# L WATERWAY CROSSING ASSESSMENTS AND SUB-CATCHMENT DATA

## *L.1 Streams with Moderate Environmental Values*

**Table L.1. Description of crossings through areas of moderate environmental values**

| Waterway | General description of environmental values | Specific issues at crossing point |
|---|---|---|
| *Six Mile Creek Sub-catchment* | | |
| Two tributaries of Lake Macdonald | | **Habitat characteristics**<br>Riparian vegetation: Regrowth 12.3.1/12.3.2–non–remnant. *Acacia disparrima* dominated regrowth |
| Six Mile Creek (left branch) (southern crossing) | Six Mile Creek is a tributary of the Mary River and is recognised as habitat for a number of threatened aquatic species, most notably the Mary River cod, Australian lungfish and the Mary River turtle (see Section 3.3) and also supports a broad riparian verge of notophyll vineforest (DNRM, 2004). Six Mile Creek (left branch) is also known to support threatened aquatic species (See Section 6.4.5 (Nature Conservation) and Appendix D (Matters of NES)). | The southern crossing of Six Mile Creek (left branch) is close to Lamonts Rd and within power line easement. It is disturbed at the crossing point with weed infestations and cattle graze to the waters edge on the western bank, however intact RE 12.3.2/12.3.1 is present either side of the crossing.<br>Date of visit: 01/09/2008<br>Watercourse type: Creek<br>**Physical characteristics**<br>Channel width: 15–20 m<br>Depth: <1 m<br>Stream width: 8–9 m<br>Reach type: Run<br>Substrate: Silt/Clay<br>Flow: Low flow<br>Erosion potential: Moderate erosion potential.<br>**Habitat characteristics**<br>Riparian vegetation: Some trees, mainly grasses.<br>Width: 2–3 m<br>Longitudinal continuity: Scattered within the easement. Intact upstream and downstream of the crossing<br>Canopy cover: <10% Some overhang over stream.<br>Debris: No<br>Significant species: Possibly some aquatic fauna.<br>Pest species: Exotic grasses and Tobacco weed. |

**Table L.1 (continued)**

| Waterway | General description of environmental values | Specific issues at crossing point |
|---|---|---|
| *North Maroochy River Sub-catchment* | | |
| North Maroochy River | The pipeline traverses the western side of the Bruce Highway, through power line easement or along the side of the highway for the most part, in the mid to lower reaches of the sub-catchment.<br><br>The North Maroochy River Sub-catchment rated C+ overall in recent Maroochy Shire waterway monitoring. It has good physical–chemical status and processes but poor biota and habitat and very high nutrient concentrations in some reaches. Key values are areas of diverse, good quality vegetation that support rare species, and abundant fish and invertebrate populations. The monitoring site 'NMAR002' (shown in Figure 7.1 in Section 7 (Water Resources)) is approximately two kilometres upstream of the pipeline crossing of the North Maroochy River. Both the aquatic processes and physical and chemical properties were rated as excellent but biota, nutrients and habitat were fair to very poor.<br><br>The Environmental Values for the North Maroochy River as defined in the *EPP (Water)* are aquatic ecosystem, human consumer, recreation, visual recreation, cultural and spiritual values and irrigation, stock water and farm supply. | Date of visit: 14/11/2007<br><br>Watercourse type: River<br><br>**Physical characteristics**<br><br>Channel width: 7 m<br><br>Depth: 0.5 m<br><br>Stream width: 3 m<br><br>Reach type: Flowing channel<br><br>Substrate: Clay<br><br>Flow: Slow–flowing<br><br>Erosion potential: Moderate to high—very steep banks<br><br>**Habitat characteristics**<br><br>Riparian vegetation: RE 12.3.1 (notophyll vine forest on alluvial soils) (endangered) west of old highway; significant proportion exotic vegetation at crossing point<br><br>Width: 5–9 m<br><br>Longitudinal continuity: 80–95%<br><br>Canopy cover: <30%<br><br>Debris: simplified habitat structure, leaf litter (1–30%) with standing dead trees, hollow bearing trees and fallen logs all absent<br><br>Significant species: Potential habitat for Giant Barred Frog, Tusked Frog, Elf Skink, Echidna and Platypus<br><br>Pest species: *Cinnamomum camphora* (Camphor laurel), *Celtis chinensis* (Chinese elm), Wild Tobacco, exotic grasses and smothering legumes.<br><br>**Other features:**<br><br>The proposed North Maroochy River crossing is immediately adjacent to a three lane road bridge crossing for the Bruce Highway (north and south bound) and Strong Lane. |
| Tributary of North Maroochy River | See North Maroochy River | The crossing point is not within an easement and will require limited clearance of previously disturbed riparian vegetation. A detailed management plan for this small section will be prepared as part of the preparation of the final EMP. |

