Crom Landscape Project

National Trust

General Specifications & Methodology - Phase 1

National Trust, Northern Ireland

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CONTENTS **PAGE**

1.	Designations and Consents	1
1.1	Natural Heritage Designations	1
1.2	Historic Environment Designations	2
2.	Phase 1 Inisherk Workplan	2
3.	Site Access & Operations	2
3.1	Access	3
3.2	Working Area	3
3.3	Equipment Selection and Maintenance	4
3.4	Privately Owned and Public Utility Services	5
3.5	Site Clearance and Operations	5
3.6	Storage, Handling & Disposal of Materials	6
3.7	Work Rota & Out of Normal Hours	6
3.8	Storage of Explosives & Other Dangerous Substances	7
3.9	Pollution of Watercourses	7
3.10	Noise Control	7
3.11	Proprietary Names	7
3.12	24-hour cover	8
4.	Definitions, Classification and General Use of Earthworks Materials	8
4.1	Definition of Earthworks Materials	8
4.2	General Use	8
5.	Phase 1 Aggregate Trackway Repair Works; 2.3km Inisherk section	9
5.1	Repair to the Inisherk Path/Trackway section	9
5.2	Removal of soft material	9
5.3	Repair stone trackway	9
5.4	Trackway Dressing	9
5.5	Prescribed Stone for use in repairs	9
6.	Phase 1 Repair Existing Drainage sections along Inisherk Trackway	10
6.1	Open Drains/Sheughs	10
6.2	Lateral/Cross-Drains	10
6.3	Treatment of Damaged Lateral Drains	10

CONTENTS Cont'd **PAGE**

6.4 Repair of Orchard section Cross-drain 10

6.5 Replacement of Cross-drain guard fence 10

7. Install 6 no. wooden bollards 11

8. Site Conditions at Completion 11

Appendix 1: Chainage Detail of soft areas and vehicle rut damage Inisherk Trackway Route 12

Appendix 2: Detail and Layout of Open Drains and Conventional Lateral Drains 14

1. Designations & Consents

To be read with *General Pre-Construction Information and Conditions* and *Maps and Layout Plans_Phase 1*; *Natural Designations Layout A1; Existing Layout and Built Heritage 100a Landscape Layout Overall; 110a Landscape Layout*.

1.1 Natural Heritage Designations

The Crom Landscape Project Site Works as outlined within this General Specifications & Methodology – Phase 1 document are a notifiable operation as being carried out within an area designated an *Area of Special Scientific Interest* (ASSI), and which must have NIEA (DAERA) Consent for the on-site Works to proceed. The National Trust (the Client) will apply to NIEA for the required ASSI Consent for this Phase 1 scheme of works. NIEA representatives will consider in detail the potential impact of the proposed Site Works operations and, if necessary, provide guidance on how the proposed Site Works may be carried out in a way that protects the designated features of the Crom ASSI.

As background, the Crom ASSI was designated across the whole estate in 1994 and it covers an area 1443 hectares in extent. Within this designated area, Crom's woodland is particularly important, given it contains perhaps the most important area of native woodland remaining in N. Ireland. In recognition of this, much of the Crom site is designated because of its flora and fauna (ASSI No.71) and the site also forms an integral part of the wider Upper Lough Erne ASSI.

Crom is also noted for its parkland, which contains many ancient/senescent trees, along with a particularly diverse lichen flora growing on them. It is important as a site for its wetland habitats, bird, mammal, and invertebrate assemblages, while its natural beauty also makes it a popular walking and camping location.

The Crom ASSI encompasses the areas of the proposed site works in both Phase 1 and Phase 2 of this project. For the Phase 1 works on Inisherk, most of the island is designated ASSI, except for several parcels of ground which have been excluded, and these consist of the walled garden along with an area of woodland, through which the existing pathway extends, located around the northern side of the island and to the north and northwest of the walled garden. Please refer to drawing 110a Landscape Layout for the marked extent of the ASSI area on Inisherk.

For awareness, most applications for ASSI consent for proposals and operations are approved by NIEA, although the consent will contain and set-out conditions on how Site Works and other operations are to be carried out - in many cases this would be because certain actions or operations would be prevented by other legislation, for example, by planning, agricultural or waste management regulations and regulations to prevent water pollution.

For the operations detailed below in these specifications, the Works and operations have been prescribed and reflect the methodology as submitted by the Client for the current Phase 1 consent application. The Principal Contractor should be aware that any variation to these prescriptions or practical operations may be subject to amendment, based on the conditions which accompany the final ASSI consent as will be issued by NIEA; a copy of this consent will be issued to the Principal Contractor through the Client on issue and all conditions which are contained within the consent must be applied and followed.

