal people and the cultural heritage of Western Australia. Sites nominated for the Register are assessed[9] under the terms provided in Section 5 of the *Aboriginal Heritage Act 1972* (WA) (AHA) and are assigned a status. Table 1 displays the types of sites included on the Register and Table 2 describes the AHA status categories assigned to sites.

Table 1 Aboriginal site descriptions

Type of site	Description
Artefact	A place where human activity is identifiable by the presence of a portable object(s) (e.g. stone, glass, bone, shell) utilised or modified by Aboriginal people in relation to traditional cultural life, past or present.
Fish trap	A stone, wood or other similar structure made by Aboriginal people for catching fish. These structures are typically found on the coast or in lakes and rivers.
Man-made structure	The placement or arrangement by Aboriginal people of stone, wood or other material in a structure for ceremonial or utilitarian purposes.
Mythological	A site connected to the great spiritual ancestors, in their various manifestations, of the 'Dreamtime'.
Repository/ cache	A site where cultural or utilitarian objects were/are taken, stored, by Aboriginal people.
Ceremonial	A site used for a formal act (or series of acts) prescribed by a ritual, belief in a mythological manifestation, religious belief/observance, protocol or convention that is connected with the traditional cultural life of Aboriginal people.
Grinding patches/grooves	Smoothed areas or grooves on rock surfaces (non-portable) that have been created by grinding activity associated with food production such as seed milling, the preparation of pigments, tool manufacturing and/or maintenance, and ritual.
Midden	A site with an accumulation of shell refuse that is derived from the exploitation of mollusc resource by Aboriginal people.

[8] The register is maintained by the Department of Indigenous Affairs.

[9] Nominated sites are assessed by the Aboriginal Cultural Material Committee.

Type of site	Description
Painting	Sites painted (including daubings, drawings, stencils, prints) by Aboriginal people. The paintings can be figurative or non-figurative markings or motifs on surfaces such as rocks, rock walls and trees.
Skeletal material/burial	A site where Aboriginal skeletal material is buried and/or where mortuary practices occurred.
Engraving	A (figurative or non-figurative) motif on a rock surface produced by percussion or abrasion.
Historical	A site with historical associations with Aboriginal people and may or may not contain physical evidence of those associations.
Modified or scarred tree	A site with one (or more) tree, living or dead, that has been modified by Aboriginal people by removing the bark or wood resulting in the formation of a scar.
Quarry	A site with evidence that stone or ochre have been extracted.

Table 2 Status of Aboriginal heritage sites

Category	Definition
Lodged (L)	Lodged and placed on the Register but not assessed
Insufficient Information (I)	Lodged and placed on the Register, assessed as having insufficient information to complete the assessment
Permanent (P)	Lodged and placed on the Register, the lodged information is assessed as meeting the terms of Section 5 of the AHA
Stored Data (S)	Lodged and placed on the Register, lodged information is assessed as not meeting the terms of Section 5 of the AHA

Under the AHA, it is an offence to knowingly disturb or destroy an Aboriginal site without the express consent of the Minister for Indigenous Affairs. The AHA provisions provide protection for 'permanent sites' and 'lodged and insufficient information sites', until they are assessed as places to which the AHA no longer applies. The provisions do not apply to 'stored data sites' unless additional information is supplied requiring a reassessment of the site.

Not all sites of significance to Aboriginal people are listed on the WA Register of Aboriginal Sites. However, these sites are still protected by the provisions of the AHA.

3.2 Orientation meetings

The DoW provided a preliminary list of Nyungar stakeholders, based on past relevant Aboriginal heritage surveys[10]. The list included traditional owners, elders, custodians, and those with a personal and family history associated with the Collie River located in both the upper and lower reaches. These stakeholders were invited to attend a study orientation meeting (Appendix B).

The objectives of these meetings were:

1. To confirm the list of stakeholders to be consulted
2. To introduce the study and confirm the proposed methodology, including application of the three-tiered (or 'traffic light') system
3. To inform stakeholders of the DoW guidelines pertaining to Aboriginal consultation (DoW 2008).

[10] Section 18 applications have previously been lodged for the Collie River Salinity Recovery diversion works, Ewington Weir retro-fit and Lower Collie dredging project.

Two orientation meetings were held with Nyungar community representatives (Appendix B). One meeting was with representatives from the Ngalang Boodja Council Aboriginal Corporation[11]. Based in Collie, the Council consists of a mix of Aboriginal stakeholders residing in Collie, Traditional Owners of the Collie area and Gnaala Karla Boodja Native Title claimants (see Box 3). The second meeting was with Traditional Owners, Aboriginal Elders and Aboriginal stakeholders based in the Bunbury area.

At both meetings, Nyungar representatives emphasised the importance of the study team speaking with the 'right people'. It was recommended that Traditional Owners be consulted, as they have the "right to speak for country" on cultural and heritage issues/values. Stakeholders made a clear distinction between Traditional Owners and Aboriginal Elders. They noted that Aboriginal Elders should be consulted on general issues affecting the Aboriginal community, but not on cultural and heritage issues for an area outside of "their country".

Box 3 Terminology

Indigenous heritage	Heritage is dynamic and includes tangible and intangible expressions of culture that link generations of Indigenous people over time. Indigenous people express their cultural heritage through 'the person', their relationships with country, people, beliefs, knowledge, law, language, symbols, ways of living, sea, land and objects all which arise form Indigenous spirituality.
Indigenous heritage places	Landscapes, sites and areas that are particularly important to Indigenous people as part of their customary law, developing traditions, history and current practices. All Indigenous heritage places have associated Indigenous heritage values.
Indigenous heritage values	Includes spirituality, law, knowledge, practices, traditional resources or other beliefs and attachments.
Traditional Owners	Those people who, through membership in a descent group or clan, have responsibility for caring for particular country. Traditional Owners are authorised to speak for country and its heritage. Authorisation to speak for country and heritage may be as a senior traditional owner, an elder, or in more recent times, as a registered Native Title claimant.
Other Indigenous people	Those people who through their personal or family history of involvement with a particular place have an interest in its heritage values. Such places could include, but are not limited to, mission stations, places of Indigenous protect, and areas of land where people worked. Sometimes these people are described as custodians, but this can mean different things in different areas of Australia. In some areas custodians are responsible for looking after places and sometimes the stories and ceremonies linked to these places. In other area custodians are Indigenous people who look after a place on behalf of others

Source: Australian Heritage Commission 2002

[11] The Ngalang Boodja Council has undertaken a number of ventures over the past few years (e.g. a nursery, aquaculture) creating jobs for Aboriginal people.

Stakeholders also made a distinction between Traditional Owners and Native Title claimants. Native Title claimants are consulted when issues surrounding native title arise. In the South West of WA, native title claimants are represented by the South West Aboriginal Land and Sea Council (SWALSC). SWALSC has established several Native Title Working Groups; it is through these groups that questions of native title are addressed.

In 2008, the DoW developed guidelines to assist its staff in meeting the requirements of the *Native Title Act 1993 (Cth)* and the *Aboriginal Heritage Act 1972 (WA)*. The *Aboriginal Heritage and Native Title Guidelines for On-ground Works* apply to three types of on-ground works: (a) management and monitoring (e.g. establishing ecological water requirements), (b) river care (e.g. restoration works) and (c) emergency response (e.g. flood mitigation, pollution clean-up) (DoW 2008).

The guidelines identify the level of consultation required with Aboriginal stakeholders for the various on-ground works. A payment matrix and fee schedule is included, recognising that cultural knowledge and cultural supervision of on-ground works is a professional service.

During the study orientation meetings, some individuals raised concerns about the payment system outlined in the DoW guidelines. This included concerns about: the amount being paid, the time lag between when work is completed and payment is received, and the potential for the taxable income to negatively affect other government payments. As a result, some of the Ngalang Boodja Council members chose not to participate further in the study.

3.3 Site visits

3.3.1 Study team

In order to maintain Aboriginal heritage values, it is essential that the study adhere to cultural restrictions on information relating to heritage places (Australian Heritage Commission 2002). Aboriginal men and women may be responsible for different heritage places and values. The study team included both men and women to facilitate the collection of gender-sensitive information in an appropriate manner. The study team members on the site visits were Brendan Kelly (Department of Water) and Sabrina Genter (Beckwith Environmental Planning).

3.3.2 Nyungar participants

Based on discussions during the orientation meetings, the initial list of stakeholders was revised (Appendix B). In the end, three representatives from the Collie area agreed to participate in site visits of the stretch of river upstream of Wellington Dam. All are members of the Ngalang Boodja Council and applicants to the Gnaala Karla Boodja Native Title claim. One stakeholder, Joe Northover, is the custodian of the *Ngarngungudditj Walgu* story. Based on the recommendations of the study participants, the involvement of Mrs Shirley Wynne and Auntie Jean Ugle, Traditional Owners from the Collie area, was sought. However, due to personal circumstances neither was able to participate in the study.

From the Bunbury area, nine agreed to participate and spoke about the stretch of the Collie River downstream of the Burekup Weir. The Bunbury area participants included a number of people who grew up at the Burekup Gravel Pit. Another grew up at Roelands Mission, as part of the stolen generation.

Conducted in September and October 2008, the site visits were used to acquire data on:

- The social values and cultural values associated with each location
- The water characteristics required to maintain the social values
- The potential impact(s) if there are changes in water conditions
- The level of consultation required before restoration works can be undertaken at locations with social value(s)

The participants were contacted via telephone to arrange a convenient day and time for the site visits. They received a reminder telephone call one or two days in advance of each site visit.

3.3.3 On-site discussions

In total, five days of site visits were conducted. Each involved documentation of multiple locations and typically required three to four hours in the field.

The onsite discussions took the form of semi-structured in-depth interviews. A data template based on the characteristics in Table 3 was used at each location to encourage consistency in data collection (Appendix C).

Table 3 Location characteristics

Characteristic	Description/rationale
Social value	The social value(s) attributed to a location based on the categories identified in *Statewide Policy No 5*.
Specific activities	The activities undertaken at the location (e.g. fishing, marroning, swimming).
Visitor numbers	The number of visitors can provide an indication of the degree of value attributed to a location.
Frequency of use	The frequency of visits can provide an indication of the value attributed to a location.
Season of use	The season of use will determine when water is needed to support social values. Some values will require water year round while others will require water only during certain seasons.
Potential for increased social value	Locations with the potential to increase their social values are more highly valued. For example, plans for developing tourism accommodation in an area.
Accessibility	An inaccessible location is likely to have a lower social value (e.g. on private property, surrounded by fencing).
Facilities	The facilities available indicate the types of social values that are likely to occur at a location. Facilities and their condition typically reflect the value placed on a site.
Surrounding land uses	Locations next to land uses that complement or enhance the social values are more highly valued.
Current status	Some locations continue to be used, while others are no longer in use.
Condition of site	Locations in 'good' condition tend to have higher social values.
Unique attributes	Locations that have a one of a kind use or value or would be very hard to substitute if the site/characteristic was lost have higher social value.

