

Environmental Assessment Addendum

Replacement Flows Project –
Cumberland Plain Woodland area near
Penrith STP



May 2008

Executive Summary

An Environmental Assessment (EA) for the Replacement Flows Project was completed in November 2006. The EA showed that the pipeline alignment following an existing sealed pathway through an area of Cumberland Plain Woodland as it headed northwest from Penrith STP towards Andrews Road, Penrith. No direct impacts on Cumberland Plain Woodland were identified in the Environmental Assessment.

The project was approved by the Minister for Planning in June 2007, with a specific Condition of Approval (CoA 2.11) requiring that the Project does not *directly impact* threatened species and endangered ecological communities, such as the Cumberland Plain Woodland.

Recent investigations have found that this approved alignment would not be feasible without the need to remove some trees adjacent to the pathway. Tree removal would have direct impacts on the Cumberland Plain Woodland and Sydney Water would not be able to meet the requirements of CoA 2.11.

An alternate route was then identified that could utilise a previously cleared and disturbed sewer corridor through the Cumberland Plain Woodland (CPW) area. This route would be shorter and straighter and construction of the pipeline would result in fewer direct impacts on the CPW than the approved route.

This Environmental Assessment Addendum has been prepared by Sydney Water to assess the potential environmental impacts associated with a proposed alternate pipeline alignment through the Cumberland Plain Woodland area and has been prepared in accordance with the Director-General's requirements which were provided to Sydney Water on 17 March 2008. This Addendum forms the basis for a request for a modification of the Minister's Approval under Section 75W of the *Environmental Assessment and Planning Act 1979* for CoA 2.11.

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1. Introduction

1.1 Background

The Replacement Flows Project (RFP) is a key part of the Western Sydney Recycled Water Initiative, which is one of the measures proposed by the NSW Government to secure Sydney's water needs by increasing the use of recycled water for residential, irrigation and environmental purposes. This strategy is further outlined in the 2006 Metropolitan Water Plan (NSW Government, 2006).

The project will see the Penrith, St Marys and Quakers Hill sewage treatment plants (STPs) connected by pipes to allow treated wastewater from the three plants to be further treated at a new advanced water treatment plant (AWTP) at St Marys. The highly treated recycled water will be released into the Hawkesbury-Nepean River below Penrith Weir for the purpose of substituting up to 18 billion litres of drinking water currently being released each year from Warragamba Dam for environmental flows.

An Environmental Assessment (EA) for the RFP was placed on public exhibition from November to December 2006. A preferred project report was submitted to the Department of Planning in February 2007 and the Minister for Planning approved the Project on 20 June 2007, subject to Conditions of Approval (CoA).

On 17 August Sydney Water awarded the delivery and operation contract for the RFP to Deerubbin WaterFutures (DWF) Consortium consisting of United Group Infrastructure (UGI), McConnell Dowell (McD) Constructors (Aust) and General Electric Betz who will work with Sydney Water to deliver and operate this significant water recycling project. Construction is due to start by mid 2008 and is expected to take about two years. It is anticipated that highly treated recycled water from the St Marys AWTP will flow into the Hawkesbury-Nepean River from early 2010. The Project is currently in the design phase, with construction expected to commence on the pipeline transfer systems component in June/ July 2008.

1.2 Requirement for this Addendum

A Flora and Fauna assessment was prepared by SKM for the entire pipeline route and included in Appendix E of the EA. This Flora and Fauna report included an assessment of the potential impacts on an area of Cumberland Plain Woodland which is traversed as the pipeline alignment heads northwest from the Penrith STP towards Andrews Road, Penrith.

At the EA stage, the preferred pipeline route followed an existing sealed pathway (approximately 300m in length) through the Cumberland Plain Woodland (see **Section 2** for further details) and therefore no direct impacts were predicted in the Flora and Fauna report or EA. The project was approved by the Minister for Planning, with a specific Condition of Approval (CoA 2.11) requiring that the Project does not *directly impact* threatened species and endangered ecological communities, such as the Cumberland Plain Woodland (CPW).

During recent design investigations it was found that the approved alignment utilising the existing sealed pathway through the CPW area in this area would not be feasible without the need to remove trees adjacent to the path (see **Section 3** for further details). Tree removal would have direct impacts on the CPW and Sydney Water would not be able to meet the requirements of CoA 2.11.

An alternate route was then identified that could utilise a previously cleared and disturbed sewer corridor through the CPW area (see **Section 4** for further details). This route was identified as potentially having fewer direct impacts on the CPW.