1.2 Historic Environment Designation

Crom Estate is an historic demesne, and its area is included on the Register of Historic Parks, Gardens and Demesnes (HPGD) for N. Ireland (Ref: F-009). The site contains one Scheduled Monument area, Old Crom Castle (FER 261:020), which consist of the standing ruins of the original 17th century plantation castle on the site, along with its adjoining historic garden. In addition, Crom contains three recorded monument sites, four sites listed in the Industrial Heritage Record and seventeen Listed Buildings. Defence Heritage assets survive on the site, these mainly dating to the 1940-45 war period, and which while not currently listed in the Monuments & Buildings Records for NI, are included on the National Trust's own Historic Buildings, Sites and Monuments Record (HBSMR).

The registered HPGD area at Crom fully encompasses Inisherk island. The island is accessed by the White Bridge, which is included in the Industrial Heritage Record and there are three listed buildings located on the island, as shown on the accompanying drawing *Existing Layout and Built Heritage A1*. A listed building located closest to the area of proposed work is the Walled Garden (Grade B2; Ref: HB12/02/002 K) and the extent of the listing for this structure covers its walls, outbuildings, gates, and outer retaining wall. There are no works proposed in this Phase 1 which would impact upon any of the listed buildings on Inisherk, however care should be taken by the Principal Contractor in his operations particularly in proximity to any of the historic structures within the Site.

2. Phase 1 Inisherk Work Plan

To be read with *General Pre-Construction Information and Conditions* and *Maps and Layout Plans_Phase 1*; *100a Landscape Layout Overall; 110a Landscape Layout; 310 Timber Bollard*.

2.1 Phase 1 Works Summary

Repair and improvement work for Phase 1 Inisherk to include:

- localised repair of an existing c.2.3km access trackway; location as shown on drawing *110a Landscape Layout*
- cleansing of debris/detritus from open sheughs/ditches and cleansing of buried conventional cross drains and lateral outfalls along the route of the existing trackway; as shown on drawing *110a Landscape Layout*
- repair 1 no. piped culvert; as shown at location on drawing *110a Landscape Layout*
- install 6 no. wooden bollards; as shown at location on drawing *110a Landscape Layout & detail 310 Timber Bollard*
- other associated site work.

3. Site Access and Operations

To be read with *General Pre-Construction Information and Conditions* and *Maps and Layout Plans_Phase 1*; *100a Landscape Layout Overall; 110a Landscape Layout*.

3.1 Access

- Vehicle access onto Inisherk is via Crom estate roads and across the White Bridge.

- The White Bridge single carriageway access route onto Inisherk has a maximum 8 ton (loaded) carrying weight limit.
- In Work operations the Principal Contractor must ensure that in-use access routes and the single carriageway White Bridge are not blocked by his vehicles, plant, equipment, or materials including by those of any deliveries linked to his Site operations.
- Parking or refuelling of vehicles or plant on the White Bridge is not permitted.
- Unrestricted access to be always available to emergency vehicles.
- Contractor/Operatives' Vehicles and Plant using the White Bridge must ensure these must be in good and sound working order and must not leak any fuel, oil, lubricants etc, so to ensure there is no pollution or contamination of the watercourse running below the bridge. In the event of a vehicle breakdown on the bridge, Principal Contractor must ensure that spill kits are deployed to prevent pollution and must ensure the recovery of any vehicle at the earliest opportunity.
- The estate roads and bridge, as the access route for the Principal Contractor's operations, must be kept clean of any debris, mud or spillage of materials which may become deposited onto the carriageway/bridge during Phase 1 Work. It is the responsibility of the Principal Contractor to remove and otherwise clean any access routes on which his construction or delivery vehicles travel, and which may deposit mud or spill materials.
- The Principal Contractor shall provide, erect, and maintain such traffic signs, lamps, barriers, and such other measures as may be necessitated, in accordance with Chapter 8 of the Traffic Signs Manual (HMSO Department for Transport). When the circumstances of any case are not covered by the recommendations, the Principal Contractor shall submit proposals for dealing with such situations for approval. Compliance with this clause shall not relieve the Contractor of any of his other obligations and liabilities under the Contract and under the relevant provisions of the Highway Acts.
- The Principal Contractor shall always keep clean and legible all traffic signs, lamps, barriers and traffic control signals which he installs, and he shall position, re-position, cover or remove them as necessary during the progress of the Site Work.

