Comhairle Cathrach & Contae Phort Láirge
Waterford City & County Council

Ecological Impact Assessment (EcIA)

of

Flood Improvement Works

Anne Valley Walkway,

Dunhill, Co.Waterford.

by

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Introduction:

Waterford City and County Council (WCCC) carried out an **Appropriate Assessment (AA) Screening** of the proposed trail improvements at Anne Valley Wetlands. There are **4 Natura** sites within **15km** of the project site. These are Tramore Backstrand and Dunes SAC (000671), 9km to the east, Tramore Backstrand SPA (004027), also 9km to the east, Lower River Suir SAC (002137), 10km to the north and Mid Waterford Coast SPA (004193), 970m to the south. The AA screening concluded that there was **no potential** for significant effects on any NATURA sites. Therefore, it is concluded that a Natura Impact Statement (NIS) is not required for the proposed development (WCCC, 2021).

However, it was recommended that an **Ecological Impact Assessment (EcIA)** be carried out to ensure that there were no adverse impacts to the local ecology, including **Annestown Stream** and associated habitats and species. This report outlines the results of this EcIA.

The Anne Valley Walkway is a **5km** recreational trail located between Dunhill and Annestown, Co. Waterford. It is situated 13km west of Waterford City, 8km west of Tramore and 24km east of Dungarvan. The trail runs through the Anne Valley Wetlands (**approx. 55ha**) along the riverbank of the Annestown Stream, which flows south to Dunabrattin Bay at Annestown. The initial **2.2km** trail from Dunhill village to Dunhill Castle was developed in **2013** with support from LEADER Funding and was further extended south to Annestown Village in **2018**. This **easy grade** trail is **2m wide** with a gentle slope and level surface. This trail is popular with visitors and locals, especially during summer months.

However, as the trail is within a **100 yr flood zone** (HES, 2021), there are sections that are prone to flooding. These sections become inaccessible to walkers, who must divert onto the adjacent narrow country road. The proposed development is to raise the level of the trail to prevent flooding and to allow year-round access to the trail.

The proposed development area is **0.42ha**. The proposed walking track upgrade is between Dunhill Castle and Annestown. The trail improvements begin **300m** south-west of **Dunhill Castle** and extend south for **940m**.The improvements will involve raising the level of the trail by **0.85m** and widening the base of the path to **4.5m**. Culverts will be regularly placed along low points of the trail to maintain existing **drainage** pathways and further limit the flood impact around the raised walkway, by allowing flood waters drain freely.

Ecological Survey:

On the **23/03/2021**, the proposed development site was visited by **Ecologist John Derwin** with **Johnny Brunnock, Trails Officer,** Waterford City and County Council (WCCC) and the extent, purpose and nature of the proposed development was outlined. The entire area within and adjacent to the proposed development area**(2.96ha)** was surveyed and the main habitats were mapped. The habitats within and adjacent to the proposed development site were, **Buildings and Artificial Surfaces (BL3), Other Artificial lakes and ponds (FL8), Dense Bracken (HD1), Wet Grassland (GS4), Scrub (WS1), Wet Woodland (WN6), Reedbeds and Large Sedge Swamps (FS1), Marsh (GM1), Drainage Ditches, (FW4)**and **Depositing Lowland Rivers (FW2).** These habitats are described in detail in the next section and outlined in **Table1**and **Map 1.**

Table 1: HabitatDescriptions

A: Buildings and Artificial surfaces (BL3):	**Area: 0.4ha**
	The existing path is 2m wide, with a level gravel surface, is constructed in a shallow trench. Wet grassland with Yorkshire Fog (*Holcus lanatus*), Creeping Bent-grass (*Agrostis stolonifera*), Creeping Butter-cup (*Ranunculus repens*) and Common Reed (*Phragmites australis*) occurs on either side. There is a drainage culvert at the southern section of track, allowing water to drain under the path.