Data sheets (Tables 4 and 5) were completed for each location and entered in an Excel spreadsheet. Three follow-up meetings were held with the participants to confirm the accuracy of the data and to fill any data gaps. One meeting was held with the Bunbury area participants. Due to schedule conflicts, two meetings were held with the Collie area participants.

Data analysis was an iterative process with data categorised into themes and sub-themes (Table 6). The site visit notes were re-examined several times to confirm the themes identified prior to the interviews and to identify emergent themes.

Table 4 Data sheet: Location characteristics

Location name: _____ Date: _____

Address: _____ GPS coordinates: _____

Participants: _____

_____

Social values		Level of use			
Social value	**Specific activities**	**Visitor numbers**	**Frequency of use**	**Season of use**	**Trends in use /planned changes**
1.					
2.					
3.					

Location characteristics					
Accessible	**Facilities**	**Surrounding land uses**	**Status**	**Condition**	**Unique attributes**

Table 5 Data sheet: Water conditions to maintain social values

Location: _____

Social value	Current condition	Minimum acceptable conditions	Substitutability of use/value	Key environmental values
1.				
2.				
3.				

Social value	Ideal conditions	Depth of water	Water quality	Flow rates
1.				
2.				
3.				

Table 6 Themes and sub-themes

Themes	Sub-themes
Social values	Connection to water
	Locations with social values
	Registered heritage sites
Water conditions required to support the social values	Flow regime
	Depth of water
	Water quality
	Key management considerations
Restoration	Recommended restoration works
	Consultation required before restoration works are undertaken
	Management considerations

4 Social values

4.1 Key river stretches

The site visits revealed that, in terms of social values, the Collie River can be divided into three stretches. The first extends from the Griggs Road Bridge on the Collie River East Branch and Lake Kepwari on the Collie River South Branch to the Wellington Dam. The second stretch extends from the Burekup Weir to where the Collie River meets the Leschenault Estuary. The third stretch extends from Wellington Dam to the Burekup Weir.

The study participants did not seek to identify any specific locations along this last stretch of river, between Wellington Dam to Burekup Weir. Some noted that they were told by their parents not to wander further upstream than the Burekup Weir. The bush was thick beyond this point, making it difficult to manoeuvre upstream. The Department of Environment and Conservation (DEC) identified a number of values along this stretch in consultation with local Nyungar stakeholders during development the *Wellington National Park and Westralia Conservation Park Draft Management Plan* (CALM 2005).

4.2 Registered sites

Within the area of investigation, there are 22 sites listed on the WA Register of Aboriginal Sites[12]. Table 7 lists the permanent sites while Table 8 displays the other sites on the Register. Figure 1 displays the location of the listed sites upstream of Wellington Dam while Figure 2 displays those located downstream of Burekup Weir. In the cases of the Collie River, Brunswick River (Table 7) and Harris River (Table 8), the entire river is a listed site.

[12] The Register is maintained by the WA Department of Indigenous Affairs.

Table 7 Permanent sites

Site name	Site ID	Site type*	Additional information	Map ID
Collie Spring	4699	Mythological, historical	Water source	1
Western Collieries 05	5127	Artefacts/scatter		2
Western Collieries 06	5128	Artefacts/scatter		3
Minningup [*sic*] Pool[13]	15330	Mythological		4
Shotts Graves	15331	Skeletal material/burial, modified tree		5
Collie River Waugal	16716	Mythological	Natural feature, water source	
Brunswick River	17776	Mythological	Natural feature, water resource	

*See Table 2 for descriptions

Table 8 Other register sites

Site name	Site ID	Status*	Site type**	Additional information	Map ID
Gibraltar Rock	4469	I	Ceremonial, repository/cache, modified tree, artefacts/scatter, grinding patches/grooves	Water source	2
Telfer Pool	4579	I	Ceremonial		6
Eight Mile Pool	4690	I	Ceremonial, mythological	Camp	6
Boronia Gully	4691	I	Skeletal material/burial	Camp	7
Western Collieries 01	5123	I	Artefacts/scatter		8
Ewington Spring	15333	S	Not identified in register	Water source	9
High Chaparral Camps	15335	I	Not identified in register	Camp	9
White City Camp	16003	I	Not identified in register	Camp	10
Allenson [*sic*] Reserve	16004	I	Not identified in register	Camp	11
Collie River Campsites	16715	I	Historical	Camp	12
Collie River Bridge Campsite	16716	I	Man-made structure	Camp	13
Treedale [*sic*] Road Camp	17773	I	Man-made structure	Camp, water source	14
Burekup Gravel Pit – Shenton Road	17774	I	Man-made structure, historical	Camp, water source	15
E/01 – Swamp (Waugyl Site)	21039	L	Mythological	Water source	16
Harris River	21905	L	Mythological	Water source	

* I: Insufficient information; S: Stored data; L: Lodged
** See Table 2 for descriptions

[13] Locally the site is referred to as Minninup Pool.

Figure 2 Listed sites upstream of Wellington Dam

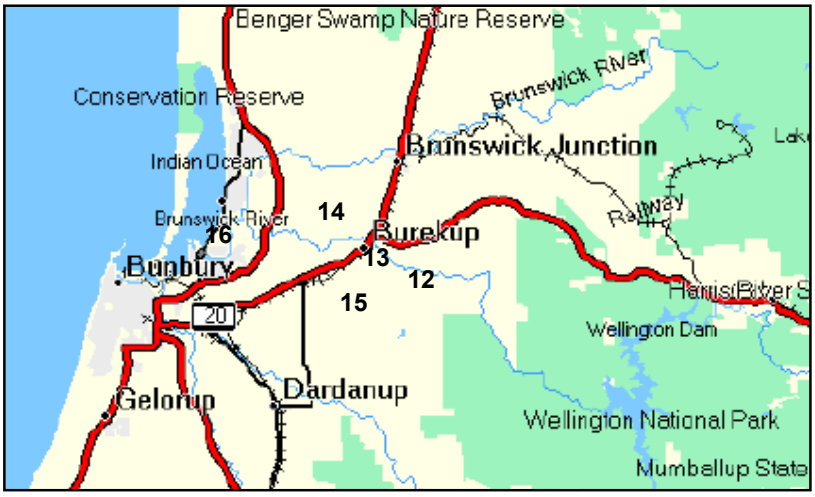

Figure 3 Listed sites downstream of Burekup Weir

4.3 Participant identified locations and values

The site visits revealed 36 locations with social values associated with the river and its environs. The social values identified by study participants fell into two main categories: recreation and heritage (Table 9).

Table 9 Collie River social values

Category	Social value	Number of locations	Percent age of locations (N = 36)
Recreation	Swimming	25	69%
	Marroning	24	67%
	Fishing	24	67%
	Camping	4	11%
	Social gathering place	4	11%
	Picnicking	2	6%
	Canoeing	1	3%
Heritage	Listed on WA Register of Aboriginal Sites	8	22%
	Permanent camp	7	19%
	Corroboree ground	4	11%
	Mythological	3	8%

4.3.1 Upstream of Wellington Dam

The site visits identified 25 locations upstream of the Wellington Dam with social values (Figure 4). The majority of the locations are associated with river pools. Table 10 identifies for each location the social values, whether a location is still in use (i.e. active) and whether it is on the WA Register of Aboriginal Sites. In a number of cases, several features were located in very close proximity to one another. In these instances, they were assigned the same Map identification number in Figure 4. Appendix C (Table C1) describes the locations and associated social values in further detail.

> *"... we stopped using some of the pools on the East Branch and South Branch when the mining started".*

Table 10 Locations upstream of Wellington Dam

Locations	Social values	Activities	Active	Heritage listing*	Map ID
Boronia Gully	Heritage	Permanent camp, marroning, corroboree[14] ground for Nyungar and Yamatji people	No	NL	1
High Chaparral	Heritage	Permanent camp, marron, fish	No	I	2
Peppies Crossing	Recreation	Swimming, fishing, camping, marroning, river swing	Yes	NL	3
Eight Mile Pool	Recreation	Swimming, cleaning after a hunting	Yes	I	3

[14] Corroborees are ceremonial meetings, which typically involve dancing, signing and costumes.

Locations	Social values	Activities	Active	Heritage listing*	Map ID
Wall's End	Heritage	Permanent camp, swimming, fishing, marroning	No	NL	4
Trotting Track	Recreation	Marroning, swimming, gathering	Yes	NL	4
Soldiers Park	Recreation	Fishing, marroning, swimming, gathering	Yes	NL	4
Gain Road Reserve	Heritage	Permanent camp	No	NL	5
Springs opposite Gain Road Reserve	Heritage	Water source, mythological	No	P	5
White City Camp	Heritage	Residential housing	No	I	2
Minninup Pool	Recreation, heritage	Swimming, picnicking, fishing, gathering, mythological	Yes	P	6
The "Bedrooms"	Recreation	Swimming, fishing, marroning	Yes	NL	7
Fish Tail	Recreation	Picnicking, fishing (perch and cobbler), marroning, gathering, swimming	Yes	NL	7
Robert's Rocks	Recreation	Canoeing, marroning, fishing	Yes	NL	7
Mungalup Tower	Recreation	Swimming, marroning	Yes	NL	7
East Branch					
Cabbage Trees/Old Rickety Bridge/Griggs Road	Heritage	Permanent camp, marroning/yabbies	No	NL	8
Duderling Pool	Recreation	Camping, swimming, marroning, fishing, hunting	Yes	NL	9
Buckingham Pool	Recreation	Camping, swimming, marroning, fishing, permanent camp	Yes	NL	9
Monong	Recreation	Camping, fishing, marroning	Yes	NL	10
South Branch					
Gibraltar Rock	Heritage	Location of bad spirits, mythological	NA	I	11
Railway Bridge/Jum's Pool	Recreation	Swimming, marroning, fishing	Yes	NL	12
Long Pool	Recreation	Swimming, marroning, fishing	No	NL	13
Mel Pool	Recreation	Marroning, swimming, fishing	No	NL	13
Shott's Pool to Pilatti's Pool	Recreation	Marroning	No	NL	13
Telfer Pool	Heritage	Corroboree ground	No	I	14