3.2. Working Area

- The Principal Contractor shall for the purposes of the Contract have free and temporary use of working areas and accesses thereto as shown in the Contract. The working areas will include space for the Contractor's compound to house his offices, stores and temporary works as shown on drawings 100a and 110a.
- Should the Contractor require further working areas or accesses during the progress of the Work he may arrange for the use of these, subject to the approval of the Project Manager and Client, and which may be subject to an ASSI Consent amendment.
- Prior to the commencement of Site operations, the Principal Contractor will be supplied with the names and addresses of the landowner's (Client) site agents and contacts where appropriate including the names of tenants.
- The Principal Contractor shall give at least 7 days (but preferably longer) notice in writing to the landowner (Client) and tenants of his intention to start work within the Site.
- During the currency of the Contract the Principal Contractor shall attend promptly to any complaints intimated by the landowner (Client) or tenants.
- The Principal Contractor shall keep records of the dates of his entry onto and departure from all property and lands, together with the dates of the erection and removal of all enclosures,

and he shall furnish copies of these records when required by the Project Manager. He shall also keep and furnish similar records in respect of roads, footpaths and thoroughfares.

- The Principal Contractor shall be liable for compensation and costs resulting from any trespass or from his failure to vacate or to reinstate any portion of the Site in accordance with the Programme referred to in the General Conditions of Contract.
- The Principal Contractor shall be responsible for the proper up-keep and maintenance of his Site Works areas. Materials and equipment shall be positioned, stored, and stacked in an orderly manner, having due regard to safety.
- The Contractor shall maintain his Site in a tidy and workmanlike fashion.

3.3. Equipment Selection and Maintenance

The choice of equipment used on the site is important.

- To ensure that damage to vegetation and subsoil is kept to a minimum, 5-8 Ton low ground pressure excavators with minimum 800mm wide tracks are generally to be used. Ground pressures must be minimal, and excavators need reach that will minimise their need for frequent repositioning.
- All machines will be serviced regularly and checked daily for oil and fuel leaks.
- Machine greasing will be done by two people so that excess grease can be methodically wiped clean and grease drops can be caught.
- Where any machine is parked-up over-night, it will be located as far from any watercourses as practically possible.
- Hydraulic systems will be charged with suitable thermally stable biodegradable hydraulic oil as standard, which in the event of system rupture or leak will at least 60% biodegrade within 28 days (OECD 301B test)
- All machine operatives will be suitably experienced in mechanical work and knowledgeable on machining techniques to minimise environmental damage to ground surface and watercourses. Each will be qualified with at least the following: NPORS training in plant operator's safety awareness course CITB/CPCS operators' certificate of competence for: 360º excavator, 360º excavator mini, wheeled loaders, dump trucks articulated or ridged, site dumper, skid steer loaders, rough terrain forklift and tractors up to 250hp
- Only bunded fuel bowsers shall be used on the site for plant refuelling.
- The excavators will be located on as level ground as reasonably available, and refuelling will be with electric transfer pumps fitted to excavators.
- Drip trays will be used when refuelling.
- Fuel tanks to be never more than 85% filled so to avoid splashing from tank vents.
- All machines to carry a spade and emergency fuel/oil spill kit from a reputable spill kit manufacturer including at least enough adsorbent material to capture the contents of the machines' fuel tank if spilled.
- At least one machine on site will be equipped with a winch capable of extracting the largest site machine if this becomes stuck.
- Any machine operator realising that they are stuck will stop working immediately and seek assistance.
- Only steel ropes or chains are to be used in any recovery work. These must be inspected and stamped/tagged at least once every 12 months and after any use.
- All staff should notify the site foreman immediately if a machine becomes bogged.

- In the event of such an occurrence the contractor shall remove the machine as soon as practicable, and the recovery costs shall be borne by the contractor.

3.4. Privately Owned and Public Utility Services

- If any privately owned service for water, electricity, drainage etc., passing through the Site will be affected by the Works, the Principal Contractor shall provide a satisfactory alternative service in full working order to the satisfaction of the owner of the service and of an Engineer or Client's Building Surveyor before cutting the existing service.
- The location of known existing public utility services will be shown in the Contract. If any other public utility services passing through the site is subsequently found to be affected by the Works, the Contractor shall not carry out work near the service until the method of carrying out the work has been approved.
- The Principal Contractor to provide appropriately sized goal post barriers in areas where over-head cables cross the Site Works area (see layout drawings 100a and 110a).
- The precise location of any service shall be determined by the Contractor as directed.