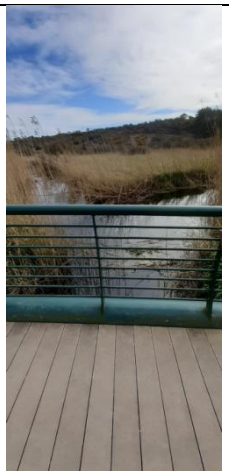
B: Other Artificial Lakes and Ponds (FL1):	**Area: 0.4ha**
	There are 3 wet hollows present that were excavated as part of an Integrated Constructed Wetland, which are lined with Willow (*Salix* spp.). Two of these inter-linked channels are in-filled with wetland species Yellow Flag (*Iris pseudacorus*), Soft Rush (*Juncus effusus*) and Common Reed (*Phragmites australis*).The third hollow has open water and an outflow pipe to adjacent Ballylenane Stream. Cattle graze on the poached banks that support wet grassland with Yorkshire Fog (*Holcus lanatus*), Creeping Bent-grass (*Agrostis stolonifera*), Creeping Butter-cup (*Ranunculus repens*), Soft Rush (*Juncus effusus*), Thistle (*Cirsium* spp.) and Curled Dock (*Rumex crispus*).

C: Dense Bracken (HD1):	Area: 0.4ha
	Extensive areas of Dense Bracken (*Pteridium aquilinum*) dominate this section of higher ground. There is some encroachment of Common gorse (*Ulex europaeus*) scrub with Downy Birch (*Betula pubescens*).

D: Wet Grassland (GS4):	Area: 0.2ha
	The wet grassland vegetation along the stream is dominated by Soft Rush (*Juncus effusus*) with Yorkshire Fog (*Holcus lanatus*), Creeping Bent-grass (*Agrostis stolonifera*), Creeping Butter-cup (*Ranunculus repens*), Thistle (*Cirsium* spp.), Common Nettle (*Urtica dioica*) and Curled Dock (*Rumex crispus*).

E: Scrub (WS1):	**Area: 0.3ha**
	This scrub is dominated by Willow (*Salix* spp.) and Alder (*Alnus glutinosa*)with Bramble (*Rubus fruticosus*), Common Nettle (*Urtica dioica*), Creeping Bent-grass (*Agrostis stolonifera*) and Curled Dock (*Rumex crispus*).

F: Wet Woodland (WN6):	**Area: 0.4ha**
	Alder (A*lnus glutinosa*) woodland with Downy Birch (*Betula pubescens*) occurs along western margin of the track. The ground flora consists of Rosebay Willow-herb (*Epilobium angustifolium*), Common Nettle (*Urtica dioica*), Bramble (*Rubus fruticosus),*Creeping Butter-cup (*Ranunculus repens*), Thistle (*Cirsium* spp.),Herb Robert (*Geranium robertianum*), Reed Canary-grass (*Phalaris arundinacea*), and Curled Dock (*Rumex crispus*). Of particular interest is the presence of **Royal Fern (*Osmunda regalis*).** There are wet hollows in the woodland and **otters** cross track from hollows to access the river.

G: Reedbeds and Large sedge Swamps (FS1)	**Area: 0.2ha**
	Common Reed (*Phragmites australis*) lines the banks of the Annestown Stream. This thin margin of reedbed expands around the back channel at the footbridge and extends to the east of the river. This footbridge will need to be raised as part of the track upgrade. The footbridge will be repositioned on raised piers to increase height by **600mm**. The back channel is used by **otters**, with tracks visible beside the footbridge. The current outflow will be retained to prevent to the drainage pattern.

