MWP

Construction Methodologies

Dinis Loop Walkway and Cycleway

National Parks & Wildlife Service

August 2024

Contents

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1. Introduction

MWP, on behalf of the National Parks & Wildlife Service, submitted a planning application for the Dinis Loop Walkway/Cycleway at Torc, Muckross, Killarney, Co. Kerry in January 2024. A request for further information was received in March 2024. One element of the request for further information was as follows;

Construction methodologies should be more clearly set out to enable assessment, including what machinery is required to assess the works area and how that is going to be achieved, access route locations, compound location / activities.

The purpose of this Method Statement is to be provide an outline methodology for the proposed construction works associated with the construction of the Dinis Loop Walkway/Cycleway at Torc, Muckross, Killarney, Co. Kerry.

The construction design principle adopted takes account of the challenging site constraints such as steep slopes, restricted work areas, mature trees to be retained etc.

2. Site Description

2.1 Site Context and Description

The subject site is located between the Dinis car park and the Torc(Cardiac Hill) car park adjacent to the N71 roadway. The Walk and Cycleway will be constructed on the narrow strip of land between the Muckross Lake shore and the N71 roadway. The site is approximately 8km from killarney Town Centre. The site is in a rural area characterised by a mosaic of scrub land, boulders, rock outcrop, some mature trees and saplings.