**Table L.1 (continued)**

| Waterway | General description of environmental values | Specific issues at crossing point |
|---|---|---|
| *South Maroochy River Sub-catchment* | | |
| South Maroochy River | The South Maroochy River Sub-catchment rated an overall C+ in recent Maroochy Shire monitoring. It has good physical–chemical status and processes but poor biota and habitat and very high nutrient concentrations in some reaches. The key values of the sub-catchment are water supply, confined valley reaches in good condition and areas of high value streamside and aquatic habitats.<br><br>The pipeline crosses the lowland freshwaters in the sub-catchment. Monitoring site 'SMAR001' (shown in Figure 7.1 in Section 7 [Water Resources]), a lower bushland site, is approximately one kilometre upstream of the pipeline crossing on the South Maroochy River. The overall rating for the site is fair (see Table x: Summary of results from individual monitoring sites within Maroochy sub-catchments along Stage 2 NPI). The nutrients, physical and chemical properties and biota are good to excellent, however the aquatic processes and habitat were fair to poor.<br><br>The Environmental Values for the South Maroochy River as defined in the *EPP (Water)* aquatic ecosystem, recreation, visual recreation, cultural and spiritual values and irrigation, stock water and farm supply. | Date of visit: 14/11/2007<br>Watercourse type: River<br>**Physical characteristics**<br>Channel width: 15 m<br>Depth: 0.3 m<br>Stream width: 10 m<br>Reach type: Flowing channel<br>Substrate: Rocky<br>Flow: Slow flowing<br>Erosion potential: Moderate to high—very steep banks<br>**Habitat characteristics**<br>Riparian vegetation: Degraded RE 12.3.1 with disturbed banks and extensive weed invasion<br>Width: 5–9 m<br>Longitudinal continuity: <50%<br>Canopy cover: <30%<br>Debris: Leaf litter (1–30%) with dead trees, hollow–bearing trees and fallen logs absent<br>Significant species: Potential habitat for Giant Barred Frog, Tusked Frog, Elf Skink, Platypus and Koala<br>Pest species: Weed dominated waterway |

**Table L.1 (continued)**

| Waterway | General description of environmental values | Specific issues at crossing point |
|---|---|---|
| *Petrie Creek Sub-catchment* | | |
| Tuckers Creek | The pipeline follows easement through the urban middle reaches of the Petrie Creek sub-catchment near Nambour.<br><br>The Petrie Creek Sub-catchment was given an overall C+ rating from recent Maroochy Shire monitoring. Although it has a good physical–chemical status, processes and biota, nutrient concentrations are generally high and habitat poor. Key values in the sub-catchment are rare and threatened species, diverse invertebrate populations in the upper catchment and diverse native fish populations in the lower catchment. | The crossing at Tuckers Creek is not within easement and has a narrow section of non-remnant riparian vegetation.<br><br>**Habitat characteristics**<br><br>Riparian vegetation: Non–remnant riparian vegetation, some rainforest species in understorey.<br><br>Pest species: Camphor laurel, exotic pine species and other weeds. |

**Table L.1 (continued)**

| Waterway | General description of environmental values | Specific issues at crossing point |
|---|---|---|
| Tributary of Tuckers Creek | Same as for Tuckers Creek. | The Tuckers Creek tributary just north west of Tuckers Creek is adjacent to Duhs Road. The pipeline will run alongside Duhs Road. The vegetation at this site is mapped as RE 12.15.15a. Field investigation found palms and some rainforest species along the waterway however there was disturbance from the adjacent road and residential development. Rubbish (eg fuel cans, tyres, sheet metal etc) and runoff was apparent.<br>Date of visit: 25/08/2008<br>Watercourse type: Intermittent stream<br>**Physical characteristics**<br>Channel width: 1 m<br>Depth: 40 cm<br>Stream width: 40 cm<br>Reach type: Intermittent stream with pools<br>Substrate: Clay<br>Flow: Not flowing<br>Erosion potential: Low<br>**Habitat characteristics**<br>Riparian vegetation: Mapped RE 12.15.15a, rainforest species along waterway.<br>Width: 2–3 m to roadside, continuous vegetation on the northern side.<br>Longitudinal continuity: Semi continuous.<br>Canopy cover: 70–80%<br>Debris: Leaf litter<br>Significant species: Rainforest species.<br>Pest species: Some weeds including exotic grasses. |