* NL: Not listed

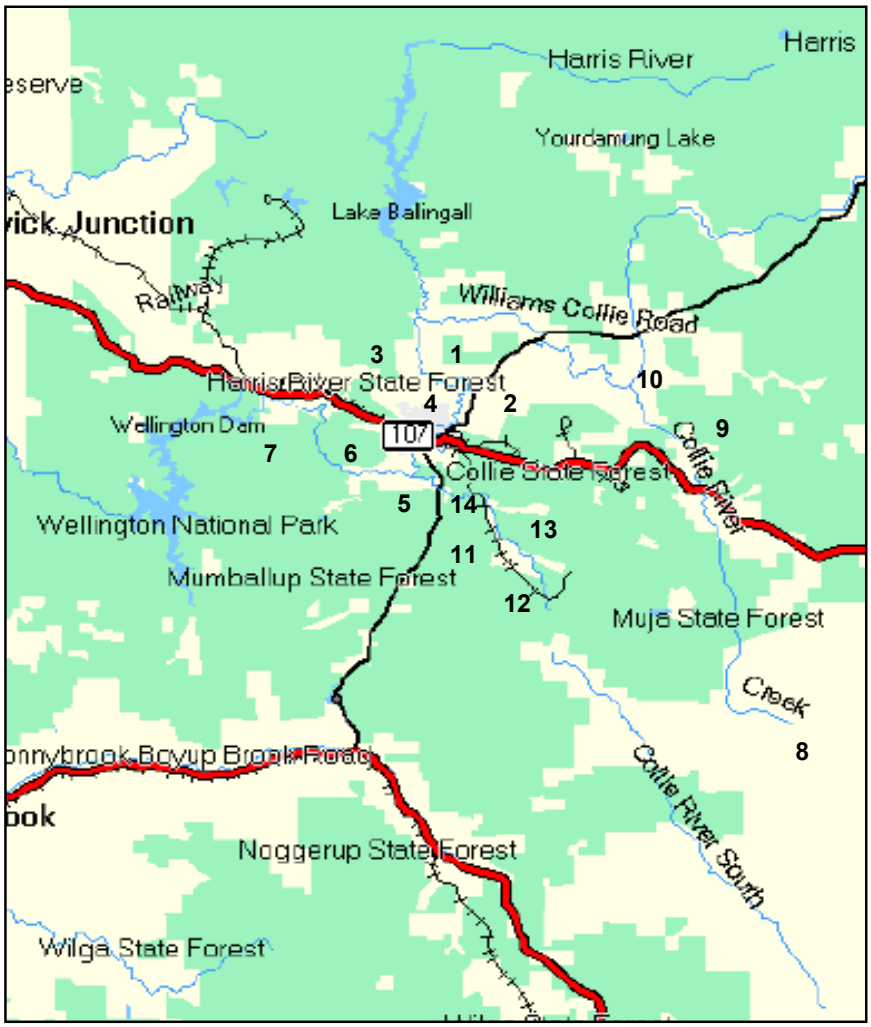

Figure 4 Social values upstream of Wellington Dam

4.3.2 Downstream of Burekup Weir

Participants identified 11 locations with social values for this stretch of the river (Figure 5). The majority are associated with river pools. Table 11 summarises the locations and associated values and notes whether a location is still in use (i.e. active) and whether it is on the WA Register of Aboriginal Sites. Appendix C (Table C2) describes the locations and associated social values in further detail.

Table 11 Locations downstream of Burekup Weir

Location	Social values	Activities	Active	Heritage listing*	Map ID
Pools at Roelands Mission	Recreation	Swimming, marroning, fishing	Yes	NL	1
Johnson's Log	Recreation	Swimming, marroning, fishing	No	NL	1
Wilson's Bridge	Recreation	Swimming, marroning, fishing	Yes	NL	2
Pool directly downstream of Wilson's Bridge	Recreation	Swimming	No	NL	2

Location	Social values	Activities	Active	Heritage listing*	Map ID
Pipeline	Recreation	Walked the pipeline to get to the Mission, swimming, marroning, fishing	No	NL	3
Gravel Pit	Recreation, heritage	Permanent camp, Collie River used for marroning, fishing and swimming	No	I	4
South Western Highway Bridge	Recreation	Fishing, marroning, swimming	No	NL	5
The Elbow	Recreation, heritage	Fishing, swimming, corroboree ground	Yes	NL	6
River Elbow	Recreation	Fishing, swimming	No	NL	7
Eaton foreshore	Recreation	Fishing, swimming, gathering	Yes	NL	7
Clifton Park foreshore	Recreation, heritage	Camping, fishing, corroboree ground	No	NL	7

* NL: Not listed

Figure 5 Social values downstream of Burekup Wier

Some recreation activities no longer occur because access to the river foreshore is limited by private property between Burekup Weir and Australind Bypass. A participant expressed hope that the redevelopment plans for Roelands Mission, which includes tourist accommodation, may encourage the reintroduction of some recreation activities to that part of the River.

Situated on the north bank of the Collie River, Roelands Mission is located on Seven Hills Road. Established in 1932, the Mission (originally known as Roelands Native Mission) was one of 27 missions supported by the Native Welfare Department. From 1940-1970, an estimated 500 children were removed from their families and placed at the Mission. In 1975, the Churches of Christ Federal Aborigines Board bought the property and changed the name to Roelands Village. Childcare at the Mission ceased in 1984. Since then the Mission has been an operating farm. In 2004 the Indigenous Land Corporation purchased the property on behalf of the Woolkabunning Kiaka Association[15] with plans to redevelop the site.

The Gravel Pit

In the 1950s, Charles and Rachel Hill (nee Abraham) established a permanent camp east of the Burekup town site at a location commonly known as the Gravel Pit. Bordered on one side by a small tributary of the Collie River, residents lived in small tin houses and relied on the creek for water. By the mid-1970s, all of the Gravel Pit residents had moved, most into newly built government housing. Today, the Gravel Pit is part of a private property owned by a local farmer. Several of the study participants grew-up at the Gravel Pit and are descendents of Charles and Rachel Hill.

5 Social water requirements

5.1 Stakeholder perceptions

Social water requirements are the water conditions required to meet the social values attributed to a water feature. Participants were asked to describe the water conditions needed to maintain the identified social values. Some individuals identified the water conditions in empirical terms (e.g. depth of water required) but most provided qualitative responses. For example, they indicated that a 'natural flow regime' would best support the social values. Others used an indicator species to describe the desired water conditions (e.g. the water conditions must be suitable for marron).

The DoW will translate the information provided in Tables 12 and 13 into social water requirements, including a description of the required flow rates, water levels and in some cases the water quality.

5.2 Upstream of Wellington Dam

> *"The river is like a vein and the water is like blood, there needs to be continual flow in order for the river to survive."*

For the area upstream of Wellington Dam, participants indicated that a natural water regime, both flow and depth, would best support the social values (Table 12). They recognised the Collie River as a "highly modified system", but believe steps could be taken to better reflect a natural regime. For example, "the boards at Venn Street could be removed during winter to allow the river to flush"[16].

[15] The Woolkabunning Kiaka Association represents the former Mission residents.

[16] During summer, the boards at Venn Street ensure that water levels are maintained within the Collie town site. This provides water for Council irrigation and fire fighting.

Table 12 Water conditions to sustain social values upstream of Wellington Dam

Location	Use Status	Season of use	Flow	Depth	Water quality
Boronia Gully	No longer used.	Year round	The river always flowed, but was reduced to a trickle in summer.	The swimming holes used to be 2.0 – 3.0 metres deep.	No water quality issues are visually evident
High Chaparral	No longer used.	Year round	Maintain a natural water regime.		
Peppies Crossing	Active: Used by Indigenous and non-Indigenous community.	Year round, most popular in summer	Maintain flow year round.	Minimum: 0.3 m Ideal: 1.8 – 2.2 m in summer Participants noted that the pool may be spring fed.	Water clarity should be improved. Stock access is an issue.
Eight Mile Pool	Active	Year round, most popular in summer	The Collie River flows through the site year round. Maintain this regime.	Summer minimum: 0.3 m Winter minimum: 0.6 - 0.9 m	No comment provided
Wall's End	Active: Now used as Collie Showgrounds	Year round	Maintain a natural water regime.		Water clarity should be improved
Trotting Track	Active	Year round	Maintain a natural water regime.		
Soldiers Park	Active: Used by Indigenous and non-Indigenous community.	Year round	Maintain a natural water regime.	Ideal in summer: 1.0-2.0 metres deep	
Gain Road Reserve	No longer used.	Year round	Maintain a natural water regime.		
Springs opposite Gain Road Reserve	No longer used.	Year round	Maintain a natural water regime.		
White City Camp	Active: Also used as a rubbish dump.	Year round	Maintain a natural water regime.		
Minninup Pool	Active: Used by Indigenous and non-Indigenous community.	Year round, most popular in summer	The river should flow through the site year round. At a minimum a trickle should exist.	Current conditions support the values.	Current water quality is adequate

Location	Use Status	Season of use	Flow	Depth	Water quality
The "Bedrooms"	Active	Year round, most popular in summer	Maintain a natural flow regime.	Current conditions support the values.	No comment provided
Fish Tail	Active: Used by Indigenous and non-Indigenous community. Litter is a problem.	Year round, most popular in summer	Maintain a natural flow regime.	Current conditions support the social values. Ideal: 3.0+ metres in winter	No comment provided
Robert's Rocks	Active: Canoeing does not occur in winter because the site overflows	Summer	Maintain a natural flow regime.	Minimum: 1.0 m of water in summer	No comment provided
Mungalup gauging station	Active: DoW gauging station	Year round, most popular in summer	Maintain the white rapids experienced during winter.	The pools always have water. Participants indicated the pool may be spring fed.	Maintain current conditions.
East Branch					
Cabbage Trees/ Old Rickety Bridge/Griggs Rd	No longer used: Part of a mining tenement	Year round	Maintain a natural flow regime.	Used to be a deep pool that dried up in summer. Pool is full of sediment that should be removed if possible. Pool may be spring fed.	Sedimentation is an issue
Duderling Pool	Active: Pools are supplemented to maintain water year round. ~1 ML/ day put into Chicken Creek.	Year round	Maintain a natural flow regime.	The pool is approximately 4.0 -5.0 metres deep in summer.	No comment provided
Buckingham Pool		Year round	It should have water year round. If it was determined that the natural regime allowed the pool to dry out in summer, this would be sufficient.		
Monong		Year round	Maintain a natural flow regime.		
South Branch					
Gibraltar Rock	Active: The Rocks are a sacred site, which Aboriginal stakeholders are told to stay away from	Year round	Not located directly on the Collie River		

Location	Use Status	Season of use	Flow	Depth	Water quality
Railway Bridge/Jum's Pool	Active	Year round	Maintain a flow year round.	It is a permanent pool. Maintain water year round. Participants indicated the pool is spring fed.	No comment provided
Long Pool	No longer used.	Year round	Maintain a natural flow regime	Minimum: maintain conditions to support marron. Participants indicated the pools are spring fed.	No comment provided
Mel Pool					
Shott's Bridge to Pilatti's Pool	No longer used.	Year round	Maintain conditions suitable for marron. Participants indicated the pool is spring fed.		
Telfer Pool	No longer used.	Year round	Maintain a natural water regime.		