H: Marsh (GM1):	**Area: 0.3ha**
	To the south-west of the site the ground surface drops away behind the track and a wet marshland has developed with Common Reed (*Phragmites australis*), Yellow Flag (*Iris pseudacorus*), Reed Canary-grass (*Phalaris arundinacea*), Great Tussock Sedge (*Carexpaniculata*) and Marsh Bedstraw (*Galiumpalustre*). Of particular interest is the presence of **Royal Fern (*Osmunda regalis*)**. Care must be taken to prevent the raised path becoming a barrier between this marsh and the stream. The installation of out flow pipes will ensure that there is no alteration of drainage patterns. **Note: Royal Fern (*Osmundia regalis*) tussocks**

I: Drainage Ditch (FW4)	**Area: 0.1ha**
	There are numerous drainage ditches and back channels in this wetland. The main back channel extends into the wet woodland for **250m** from the footbridge. These drainage ditches are lined by Willow (*Salix* spp.) with Common Reed (*Phragmites australis*), Nettle (*Urtica dioica*), Yorkshire Fog (*Holcus lanatus*), Yellow Flag (*Iris pseudacorus*), Reed Canary-grass (*Phalaris arundinacea*) and Soft Rush (*Juncus effusus*). **Outflow from constructed wetland:** Outflow drainage pipe from the constructed wetland into the Ballylenane stream that flows from Dunhill Castle.

J: Depositing Lowland Rivers (FW2)	**Area: 0.2ha**
	The riverbank of this lowland stream is lined with Common Reed (*Phragmites australis*),Reed Canary-grass (*Phalaris arundinacea*) and Reedmace (*Typha latifolia*) with scattered Willow (*Salix* spp.). Also, there is evidence of tidal influence on the river at southern section of the project site with algae and mudbanks on back channel. The tidal flow will be allowed to drain unimpeded by the installation of outflow pipes. Enlarged culverts will be used in sections to allow unrestricted access to the stream for Otters. **Note otter track on riverbank**

Fauna:

The following species have been noted at Anne Valley Wetlands.

Raven (*Corvus corax*):Ravens were noted on field visit and may roost in Dunhill Castle.As development works will be **300m** south of the castle, there will be **no impact** on this species.

Wren (*Troglodytes troglodytes*): Wren were noted on the field visit and may nest in scrub and wet grassland. However, as development works will be restricted to the track and will avoid scrub vegetation, there will be **no impact** on this species.

Thrush (*Turdus philomelos*): Song thrush were noted on field visit and may be nesting in scrub and wet woodland. However, as development works will be restricted to the track and will avoid scrub vegetation, there will be **no impact** on this species.

Mallard(*Anas platyrhynchos*): Mallard feed and breed within the Anne Valley Wetlands. However, no nests were noted within the vicinity of the proposed development. As works which will be restricted to the track, riverbank vegetation will be avoided. Therefore, any impact would be **small-scale, short-term**and **temporary**.

Heron (*Ardea cinerea*):Heron feed along the riverbank of Annestown Stream. As there is no breeding heronry within the vicinity of the proposed works any disturbance to Heron would be **small-scale, short-term** and **temporary**.

Kingfisher (*Alcedoatthis*):Kingfisher feed along the riverbank of Annestown Stream and may nest in hollows along the riverbank. As the proposed works will avoid disturbance to riverbanks, any impact on kingfisher would be **small-scale, short-term**and **temporary**.

Mute Swan (*Cygnus olor*):Mute Swan feed and breed along the riverbank of Annestown Stream. However, nesting sites are located **north of Dunhill Castle**. As there are no nest sites within the vicinity of the proposed works any disturbance to Mute Swan would be **small-scale, short-term** and **temporary**.