1.3 Purpose of this Addendum

This Environmental Assessment Addendum has been prepared by Sydney Water to assess the potential environmental impacts associated with a proposed alternate pipeline alignment through the Cumberland Plain Woodland area, east of the Penrith Sewerage Treatment Plant (STP). It also identifies the benefits of the alternate pipeline alignment over the approved alignment.

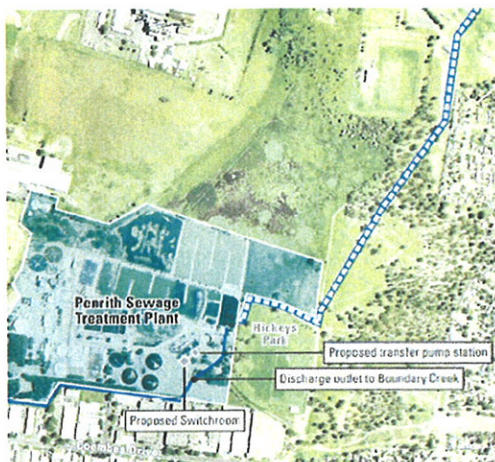
This Addendum has also been prepared in accordance with the Director-General's requirements which were provided to Sydney Water on 17 March 2008 (see **Section 5.1** for further details) and forms the basis for a request for a modification of the Minister's Approval under Section 75W of the *Environmental Assessment and Planning Act 1979*.

2. Description of Original EA Pipeline Alignment

The proposed route for the pipeline from Penrith to St Marys STP is illustrated in Figure 3.7a of the EA (extract below) and described in Section 3.5.1 of the EA:

"The pipeline would leave the Penrith STP site along the northern boundary of Hickeys Park and passing in a north easterly direction through the Nepean Rugby Union Oval before following St Andrews Road to the east..."

Figure 3.7a from EA



The construction method in this section was open trenching as shown in Figure 3.5a.

Figure 3.5a from EA



Although the EA drawings (Figure 3.7a extract and Figure 3.5a extract) show the pipeline following a straight alignment through the Cumberland Plain Woodland area, the exact alignment of this section of pipeline was described in the Flora and Fauna report (Appendix E of EA) as follows:

*"A large Freshwater Wetland adjoins the northern and eastern boundaries of the Penrith STP. Freshwater wetland communities in NSW are classified as endangered ecological communities under the TSC Act. The proposed pipeline would be restricted to a maintenance trail along the southern edge of the wetland as shown in **Plate 1**....*

*The pipeline traverses northeast through an area of disturbed remnant and regrowth woodland dominated by Grey Box occurring with Forest Red Gum, Cabbage Gum *E. ampifolia* and Thin-leaved Ironbark *E. crebra*. The understorey is highly disturbed and dominated by African lovegrass *Eragrostis curvula*, a noxious weed in the local area. There is a low abundance of native species in the understorey as a result of ongoing disturbances. Dominant species include Blackthorn *Bursaria spinosa* and Sydney Green Wattle *Acacia parramattanensis*. This vegetation is characteristic of Shale Hills Woodland (Map Uni 9: NPWS 2000) and listed under the EPBC Act and TSC Act as Cumberland Plain Woodland.*

*At this location the pipeline construction would be restricted to an existing sealed pathway (refer to **Plate 2**) and no clearing of vegetation would be required."*