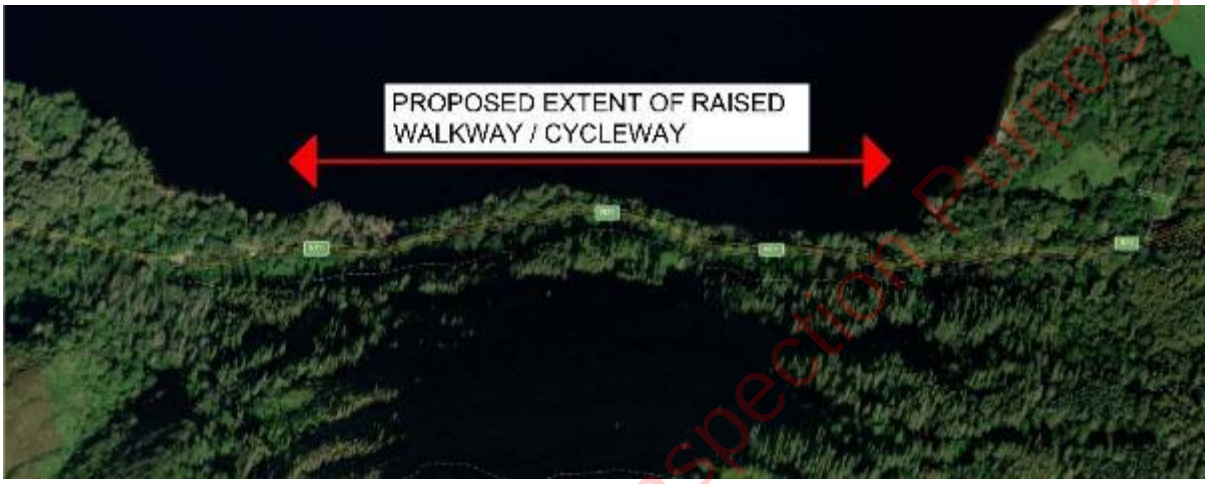

Figure 1: Aerial Photograph

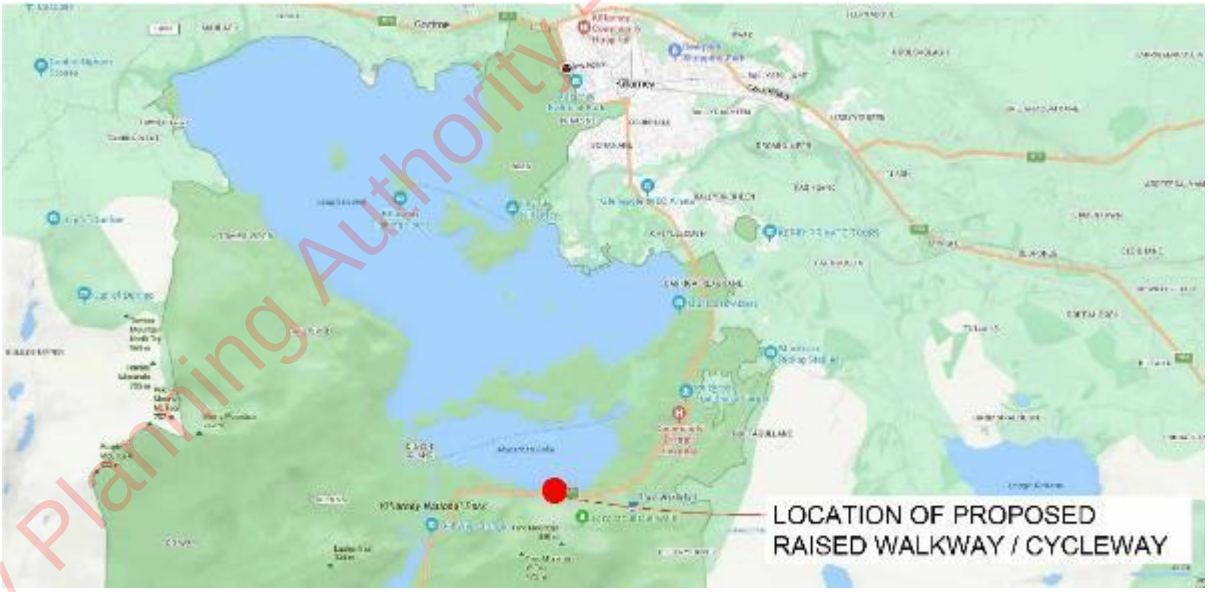

Figure 2: Site Location

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3. Proposed Project

The proposed project will comprise of a circa 1020m long x 3.5m wide raised platform walkway and cycleway, which will complete the Dinis to Torc loop without the need for users to travel on the N71 roadway to connect between the Dinis carpark and the Torc(Cardiac Hill) carpark. This will be a significant health and safety improvement for pedestrians and cyclists.

Figure 3: Proposed Raised Platform Viewing Area Visualisation

Figure 4: Proposed Raised Platform Viewing Area Visualisation

3.1 Construction Design Principles

The proposed design largely utilises a prefabricated construction approach. This will minimise the environmental impact on the site and substantially reduce in situ works on site . In addition, the raised platform will insure that the natural habitat beneath the platform footprint will be maintained.

On a preliminary basis, the structures of the raised platform would comprise of:

- Concrete pad foundations. These will be small and will be anchored to the rock where the rock is close to the surface. The use of rock anchors where ever possible allows the size of the concrete pads to be reduced.
- The main structure of the platform will galvanised and or corten steel. The design is based on a 5.0m structural grid. The column supports and platform deck will be prefabricated of site. All structural connections will be via bolted assembly
- The platform deck will be largely of precast concrete planks. The planks will have an anti-slip textured finish.
- The platform deck will be fitted with guarding on both sides to a heigh of 1.4m. Again, these will be fabricated off site and bolted to the platform frame on site.
- A small viewing area will be incorporated along the walkway. This will be constructed similar to the main walkway but a glazed balustrade will be provided.
- The Dinis Car Park layout will be altered to improve circulation within the car park and improve the entrance and exit to and from the area.