**Table L.1 (continued)**

| Waterway | General description of environmental values | Specific issues at crossing point |
|---|---|---|
| Tributary of Tuckers Creek | Same as for Tuckers Creek. | Date of visit: 28/01/2008<br>Watercourse type: Creek<br>**Physical characteristics**<br>Channel width: 10 m<br>Depth: <0.3 m<br>Stream width: 1 m<br>Reach type: Flowing channel<br>Substrate: Soft mud/clay<br>Flow: Slow flowing<br>Erosion potential: Minor<br>**Habitat characteristics**<br>Riparian vegetation: Rainforest sub–storey with a tea tree margin; cleared through easement<br>Width: 3–5 m<br>Longitudinal continuity: <30%<br>Canopy cover: <30%<br>Debris: choked with in–stream vegetation, leaf litter and small fallen branches<br>Significant species: Potential habitat for Tusked Frog and Giant Barred Frog<br>Pest species: Weeds species along waterway |

**Table L.1 (continued)**

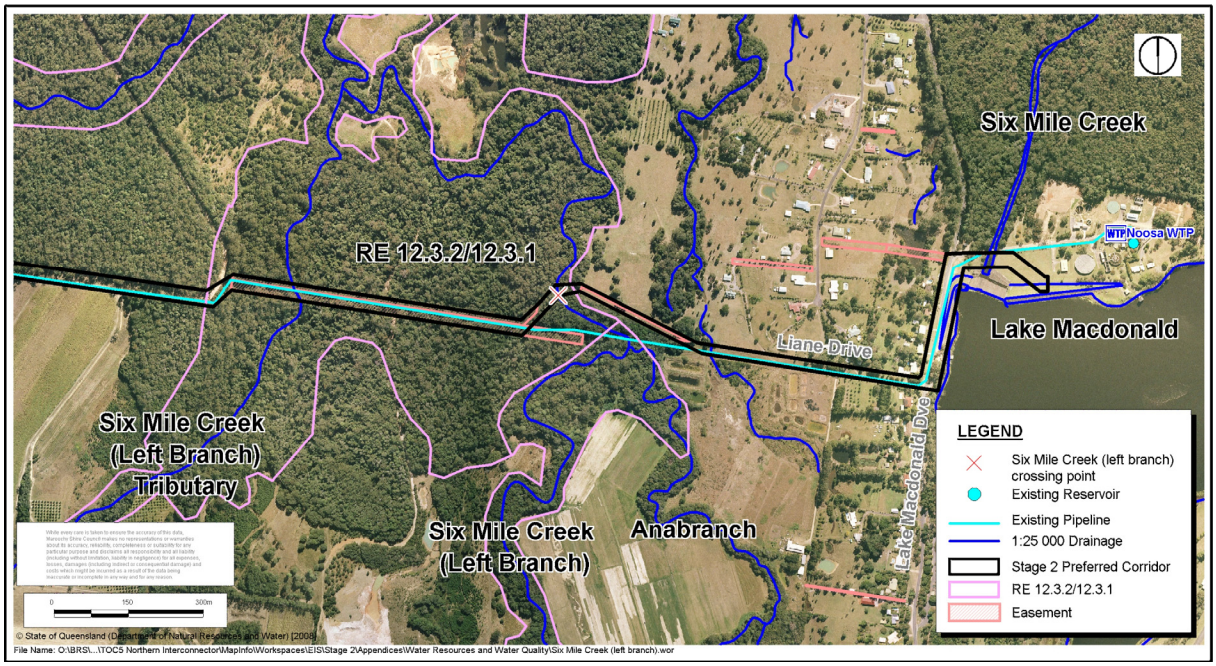
| Waterway | General description of environmental values | Specific issues at crossing point |
|---|---|---|
| *Paynter Creek Sub-catchment* | | |
| Paynter Creek (two southern crossings) | The pipeline crosses Paynter Creek in the middle of the sub-catchment where recent Maroochy Shire monitoring rated habitat, nutrients and other indicators as good. The Paynter Creek sub-catchment was given an overall B rating from recent monitoring. The key values were intact habitat in the upper reaches and minor changes to natural flow.<br><br>The Environmental Values for Paynter Creek as defined in the *EPP (Water)* aquatic ecosystem, recreation, visual recreation, cultural and spiritual values, industrial use, aquaculture and irrigation, stock water and farm supply. | Waterway name: **Paynter Creek southern most crossing**<br>Date of visit: 28/01/2008<br>Watercourse type: Creek<br>**Physical characteristics**<br>Channel width: 15 m<br>Depth: <0.3 m<br>Stream width: 8 m<br>Reach type: Flowing channel<br>Substrate: Clay<br>Flow: Slow flowing<br>Erosion potential: Minor<br>**Habitat characteristics**<br>Riparian vegetation: Riparian vegetation (12.3.2) intact adjacent to the power easement. While the canopy is absent through the easement on the north bank, rainforest regrowth has occurred on the easement and grades into continuous but thinner vegetation on the south bank.<br>Width: 5–15 m<br>Longitudinal continuity: 85–90%<br>Canopy cover: Generally absent through easement, <20%<br>Debris: Generally absent<br>Significant species: Potential habitat for Giant Barred Frog and Elf Skink in adjacent vegetation<br>Pest species: Weeds species as recorded elsewhere occur along the banks of the waterway<br>Note: The other Paynter Creek (southern) crossing has similar characteristics as above. |