3.5. Site Clearance and General Operations

- The Principal Contractor shall demolish, break up and remove, structures and any superficial obstructions on the Site in the way of, or otherwise affected by the proposed Works. He shall clear each part of the Site at the times and to the extent required or as directed by the Project Manager and in accordance with any conditions attached to the ASSI Consent.
- Underground structures and chambers shall be demolished to the depths shown in the Contract or as directed. They shall be properly cleaned out and filled with suitable material, as detailed on drawing 110a Site layout for 'repair of cross-drain'; see Section 6 below. Unused topsoil and unsuitable other material arising from the repair of the cross-drain are to be removed and stored at the Farm buildings site, as shown on drawing 100a Site Layout Overall and later disposal off-site to tip.
- Subject to the provisions of the General Conditions of Contract, all materials (other than topsoil materials) arising from Site clearance, which are surplus to, or unsuitable for, use in the Works, shall become the property of the Contractor, and shall be disposed of by him off the Site to his tip, or if approved, disposed of on the Site in an approved manner and subject to conditions contained within the ASSI Consent.
- Surplus or unsuitable materials generated through the repair of the existing trackway shall be dealt with as required by Section 4 below.
- The Site Work corridor, consisting of the existing Inisherk path section, to be cleaned and repaired, should be free of obstructions such as any dead-wood branches prior to Principal Contractor mobilisation on site.
- Where encountered, obstructions to the Works such as branches lying on the pathway, are to be carefully lifted from the trackway and set aside within the adjacent woodland margin along the Path.
- Damaging trees along the Work corridor in contract operations is strictly not permitted. Protected area: Do not cut roots within precautionary protection area. Size of area: Within site boundary and all trees immediately on the boundary.
- If tree roots exposed during operations backfill as soon as possible or temporarily line with polyethylene sheet to reduce evaporation. Backfill: As dug material in layers not more than 300 mm thick, copious watering to alleviate stress.

- Phase 1 site operations are being timetabled and to be carried out outside of the Bird Nesting Season. Note that if tree or vegetation clearance work is undertaken during the nesting season, a pre-works survey needs to be carried out by a qualified ecologist to assess, record and confirm that no nesting birds are present or that the intended work will not disturb any birds nesting near to the Work Site.
- Principal Contractor must give notice: If unrecorded foundations, beds, voids, basements, filling, tanks, pipes, cables, drains, manholes, watercourses, ditches, etc. not shown on the drawings are encountered.
- Burning of any materials on the Site is strictly not permitted.

3.6. Storage, Handling and Disposal of Materials

- In arranging the Phase 1 compound and the position of welfare facilities, these are to be set on existing ground surface in the location as shown and agreed on drawing 100a and 110a.
- In arranging Phase 1 temporary storage for Work materials, these are to be stored in the locations as shown on drawing 100a and 110a; should further temporary storage area(s) be required this must first be agreed on-site with the Client's representatives and Project Manager.
- Materials and components shall be stored in such a manner as to preserve their quality and condition to the standards required by the Contract.
- General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place imported materials directly on grass.
- The quantity of materials and components stored on the Site shall be consistent with that necessary for efficient work and to deliver the contract.
- Materials and components shall be handled in such a manner as to avoid any damage or contamination and be in accordance with all applicable commendations of the manufacturers.
- Surplus material which may be required by the Client shall be delivered by the Principal Contractor to a place designated on-site. These items shall be paid for at the invoiced rates, delivered to site, an allowance being made for loading and haulage from/within the site.
- The cost of all surplus materials not required by the Client shall be borne by the Principal Contractor.

3.7. Work Rota and Outside Normal Working Hours

- The Principal Contractor shall, as far as is practicable, confine his hours of Work within: Monday to Friday 08.00 - 18.00 and Saturday 08.00 - 13.00
- Works outside these hours shall not be undertaken without prior written permission of the Project Manager.
- Work on site will not normally be permitted on Sundays or on Bank Holidays.
- If it becomes necessary to safeguard the Works, or for any other emergency, the Project Manager or Building Surveyor may order the contractor to work continuously by day or night. Unless in the opinion of the Building Surveyor the necessity for this is due to the Principal Contractor's negligence. Any extra cost will be determined in accordance with Clause of the Conditions of Contract.
- The Principal Contractor shall adhere to his normal daily and weekly working hours, submitted as part of his Request for Quotation/Tender, unless otherwise agreed with or order by the Client's Building Surveyor, and shall note the provisions and requirements of the Dayworks schedule.