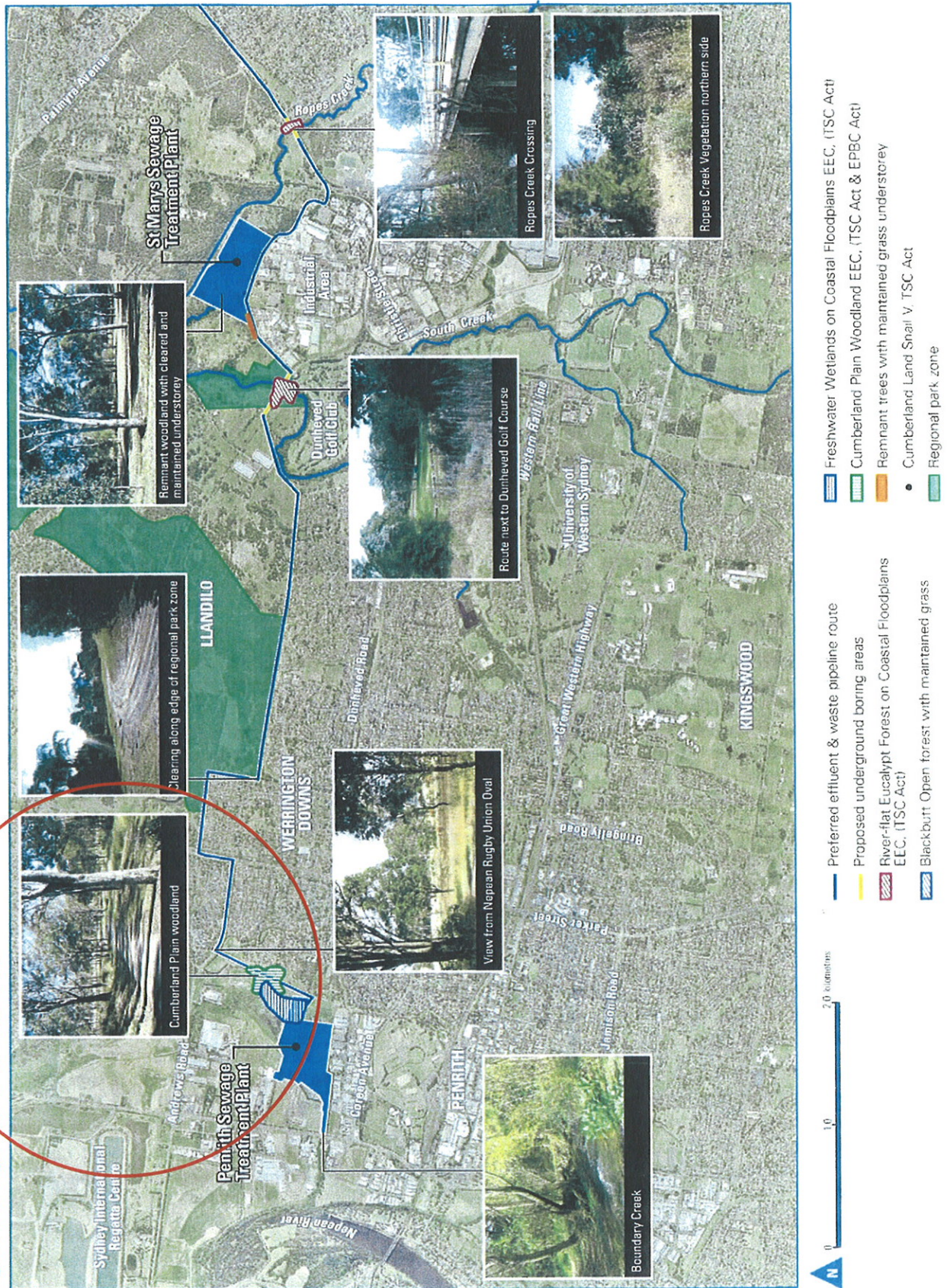
Plate 1. Pipeline route adjacent to wetland (left) near Penrith STP



Plate 2. Pathway through Cumberland Plain Woodland

Figure 8.1a from the EA (see next page) also shows the pipeline following the pathway through the Cumberland Plain Woodland.

Figure 8.1a High value conservation areas

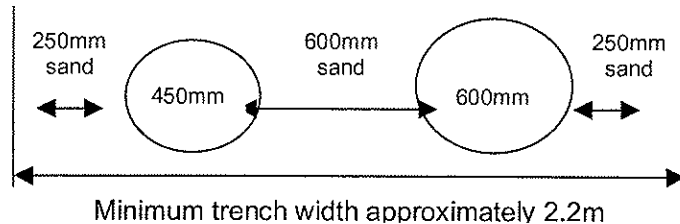


3. Justification for Project Change

3.1 Design Requirements

The pipeline in this section consists of two (2) separate pipes side by side. One pipeline (600mm diameter) will be for the transfer of effluent from Penrith STP to St Marys STP for treatment at the Advanced Water Treatment Plant (AWTP). The other pipeline (450mm diameter) will be for the transfer of the recycled water from the AWTP at the St Marys STP to the Penrith STP for discharge.

The design requirements for the installation of the twin pipelines in this section are as illustrated below:



Sydney Water's maintenance requirements mean that the minimum width of the trench to be excavated within this section of the project is 2.2m. This width is necessary to allow the two (2) pipes to be installed side by side. Stabilised sand also needs to be backfilled around the pipes (minimum width of 600mm between them and 250mm either side) for protection of the pipelines.