Otter (*Lutralutra*):Otter presence was confirmed by the identification of fresh tracks, trails and spraints along the northern section of the project area. Otter trails cross the track, emerging from wet hollows in the scrub and entering the stream. Back channels and wet hollows within the scrub provide ideal habitat for otter holts. **As the project works are restricted to the path margins, any disturbance to Otter within the vicinity of the proposed works will be small-scale, short-term** and **temporary**. To ensure minimal disturbance all works will be carried out in **day-light hours** using **light machinery** and follow **Transport Infrastructure Ireland (TII) Guidelines,** which **restrict light machinery** to**>15m** from otter holt. As **3** of the wet hollows are **>15m** from the development area, no restriction areas are required. However, three hollows to the east of the project area are**< 15m** from the development area and will require **restriction zones.**

Mitigation

The proposed development will have impact on habitats and species within the affected area. For somehabitats and species, the impact will be minor, but for others the impact may require **mitigation** to compensate for habitat loss. Areas of high ecological interest will be avoided to prevent any potential damage. Areas of medium ecological interest that may be damaged by the development will be compensated by habitat improvement in the adjacent area. The mitigation actions for the listed habitats are:

A: Buildings and Artificial Surfaces (BL3):Upgrade

This proposed development aims to improve the pedestrian safety to the trail by preventing flooding and to allow year-round recreational access between Dunhill and Annestown. Expansion of the current trail footprint will be required, and the trail will need to be raised. Culverts will be installed to maintain drainage outflows.

The proposed track upgrade will consist of **0.42ha (4.5m x 940m)**, which will be constructed over the existing track. The upgrade will extend for **940m** and which will require the removal of some of the trackside wet grassland. The upgraded track will be **2.0m** wide and raised by **0.85m** with shallow slopes (1:2m) extending **1.25m** either side. There will also be a requirement to lift a pedestrian bridge by raising piers by **0.6m**.

Construction works will be governed by a **health and safety statement.** Following **best practice,** the risk of accidents which are significant in scale is **low.**

B: Other Artifical Lakes and Ponds (FL1):Avoid.

In **2000**, the initial Dunhill Integrated Constructed Wetlands were developed by Waterford County Council, adjacent to the Annestown River to protect water-quality from agricultural run-off from the adjacent slopes and sewage treatment from Dunhill Village. The constructed wetlands were extended in **2012** to increase the number of wastewater treatment ponds. The constructed wetland adjacent to the project location, consists of 3 inter-linked channels with wetland species such as Yellow Flag (*Iris pseudacorus*) and Common Reed (*Phragmites australis*). Two of the channels are filled-in with wetland vegetation, while the third channel, adjacent to the river has open water and has an outflow to the adjacent stream. Thisconstructed wetland is outside the development area.

C: Dense Bracken (HD1): Encourage scrub encroachment

The section of dense Bracken (*Pteridium aquilinum*) adjacent to the road, occurs on higher ground. These is encroachment of Common gorse (*Ulex europaeus*) and Downy Birch (*Betula pubescens*) scrub and this should be encouraged,to increase the biodiversity value of the site.

D: Wet Grassland (GS4):Control Drainage.

Wet grassland is present adjacent to the Constructed Wetlands and adjacent to the trail. As the Constructed Wetlands are outside the development area, there will be no impact on the adjacent wet grassland. The footprint of the proposed trail improvement may impact on the adjacent wet grassland and obstruct drainage. Culverts will be inserted at intervals into the base of the trackway, to maintain drainage outflows.

E: Scrub:Avoid.

The Willow (*Salix* spp.) scrub, which may support **Otter**, will **not** be impacted by the proposed development works, as works will be restricted to the footprint of the trackway.

F:Wet woodland (WN6):Restock.

The immature wet woodland will be avoided and will not be impacted by the proposed by development works, as works will be restricted to the footprint of the trackway. The natural regeneration of native trees such as Alder (*Alnus glutinosa*), Willow (*Salix* spp.), and Downy Birch (*Betula pubescens*) should be encouraged to enhance the biodiversity of this woodland.

G: Reedbeds and Large sedge Swamps (FS1): Avoid, Control Drainage

As the proposed development works are restricted to the trackway and margins, the reedbeds along the stream will be avoided. Any potential impact on drainage will be prevented with the installation of culverts along sections of the upgraded trail that are adjacent to reedbeds.