- In addition to the provisions of the Conditions of Contract, if the Principal Contractor intends carrying out Work outside normal working hours of weekdays and weekends, he shall give one day's notice in writing to the Project Manager/Building Surveyor. Any work carried out without such notice shall not be measured for the purpose of certification.

3.8. Storage of Explosives and other Dangerous Substances

- Unless otherwise directed in the Contract, the storage and use of explosives on site is not permitted.
- Dangerous or inflammable materials and gases shall not be brought onto the Site, or used for any purpose, without approval in writing.
- The location of stores for explosives, dangerous or inflammable materials or gases on the site must be approved in writing.

3.9. Pollution of Watercourses

- During the period of execution of the Works, the Principal Contractor shall take all necessary precautions to prevent the pollution of rivers, streams, lochs, watercourses, reservoir catchment areas, surface water drains or the surface of the ground by poisonous, noxious, or polluting matter arising from his operations, and shall provide any settling ponds or purifying equipment as required.
- The Principal Contractor is required to submit to the Project Manager/Building Surveyor a detailed Method Statement prior to the Date of Commencement clearly setting out the pollution control measures he intends to implement. The pollution control measures put forward by the Principal Contractor will be subject to the approval of the Building Surveyor.

3.10. Noise Control

- All work shall be carried out without unreasonable noise.
- Compressors used on the Site shall be silenced either by using only fully silenced models fitted with effective exhaust silencers and properly lined and sealed acoustic covers all to the design of the manufacturers of the compressors or using effective acoustic screens to enclose the noise source.
- Ancillary pneumatic percussive tools used on the Site shall be fitted with silencers of a type recommended by the manufacturers of the tools.
- Compressors, silencers, or other equipment shall be maintained in a good and efficient working order and shall not have been altered in such a way that the noise caused in the operation is made greater by the alterations.

3.11. Proprietary Names

- In every case where, in the Specification or Drawings, materials, appliances or fittings of a special design, manufacture or otherwise are described or the names of manufacturers or agents are given, it is to be clearly understood that such references are inserted for the guidance of intending Contractors with respect to the nature and quality of the materials, articles or services required, which must, in all cases be subject to the approval of the Client's Building Surveyor.

3.12 24-Hour Cover

- Throughout the Phase 1 Contract Period the Principal Contractor shall ensure the staff/operatives, plant and materials are always available to deal effectively, whether within

normal working hours or not, with any situation which arises in connection with his Work, and as promptly as the circumstances warrant.

- Before the start of the Contract, the Principal Contractor shall deposit with the Client's Building Surveyor and Project Manager a list of names, addresses and telephone numbers of the members of his staff who have the authority to take charge in such circumstances at any time. This information shall also be posted on a sign at the entrance to the Works Site.

4. Definition, Classification and General Use of Earthworks Materials

4.1 The following definitions of earthworks materials shall apply to this and other Clauses of the Specification in which reference is made to the defined materials:

4.1.1. "Topsoil" shall mean the top layer of soil that can support vegetation.

4.1.2. "Suitable material" shall comprise all that which is acceptable in accordance with the Contract for use in the Permanent Works.

4.1.3. "Unsuitable material" shall mean other than suitable material and shall include:

- material from swamps, marshes, or bogs.
- peat, logs, stumps, and perishable material.
- material susceptible to spontaneous combustion.
- material in a frozen condition or material which after being frozen is not approved for use.
- clay of liquid limit exceeding 90 and/or plasticity index exceeding 65.
- materials having a moisture content greater than 1.2 times the Optimum Moisture Content, unless otherwise approved.
- 'Rock' shall mean those geological strata or deposits and/or any hard material requiring the use of specialized plant for its loosening before removal, or if excavated by hand the use of wedges and sledgehammers. Individual masses exceeding 0.25 cubic metres in size shall be regarded as rock where the net width of excavation is less than 2 metres.
- 'Rock fill' shall consist of hard, durable, insert material of suitable size for deposition and compaction.
- 'Soft material' shall mean all unsuitable material within the groups 'Well-graded granular and dry cohesive soils' include clays and marks containing more than 20% of gravel and/or having a moisture content less than the value of the plastic limit (determined in accordance with BS 1377 Parts 1 - 9) minus 4, well-graded sands and gravels with a uniformity coefficient exceeding 10, chalk having a saturation moisture content within the range 15-20 per cent and all shales and clinker-ash.