3.2 Construction Requirements

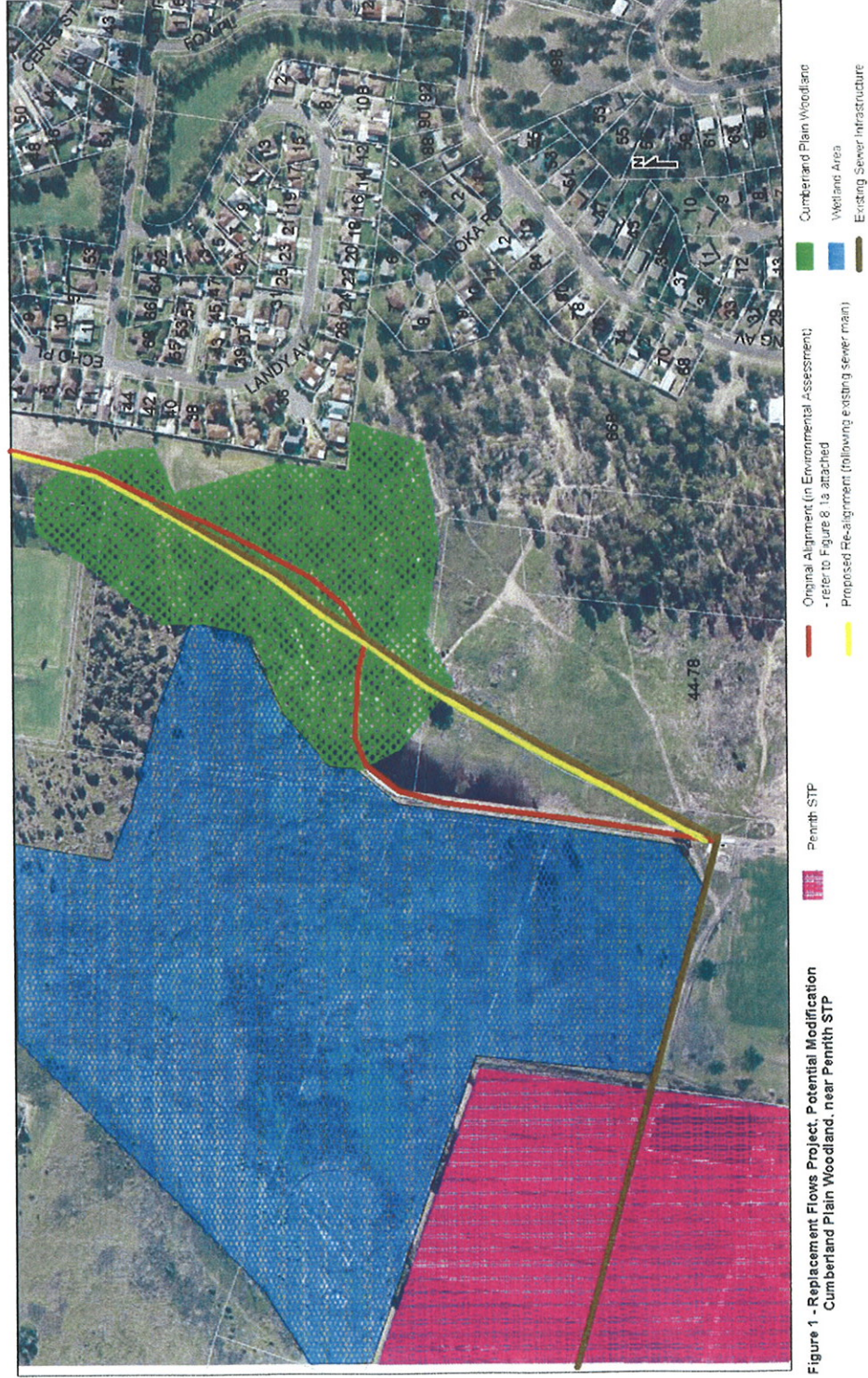
During detailed design and site investigations in early 2008 by the Contractor it was discovered that the width of the sealed pathway and associated 'clear' area in between trees was approximately 2.5m along most of the path's length (as can be seen from **Plate 2** above). This means that in order to install both pipes along the existing sealed pathway (as per the original EA alignment), trench excavation would need to occur right up against the tree trunks and into the critical root zone area of the adjacent trees. Excavating through critical root zones would either require immediate tree removal due to stability issues or cause possible tree death over the long-term.

