A9 Dualling Programme: Tay Crossing to Ballinluig
DMRB Stage 3 Environmental Statement
Appendix A10.2: Ecological Receptors with Potential
Groundwater Component

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Appendix A10.2: Ecological Receptors with Potential Groundwater Component

1   Introduction

1.1.1   This Appendix provides a baseline review and impact assessment of potential groundwater dependant ecological receptors present within the study area, supporting Chapter 10 (Geology, Soils, Contaminated Land and Groundwater).

1.1.2   The information is based on updated Phase 1 Habitat surveys undertaken in 2016 in areas potentially considered as Groundwater Dependent Terrestrial Ecosystems (GWDTE).

1.1.3   A tiered approach has been adopted in the screening of ecological receptors with potential groundwater components which has included:

- A Tier 1 Screening Assessment involving a desk and field based ecological review of existing Phase 1 habitat data collected by CH2M Hill in 2015. Augmented by additional Phase 1 Habitat surveys undertaken by Jacobs in 2016 to determine (i) the presence or absence of a wetland habitat and (ii) the likelihood of a groundwater component based on the habitat characteristics and association of the habitat with watercourses. The results of the Tier 1 Screening Assessment are presented in Section 2 Table 1.

- A Tier 2 Screening Assessment was undertaken on ecological receptors which were assessed as 'Possible GWDTE' from the Tier 1 Screening Assessment. This involved National Habitat Classification (NVC) habitat surveys and an eco-hydrological conceptualisation of the wetland water supply mechanisms.

1.1.4   Figure 10.1 shows the location of ecological receptors investigated for a groundwater component in relation to the proposed scheme.

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2   Baseline Identification

Tier 1 and Tier 2 Screening Assessment Results

2.1.1   The results from the Tier 1 Screening Assessment are provided in Table 1 below.

2.1.2   The Tier 1 screening assessment concluded that none of the ecological receptors are groundwater dependant (i.e. they are not GWDTE). Consequently, no Tier 2 assessments were required.

Table 1: Review of ecological receptors with potential groundwater component

Target Note From Stage 2 (Figure 10.3)	Potential Wetland Typology (From Phase 1 Habitat)	Tier 1 Screening Assessment	Tier 1 Screening Assessment Results	Tier 2 Screening Assessment
TN08	Spring	The spring identified at DMRB Stage 2 was found to be a small pool fed by a minor watercourse in an area of improved grassland. Although groundwater may be present at this location, there is no terrestrial ecosystem supported by the groundwater as the pool directly feeds into a minor watercourse.	Non-GWDTE	Not required.
TN09 and TN11	Wet Woodland	Broadleaved woodland located within the River Tay floodplain. Historical mapping indicates there was previously a channel of the River Tay at this location that was diverted during the construction of the existing A9. The vegetation is fragmented and does not fit well with typical wet woodland NVC communities, possibly due to the woodland being the result of planting. Although the underlying alluvial deposits would support groundwater, this will be intrinsically to the River Tay. In addition, there are five minor watercourses which feed into the floodplain area and a drainage channel which links the minor watercourses before discharging into the River Tay. Any wetter areas within the broadleaved woodland are considered to be surface water dependent.	Non-GWDTE	Not required.
TN13	Wet Woodland	There are localised occurrences of cross-leaved heath *Erica tetralix* within an area of broadleaved woodland. The species identified do not indicate a groundwater dependent NVC community and may be the result of planting on disturbed or made ground associated with the existing A9.	Non-GWDTE	Not required.
TN17	Marshy Grassland/Wet Woodland	There are localised areas of compact rush *Juncus conglomeratus* and soft-rush *Juncus effusus* within broadleaved woodland and associated with road drainage and a road cutting. The rush species identified do not reach a level of abundance indicating a groundwater dependent NVC community.	Non-GWDTE	Not required.
TN21	Wet Woodland	Area of riparian woodland with no species identified that would indicate a groundwater dependent NVC community.	Non-GWDTE	Not required.
TN24	Marshy Grassland	Improved grassland with sporadic soft-rush *Juncus effusus*. The rush species present do not reach a level of abundance indicating a groundwater dependent NVC community.	Non-GWDTE	Not required.

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Target Note From Stage 2 (Figure 10.3)	Potential Wetland Typology (From Phase 1 Habitat)	Tier 1 Screening Assessment	Tier 1 Screening Assessment Results	Tier 2 Screening Assessment
TN33, TN34 and TN36	Swamp/Marshy Grassland	These three sites are hydrologically connected and all occur within an oxbow lake disconnected from the River Tay and bisected by the existing A9. There are at least three areas of standing water which are also fed by two minor watercourses from the east. Although the underlying alluvial deposits would support groundwater, this will be intrinsically linked to water levels within the River Tay. The vegetation observed, including emergent vegetation, predominantly indicates a surface water dependent NVC community. The areas of swamp and marshy grassland are considered to be dependent on surface water supplied by the minor watercourses and impeded drainage resulting from the existing A9 embankment, with the water table locally controlled by the River Tay which may have some effect on the depth of standing water within the oxbow lake feature.	Non-GWDTE	Not required.