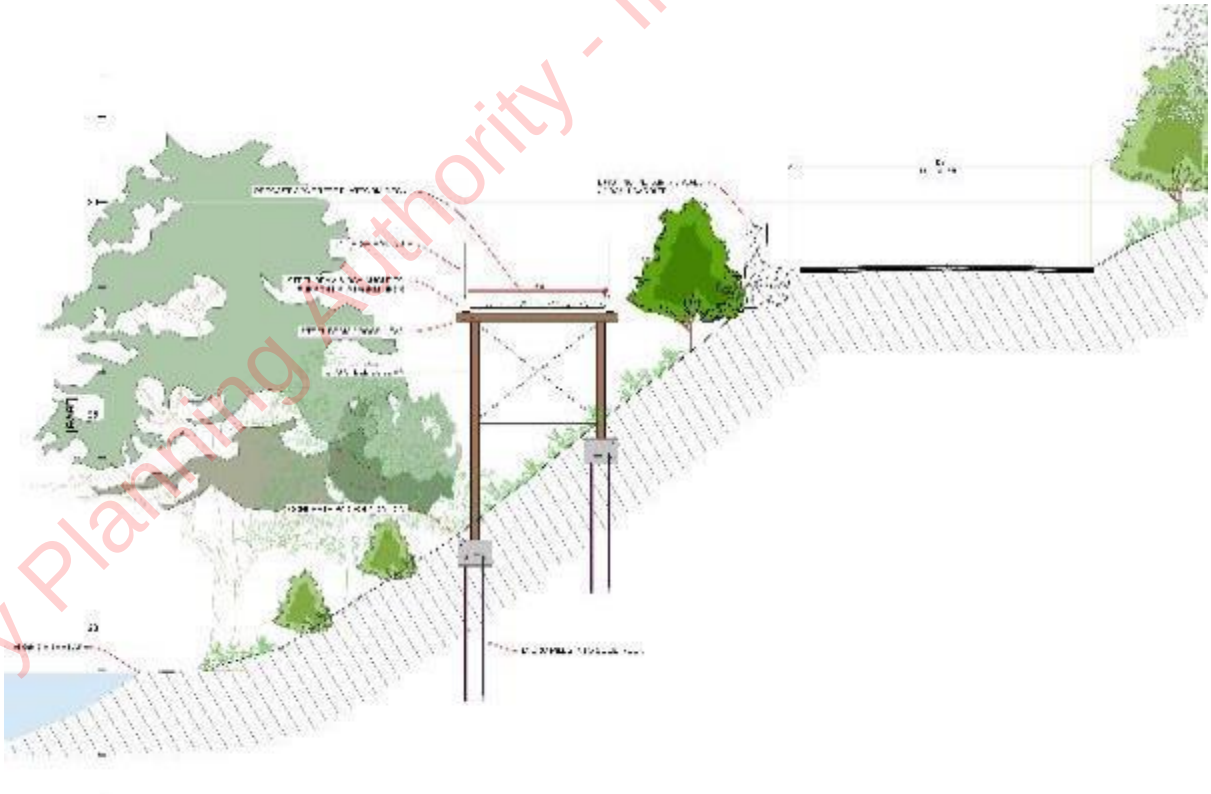

Figure 5: Proposed Raised Platform Cross Section

4. Construction Methodologies

MWP were mindful from the outset of the potential construction challenges posed by the site location and site terrain. Hence, the design principle adopted for the walkway structure was one of a largely prefabricated sectional steel and manageable precast concrete deck elements. The construction methodologies elements considered in this report are;

1. Site setup and compounds
2. Foundations
3. Steel frame structure
4. Walkway deck
5. Handrails and Balustrading

It is proposed the construction of the raised walkway will commence at the Dinis Car Park end and progress east towards the Torc Car Park. Plant, machinery and equipment will access the site directly from both car parks. As the excavations for foundations will be minimal, only small mini diggers, dumpers and hand held equipment will be required. Therefore, no haul road will be required. Instead, ground protection matting will be used. Excavated material will be placed to the side and reused to cover over foundations on completion. Ready mix concrete trucks will not be required to access the site. These will be positioned in the car parks and at locations along the public road and a pump and associated pipe used to deliver the concrete to the foundation excavation. Installation of the first section of prefabricated steel frame will be craned into position with a mobile crane located in the car Dinis park. Once the first sections are in position, including the deck, installation of subsequent section can be installed using the deck as the working platform.

4.1 Site Setup and Compound

It is envisaged that a number of smaller compounds would be required at various locations between the Dinis and Torc car parks during the course of the build. These sub compounds would be located in relatively level sections of the site, clear from dense or mature vegetation and close to the roadway. A contractor's office and welfare facilities would most likely located in one or both car parks.