In addition, the excavators required to excavate the trench and install the pipes are 3m wide and would not have sufficient working space to fit within the existing trees on either side of the sealed pathway, have room to turn around to load trucks with excavated material or have room to load/install pipes once the trench had been excavated. Smaller excavators would not have sufficient strength to lift the pipes.

Although the EA drawings (Figure 3.7 and 8.1a above) indicate that the pipeline follows a straight alignment from the Penrith STP northeast towards Andrews Road, the sealed pathway is actually very circuitous. **Figure 1** shows a more accurate depiction of the sealed pathway through the Cumberland Plain Woodland area.

If the pipeline were installed within the sealed pathway, bends would be required in the pipeline alignment. At each bend, concrete thrust blocks would be required to ensure that the pipeline is sufficiently founded for additional pressure stresses at the pipeline bends. This means that at each bend, the width of excavation would need to be increased an additional 1m beyond the normal pipeline trench width to install the concrete thrust blocks. This would result in greater impacts to adjacent trees and/ or the adjacent wetland area than a straight pipe alignment.

The design and construction constraints associated with installing the pipes along the existing sealed pathway and subsequent impacts anticipated to the mature trees led to an alternate route being investigated.



4. Description of Alternate Pipeline Alignment and Construction Methods

During detailed design and site inspections in early 2008, sewer manholes were located within the Cumberland Plain Woodland area. Upon further investigation it was discovered that a sewer line had previously been installed through the Cumberland Plain Woodland area. This line is not currently in use and is able to be decommissioned. The sewer line forms a relatively clear and straight corridor through the Cumberland Plain Woodland area, approximately 6m wide. It is evident that trees were removed during the installation of the original sewer line such that there is now a clear line of sight through the woodland.

It is proposed that the two pipes would be installed in this straighter, previously cleared corridor. The old sewer pipe is likely to be removed prior to installation of the two new pipes. This would take the pipeline route away from the sealed pathway adjacent to the Freshwater Wetland (see **Plate 1**), through a cleared area and in a straight line through the Cumberland Plain Woodland area (see **Plate 3** below).

Plate 3: Sewer Corridor through Cumberland Plain Woodland



The sealed pathway (EA alignment), existing sewer alignment and proposed alternate pipeline alignment are shown on **Figure 1**.

4.1 Construction Methods

The proposed pipeline construction in this area would involve excavation and backfilling a trench for a distance of approximately 300m through the Cumberland Plain Woodland. The width of the trench required to install the two pipes in this area would be approximately 2.3m wide by 2m deep. However, a 6m wide corridor is required to allow access for plant and equipment during trench excavation.

Excavation of the trench would be undertaken by excavator and all construction plant and equipment would be limited to a 6 metre wide disturbance corridor through this area. All soil material from the trench would be either loaded into trucks and transported away from the construction corridor to stockpile/ laydown areas (proposed to be located in cleared land outside the Cumberland Plain Woodland area) or stockpiled adjacent to the trench for later backfill.

An indicative construction set up along this alternate alignment through the Cumberland Plain Woodland is illustrated in **Appendix B**.

Construction in this area would involve:

1. Survey alignment and install polyweb fencing to delineate worksite corridor (6m width) through Cumberland Plain Woodland area
2. Identify and spray paint critical root zones (CRZs) of adjacent trees which fall within the worksite corridor (CRZ is defined in the Arborist's report as 5 x the trunk diameter measured at 1.4m above the ground) to ensure the trench excavation is outside these CRZs as much as possible
3. Any trees overhanging or adjacent to the worksite corridor would be protected/ wrapped in geotextile fabric to prevent accidental damage by an excavator
4. Site Inspection by Contractor's Environmental Representative (CER) and Sydney Water's Compliance and Environmental Governance Coordinator (CEGC) after site set up and prior to works commencing
5. Vegetation clearing within worksite corridor, with stockpiling of topsoil for later reuse
6. Trench excavation by one excavator and loading/ laying pipes with another excavator (note any excavation in the vicinity of tree roots would be supervised by a qualified arborist)
7. Backfilling of trench and reinstatement/ stabilisation of disturbed areas
8. Rehabilitation of worksite corridor (once pipeline has been hydrostatically tested)

4.2 Worksite Rehabilitation

Following construction works, the worksite corridor would be rehabilitated with locally native grasses and shrubs representative of the Cumberland Plain Woodland community. Regeneration works within the worksite corridor would be maintained for a period of at least six months as per CoA 2.15. This maintenance program would include weeding and plant replacement as necessary to ensure the establishment of native vegetation.