Table 13 Water conditions to sustain social values downstream of Burekup Weir

Location	Use status	Season of use	Flow	Depth	Water quality
Pools at Roelands Mission	Potential for increased use as a result of planned tourism developments at the Mission	Summer	Minimum: Maintain water conditions to support marron and fish species.	Minimum: Support marron and fish Good: 0.8 -1.2 metres of water for swimming Ideal: 1.8 metres of water for swimming	One of the pools has filled with silt. Potential cause identified were road run-off and pine plantation management upstream. Siltation reduces use of the pool.
Wilson's Pool	Active	Summer			Maintain water conditions to support marron and fish species.
The Elbow River Elbow Eaton foreshore Clifton Park foreshore	Active: Used by Indigenous and non-Indigenous community	Year round, most popular in summer	Minimum: Maintain conditions to support fish species, including bream and yellow tail. The existing water conditions adequately support the social values.		
Pool directly downstream of Wilson's Bridge Pipeline South Western Highway Bridge	No longer in use	Summer	At a minimum maintain water conditions to support marron and fish species.	Minimum: Support marron and fish Good: 0.8 -1.2 metres of water for swimming Ideal: 1.8 metres of water for swimming	Maintain water conditions to support marron and fish species.
Johnson's Log	No longer in use	Summer	The log has been removed.		
Gravel Pit	No longer in use	Year round	The site is not located adjacent to the Collie River but those who lived at the site recreated along the Collie River. Meeting the water conditions for the sites identified above will be sufficient to meet the values of the site.		

Participants expressed concern about the stagnant, cloudy nature of the river around the Collie town site. They recalled times "when we could reach into the water, with our bare hands, and pull out marron … because the water was so clear". The stagnant water and "lack of clarity" were interpreted as indicators of an unhealthy system.

"Riffles mean that the water is working. This shows that the river is alive."

Participants expressed concern about the negative impacts resulting from engineering works after the 1964 Collie flood. They indicated that the river was 'de-snagged' (channelised)[17] in an attempt to reduce the potential for future flooding. The engineering works resulted in unintentional effects including increased erosion and weed invasion, both in-stream and along the foreshores. The most frequently identified weeds were typha and nardoo[18].

A number of the pools along the East Branch and South Branch are currently supplemented[19]. The East Branch and South Branch are ephemeral, meaning that large stretches dry out in summer reducing the branches to a series of pools. The pools used to be supported by the local groundwater resources (Collie Water Advisory Group 1996) but extensive coal mining in the Collie Coal Basin lowered the groundwater and reduced discharge to the pools. The participants supported the supplementation efforts because it replicates the natural water regime.

Salinity was identified as a water quality issue, but not one impacting the social values. Participants highlighted the extensive salinity recovery work as a positive step towards restoring the river.

5.3 Downstream of Burekup Weir

In defining specific requirements, participants divided the lower Collie River into two segments. The first extends from the Burekup Weir downstream to the South Western Highway Bridge and is influenced by releases from Wellington Dam. The second segment extends from the South Western Highway Bridge to the river mouth and is influenced, in the lower reaches, by saltwater intruding from the Leschenault Estuary.

5.3.1 Burekup Weir to the South Western Highway

Harvey Water[20] is licensed to take 68 GL/year from the Wellington Reservoir to supply irrigators in the Collie River Irrigation District (CRID) (Economic Regulation Authority 2006). The Water Corporation releases water from the Wellington Reservoir from approximately October to April. The water is temporarily stored downstream at the Burekup Weir and is then diverted into Harvey Water's channel system and delivered to agriculturalists in the CRID. The majority of the water is for irrigated agriculture, while the remainder goes to industrial uses (i.e. Doral Mining), historical releases[21] and water losses from Harvey Water's open channel system.

[17] This included straightening the river to create a uniform, drain style channel profile and removing all in-stream large wood debris, natural sand and gravel bars and vegetation.

[18] *Marsilea drummondii* (nardoo) is a common fern of wetland areas that grows in shallow, still or sluggishly flowing water and in seasonally wet habitats. It can form dense coverings following flood events.

[19] Along the East Branch, Duderling Pool and Buckingham Pool are supplemented. The South Branch was supplemented in the past but is not expected to be supplemented in summer 2008-09.

[20] Harvey Water is an irrigation cooperative that supplies water to three irrigation districts – Waroona, Harvey and Collie River.

[21] As part of its licence, Harvey Water is required to release a small amount of water annually to the Henty Brook, Ferguson River and the Brunswick River pool.

Water is also released from the Wellington Dam, typically between June and August, to scour the base of the reservoir as part of the dam's maintenance program. Water is released following the first saline inflows of the season and when a difference exists in salinity levels between the top and bottom of the reservoir[22]. This helps minimise the loss of fresh water over the top of the dam wall and removes the most saline water from the base of the reservoir.

Participants expressed concerns that changes in the releases from Wellington Dam would reduce the amount of water flowing down the Collie River. They noted that there appeared to be reduced flows winter flows.

The current flow regime appeared to participants as being steady year round. They recalled that as kids, "in winter the water used to gush down the river where as in summer some of the pools used to nearly dry out". Stakeholders questioned why the seasonality of flows seems to no longer exist and what impact this was having on the river and its ecological values.

Marroning was a commonly identified social value downstream of the Burekup Weir. Marron have long been a key source of food. Participants noted that catching marron is a much older tradition for Aboriginal people than for non-Aboriginal people. In fact, "aboriginal people taught white people how to catch and eat marron". Several participants emphasized the need to ensure water conditions long into the future to support the marron. Other participants emphasized the need to ensure water conditions supported both marron and fish species.

5.3.2 Downstream of South Western Highway

Participants identified water quality as an issue downstream of the South Western Highway. Problems include sedimentation and nutrient loading. Fish kills were recorded downstream of the South Western Highway Bridge in 2002, 2003 and 2004 (DoW 2007b).

However, the water quality issues do not appear to negatively impact the social values. Overall, participants believe the existing water regime along this stretch adequately supports the social values.

A key part of the existing regime is the saltwater intrusion in summer from the Leschenault Estuary (DoW 2007b). Participants highlighted the importance of maintaining this intrusion to support the social and ecological values (e.g. presence of bream).

6 River Restoration

6.1 Restoration Needs

> *"Communities expect local waterways to remain in good condition, look attractive, retain good water quality and be available for a range of uses. This expectation is linked to the desire for a good quality of life" (WRC 2000, p17b).*
>
> *"The aim of restoring our rivers is to generate healthy, living streams with a diversity of habitats… [It] can be used to develop, as far as possible, a natural stream ecosystem and to keep the stream channel free of choking aquatic vegetation and algae. This concept can be applied at a simple scale, i.e. establishing fringing native vegetation along streamlines, through to the complex scale, where channel form, bank stability, in-stream habitats and catchment management are all incorporated" (WRC 2002, p.7).*

[22] Scouring begins when the difference in salinity level between the top and bottom reaches 400 mg/L.

As resources become available, the DoW and the Leschenault Catchment Council (LCC) would like to undertake restoration works along the Collie River. The *River Action Plan for the Lower Collie River* (Taylor 2008) identifies a number of restoration needs along the lower Collie. In 2009, the DoW will release a River Action Plan for the upper Collie River. Other factors the Department considers in determining restoration needs are the accessibility of the foreshore (e.g. steep banks, publicly owned), funding available and level of community support (e.g. volunteers available to do revegetation).

Study participants highlighted the relationship between the river and its riparian zone.

> *"The foreshore vegetation protects the water. They [the vegetation and water] are married together; you need to have both of them."*

> *"The foreshore vegetation helps protect the water quality".*

During site visits, participants identified locations requiring rehabilitation (Table 14). Of the 36 locations, participants provided recommendations for 12 (or 33%). The major issues underpinning the need for restoration were: sedimentation of pools, loss of riparian vegetation, and stock access to waterways.

"Removing the silt would bring back the pool."

"Years ago the site was well vegetated."

"The current condition makes his heart sore/sick" [Peppies Crossing].

Rehabilitation techniques frequently suggested were:

- Weed removal: Several types of weeds (e.g. bamboo, watsonia) were identified at many sites. Participants indicated that the weeds should replaced with native vegetation. The most commonly cited method for weed removal was spraying.
- Revegetation: Participants indicated that denuded sites should be revegetated with native species to reduce erosion and improve site aesthetics. Where vegetation hangs over a river it provides habitat for river fauna and shade, controlling the temperature of the water.
- Introduction of logs and rocks: Participants identified several instances where removed logs and rocks should be replaced to provide habitat for fauna (e.g. marron and fish), reduce the speed of the river (i.e. reduce erosion), and help oxygenate the water.
- Fencing: Participants identified areas where stock access the river had degraded the foreshore and water quality. They identified foreshore fencing as the most appropriate management response.
- Erosion control: Participants identified several areas where the foreshore had been eroded. A stakeholder recommended putting in place mesh and rocks to reduce the erosion.

Some participants suggested the establishment of a buffer zone along the entire length of the Collie River (e.g. a 50-metre buffer on either side) as a mechanism to protect the river (e.g. stopping stock access). Several participants recommended development of a walk trail within the buffer zone to provide access to the river. With appropriate signage, the trail could tell the story of the Aboriginal people who grew up along the Collie River.

Table 14 Restoration needs by location

Location	Current condition	Actions recommended by participants
Upstream of Wellington Dam		
Boronia Gully	Much of the native foreshore vegetation has been removed. Much of the remaining vegetation is weeds (e.g. Watsonia). The Water Corporation property is currently vacant, without any structural developments. The site is no longer in use.	**Weed removal:** The weeds should be removed from the foreshore (e.g. watsonia). **Revegetation:** Native vegetation should be replanted.
High Chaparral	Typha became pronounced after the 1964 floods and the subsequent 'training' of the river to reduce the risk of future floods. Much of the foreshore vegetation has been removed. The site is located at the edge of a rubbish dump site and is no longer in use.	**Weed removal:** The weeds should be removed (i.e. typha). **Revegetation:** The area used to be covered with native vegetation. This should be replanted.
Peppies Crossing	There is evidence of degradation from stock access. The water levels appear to be low. "The current condition makes his heart sore/sick".	**Revegetation:** The paperbarks should be re-planted along the foreshore. **Fencing:** The river should be fenced to prevent stock access.
Eight Mile Pool	The pool is surrounded by paperbarks that become inundated when the water levels are high. There is an unsealed track on either side of the pool. When water levels are low, the track can be used to cross the pool. Great Southern Towns Water Supply Scheme pipeline passes several metres over the top of the pool	No recommendations provided
Wall's End Trotting track Soldiers Park	Foreshore vegetation has been removed and the remaining vegetation is mainly weeds (e.g. black wattle). There used to be rocks across the river, which allowed Nyungar people to cross from one side of the river to the other.	**Revegetation:** Native vegetation should be replanted. **Weed removal:** The weeds should be removed (e.g. black wattle).
Gain Road Reserve	The site is vegetated. The reserve is no longer in use.	No recommendations provided