4.2. General Use

- The use of topsoil as a fill material shall be restricted to surface layers in positions not subject to loading.
- No excavated suitable material other than that surplus to requirements of the Contract shall be removed from the Site except when directed or permitted.

5. Phase 1 Aggregate Trackway Repair Works; 2.3km Inisherk section

To be read with *General Pre-Construction Information and Conditions* and *Maps and Layout Plans_Phase 1*; *100a Landscape Layout Overall; 110a Landscape Layout*. The specification proposes a trackway repair which is suitable for pedestrians and for occasional use by light/medium ground pressure 4x4 vehicles (e.g., Quad/ATV for farming and land maintenance).

5.1. Repair to the Inisherk Path/Trackway section

As shown on layout drawing 110a the trackway is on average 3.0m wide but extends to c.4m width over part of its northern circuit of the island and then reduces to c.2.0m in width in a section passing through oak woodland towards the route exit from northern circuit. Work to repair the trackway is to be carried out by carefully scraping off the soft material build up along the trackway route and to be cleared down to its surviving upper stone surface, using a 5-8 ton tracked 360° mechanical excavator with a toothless or bladed bucket.

5.2. Removal of soft material

Soft material overlying the trackway is to be lost by spreading thinly and carefully within the woodland margin located on the northern side of the trackway route, within the area not within the designated ASSI and as shown unshaded on layout drawing 110a. The Principal Contractor must ensure the soft material excavated is free of any stone or clay and that only the soft material is spread and lost, not causing damage or impact onto the surrounding trees, tree roots and deadwood branches contained within the prescribed casting area. Do not firm, consolidate, or compact this soft material when laying. Tip and grade to approximate levels in one operation with minimum trafficking by plant. Do not block or compromise any existing drainage outfalls emanating from the trackway.

5.3 Repair stone trackway

Dig out potholes, soft or damaged areas, including sections damaged by vehicle tracks (ruts), as detailed in Appendix 1 below. Excavate and repair these sections using 1½" crusher run but allow for 2" clean stone to be used in the repair of sections of the trackway where damaged into the sub-base and repair using stone compacted in layers 300mm (max) thick. Arisings from the repair of such soft areas and vehicle ruts is deemed to be unsuitable material for reuse and is therefore to be lost by placing this material in an area located to the south side of the trackway as indicated on layout drawing 110a. This represents a deeply scarped rectangular area is a cutting into the trackway bank extending in depth some c.2m below the trackway surface and was originally the location of a former building measuring c.4.0m by 4.8m in size, since removed. The unsuitable material from the path repairs, including clay arisings, should be deposited at this location in a tidy manner, built up, compacted, and profiled to match and level with the existing the ground.

5.4. Trackway Dressing

The repaired trackway to be dressed in a wearing course of limestone ¾ crusher run/25mm to dust, and wearing course compacted using plate or roller.

5.5. Prescribed Stone for use in repairs

Stone to be used in the trackway repairs and re-surfacing is crushed limestone, to be sourced from the local *Rockfield Quarry, R J Mitten & Sons, 371 Dernawilt Road, Lisnaskea, Co. Fermanagh BT92 5EA*.

6. Phase 1 Repair Existing Drainage sections along Inisherk Trackway

To be read with *General Pre-Construction Information and Conditions* and with Drawings *100a Landscape Layout Overall; 110a Landscape Layout*. Note: All drains to be retained.

6.1. Open Drains/Sheughs

Existing open drainage ditches/sheughs running parallel with existing trackway to be cleansed/ cleaned out using an appropriately sized mini excavator fitted with a toothless ditching bucket, or by hand excavation near tree roots where use of machine operated bucket would risk damaging or disturbing tree roots. Arisings from drain cleansing to be lost by spreading onto ground adjacent to the ditch in the woodland. Avoid compaction of this material and any damage to trees or other ASSI features during the process. Existing open drains should not be over-excavated, or re-profiled during cleansing work.

6.2. Lateral/Cross-Drains

All conventional cross-drains and their issues/out-falls are to be cleansed along with the main drainage ditches; for the majority these lateral/cross-drains consist of buried pipes extending across the trackway from the upper open drain. The recorded positions of the lateral/cross-drains are provided in Appendix 2 below and are shown on layout drawing 110a. Arisings from conventional drain clearing also to be lost, by loosely spreading material in woodland beside the trackway. Do not compact the material and avoid any damage to trees or other ASSI features during the process.