It is also proposed that additional Cumberland Plain Woodland trees would be planted within the Cumberland Plain Woodland area (but outside the pipeline corridor), in consultation with Penrith City Council.

4.3 Benefits of Alternate Pipeline Alignment

The original EA alignment through the Cumberland Plain Woodland in this area was reviewed at the detailed design stage with the conclusion that the alignment was unable to be constructed to the degree of sensitivity that was originally envisaged in the EA. This is as a result of the narrow width between trees either side of the path and meandering nature of the path meaning there would be a need to widen trench at several locations to accommodate thrust blocks and bends. To allow this widening, removal of several mature trees adjacent to the path would be required. Substantial root damage to trees situated slightly further away from the path would also occur.

The alternate alignment was investigated on the basis that it was shorter and straighter and within a previously disturbed sewer corridor. There is approximately 6m width between mature trees along this corridor and arborist investigations have identified that significant impacts to tree roots and mature tree removal can be avoided by utilising this alternate alignment. This was seen as a favourable option to protect existing tree cover in the reserve. Further ecological inspection revealed that the new alignment would in fact also have minimal disturbance to native shrubs and groundcover plant species due to the dominance of exotic species along the corridor. The alternate alignment would however, require the removal of two juvenile Grey Box trees (<1m) within the worksite corridor.

Sydney Water has identified that the proposed alternate pipeline alignment is likely to have fewer direct impacts on the Cumberland Plain Woodland compared to the original EA alignment.

The original EA alignment was also located adjacent to a Freshwater wetland area (Figure 8.1a from EA). It was observed on-site in early 2008 that the wetland area had encroached slightly northward into the proposed pipeline alignment due to prolonged rainfall periods occurring in early 2008. Therefore the other benefit of the proposed re-alignment is that the pipeline construction would be moved approximately 100m further north, well away from the wetland area and any potential habitat for the Green and Golden Bell Frog.

5. Regulatory Requirements

5.1 Statutory Context

The Replacement Flows Project (RFP) was assessed under Part 3A of the *Environmental Planning and Assessment Act 1979 (EP & A Act)*. The RFP was approved by the Minister for Planning on 20th June 2007, subject to Conditions of Approval.

Sydney Water has identified that the proposed pipeline re-alignment would involve some minor impacts to two juvenile (<1m high) trees and some understorey (predominantly exotic grasses) within the Cumberland Plain Woodland area. This means that the proposal is inconsistent with CoA 2.11 and a modification to the Minister's Approval is required. CoA 2.11 states:

"The Proponent shall ensure that the project avoid the direct impact to Grevillea juniperina subsp juniperina individuals, the habitat of Meridolum corneovirens, Litoria aurea and Miniopterus schreibersii, or the following Endangered Ecological Communities:

- a) Cumberland Plain Woodland;*
- b) River-flat Eucalypt Forest on Coastal Floodplains; and*
- c) Frewshater Wetlands on Coastal Floodplains."*

Section 75W of the *EP & A Act* caters for amendments to projects approved under Part 3A of the *EP & A Act*. This provision of the *EP & A Act* allows a proponent to request the Minister for Planning to modify an approval if the proponent intends to modify the approved activity so that it will be inconsistent with the approval.

Sydney Water wrote to the Department of Planning in February 2008 to seek any specific requirements for this environmental assessment for the proposed alternate pipeline alignment. The Director-General issued the following requirements on 17 March 2008:

Director-General's Requirements	Where Addressed in this Report
Undertake an ecological assessment to provide a comparative assessment	Section 4.3 and Appendix A (Addendum: Flora and Fauna Assessment Report)
Justification for the proposed realignment	Section 3
Details of the construction methods that would be undertaken in the proposed realignment area	Section 4
Mitigation measures that would be implemented to minimise potential adverse impacts to the endangered ecological community	Section 6.1 and Appendix A

5.2 Commonwealth Legislation

During the EA phase, a referral was made to the then Commonwealth Department of Environment and Heritage as the Project had the potential for effects upon threatened species and the endangered ecological community, Cumberland Plain Woodland. These are listed under the *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)*.