Ground protection matting and silt fences etc will be put in place where necessary. The specific of which will be developed at detail design and prior to the construction stage.

Fig 6 – Ground protection Matting

Fig 7 – Silt Fence

Given the limited availability of suitable space on site, it is envisaged that an off-site contractor's compound would also be required. The off-site compound could be located within the NPWS depot yard at Muckross.

4.2 Foundations

The foundation design philosophy utilises the underlying rock substrata in order to minimise the requirement for sizable traditional concrete pad foundations for the steel columns to support the walkway deck. This will be achieved using rock bolts/anchors drilled and grouted into the underlying rock. A small pad foundation will then be cast over the rock bolts/anchors which will provide a level base for the steel columns to be fixed to.

Fig 8 – Insertion of rock bolt anchor

Fig 9 – Rock bolt/anchor

The construction of the above with entail excavating the overburden soil either by hand or with a 3 ton tracked excavator where terrain is suitable. The overburden material will be placed to the side. This material will be reused and place over the foundation upon completion. Inserting the rock bolts/anchors will be done manually with the assistance of pneumatic hand held drilling equipment. Where the sloped embarkment is too steep, work operatives will be harnessed to ensure safe work practice.

4.3 Steel Frame Structure

The steel frame structure will be fabricated off site. Each structural member will have bolted assembly connections. The deck level over the existing ground varies. Therefore, the height of the column supports will vary. Where the column lengths are short, these can be installed manually. The deck steel beams members and concrete platform would be placed in position with a small tracked telehandler. Once the first bay is constructed, this would serve as a working platform for the construction of sequential bays.

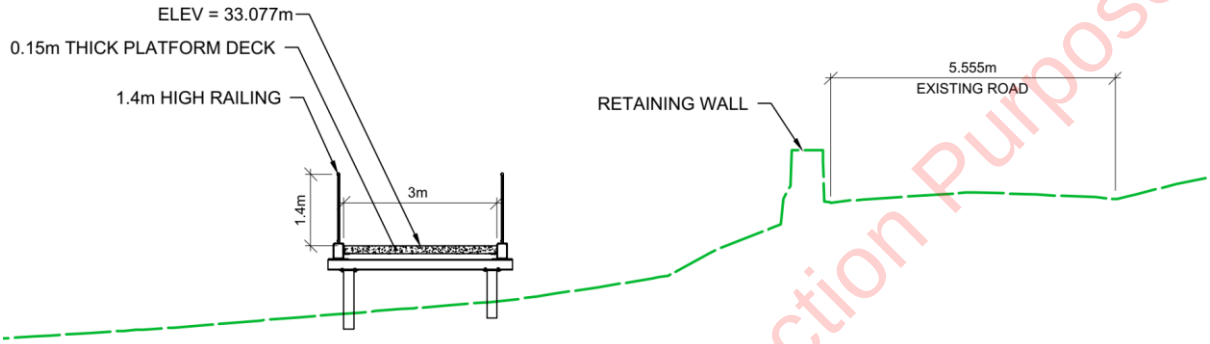

Fig 10 – Deck level close to existing ground level

In sections of the walkway where the terrain is more challenging, the steel frame would be lifted into position with a mobile crane located on the public roadway. The steel frame assembly operators would be lower into position using a spider type manlift which would also be located on the public roadway.

Fig 11 – Cranage Operation

Fig 12 – Spider Manlift

4.4 Walkway Deck.

The walkway deck will be constructed of precast concrete planks. The planks would be cast in short widths for ease of installation. These will be designed to accommodate construction loadings. It is envisaged that a small tracked swivel forklift would lift the planks into position. Each completed deck section in turn becomes the access platform for installation of the next section of the deck.

Fig 13 – Swivel type forklift.

4.5 Handrail and Balustrading.

The handrail and balustrading will be of tubular metal with infill steel mesh panel. There will be a small section of glazed balustrades at the viewing area. The system will be entirely fabricated off site. The fixing system will be that of a bolted assembly. The sections will be fabricated in manageable lengths to facilitate ease of installation.