Location	Current condition	Actions recommended by participants
Springs opposite Gain Road Reserve	The site is vegetated. The site is no longer in use.	No recommendations provided
White City Camp	The site has been degraded and is now used as a rubbish dump.	No recommendations provided
Minninup Pool	The site is managed by the Shire of Collie. A small area of foreshore has been cleared for recreation (e.g. picnic tables, parking lot).	No recommendations provided
The "Bedrooms"	The foreshore is well vegetated. The site is only accessible via an unsealed track.	No recommendations provided
Fish Tail	There is evidence of erosion along the foreshore. Outside of the eroded area, the foreshore is well vegetated. The recreation area is surrounded by thick vegetation. Rubbish is frequently left behind by those using the area.	**Erosion control:** The erosion needs to be controlled along the foreshore. Wire mesh with rocks was recommended as an option.
Robert's Rocks	The foreshore is well vegetated. The area directly downstream of the boards, which lie across the river, is overrun by weeds (e.g. bamboo).	**Weed removal:** All exotic species (e.g. bamboo immediately downstream) should be removed.
Mungalup gauging station	The foreshore and surrounding area is well vegetated.	No recommendations provided
East Branch		
Cabbage Trees/Old Rickety Bridge/Griggs Road	Siltation has filled the pool, "significantly reducing the site depth". There is limited foreshore vegetation. It is part of a mining tenement, so access is limited.	**Remove silt build-up:** The siltation should be removed. Dredging was recommended.
Duderling Pool	The foreshore has vegetation, but it is not as dense as it once was. The site is supplemented.	No recommendations provided
Buckingham Pool	The foreshore is vegetated. The site is supplemented.	No recommendations provided
Monong	The foreshore is well vegetated. The site receives overflow from the upstream supplementation. The site is only accessible via an unsealed track.	No recommendations provided

Location	Current condition	Actions recommended by participants
South Branch		
Gibraltar's Rock	No comments provided. The site is not to be visited due to the presence of bad spirits.	No recommendations provided
Railway Bridge/Jum's Pool	Some revegetation was done during the 2006 site clean-up. Minimal revegetation was needed because the site is well vegetated. "The site looks natural". The water was contaminated and subsequently cleaned-up in 2006. There have been no quality problems since.	No recommendations provided
Long Pool Mel Pool Shott's Pool to Pilatti's Pool	The foreshore is vegetated. The pools maintain water year round, because they are spring fed. The pools have not been used by Indigenous people since mining began in the area.	No recommendations provided
Telfer Pool	No comments provided.	No recommendations provided.
Downstream of Burekup Weir		
Pool at Roelands Mission	The foreshore vegetation is "infested with weeds". Some fig trees remains. "We used to eat the figs from the trees as kids. They were delicious". Cattle are allowed to access the southern foreshore, which causes degradation.	**Weed removal:** The weeds should be removed. Any remaining large fig trees should not be removed. **Fencing:** Stock should not be allowed to graze the foreshore or access the river.
Johnson's Log	The foreshore is "infested with weeds".	Logs and rocks should be put back into the river at key points. Note: The log has been removed.
Wilson's Bridge	Numerous weeds	**Weed removal:** The weeds should be removed.
Pool directly downstream of Wilson's Bridge	The site is surrounded by fringing vegetation.	No recommendations provided
Pipeline	The site is surrounded by fringing vegetation.	No recommendations provided

Location	Current condition	Actions recommended by participants
Gravel Pit	The site is currently a fenced paddock.	A plaque is being placed at the site in recognition of those who grew up at the Gravel Pit.
South Western Highway Bridge	Much of the foreshore vegetation is weeds (e.g. bamboo).	**Weed removal:** The weeds should be removed and native vegetation planted in its place.
The Elbow	The site is well vegetated, due to extensive restoration works that have been undertaken at the site.	No recommendations provided
River Elbow	The foreshore is well vegetated.	No recommendations provided
Eaton foreshore	Much of the foreshore is manicured lawn. “Years ago the site was well vegetated”.	**Revegetation:** The area used to be covered with native vegetation. This should be replanted.
Clifton Park foreshore	The foreshore is vegetated as a result of extensive restoration works.	**Support restoration efforts:** The revegetation should be maintained.

A participant recommended that public access points be developed at intervals within the proposed buffer. This would enable people to access the river in locations currently abutted by private property. The access points would also concentrate access and any potential degradation at specific locations, rather than the entire length of the river.

It was noted that land use practices in the catchment could potentially undo the gains from any restoration efforts. Agricultural land uses and pine plantations were the most frequently cited as land uses contributing to the build-up of nutrients and siltation in the Collie River.

The importance of managing the Collie River from a catchment perspective was highlighted. Several participants described the Collie River as "attached to the Preston and Brunswick Rivers" and part of the "same system" that contributes to the Leschenault Estuary. Participants noted the improvements in the upper Collie River. (i.e. decreasing salinity levels) due to catchment management efforts (e.g. revegetation) and thought similar achievements might be made if the lower Collie River was managed from a catchment perspective.

Most participants recommended that, where possible, Aboriginal people be employed to help with the restoration works. This was seen as both an opportunity to contribute Aboriginal knowledge to the restoration process and to teach Aboriginal youth how to care for country.

Several stakeholders recommended that Department staff should take an induction program before undertaking restoration works. Such a program would focus on fostering an understanding and appreciation of cultural protocols to be followed when undertaking restoration works.

6.2 Consultation on Restoration Projects

The *Aboriginal Heritage Act 1971* (WA) and the *Native Title Act 1993* (Cth) include requirements to consult with Aboriginal stakeholders. These requirements may apply to DoW restoration works depending on where the works are proposed and the level of disturbance caused by the works (6.2.1 and 6.2.2).

6.2.1 Aboriginal Heritage Act

If a water management activity (e.g. restoration project) meets any of the *Aboriginal Heritage Act*'s Section 17 conditions, an application must be made to the Minister for Indigenous Affairs under Section 18[23] of the AHA. It is an offence under Section 17 of the AHA to "… excavate, destroy, damage, conceal or in any way alter any Aboriginal site … or assume possession, custody or control of any object on or under an Aboriginal site".

Under Section 18, an application must be made to the Minister of Indigenous Affairs for approval to undertake works outlined in Section 17. The Minister makes the decision on applications based on recommendations from the Aboriginal Material Cultural Committee.

For non-deleterious[24] works that are undertaken with the intention to enhance a site's value(s), an application is made to the Registrar under Regulation 10 of the *Aboriginal Heritage Regulations 1974* (WA) (Coastwest n.d.).

[23] For scientific investigations, an application is made under Section 16 of the AHA.

[24] This includes works such as "… dig any hole or otherwise disturb the surface of the ground, or remove or disturb any stone, soil, sand rock or gravel, or any other natural object …" (Regulation 10). For a full list of activities that qualify, refer to Regulation 10 of the *Aboriginal Heritage Regulations 1974* (WA).

6.2.2 Native title

Native title is the set of rights and interests established through traditional law and customs, afforded to Aboriginal people and Torres Strait Islanders over land and waters. The study area falls within the boundaries of the Gnaala Karla Booja native title claim. The registered claim[25] covers approximately 30,424 km^2 and is currently in mediation.

Native Title applications often take years before a final decision is made. A process has been devised to enable Native Title claimants to negotiate with proponents of 'future acts', while a registered native title application is being assessed. In the Collie River catchment, proponents of 'future acts' will need to consult with the Gnaala Karla Booja Native Title claimants.

A 'future act' is defined as a proposal that will affect native title by extinguishing it or creating interests that are inconsistent with the continued existence and enjoyment of native title. The *Native Title Act 1993* (Cth) grants procedural rights to native titleholders and registered claimants in relation to 'future acts'. These rights range from notification through to negotiation, depending on the type of act proposed. Examples of future acts include introduction or amendments to legislation and administrative acts (e.g. development of a management plan for a park and construction of new facilities/buildings).

6.2.3 DoW Guidelines

In 2008, the DoW developed guidelines to assist staff in meeting the requirements of the *Native Title Act 1993 (Cth)* and the *Aboriginal Heritage Act 1972 (WA)* (Section 3.2). The guidelines are supported 'in principle' by the DIA and Office of Native Title (Seewraj pers comm. 2009).

The *Aboriginal Heritage and Native Title Guidelines for On-ground Works* (DoW 2008) are intended to provide a transparent, consistent and systematic means for DoW staff to determine the appropriate level of Aboriginal stakeholder engagement for different types of restoration works. As noted earlier, restoration activities can range from those resulting in very little if any disturbance at a location to activities that require significant disturbance.

The DoW guidelines discriminate between those cases where a proposed restoration work is situated near a site listed on the WA Register of Aboriginal Sites and those affecting locations not on the Register. The guidelines also provide advice regarding locations where: (a) a native title claim has not been lodged or determined and (b) a native title has been lodged or determined.

Table 15 summarises the Department's consultation guidelines[26] for sites listed on the WA Register of Aboriginal Sites. The recommended initial level of Aboriginal stakeholder engagement is determined by an assessment of two factors:

1. The degree of land disturbance the restoration work would require at the location. In general, restoration works with the potential to create more disturbance require greater engagement than those works that would generate less disturbance.
2. The status of the site on the Register. Restoration works that would disturb a site listed as a permanent site require greater Aboriginal stakeholder engagement than those listed as lodged data. No action is recommended in cases where the site is listed as 'stored data'.

[25] Native title applications are registered when it is determined that they meet the registration test conditions (s 109B and 190C of the *Native Title Act*). Once registered, applicants receive a number of benefits, including the right to negotiate with government bodies and the right to be consulted about future acts.

[26] Although not examined as part of this study, the DoW guidelines also provide guidance on the initial level of engagement required in relation to native title.

Table 15 DoW consultation guidelines for listed sites (DoW 2008)

Type of proposed restoration work		Status of listed sites and level of consultation		
		Lodged data/ Insufficient information	Permanent	Stored data
Revegetation		Advise*	Support	No action
Vegetation control	Chemical	Advise	Support	No action
	Manual	Advise	Support	No action
	Mechanical	Support**	Consultation	No action
Encouraging access	Land	Support	Support	No action
	Water	Support	Support	No action
In-bed works	Manual	Support	Support	No action
	Mechanical	Support	Consultation	No action
Soft engineering (survey and enhancement works)		Support	Support	No action
Hard engineering (enhancement works)		Consultation***	Consultation	No action
In-stream water monitoring	Permanent structure	Consultation	Consultation	No action
	Temporary structure	Support	Support	No action
Grab sampling	Regular sampling	Advise	Advise	No action
	One off sampling	No action	No action	No action
Groundwater monitoring (bore/piezo installation)		Support	Consultation	No action
Dredging		Consultation	Consultation	No action

* Advise: There will be no disturbance to the site during works. The appropriate Aboriginal people will be made aware, in writing, of the proposed works; no feedback is requested.

** Support: There will be limited disturbance to the site during works. The appropriate Aboriginal people will be made aware, in writing, of the proposed works and their support is required.

*** Consultation: Greater than a limited disturbance will occur during works. The appropriate Aboriginal people will be invited to provide professional input. Their written support is required.