On 10 October 2006, the Commonwealth Minister for Environment and Heritage advised that the Project was not likely to have a significant impact on any matters protected under the *EPBC Act* and was therefore not a controlled action, provided the Project was undertaken in accordance with the manner described in the attached decision document, being:

"The following measures will be taken to avoid the significant impacts on the listed Cumberland Plain Woodland ecological community:

- a. Infrastructure will be located in cleared lands and along bushfire protection zones, avoiding any direct impacts;*
- b. Boring will be carried out for laying pipeline under areas of Cumberland Plain Woodland identified in the referral; and*
- c. Mitigation measures will be used, such as weed management, to avoid indirect impacts during the construction of the project, particularly where Cumberland Plain Woodland has been identified adjacent to work areas."*

Initial discussion has occurred with the Department of the Environment, Water, Heritage and the Arts (formerly Department of Environment and Heritage) in relation to the proposed alternate route alignment through the Cumberland Plain Woodland area and a letter has been sent describing the proposed re-alignment for the Department's consideration.

6. Environmental Assessment and Mitigation Measures

The key environmental impact associated with the proposed alternate pipeline alignment is the potential impact on the Cumberland Plain Woodland area. Flora and fauna impacts are considered in **Section 6.1** below, while all other environmental issues associated with the proposed realignment are briefly considered in **Section 6.2** below.

6.1 Flora and Fauna Impacts and Mitigation Measures

A flora and fauna study was undertaken for the proposed alternate alignment to provide an assessment of the potential ecological impacts on the Cumberland Plain Woodland and their significance under Part 3A of the NSW *Threatened Species Conservation Act 1995 (TSC Act)* and assessment guidelines applicable to the *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* (refer to **Appendix A**). The following section provides a summary of this assessment.

6.1.1 Impact Assessment

The alternate route would be located within a disused sewer corridor which has been previously cleared during installation of the sewer in the late 1970s. Although the sewer was installed approximately 30 years ago, very little native regrowth has occurring during that time due to competition from invasive grasses.

The existing sewer corridor and surrounding vegetated site represents a disturbed vegetation remnant with a highly disturbed understorey dominated by exotic grasses, although there are scattered native plants present in the understorey that would be directly impacted by the proposal. Two juvenile Grey Box trees (<1m in height) are present within the alignment and would need to be

removed. There are also a number of mature trees reasonably close to the route suggesting that some root damage could be expected during excavation. Impacts would, however, be managed strictly in accordance with an arborist's advice.

The native species identified at the site are a characteristic component of the ecological communities representing the Cumberland Plain Woodland. Habitat for fauna, including the Cumberland Plain Land Snail, is distinctly absent from the proposed works corridor.

The removal of vegetation along the proposed pipeline route would be limited to disturbed groundcover and two juvenile trees less than 1m in height within the 6m wide construction corridor.

The works required would not result in a significant impact on the overall distribution, condition and future viability of the Cumberland Plain Woodland in western Sydney. Furthermore the proposal does not involve significant impacts to individual threatened species or critical habitats as listed in the *TSC Act* and would not significantly impact on a matter of national environmental significance as scheduled in the *EPBC Act*.

6.1.2 Mitigation Measures

The following mitigation measures have been recommended by SKM's ecologist to minimise the adverse impacts to the Cumberland Plain Woodland and have been adopted by Sydney Water:

Pre-Construction

- All mature trees adjacent to the works corridor would be regarded as significant and retained in their present condition wherever possible.
- All vegetation on land surrounding and in proximity to the works corridor is classified as an endangered ecological community and is to be treated accordingly (i.e. fenced off to prevent accidental damage during construction works).
- To avoid impacts on native vegetation, plant and equipment required for the excavation works would be restricted to the designated works corridor (6 m wide) and stockpile sites clearly identified outside the Cumberland Plain Woodland area.

Construction

- There would be no stockpiling of excavated soil or construction plant outside of the designated works corridor or the identified stockpile sites where impacts to native trees could occur.
- Appropriate sediment and soil erosion quality controls would be utilised, particularly in regard to potential run-off in the event of heavy rain event during excavation.
- Avoid vehicle entry into adjacent woodland areas or edge areas where weed seed could be transported and deposited by vehicles used in the construction.
- The protective measures outlined in the Tree Wise Men (2008) report regarding the protection of tree roots for proximal trees are to be strictly adhered to.
- Any scour values or air values required for maintenance purposes would be located to the north or south of the Cumberland Plain Woodland and not within the woodland itself. Following completion of construction there is to be no vehicle access to the pipeline within the treed area for scouring purposes.