H:Marsh (GM1):Avoid, Control Drainage.

As the proposed development is restricted to the trackway and margins, the marsh areas will be avoided and there will be no impact on habitats or species, including the Royal Fern. Any potential impact on drainage will be prevented with the installation of culverts along sections of the upgraded trackway that are adjacent to the marsh.

Zone I: Drainage ditches (FW4): Control Drainage.

The proposed development does not require any alteration of existing drainage channels. Any outflows that may be restricted by the improved walkway, will be allowed to flow un-impeded by the installation of culverts under the trackway, to maintain current drainage patterns.

Zone J: Depositing Lowland Rivers (FW2): Control Run-off, Re-plant

The Annestown Stream flows south from Ballylegat to Dunabrattin Bay and is within the Dunhill Sub Basin. The Ballylenane tributary flows into Annestown stream just south of Dunhill Castle. The proposed works begin adjacent to this tributary. However, the proposed development does not require any alteration of riverbank.

There is a **3-5m** margin between the proposed development works and Standard Measures will be undertaken to prevent run-off of building material, oils, plastic piping etc. into the streams.

Otter: Avoid Disturbance

Currently the otters cross the trail to access the river. Disturbance to otters will be minimised by working in **daylight hours** over a **short time-period,** with **speed-limits for light machinery** and **restriction zones** along the track. The site will be **monitored** for the presence of otters **daily**. Some of the drainage culverts will be enlarged to allow access for otter to the river.

Conclusion:

This habitat survey identified **ten** habitat types within the proposed development area. **None** of these represented **Annex I Habitats** of the EU Habitats Directive. Of these, there are **three** habitats, **Buildings and Artificial Surfaces(BL3),Other Artificial Lakes and Ponds (FL1)** and **Dense Bracken (HD1)** that are of **low** ecological interest.

The remaining **seven** habitats of **medium** ecological interest are **Wet Grassland (GS4), Scrub (WS1), Wet Woodland (WN6), Reedbeds and Tall Sedge Swamps (FS1), Marsh (GM2), Drainage Ditches (FW4)** and **Depositing lowland Rivers (FW2).**

The **wet grassland** adjoins Annestown River and acts as a buffer to the river. This area floods during periods of high water-levels.

The **scrub** is dominated by Willow (*Salix* spp.), which is expanding into the bracken dominated field and this should be encouraged to improve **biodiversity**.

The **wet woodland** was planted on cutover bog in **2015** (ref. Dunhill Tourism Walking Trail CLG) and is developing into a natural wet woodland.

The **reedbeds** adjacent to the riverbank consist of Common Reed and will not be impacted by the development. The entire riverbank will be avoided and run-off to the river channel will be prevented.

The **marsh** habitat will not be impacted by the development. All development works will be restricted to the trackway and all drainage channels will be maintained with the installation of culverts.

The Annestown Stream is a **lowland depositing river** that becomes **tidal** south of the project area. There are silt deposits evident in back-channels, but the water is clear. Annestown Stream is within the Dunhill sub-catchment. Irish Water have been working in partnership with Waterford City and Council at Dunhill since 2014.The**Water-quality Status** for Dunhill sub catchment is '**Moderate'** based on the latest EPA RWB data (2013-2019). Previously, the water-quality was recorded as '**Poor'** status in 2010-2015. Therefore, water-quality has improved since the installation of the constructed wetlands. As the footprint of the project area is small <1ha, there will be minimal impact of the proposed operations on this river.

Otter: The field survey has confirmed that otter utilise this wetland. The back channels and wet hollows within the scrub provide ideal habitat for **otter holts.** The proposed works are limited to the trail margin during daylight hours using **Light machinery**, with **restriction zones** and any **disturbance** to **Otter** would be **small-scale, short-term and temporary**.

Table 2: Habitats and Species Adjacent to the Development Site and proposed Mitigation.