**Table L.1 (continued)**

| Waterway | General description of environmental values | Specific issues at crossing point |
|---|---|---|
| *Eudlo Creek Sub-catchment* | | |
| Acrobat Creek | The Acrobat Creek crossing passes through grazing lands in the middle of the sub-catchment. It has similar values to those described below for Eudlo Creek and is also a high priority reach for local council. | Riparian vegetation: degraded 12.3.2 |
| Eudlo Creek | The pipeline crosses Eudlo Creek just north of Acrobat Creek. The Eudlo Creek sub-catchment has an overall good rating from recent Maroochy Shire waterway monitoring and Eudlo Creek, which the pipeline crosses, is a high priority reach for rehabilitation and management by local council. Key values in the sub-catchment are associated with ecologically significant areas in the lower reaches.<br>The Maroochy monitoring site 'EUDL001' (shown in Figure 7.1 in Section 7 (Water Resources)) at McGilchrist Rd is approximately 500 metres upstream of the pipeline's Eudlo Creek crossing. Nutrients, aquatic processes, physical and chemical properties and biota are all rated good to excellent, while habitat is poor due to significant clearing and weed invasion. Fair to poor habitat is common in the catchment due to broad scale clearing.<br>The Environmental Values for Eudlo Creek as defined in the EPP (Water) are aquatic ecosystem, recreation, visual recreation, cultural and spiritual values, industrial use and irrigation, stock water and farm supply. | Date of visit: 7/02/2008<br>Watercourse type: Creek<br>**Physical characteristics**<br>Channel width: 5–6 m<br>Depth: 1.5–2 m<br>Stream width: 3 m<br>Reach type: Flowing channel<br>Substrate: Clay<br>Flow: Slow flowing<br>Erosion potential: Minor<br>**Habitat characteristics**<br>Riparian vegetation: Narrow riparian zone characterised by non-remnant re-growth adjacent to the power easement. Both banks are heavily disturbed, with weedy regrowth and grasses along the easement.<br>Width: 3–4 m<br>Longitudinal continuity: <5%<br>Canopy cover: Canopy absent through easement, understorey <5%<br>Debris: Generally clear of debris, some submerged vegetation due to increased stream width after heavy rains.<br>Significant species: None known<br>Pest species: Minor weed infestation |

## L.2 Streams with High Environmental Values

### L.2.1 Six Mile Creek (Left Branch) (Northern Crossing)




*Description*

To the west of Lake MacDonald the pipeline crosses Six Mile Creek (left branch) downstream of where an anabranch rejoins the main stream. To avoid as much of the intact riparian vine forest associations (RE 12.3.2/12.3.1) in this area, the pipeline follows agricultural land and crosses where there is an existing pipeline. The pipeline can be seen in the photo below (Photo L.1). The creek crossing is 5–6 m wide and slow flowing. The riparian vegetation is RE 12.3.2/12.3.1; however, this unit is only a few metres wide on the eastern side at the crossing point. It then follows an existing easement (see Photo L.3).