6.3. Treatment of Damaged Lateral Drains

Lateral or cross-drains found to be damaged or broken, and which cannot be cleansed, are to be replaced. Replacement pipes to be 100mm twin walled plastic pipe and should be obtained in lengths which span the 3.0m average width trackway. Replacement pipes to be laid on suitable pipe bed material and backfilled with clean stone, covered, and compacted and with wearing course at trackway surface as in 5.3 above. Arisings from replacement of damaged drainage pipes is unsuitable material and to be taken off site to tip.

6.4. Repair of Orchard section Cross-drain

This large lateral/cross-drain is located on the northern circuit of the trackway, north side of the orchard area, as shown on layout drawing 110a. The drain is c.3.0m long N-S by c.2.0m wide W-E and repair by excavate to replace the existing pipework (3 no. buried metal pipes), with 300mm concrete pipe or reinforced twin-wall heavy-duty plastic pipe and reinstate the piped drain using arisings. Contain ends of drain each side of the trackway with gabion baskets. The backfill to be built up level with the existing trackway, compacted with plate/roller and surface dressed in wearing course ¾ crusher run/25mm to dust, compacted with plate/roller. All unused or unsuitable arisings surplus to this repair are to be taken away and disposed off-site.

6.5. Replacement of Cross-drain guard fence

To affect and complete repair of above item 6.3, an existing c.4.5m length earth-fixed section of wooden post stock fencing is set along the top north edge of the drain as a guard and to be removed and disposed. Replace this with a new 4.5m length like for like fence to complete the repair.

7. Install 6 no. wooden bollards

To be read with *General Pre-Construction Information and Conditions* and Maps and Layout Plans_Phase 1; Drawing *110a Landscape Layout; 310 Wooden Bollard*.

7.1. Bollard Location

Two sets of three wooden bollards are to be installed at locations across the existing trackway as shown on layout drawing 110a and as specified in detail drawing 310 Timber Bollard. Note that the central bollard of the three being installed at each location is to be removable, as per 310 detail drawing.

7.2. Fixed wooden Bollard: as drawing 310 Wooden Bollard

- Manufacturer: Contractor's choice.
- Product reference: Contractor's choice. Material: FSC certified softwood.
- Finish as delivered: Pressure treated.
- Colour: None.
- Height above ground: as drawing 310; Sectional size: as drawing 310; Top: as drawing 310.
- Method of fixing: set in concrete base as drawing 310].

7.3. Removable wooden Bollard: as drawing 310 Wooden Bollard

- Manufacturer: Contractor's choice.
- Product reference: Contractor's choice. Material: FSC certified softwood.
- Finish as delivered: Pressure treated.
- Colour: None.
- Height above ground: as drawing 310; Sectional size: as drawing 310; Top: as drawing 310.
- Special features: as drawing 310, lockable s/s socket; Method of fixing: set in concrete base as drawing 310.

8. Site Conditions at Completion

- Debris: Clear away and leave the site in a clean and tidy condition.

APPENDIX 1: Chainage Detail of the soft areas and vehicle rut damage along Inisherk Trackway Repair Route

Note: the measurements provided below for the positions of the soft areas and vehicle rut damage have been recorded in a clockwise direction along the Trackway route, starting at the wooden gate at the southwest corner of the Walled Garden as 0.0m (refer drawing 110a Landscape Layout).

Inisherk Trackway is on average 3m wide but varies in width from c.2.0m to c.4.0m in width.

182.9m-192.8m; heavy vehicle rutting, impacting to the sub-base (c.10m length)

246.7m-251.8m; vehicle rutting of both existing wheel tracks along trackway impacted to sub-base (c.5.5m length)

301.2m-308.5m; – as above (c.7.4m length)

327.3m-346.7m; – as above (c.19.4m length)

361.4m-366.3m; vehicle rutting of wheel track particularly on RHS, impacted to the sub-base (c.5m length)

380.6m-383.7m; vehicle rutting of wheel track particularly LHS, impacted to the sub-base (c.3.1m length)

395.2m-424.6m; vehicle rutting of wheel track on RHS, impacted to the sub-base (c.29.5m length)

444.5m-453.9m; vehicle rutting of wheel track, mainly RHS, impacted to the sub-base (c.9.5m length)

468.1m-480.4m; vehicle rutting of wheel track, mainly RHS, impacted to the sub-base (c.12.4m length)

480.4m-490.7m; vehicle rutting of wheel track, both sides of trackway and extending 5.0m across the trackway (c.10.3m length)

530.2m; a wet/soft point in the track caused by a wheel rut (c.1.0m length)