Table 16 summarises the Department's consultation guidelines for cases where restoration works are proposed for a location that is <u>not</u> listed on the WA Register of Aboriginal Sites. The recommended level of engagement is determined by an assessment of two factors:

- The type of water feature that would be affected by the restoration work. Features that fall into the 'high risk' category (e.g. natural waterways) require a higher level of engagement than those that fall into the 'low risk' category (e.g. artificial drains).
- The degree of land disturbance the restoration work would require at the location. In general, restoration works with the potential to create more disturbance require greater engagement than those works that would generate less disturbance.

Table 16 DoW consultation guidelines for sites not listed (DoW 2008)

Type of proposed restoration work		Site status and consultation required	
		Low Risk*	High Risk**
Revegetation		No action	No action
Vegetation control	Chemical	No action	No action
	Manual	No action	No action

Type of proposed restoration work		Site status and consultation required	
		Low Risk*	High Risk**
	Mechanical	No action	Feedback***
Encouraging access	Land	No action	Advise
	Water	No action	Feedback
In-bed works	Manual	No action	Feedback
	Mechanical	No action	Feedback
Soft engineering (survey and enhancement works)		No action	Advise
Hard engineering (enhancement works)		No action	Feedback
In-stream water monitoring	Permanent structure	No action	Feedback
	Temporary structure	No action	Advise
Grab sampling	Regular sampling	No action	No action
	One off sampling	No action	No action
Groundwater monitoring (bore/piezo installation)		Advise	Feedback
Dredging		Not applicable	Feedback

* Low risk: Artificial drains, dams (off-stream), sumps, developed land, etc.

** High risk: Natural waterways, diversion works, swamps, lakes, estuaries, springs, dams (in-stream), uncleared land, etc.

*** Feedback: A heritage site may exist and there may be limited disturbance during the works, which may impact the cultural, environmental and ecological values of the site. The appropriate Aboriginal people are to be made aware in writing of the proposed works and are invited to comment on the proposed work.

6.2.4 Participant Discussions

During the sites visits, participants were asked to comment on the need for restoration and the appropriate level of Aboriginal engagement for various restoration works. They supported the intent of the Department's guidelines to 'care for country' (i.e. undertake restoration works) and involve Aboriginal stakeholders when doing so.

The DoW guidelines highlight the need to engage with "the appropriate Aboriginal people"; however, the guidelines to not provide clarity on the steps that should be taken to determine the appropriate people. The Aboriginal study participants also emphasised the importance of consulting with the "appropriate Aboriginal stakeholders". They recommended that Traditional Owners be consulted, as they have the "right to speak for country" on cultural and heritage issues/values. Participants made a clear distinction between Traditional Owners and Aboriginal Elders. They noted that Aboriginal Elders should be consulted on general issues affecting the Aboriginal community, but not on cultural and heritage issues for an area outside of "their country".

Participants also made a distinction between Traditional Owners and Native Title claimants. A person can be both a Traditional Owner and a Native Title claimant. However, participants indicated that it is important that it is Traditional Owners who are engaged when discussions are had about the cultural and heritage issues/values of a specific location.

Study participants recommended the following individuals as the appropriate representatives for the Traditional Owners in the study area for initial communication:

- Les Wallam for locations downstream of Burekup Weir
- Joseph Northover for locations upstream of Wellington Dam

Similar to the DoW guidelines, Aboriginal study participants applied the 'degree of disturbance' as a guide in determining the appropriate level of engagement for different categories of restoration works. Specifically, they discriminated between those restoration works that would require the use of heavy equipment (e.g. dredging) and those that would not (e.g. spraying for weeds, replanting vegetation, and fencing to prevent stock access). They recommended that the DoW exhaust alternative approaches before resorting to using heavy machinery that would disturb the river. In cases where heavy equipment is needed for the restoration work, they noted that the consultation process could need to follow that outlined in Section 18 of the AHA.

In such cases, the Department would need to contact DIA to determine whether or not an application under Section 18 is required. If an application is required, it is submitted to the Minister of Indigenous Affairs for approval to undertake works outlined in Section 17 of the AHA. The Minister makes the decision on applications based on recommendations from the Aboriginal Material Cultural Committee.

The study authors recommend that the DoW also contact the Traditional Owners or their designated representative at the same time that they contact the DIA. This contact with Traditional Owners could take the form of a phone call to make them aware of the DoW's activities.

For restoration works that DoW is confident that a Section 18 application is not required (i.e. minimal or no disturbance), study participants indicated that the DoW should contact the Traditional Owners or their designated representative. The purpose of the contact would be to inform them of the proposed restoration works and discuss any issues they may have (e.g. respect of cultural protocols). This contact could take the form of a phone call plus a follow-up letter.

Even if the location under investigation for a restoration work is not listed on the WA Register of Aboriginal Sites, it does not mean that it is not a significant site. Where a proposed restoration work would be at a location not listed on the Register, the DoW should follow the same consultation process as for listed sites that do not require a Section 18 application. In other words, the DoW should contact the Traditional Owners or their designated representative.

6.2.5 Trialling of the 'traffic light' system

The DoW has developed a draft three-tiered, or 'traffic light', system to identify the level of Aboriginal stakeholder engagement that is required for restoration works along a river. The intent of the system is to determine, at the proposal stage, the appropriate level of engagement with Aboriginal stakeholders for a proposed restoration work.

The DoW's system applies a colour-coded system to rate the 'sensitivity' of the proposed location for the restoration work. The three zones are:

- Red zone: The site is highly sensitive. Restoration works may not be approved. Aboriginal stakeholders must be consulted to determine if the works can proceed.
- Yellow zone: The site is of medium sensitivity. Some restoration works will require engagement with Aboriginal stakeholders before proceeding; while others can proceed without further engagement.
- Green zone: The site is of low sensitivity. Proceed with restoration works, no engagement is required.

The assignment of a colour to a particular location is determined through DoW consultation with Aboriginal stakeholders. This study, of Nyungar values of the Collie River, provided an opportunity to trial the 'traffic light' system in the field. During the site visits, participants were asked to apply the colour codes to various locations along the Collie River where restoration works might occur at some point in the future.

Since the entire Collie River is listed as a permanent site on the WA Register of Aboriginal Sites, no proposed locations along or on the river could receive a green zone rating (i.e. low sensitivity rating).

In the field, study participants did not discriminate between yellow and red zoning when assessing particular locations or stretches of river. Instead, they assigned all of the locations visited to a yellow zone. They also recommended that the Department contact the appropriate representatives for the Traditional Owners in the study area to discuss what "further engagement" would be appropriate. As discussed above, the participants identified two Traditional Owners to play this role.

The trialling of the 'traffic light' system indicated that it might best be used as a tool to obtain an initial assessment of the sensitivity of a particular location vis-à-vis proposed restoration works. System refinements in the following areas would improve its effectiveness:

- Providing definitions of terms such as 'highly sensitive', 'medium sensitivity', and 'low sensitivity'.
- The explanation of a 'yellow zone' should clarify in what circumstances engagement may or may not be required.
- Closer alignment of the traffic light system with the DoW guidelines would reduce the potential for confusion.

7 Conclusions and recommendations

7.1 Conclusions

Social values and water conditions

- Participants identified 36 locations along the Collie River with associated social values. The social values fell into two categories: recreation (75%) and heritage (36%). Some sites had multiple values. The dominant values were swimming (69%), marroning (67%) and fishing (67%).
- Of the 36 locations identified by Nyungar representatives as having social values, only nine are on the WA Register of Aboriginal Sites. This highlights the importance of not relying solely on the Register to identify locations with social values.
- A number (42%) of the locations identified as having associated social values are no longer in use. This is primarily due to the closure of permanent camps, the introduction of mining and private property limiting access to the river.
- Upstream of Wellington Dam, participants indicated that a 'natural water regime' would support most of the identified social values. Downstream of the Burekup Weir, participants often used an indicator species (e.g. marron) to describe the water conditions needed to sustain the social values.
- Most of the water quality issues in the area of investigation are the result of land use practices within the catchment. This highlighted the value of water resource management agencies to coordinate management efforts with agencies (e.g. NRM groups) able to influence land use practices at a catchment scale.

Restoration and required consultation

- As funding becomes available, the DoW and the Leschenault Catchment Council (LCC) would like to undertake restoration works along the Collie River. Study participants supported the intentions of the DoW and LCC to 'care for country' and to engage Aboriginal stakeholders in doing so.
- Study participants recommended restoration works at 12 (or 33%) of the locations. The most commonly identified issues were sedimentation of pools, loss of riparian vegetation, and stock access to waterways.
- The DoW developed the *Aboriginal Heritage and Native Title Guidelines for On-ground Works* (DoW 2008) to provide a transparent, consistent and systematic means for DoW staff to determine the appropriate level of Aboriginal stakeholder engagement for different types of restoration works (DoW 2008).
- Similar to the DoW guidelines, Aboriginal study participants applied the 'level of disturbance' as a guide in determining the appropriate level of engagement. The greater the disturbance to a location the higher the level of engagement required.
- Similar to the DoW guidelines, participants emphasised the importance of engaging with the 'right people' in the Nyungar community prior to any restoration works commencing. Study participants recommended Traditional Owners be engaged. The participants recommended the following individuals as the appropriate representatives for the Traditional Owners in the study area for initial communication:
    - Les Wallam for locations downstream of Burekup Weir
    - Joseph Northover for locations upstream of Wellington Dam.
- Participants made a clear distinction regarding the roles of Traditional Owners, Aboriginal Elders and Native title claimants when engaging with Aboriginal stakeholders. It was noted that Traditional Owners have a "right to speak for country" on cultural and heritage issues/values; Aboriginal Elders should be consulted on general issues affecting the Aboriginal community; and Native Title claimants are to be engaged on issues impacting native title.
- The trialling of the 'traffic light' system indicated that it might best be used as a scoping tool to obtain an initial assessment of the sensitivity of a particular location vis-à-vis proposed restoration works. System refinements in the following areas would improve its effectiveness:
    - Providing definitions of terms such as 'highly sensitive, 'medium sensitivity', and 'low sensitivity'.
    - The explanation of a 'yellow zone' should clarify in what circumstances engagement may or may not be required.
    - Closer alignment of the traffic light system with the DoW guidelines would reduce the potential for confusion.

7.2 Recommendations

- **Identifying social values:** Of the 36 locations identified by participants only eight are listed on the WA Register of Aboriginal Sites. This highlights why it is important to not rely solely on the Register when identifying locations valued by Nyungar people.

- **Water quality and SWRs:** Water quality is an important part of establishing social water requirements. Most of the water quality issues associated with specific locations in the area of investigation are the result of land use practices within the catchment. Water resource management agencies should coordinate their management efforts with those agencies (e.g. NRM groups) able to influence land use practices at a catchment scale.

- **Required engagement:** Participants generally supported the DoW's intentions to 'care for country' and engage Aboriginal stakeholders in doing so.

  Listed sites: In cases where restoration works could disturb a site, the DoW should contact the DIA to determine whether or not an application under Section 18 is required. It is recommended that the DoW also contact the Traditional Owners or their designated representative at the same time to make them aware of the DoW's activities.