Biological investigations have confirmed the presence of the EPBC-listed Southern Penda (*Xanthostemon oppositifolius*) in this area as well as the NCA-listed Tusked Frog (*Adelotus brevis*) (see Section 6.4.5 and 6.3.4 (Nature Conservation) and Appendix D (Matters of NES)). Specific surveys of aquatic fauna have suggested the potential for occurrence in Six Mile Creek (left branch) of the following significant aquatic species: the Platypus, Mary River Turtle, Mary River Cod and Oxleyan Pygmy Perch (see Section 6.4.5 and Appendix D).

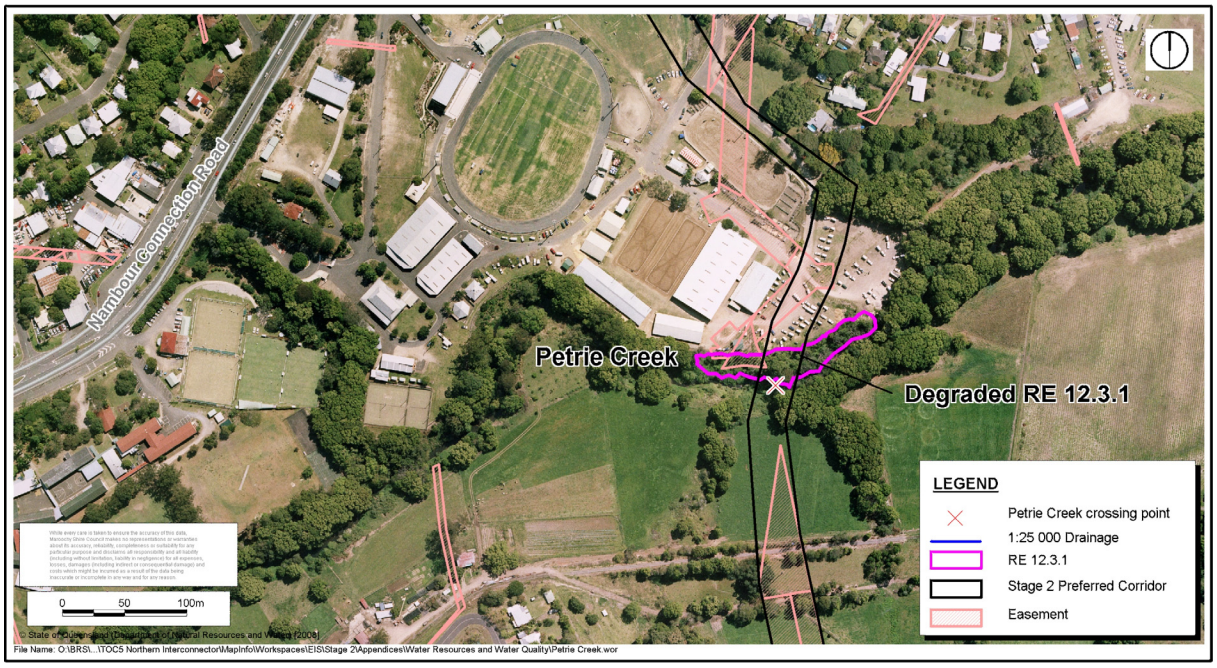
This crossing point requires further and more detailed investigation to ensure sufficient information of the environmental values present in the area is gathered to enable a suitable site-specific management plan to be compiled.

**Photo L.1**
**PROPOSED NORTHERN CROSSING POINT AT SIX MILE CREEK (LEFT BRANCH) LOOKING EAST**

**Photo L.2**
**VIEW TO THE WEST TOWARDS THE CROSSING POINT AT THE END OF LIANE DRIVE.**

**Photo L.3**
**EXISTING PIPELINE EASEMENT LOOKING WEST FROM SIX MILE CREEK (LEFT BRANCH)**

### L.2.2 Petrie Creek




*Description*

Petrie Creek flows through the major urban centre of Nambour, where it is joined by several major tributaries including Coes, Whalleys and Tuckers Creeks. At the proposed Petrie Creek crossing adjacent to the Nambour showgrounds, creek-side vegetation is heavily disturbed. On the south bank Camphor laurel (*Cinnamomum camphora*) dominates the riparian vegetation. However, on the north bank degraded RE 12.3.1 is present (see Photo L.6). Fauna investigations have confirmed that Elf Skink (*Eroticoscincus graciloides*) is present and Giant Barred Frog (*Mixophyes iteratus*) and Tusked Frog (*Adelotus brevis*) have the potential to occur adjacent to the crossing.