592.8m; wet/soft area of trackway which appears caused by filled sheugh to north side (c.2.0m length)

772.0m-774.8m; soft area across width of trackway and appears ground has burst, impact to sub-base. (c.2.8m length)

1025.8m – marks start of section where the open drains extend along both sides of the existing trackway, and trackway widens to average 3.2m width

1298.6m-1305.7m; wet/soft section for repair (c.7.1m length)

1392.2m-1396.2m; soft area across trackway, impacted to sub-base (c.4.0m length)

1526.0m-1529.0m; soft ground area extending across trackway to be repaired (c.3.0m length)

1549.5m-1552.5m; soft ground area, impacted to sub-base (c.3.0m length)

1583.8m-1589.0m; soft ground area across trackway, appears ground burst and impacted to sub-base (c.5.2m length)

1601.0m-1614.0m; wet/soft ground patch across trackway (appears to be caused by the overflowing sheugh on RHS) (c.13.0m length)

1674.7m-1679.0m; wet/soft patch with underlying clay subsoil protruding, impacted to sub-base (c.4.3m length)

1683.1m-1689.0m; wet/soft wet patch as above (c.6.0m length)

1703.7m-1713.4m; wet/soft patch as above, tree stump on RHS over the sheugh (c.10.0m length)

1778.0m-1787.0m; wet/soft patch across trackway and appears cause filled and overflowing sheugh and cross-drain to LHS (c.9.0m length)

1858.4m-1870.8m; wet/soft patch across trackway and appears cause is filled and overflowing sheugh and possible cross-drain (c.12.5m length)

1877.0m-1882.0m; wet/soft patch on trackway, impacted to sub-base (c.5.0m length)

From 1885m area LHS of Trackway is not ASSI designated, but is a priority woodland habitat

1942.0m-1976.0m; trackway has been widened at this section due to vehicles avoiding a wet/soft area of ground. (c.34.0m length)

2072.0m; large cross-drain at this location to be repaired and marks the end of the non-ASSI section

2112.9m-2163.0m; trackway repair through this section must avoid any damage to the oak tree roots; a light or gentle scrape of the soft material covering the trackway, no more than c.50mm depth with arisings collected to the LHS to form a small-banked edge to the trackway. (c.50.0m length)

2163.0m-2222.2m; As above – and ends repair section of existing trackway. (c.59.0m length)

NOTES: Recommended that a tracked 360° mini-excavator of not over 3 ton size be used in the localised repairs to the section of trackway extending chainage 2075.5m to 2222.2m due to the close set nature of surrounding oak trees along the sides of the trackway.

APPENDIX 2: Detail & Layout of Open Drains and Conventional Lateral Drains

Measurements provided below for the positions of drains and lateral/cross-drains are taken in a chainage running in clockwise direction along the Trackway route starting at wooden gate (0.0m) at the southwest corner of the Walled Garden.

- Open ditch/sheugh extends along the upper RHS of the trackway in a clockwise route starting chainage c.29.2m from the gate and this extends uninterrupted to chainage 2069m: total length of ditch section c.2040m.
- Upper open ditch/sheugh on RHS resumes at chainage 2079m on route. This ditch section is shallow and narrower than the former and it ends at chainage c.2191m: total length c.112m
- 14 no. cross-drains extend through the trackway and are positioned at chainage in clockwise fashion from the start gate 169.5m, 347.2m, 464.8m, 580.8m, 746m, 796.5m, 866.2m, 976.7m, 1008.9m, 1331.3m, 1666.6m, 1725.6m, 1873.8m, 2069m.
- Open ditch/sheugh extends along the lower LHS of the trackway clockwise from chainage 1025.5m on the route, is on average 0.6m wide and it extends to chainage 1883m: total length of ditch section c.857.50m.
- 9 no. outfall positions for lateral/cross drains and the open ditch on the LHS of trackway clockwise are at chainage 1203.1m, 1310.1m, 1496.3m, 1561.9m, 1587.2m, 1744.8m, 1810.9m, 1833.4m, 1883m.

Total combined length of 2897.5m for open ditch/sheugh's measuring on average 0.6m wide and 0.5m deep parallel with trackway route.

Length of 112m for shallow open ditch/sheugh at north end of route approaching exit onto drive.

14 no. conventional buried lateral/cross-drains on average 3.0m long; total combined length c.42m.

Note: For the open drain/sheugh located on the RHS of the trackway from chainage 2075.5m to 2191m, sections of this drain should be cleared by hand particularly where it has been aligned to avoid tree roots.