  For restoration works that the DoW is confident that a Section 18 application is not required, study participants recommended that the DoW contact the Traditional Owners or their designated representative. The purpose of the contact would be to inform them of the proposed restoration works and discuss any issues they may have.

  Sites not listed: Even if a location is not listed on the WA Register of Aboriginal Sites, it does not mean that it is not a significant site. Where a proposed restoration work is at a location not listed, the DoW should follow the same engagement process as for listed sites that do not require a Section 18 application.

References

Australian Heritage Commission. 2002. Ask First – A guide to respecting Indigenous heritage places and value. Canberra, Australian Capital Territory.

Beckwith Environmental Planning. 2008. Lower Collie River Social Values Study. Prepared for the Department of Water. Perth, Western Australia.

Brad Goode and Associates. 2007. A Report on Workshops Held with the Nyungar Community by the South West Catchments Council for the Waterways Health Sub-strategy, Western Australia. Prepared for the South West Catchments Council.

Coastwest. n.d. Coastwest Grants: Guidelines for Indigenous Consultation. Perth, Western Australia.

Collie Water Advisory Group. 1996. Strategies for Water Resource Management in the Collie Basin. Prepared for the Government of Western Australia. Perth, Western Australia.

Department of Conservation and Land Management (CALM). 2005. Wellington National Park and Westralia Conservation Park Draft Management Plan. Perth, Western Australia.

Department of Water. 2008. Aboriginal Heritage and Native Title Guidelines for On-ground Works. Prepared by Krish Seewraj. Bunbury, Western Australia.

Department of Water. 2007a. Upper Collie Water Management Plan: Draft for public comment. Perth, Western Australia.

Department of Water. 2007b. The Leschenault Estuarine System, South-Western Australia: Condition statement and recommendations for management. Perth, Western Australia.

Economic Regulation Authority. 2006. Issues Paper: Inquiry on Harvey Water Bulk Water Pricing. Perth, Western Australia.

Goode, B. and Irvine, C. 2006. A Survey of Aboriginal Social Water Requirements for the Southern Blackwood Plateau and the Scott Coastal Plain Southwest, Western Australia. Prepared for the Department of Water. Perth, Western Australia.

Water and Rivers Commission. 2002. River Restoration: Introduction. Report No RR1. Perth, Western Australia.

Water and Rivers Commission. 2000a. Statewide Policy No 5 Environmental Water Provisions Policy for Western Australia.

Water and Rivers Commission. 2000b. Supporting Information to Draft Statewide Policy No. 4 – Waterways WA. Water and Rivers Commission, Statewide Policy No. 4.

Appendix A Documents reviewed

Bennell, B. 2006. Aboriginal Cultural values of Three South West Rivers. Submitted to the Department of Water and South West Catchments Council. Bunbury, Western Australia.

Brad Goode and Associates. 2007. A Report on Workshops Held with the Nyungar Community by the South West Catchments Council for the Waterways Health Sub-strategy, Western Australia. Prepared for the South West Catchments Council.

Department of Water. 2007a. Upper Collie Water Management Plan: Draft for public comment. Perth, Western Australia.

Department of Water. 2007b. The Leschenault Estuarine System, South-Western Australia: Condition statement and recommendations for management. Perth, Western Australia.

Department of Water. 2006. Collie Smart Water – opportunities for new water. Perth, Western Australia.

Goode, B. and Irvine, C. 2006. A Survey of Aboriginal Social Water Requirements for the Southern Blackwood Plateau and the Scott Coastal Plain Southwest, Western Australia. Prepared for the Department of Water. Perth, Western Australia.

Goode, B. 2001. Ethnographic Survey of Griffin Coal's Mining Tenements Chicken Creek Option 2 and Ewington Options 1 & 2, Collie, Western Australia. Prepared for Griffin Coal Mining Company Pty Ltd. Dunsborough, Western Australia.

Harris, J. 2001. Report of an Archaeological Survey at Proposed Mining development at Ewington 1, Ewington 2 & Chicken Creek 3, Collie. Prepared for Griffin Coal Mining Company Pty Ltd. Prepared on behalf of Yates Heritage Consultants and Brad Goode. Western Australia.

O'Connor, R. 1996. Report of the Ethnographic Study of the Proposed Bach Beach and South Bunbuy Beach Enhancement Project Area. Prepared for Land Corp. Bunbury, Western Australia.

O'Connor, R, Quartermaine, G, and C. Bodney. 1989. Report on an Investigation into Aboriginal Significance of Wetlands and Rivers in the Perth-Bunbury Region. Prepared for Western Australian Water Resources Council. Perth, Western Australia.

State Salinity Council. 2000. The Salinity Strategy. Perth, Western Australia.

Swan Catchment Council. 2008. Aboriginal Cultural Heritage Management Plan Template 2008: A guide for Local Governments. Perth, Western Australia.

Water and Rivers Commission. 2001. Salinity Situation Statement Collie River. Perth, Western Australia.

Water and Rivers Commission. 2000a. Statewide Policy No 5 Environmental Water Provisions Policy for Western Australia.

Water and Rivers Commission. 2000b. Supporting Information to Draft Statewide Policy No. 4 – Waterways WA. Water and Rivers Commission, Statewide Policy No. 4.

Appendix B Study Participants

Orientation meeting attendees

River stretch	Attendees
Upstream of Wellington Dam	Norm Hayward
	Shirley Hayward
	James Khan
	Phil Ugle
	Sima Khan
	Louis Evans
Downstream of Burekup Weir	Max McGuire
	Dennis Hill
	Lera Bennell
	Sima Khan

Site visit participants

River stretch	Participants*
Upstream of Wellington Dam	Joseph Northover
	Phil Ugle
	Sima Khan
Downstream of Burekup Weir	Derek Hill
	Dennis Hill
	Isla Bellotti
	Lera Bennell
	Yvonne Garlett
	Les Wallam
	Rhona Wallam
	Kevin Hill
	Karina Yarran
	Rhona Wallam

*Mrs Shirley Wynne and Auntie Jean Ugle were approached to be involved in the site visits upstream of the Wellington Dam, however, due to personal circumstances were unable to be involved.

Appendix C Data tables

Table C1 Locations upstream of Wellington Dam

Location		Social values	
Name	**Coordinates**	**Activities**	**Description**
Boronia Gully	S 33˚ 20.312’ E 116˚10.961’ +/- 40	Permanent camp, marroning, corroboree site for Nyungar and Yamatji people	The area operated as an official camp from the 1930s to the 1950s. About 15 families (approximately 150 people) resided at the camp. “Auntie Bella was the last Nyungar to live at the camp; she moved to White City”. Residents slept in a-frame tents made from logs, branches and white canvas. The white canvas was provided by the State government. They had make-shift, long drop toilets. The camp was not located on the river foreshore but a few metres back in order to protect the water quality of the river. The camp’s primary water source was the river. Water was collected in buckets and brought to the camp for drinking and washing clothes. Swimming occurred just downstream of where the drinking water was collected, so as not to contaminate the drinking water. There is a cemetery on site, which is now surrounded by a fence to demarcate the location. Former camp residents are buried at the cemetery. Marroning occurred at the location, but no other type of fishing was done. Residents ate berries, which were plentiful October to November. During winter wild potatoes, wild onions and rhubarb were available. Residents hunted in the area for possum, rabbits, and kangaroos. Occasionally, green parrots were hunted, “the other types of a parrots were too pretty to be eaten”. Brumbies (wild horses) were caught and trained. One of the residents made a bullhorn out of Banksia. The bullhorn would be used to call the kids home at night. The site was used by both Nyungar and Yamatji people as a corroboree ground. “We used to walk from Boronia Gully into Collie to purchase food”. “Young boys used to keep watch in the large trees around Boronia Gully, for those who wanted to take the children. The boys would yell out warnings, everyone would run from the camp, in order to protect the children. The people wanting to take the children would shoot dead all of the dogs, in hopes of bringing people out of hiding. We would hear bang, bang. We would wonder back to camp after they had left and all our dogs would be dead”.
High Chapparell	S 33˚ 21.913’ E 116˚ 09.938’ +/- 33	Permanent camp, marron, fish	The location was a camp from 1940s to the 1970s. The site was home to approximately 30-40 people at any one time. Residents lived in tents, made from a variety of materials (e.g. canvas, corrugated iron, tin, potato bags). The site is located on a hill overlooking the Collie River. Instead of swimming near the camp, residents often chose to swim at the Collie town site. Residents fished and marroned at the site. The most popular fish species was cobbler. “The frogs were soothing and the sound would last all night”.

Location		Social values	
Name	**Coordinates**	**Activities**	**Description**
Peppies Crossing	S 33˚ 19.768’ E 116˚ 09.719’ +/- 30	Swimming, fishing (long necked turtles, perch and cobbler), camping, marroning, river swing	“As kids we used to ride our bikes down to the crossing to play”. “The gang, of about 10 kids, would ride down to the site every weekend in summer”. “We used to use the bark from the surrounding paperbark trees as both a ground covering and a blanket when camping”. There used to be a clearing 500 m upstream of Peppies crossing, which was used for similar activities (i.e. swimming, fishing, marroning, and camping). The site is still frequently used by Aboriginal and non-Aboriginal people, particularly youth, for swimming, fishing and marroning. There is a swing attached to a paperbark tree on the river bank.
Eight Mile Pool	S 33˚ 19.938’ E 116˚ 10.849’ +/- 20	Swimming, cleaning after a hunt	The site was popular for swimming/cooling off in summer. They often visited the site in groups of 5. The surrounding paperbarks provided shade for relaxing by the water’s edge and “taking a nap in the back of your ute”. After hunting (i.e. kangaroo and emu), the meat and hunting vehicles were brought to this site for cleaning. The hunting occurred along Williams Road. Hunting was done in groups of 5-7 people.
Wall’s End Trotting Track	S 33˚ 21.524’ E 116˚ 09.495’ +/- 17	Permanent camp, swimming, marroning, fishing Swimming, marroning, fishing	Wall’s End is adjacent to the Trotting Track and across from Soldiers Park. Wall’s End was one of the first permanent camps in the Collie area. It was established in the early-1900s and was in operation until the 1950s. “The river was picturesque back then. We could dive in one side of the river and come up on the other with marron in our hands. The water was that clear”. There was a small trail of rocks in the river that enabled those living at the camp to cross the river. Wall’s End is now used as the Collie Showgrounds. Those at the camp were not allowed to enter Collie town site (across the river) until the curfew ended at 8 am. As kids, “we used to lie under the trees at the Trotting Track to cool off”. There is a bridge adjacent to the Trotting Track. Innocent Aboriginal people used to hide under the bridge to “avoid the police.” “Black and white swans used to be plentiful along this stretch of river.”
Soldiers Park	S 33˚ 21.524’ E 116˚ 09.495’ +/- 17	Marroning, swimming, camping	The site was a popular area for marroning. “We used to wade in up to our waists and catch the marron by simply reaching into the water and picking them up”. “Many people learned to swim along this stretch of the river. Both Aboriginal and non-Aboriginal kids”.
Gain Road Reserve		Permanent camp	The site used to be a permanent camp from the mid-1950s to the mid-1960s. The site is no longer in use. The primary water source was the springs across the road from the Reserve.
Springs opposite Gain Road Reserve		Water source	The springs were a permanent water source used by the Gain Road Reserve. The springs are connected to a good spirit.