The cross-section at the crossing point is 35–40 m bank to bank, the stream is 3–5 m wide and less than half a metre deep. The south bank of Petrie Creek is relatively steep, with the initial decline broken by a terrace that gently grades into the narrow stream. The north bank has an almost 1 in 1 gradient and heavily vegetated.

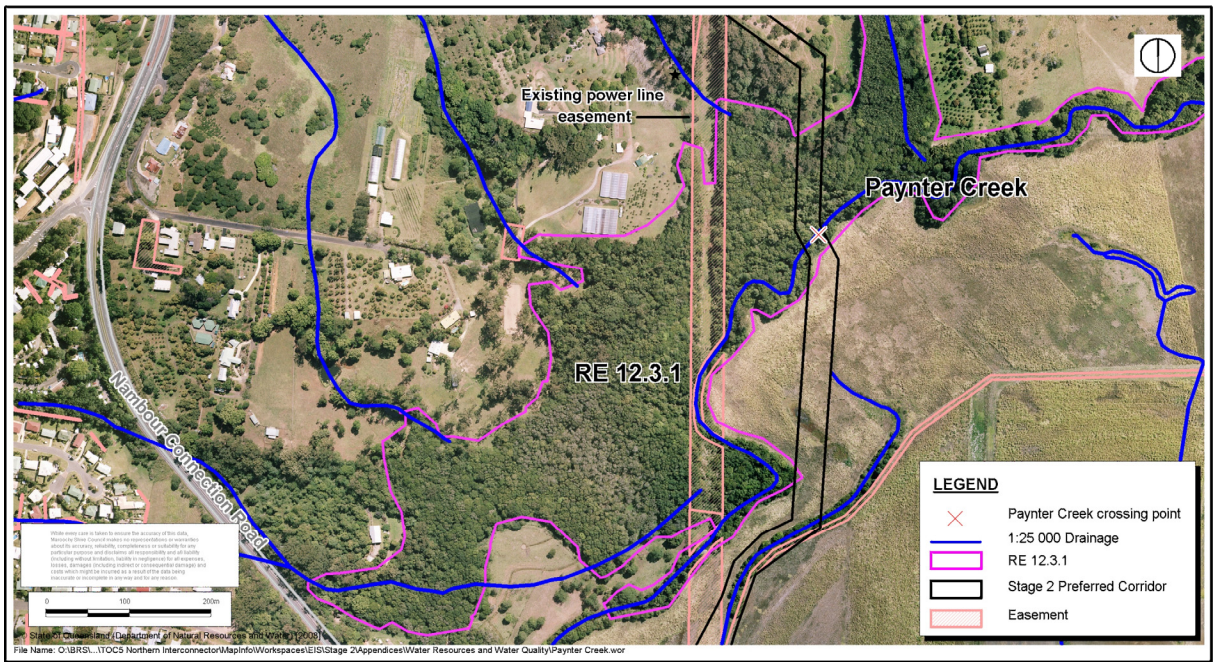
The creek is a slow-flowing run with large woody debris present, as well as urban litter such as a car tyre and sheets of metal.

The Petrie Creek sub-catchment has an overall fair rating from recent monitoring. Two urban Maroochy Shire waterway monitoring sites, 'PETR001 and PET004', are located in the middle reaches of the sub-catchment approximately 1 km upstream and downstream respectively of the pipeline crossing point. Characteristics of these sites are listed in Table L.3 but, in summary, the physical properties were rated as excellent. However nutrients were rated as fair to good with oxidised nitrogen concentrations consistently high for both sites. Biota at PETR03 had a fair rating with moderate numbers of pollution sensitive macroinvertebrate families (mayflies and caddisflies). Both sites had poor ratings for streamside vegetation and physical form (bed, banks, etc.) due to significant clearing.

**Photos L.4 and L.5**
**PETRIE CREEK LOOKING SOUTH ACROSS CROSSING POINT**

**Photo L.6**
**NORTH BANK OF PETRIE CREEK, AT THE CROSSING POINT, LOOKING SOUTH**

### L.2.3 Paynter Creek (Northern Crossings)




The aerial photo above shows the northern crossing of Paynter Creek based on the current proposed alignment. Previous route options had the pipeline route following the existing cleared power line easement. However, the current alignment was chosen to avoid multiple crossings of Paynter Creek. Further detailed investigation is required at the proposed new crossing point to fully identify all relevant environmental values and incorporate these in a site specific management plan for the crossing.