Post-Construction

- The worksite corridor would be rehabilitated and planted with native grasses and advanced tube stock of local shrubs from the list provided in Appendix B or other species representative of the Cumberland Plain Woodland.

- Maintenance of the rehabilitated area, including a weeding program, would occur for a period of at least six (6) months as per Condition of Approval 2.15.
- Additional Cumberland Plain Woodland trees would be planted within the Cumberland Plain Woodland area (but outside the pipeline corridor), in consultation with Penrith City Council.

6.2 Other Environmental Impacts and Mitigation Measures

Aspect	Potential Additional Impacts to EA	Additional Mitigation Measures
Waste Management	Impacts would not substantially change compared to original EA alignment. Minor reduction in waste from proposed realignment, as the sealed pathway would not need to be removed and then reinstated post construction.	None required
Noise and Vibration	Impacts would not change compared to original EA alignment.	None required
Geology, Soils and Water	Impacts would not change compared to original EA alignment. Possible reduction in potential indirect impacts due to the pipeline being moved away from the adjacent freshwater wetland area, compared to EA alignment.	None required
Heritage	<u>Aboriginal</u> Both the proposed realignment and the EA alignment would traverse a potential archaeological site "PAD7" located north east of the Penrith STP. <u>European</u> There were no European heritage items identified in the vicinity of the Penrith STP during the EA.	<u>Aboriginal</u> A program of subsurface investigation would be undertaken on the proposed realignment through PAD7, in consultation with local Aboriginal community groups. <u>European</u> None required
Landuse and Tenure	The pipeline would still pass through the same land parcels identified in Appendix A of the EA.	None required
Air Quality	Impacts would not change compared to original EA alignment.	None required
Traffic	Impacts would not change compared to original EA alignment.	None required

7. Conclusion and Proposed Modification

This EA Addendum has been prepared to assess the potential environmental impacts associated with a proposed alternate pipeline route through the Cumberland Plain Woodland (CPW) area, east of the Penrith Sewage Treatment Plant (STP). The proposed alternate route would be located within a highly modified and previously cleared section of remnant Cumberland Plain Woodland area with an understorey dominated by exotic grasses. The route would follow an existing sewer corridor where it is evident that trees have previously been removed such that there is a clear line of sight through the woodland. Vegetation that would need to be removed with the proposed pipeline corridor would comprise mostly exotic groundcover species and two small juvenile Grey Box (< 1m high) trees.

The original EA pipeline alignment following the sealed pathway was reviewed at the detailed design stage and it was identified this alignment would not be feasible without the need to remove mature trees adjacent to the pathway. Tree removal would have direct impacts on the CPW and Sydney Water would not be able to meet the requirements of CoA 2.11.

The alternate alignment was investigated on the basis that it was shorter and straighter and therefore could be constructed in a continuous and narrower trench. The benefits of the alternate alignment following the existing sewer corridor is that there would be no need for removal of mature trees due to the previous disturbance history and absence of large trees within the construction footprint. The alternate alignment would also result in less disturbance to tree roots given the greater distance from the trench excavations to the adjacent trees. In addition, the alternate alignment would also have minimal disturbance to native shrubs and groundcover plant species given the dominance of exotic species along the corridor.

An ecological assessment was undertaken and concludes that the proposed alternate pipeline route would not involve significant impacts to individual threatened species or critical habitats as listed in the *TSC Act* and would not significantly impact on a matter of national environmental significance as scheduled in the *EPBC Act*.

The construction corridor would be rehabilitated following pipeline installation with native grasses and shrub species representative of the Cumberland Plain Woodland. Maintenance of the rehabilitated area, including a weeding program, would occur for a period of at least six (6) months to ensure successful establishment.

Sydney Water suggests the following modification to CoA 2.11:

The Proponent shall ensure that the project avoid the direct impact to Grevillea juniperina subsp juniperina individuals, the habitat of Meridolum corneovirens, Litoria aurea and Miniopterus schreibersii, or the following Endangered Ecological Communities:

- a) **Cumberland Plain Woodland (with the exception of the minor impacts described in the Environmental Assessment Addendum - Cumberland Plain Woodland near Penrith STP, Sydney Water, May 2008);**
- b) *River-flat Eucalypt Forest on Coastal Floodplains; and*
- c) *Freshwater Wetlands on Coastal Floodplains.*

Appendix A – Flora and Fauna Addendum Report, SKM, April 2008