Location		Social values	
Name	**Coordinates**	**Activities**	**Description**
White City Camp		Residential housing	The site was established in the 1970s. A number of homes were built to house Aboriginal Elders from the area. The site is just outside Collie. "It was difficult for Elders to get into town when they needed to". The Elders were eventually moved into Collie (by the government) and the site was abandoned. The site is currently used as a rubbish dump.
Minninup Pool		Swimming, picnicking, fishing	Minningup Pool is listed as a permanent mythological site on the Register of Aboriginal Sites (Section 3.2). It is where the *Ngarngungudditj Walgu* rests. The deceased cross over to the afterlife at this site. When a family member dies, the family goes to the river to build a fire to act as a 'beacon' and to guide the family member into the afterlife. The wind is used to speak with deceased family members, as the wind carries spirits and messages. The best time for hunting is when the yellow wattle is in bloom (i.e. spring). "This is when the emu and kangaroos are fattest".
The "Bedrooms"	S 33˚ 22.792' E 116˚ 08.160' +/- 112	Swimming, fishing, marroning	The site is downstream from Minninup Pool. The site is tucked away, but is a popular spot for 'those in the know' for swimming, fishing, and marroning. The location is accessible via an unsealed track.
Fish Tail	S 33˚ 22.421' E 116˚ 06.064' +/- 44	Picnicking, fishing (perch and cobbler), marroning, gatherings, swimming	The area continues to be a popular site for gatherings. The site attracts usually about 30 people, but in summer the number of visitors can reach up to 60. Visitors picnic, marron, fish and swim at the location. There is a rope swing which is used for jumping into the river. The location is accessible via an unsealed track.
Robert's Rocks	S 33˚ 22.717' E 116˚ 07.015' +/- 17	Canoeing, marroning, fishing	Groups of 4-5 people in summer used to canoe between the Collie town site and Robert's Rocks. During canoeing trips groups would occasionally camp at Skeleton Bridge. Skeleton Bridge is located near a massacre site, hence the name. It used to be a women's site, however, the area is no longer used due to the presence of bad spirits. Some people continue to canoe between Robert's Rocks and Minninup Pool stretch (e.g. the scouts). Fishing at the Rocks was a popular activity. The most commonly caught fish was red fin perch. The location is accessible via an unsealed track off of Mungalup Road. The site is abutted by agricultural land uses.
Mungalup Tower	S 33˚ 22.383' E 116˚ 05.898'	Swimming, marroning	A DoW gauging station is present. It is the last Collie River gauging station before Wellington Reservoir. If the Fish Tail is too busy, people head to Mungalup Tower. The site is surrounded by a rocky outcrop, which limits access to the river.

Location		Social values	
Name	**Coordinates**	**Activities**	**Description**
	+/- 15		"The water was always very cold at this spot. So instead of swimming we just jumped in to cool off".
East Branch			
Cabbage Trees/Old Rickety Bridge/Griggs Road	S 33˚ 24.390' E 116˚ 20.255' +/- 33	Camping, marroning/ yabbies	The location used to be one large deep pool. It was a popular spot for swimming and catching marron and yabbies. For the nearby permanent camp, the pool also served as the primary water source. The camp existed from the 1940s to 1960s. There were hundreds of people who lived in the area. When the nearby mill closed in the 1970s, many people moved away. The location is now part of a mining lease. For this reason, people no longer use the site.
Duderling Pool		Camping, swimming, marroning, fishing, hunting	Fishing continues a popular activity. The most popular species is the red fin perch. Hunting for kangaroos, emus, birds, and turtles used to take place near the pool. The site was a popular spot for recreational camping and swimming.
Buckingham Pool		Camping, swimming, marroning, fishing, hunting	Buckingham used to be "a large settlement, with shops, a church and post office". The town developed around a mill, which not longer exists. Today, only a few remanent houses remain; many of the residents left when the mill shut down. There was a permanent camp at Buckingham Pool, adjacent to the former mill. The 'residences' were made from a variety of materials (e.g. canvas, tin). Men worked at the mill, while women often did domestic work at the surrounding farms. When the mill closed many people moved on. The Aboriginal population frequently traded with non-Aboriginal people at the Buckingham town site. Popular fish species included cobbler, red fin perch and lampreys. "I haven't seen cobbler in this area for years". "Buckingham Pool was a more popular marroning spot than Duderling Pool".
Monong	S 33˚ 21.454' E 116˚ 17.874' +/- 28	Camping, fishing, marroning	Red fin perch were, and continue to be, caught at the site. There are a number of scarred trees visible at the site. "As kids, we used to camp at the site. We would fish and marron and skin kangaroos at this site". Marroning typically occurs August to December. If the marron caught have eggs, they are placed back into the water. "Everyone had their own special site. This was one of my sites". Families often had a specific camping spot they would visit in summer.
South Branch			

Location		Social values	
Name	**Coordinates**	**Activities**	**Description**
Gibraltar Rock		NA	Spirits reside at the rocks. Aboriginal people tend to stay away from the rocks.
Railway Bridge/Jum's Pool		Swimming, fishing, marroning	The location was used during summer for swimming, fishing and marroning. "We frequently biked down to the site as kids". Big Jum monitored the clean-up work done in 2006.
Long Pool		Swimming, fishing, marroning	The location was used for swimming, fishing and marroning. However, use declined once mining started in the area.
Mel Pool		Swimming, fishing, marroning, camping	The pool is located just upstream of Long Pool. "It looks like an eye on the map." "We often camped at the pool as kids. We would spend the weekend at the pool fishing, marroning and swimming". Families often gathered at the pool to swim, fish and marron. The location was not used much once mining started in the area.
Shott's Pool to Pilatti's Pool	NA	Marroning	Marroning was a popular activity along this river stretch. There were a number of pools available for marroning year round. The marroning stopped when the mining began. There is still water in the pools today but not as much as there once was; this is attributed by stakeholders to the mining that occurred in the area.
Telfer Pool		Corroboree ground	The site was a corroboree ground.

Table C2 Locations upstream of Wellington Dam

Location		Social values	
Name	**Coordinates**	**Activities**	**Description**
Pool at Roelands Mission		Swimming, marroning, fishing	There are two pools at the bottom of Roelands Mission. These pools were frequently used for swimming, marroning and fishing by those residing at the Mission. "Our swimming lessons took place in the river". The children at the Mission took part in supervised swimming lessons at the river. Bogines were a popular fish species. When caught, "the bogines were either tossed directly onto the fire to be eaten or put on a line and used as bait". As kids, "we used to wonder up and down the river". "Following the river was an adventure in itself". They only wondered upstream to the Burekup Weir, but no further. Navigating further upstream was difficult due to the dense vegetation. "We could hear the river rushing and the birds singing, it was beautiful". There is a dam at the back of Roelands Mission, which survives as the Mission's primary water source. There is a small creek that runs through the Mission's property and discharges to the Collie River. "As a kid, I used to sit by this creek. You can hear the frogs".
Johnson's Log		Swimming, marroning, fishing	Johnson's Log used to extend out across the Collie River at the base of Roelands Mission. It used to be an initiation site for boys; the younger boys were told that they either jumped or would be pushed into the river. The log has since been removed from the river.
Wilson's Bridge	S 33° 19.898' E 115° 53.944 +/- 18	Swimming, marroning, fishing	As kids, "we were told not to dive at this pool. They were told it was too deep for children". There is one pool directly upstream and one pool directly downstream of Wilson's Pool. As kids, they swam, marroned and fished in all three pools. The pool directly upstream was a favourite marroning spot.
Pool directly downstream of Wilson' Bridge	S 33° 19.898' E 115° 53.944 +/- 18	Swimming	As kids, "we were told not to swim in the pool, because it was too deep for swimming. We were told bad things would happen if we swam in the pool".
Pipeline	S 33° 19.436' E 115° 52.318' +/- 17	Walking, swimming, marroning, fishing	Kids used to 'swim' through the pipeline. It was a thrill, particularly for young boys. The pipeline acted as a bridge; it enabled people to cross the river and to access Roelands Mission.
Gravel Pit	S 33° 19.191'	Permanent camp site – used the	The Gravel Pit was a camp site during the 1950s and 1960s. The site was first established in 1954/55. Approximately 50-60 people lived at the camp. All residents had left the camp by the early- to mid-1970s, when

Location		Social values	
Name	**Coordinates**	**Activities**	**Description**
	E 115° 49.608' +/- 15	Collie River for marroning, fishing and swimming Creek was their water source	government housing became available. Residents were semi-nomadic, because they "moved to where work was available". "They did the work that made the area" (e.g. potato planting and harvesting, fencing, picking up sticks). The primary water source was a small creek that abutted the property and discharged into the Collie River. The creek was used for drinking, washing and as a bathroom. In summer, when the creek began to dry up, residents at the camp took water from the nearby irrigation channels. The Collie River provided food and recreational activities for residents of the camp. Adjacent to the property was an old gravel pit.
South Western Highway Bridge		Fishing, marroning, swimming	"We did not swim at the South Western Highway Bridge". Instead there were two pools directly downstream of the bridge where swimming took place. The most popular fish species were cobbler and bogines.
The Elbow	S 33° 18.584' E 115° 43.194' +/- 29	Fishing, swimming	Silver and black bream and yellowtail were popular fish species. Marron do not inhabit this stretch of river due to the saltwater intrusion. There was a swing, which enabled visitors to swing out over the river. The foreshore served as a corroboree ground. Those attending the corroborees often fished from the river.
River Elbow	S 33° 18.800' E 115° 43.015' +/- 29	Fishing, swimming	"We used to roll down the sandy hill right into the water. It was hours of fun". Silver and black bream and yellowtail were popular fish species. Marron do not inhabit this stretch of river due to the saltwater intrusion.
Eaton foreshore	S 33° 18.696' E 115° 41.979' +/- 34	Fishing, swimming	The following species were caught: black and silver bream, yellow tail, crabs, and prawns. Marron do not inhabit this stretch of river due to the saltwater intrusion. There was a large, well-known camp site along the Leschenault Estuary. Occasionally, those staying at the camp would fish along the Collie River. The Aboriginal youth were taught how to fish and crab while spending time at the Leschenault Estuary camp. Aboriginal people camped along both sides of the lower Collie River. "However, this was before our time".
Clifton Park foreshore	S 33° 18.569' E 115° 42.290' +/- 23	Camping, fishing	The foreshore served as a corroboree ground. Both Nyungar and Yamatji people gathered at the site. "The men would fish along the river during the day and then camp at the corroboree ground at night".