Present information gathered for the existing power line easement confirm that the riparian vegetation for three northern crossings of Paynter Creek consists of weedy regrowth. However, adjacent intact RE 12.3.1 is continuous on the western side and semi-continuous to the east upstream and downstream of these crossing points other than a break through to cleared land (see aerial photo above). The bank width along the northern crossings is 10–15 m wide, the stream 5–6 m wide and less than one metre deep. Erosion potential is low to moderate due to moderate slopes and clayey silt alluvial material. The canopy cover at the easement crossings is less than fifty percent and consists of mostly low shrubs.

There are a number of weeds including Lantana (*Lantana camara*) present in the riparian vegetation as well as litter. Significant flora and fauna known to be present at or in close to the northern crossings include the Swamp Orchid (*Phaius tancarvilleae*) and the Tusked Frog (*Adelotus brevis*) while the Giant Barred frog (*Mixophyes iteratus*) has the potential to occur as suitable habitats are present along the creek.

**Photo L.7**
**LOOKING NORTH ACROSS THE FOURTH CROSSING OF PAYNTER CREEK WITHIN THE EASEMENT (NOTE WEEDY REGROWTH)**

**Photo L.8**
**LOOKING NORTH FROM THE THIRD CROSSING OF PAYNTER CREEK ALONG THE EASEMENT**

## *L.3 Sub-catchment Data*

*Maroochy Shire Waterways Ecosystem Health Report Card October 2007*

The Maroochy Waterways Monitoring Program, designed by the Maroochy Shire Council provides local sub-catchment ecosystem health ratings. The first waterway health report card for Maroochy Shire was published in October 2007. The grades are based on water quality and biological information collected over a two year period and the information collected is used to prioritise local waterway and management actions.

Stage 2 of the pipeline crosses several sub-catchments within the Maroochy River catchment. These are listed in Table L.2 in order from north to south. The 2007 grade from the Maroochy Shire monitoring and a description of the condition and key values of the sub-catchments are also included in this table.

**Table L.2 Summary of waterway health results for the Maroochy sub-catchments along Stage 2 NPI**

| Sub-catchment | 2007 Grade | Comments | Key waterway values within the sub-catchment |
|---|---|---|---|
| North Maroochy River Sub-catchment | C+ | Good physical-chemical status and processes; Poor biota and habitat and very high nutrient concentrations in some reaches. | Areas of diverse, good quality vegetation that support rare species, and abundant fish and invertebrate populations. For example, Browns Creek and York Creek contain the least disturbed aquatic habitats in the Maroochy River catchment. |
| South Maroochy River Sub-catchment | C+ | Good physical-chemical status and processes; Poor biota and habitat and very high nutrient concentrations in some reaches. | Water supply, confined valley reaches in good condition and areas of high value streamside and aquatic habitats. |
| Upper Maroochy Estuary Sub-catchment | D | Poor physical-chemical and nutrient status, processes and habitat; Fair fish health. | Small remaining mangrove and streamside habitat areas which are important to harbour and support local plant and animal communities and allow movement of fish and terrestrial species from the middle estuary up into the freshwaters. |
| Petrie Creek Sub-catchment | C+ | Good physical-chemical status, processes and biota; Generally high nutrient concentrations and poor habitat. | Rare and threatened species, diverse invertebrate populations in the upper catchment and diverse native fish populations in the lower catchment. |
| Paynter Creek Sub-catchment | B– | Most indicators good in middle to lower sub-catchment; Poor processes (high algal/plant growth), biota and habitat in Hunchy Creek. | Areas of intact habitat in the upper reaches and only minor changes to natural flow. |
| Eudlo Creek Sub-catchment | B | Good physical-chemical and nutrient status, processes and biota; Fair habitat. | Ecologically significant areas in the otherwise urbanised lower sub-catchment, including Eudlo Creek and Buderim Conservation Parks and Buderim Forest Park, diverse creek habitats and physical stream forms and headwater streams in good condition. |

*Source: Maroochy Shire State of Waterways Report 2005–2007.*

*Maroochy Shire Waterways Ecosystem Health monitoring sites*

Table L.3 below lists the Maroochy Shire Waterways Ecosystem Health monitoring sites in close proximity to the NPI Stage 2 and the information collected at these sites from the 2005–2007 monitoring. These locations are shown on Figure 7.1 in Section 7 (Water Resources).