Zone	Fossit Code	Fossit Habitat	Species	Ecological Importance	Potential Impact/ Mitigation
A	BL3	Buildings and Roads	Yorkshire Fog (*Holcus lanatus*) Creeping Butter-cup (*Raunculus repens*) Creeping Bent-grass (*Agrostis stolonifera*) Common Reed (*Phragmites australis*)	**Low**	**Medium:** Upgrade to prevent flooding. Culvert to allow water-flow
B	FL1	Artificial Lakes/ Ponds	Common Reed (*Phragmites australis*) Yellow Flag (*Iris pseudacorus*) Willow (*Salix* spp.) Soft Rush (*Juncus effusus*) Curled Dock (*Rumex crispus*)	**Low**	**Low:** Outside Proposed Development Zone.
C	**HD1**	Dense Bracken	Bracken (*Pteridium aquilinum*)	**Low**	**Low:** Allow scrub encroachment.
D	GS4	Wet Grassland	Soft Rush (*Juncus effusus*) Creeping Butter-cup (*Raunculus repens*) Creeping Bent-grass(*A. stolonifera*) Yorkshire Fog (*H.lanatus*) Common Nettle (*Urtica dioica*) Curled Dock (*R. crispus*)	**Medium**	**Medium:**Some habitat loss at trackway margins. Avoid River Buffer Zone, control drainage.
E	WS1	Scrub	Willow (*Salix* spp.) Alder (*Alnus glutinosa*) Bramble (*Rubus fructicosus*) Common Nettle (*Urtica dioica*) Creeping Bent-grass (*A. stolonifera*)	**Medium**	**Low: E**ncourage spread into Dense Bracken. **Protect Otter**
F	WN6	Wet Woodland	Alder (*Alnus glutinosa*) Willow (*Salix* spp.) Downy Birch (*Betula pubescens*) Common Nettle (*Urtica dioica*) Bramble (*Rubus fructicosus*) Herb Robert (*Geranium robertianum*) Creeping Butter-cup (*Raunculus repens*)	**Medium**	**Low:** Encourage native trees such as Alder, Birch and Willow to develop.
G	FS1	Reedbeds and Large Sedge Swamps	Common Reed (*Phragmites australis*) Reedmace (*Typha latifolia*) Yellow Flag (*Iris pseudacorus*)	**Medium**	**Low:**Avoid reedbeds and maintain drainage pattern
H	GM2	Marsh	Common Reed (*Phragmites australis*) Yellow Flag (*Iris pseudacorus*) Reed Canary-grass (*Phalaris arundinacea*) Great Tussock Sedge (Carex paniculate) Marsh Bedstraw (*Galiumpalustre*) Royal Fern (*Osmunda regalis*)	**Medium**	**Low:** Avoid, marsh and maintain drainage pattern
I	FW4	Drainage Ditches	Common Reed (*Phragmites australis*) Willow (*Salix* spp.) Yellow Flag (*Iris pseudacorus*) Reed Canary-grass (*P. arundinacea*) Soft Rush (*J. effusus*)	**Medium**	**Low:** Avoid, drainage ditches and maintain drainage pattern. **Protect Otter**
J	FW2	Depositing Lowland Rivers	Willow (*Salix* spp.) Common Reed (*P. australis*) Reed Canary-grass (*P.arundinacea*) Reedmace (*Typha latifolia*)	**Medium**	**Low:** Avoid, riverbank, maintain drainage. **Protect Otter**

Map 1: Anne Valley Trail and Associated Habitats

Key: A: Artificial Lakes and Ponds (Constructed Wetland), B: Buildings and Artificial Surfaces (Trail), C: Dense Bracken, D: Wet Grassland, E: Scrub, F: Wet Woodland, G: Reedbeds and Large Sedge Swamps, H: Marsh, I: Drainage Ditches, J: Depositing Lowland Rivers

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