**Table L.3 Summary of results from individual monitoring sites within Maroochy subcatchments along Stage 2 NPI**

| Site ID | Location | Management unit | Waterway type | Habitat | Nutrients | Aquatic processes | Physical/ chemical | Biota | Site grade |
|---|---|---|---|---|---|---|---|---|---|
| NMAR001 | North Maroochy River at Wegner Rd crossing | Lowland reaches (natural) | Lowland | B<br>Generally good streamside vegetation and physical form (bed, banks etc). | F<br>Very poor nutrient status.<br>Most fractions consistently high.<br>Sources of nutrients may include animal wastes and fertiliser runoff from rural and urban areas. | A+<br>Excellent rating.<br>Streamside vegetation provides sufficient shading to the waterway that minimises excessive plant and algal growth. | A+<br>Excellent.<br>Temperature maximum and range generally within guidelines. | B+<br>Fair to good biota rating.<br>Nine native species were recorded.<br>Macro-invertebrate communities were fair. Average family counts ranged from 16 to 22 with moderate numbers of pollution-sensitive species like mayflies and caddisflies. | B– |

**Table L.3 (continued)**

| Site ID | Location | Management unit | Waterway type | Habitat | Nutrients | Aquatic processes | Physical/ chemical | Biota | Site grade |
|---|---|---|---|---|---|---|---|---|---|
| SMAR001 | South Maroochy River at Colemans Rd crossing | Lowland reaches (natural) | Lowland | C–<br>Poor streamside vegetation. Impacts included significant clearing or thinning and weed invasion. Physical form (bed, banks, etc) fair. Major impact being major barriers to fish passage from the drinking water dams upstream. | A<br>Nutrient status excellent.<br>All nutrient fractions were generally within guidelines, indicating no major nutrient inputs from surrounding land uses. | C+<br>The dissolved oxygen range was regularly high (up to 73% saturation). Elevated oxygen production by day and consumption by night by dense aquatic weeds, including water lettuce, water hyacinth and Salvinia contributed to this result. | B+<br>Daily temperature maximum and range were regularly high, indicating moderate heat gain or loss from the stream due to the very wide channel. | B–<br>Good rating. Fish community excellent, 10 native species and few non-native individuals.<br>Macro-invertebrate communities were fair to poor. Average family counts were high (18 to 28), but there were few pollution-sensitive species like stoneflies, mayflies and caddisflies. | C+ |

**Table L.3 (continued)**

| Site ID | Location | Management unit | Waterway type | Habitat | Nutrients | Aquatic processes | Physical/ chemical | Biota | Site grade |
|---|---|---|---|---|---|---|---|---|---|
| PETR004 | Petrie Creek at Nambour Sewage Treatment Plant | Urban stream | Lowland | D–<br>Poor streamside vegetation and physical form (bed, banks, etc).<br>Impacts include significant clearing, weed invasion, limited woody debris for habitat and major barriers to fish passage. | C–<br>Fair.<br>Oxidised nitrogen concentrations consistently high and ammonia and total phosphorus were also consistently high. | A+<br>Excellent rating. | A+<br>Excellent status. | – | C |
| PETR001 | Petrie Creek at Quota Park | Urban stream | Lowland | F<br>Poor streamside vegetation and physical form (bed, banks, etc).<br>Impacts include significant clearing, weed invasion, limited woody debris for habitat and major barriers to fish passage. | B+<br>Good.<br>Oxidised nitrogen concentrations consistently high. | – | A+<br>Excellent status. | C+<br>Fair rating.<br>Nine native species. Macro-invertebrate communities were also fair to good and there were moderate numbers of pollution sensitive families like mayflies and caddisflies. | C– |

**Table L.3 (continued)**

| Site ID | Location | Management unit | Waterway type | Habitat | Nutrients | Aquatic processes | Physical/ Chemical | Biota | Site Grade |
|---|---|---|---|---|---|---|---|---|---|
| EUDL001 | Eudlo Creek at McGilchrist Rd | Agriculture | Lowland | D–<br>Streamside vegetation poor, with significant clearing and weed invasion.<br>Physical form (bed, banks, etc.) poor. Impacts included bed scouring and limited woody debris for habitat. | B+<br>Excellent nutrient status. | A<br>Excellent rating.<br>Although there was a high dissolved oxygen range on multiple occasions due to poor streamside vegetation. | A–<br>Temperature range high on some occasions, probably due to clearing of streamside vegetation, which allows heat to easily enter and leave the stream. | B<br>Fair to good.<br>5 to 10 native species recorded. Most of the fish were pest gambusia.<br>Macro-invertebrate population good, with a mix of families. | B |

*Source: Maroochy Shire State of Waterways Report 2005–2007.*