

As part of the pre-application planning process, we welcome your comments.
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PHOTOMONTAGE - PROPOSED BRIDGE, VIEW FROM NORTH-EAST



SITE PLAN



TINTAGEL CASTLE



TINTAGEL CASTLE

INTRODUCTION

The Tintagel Castle footbridge is based on a simple concept: to recreate the link that once existed and filled the current void. One of the most spectacular historic sites in the British Isles, Tintagel Castle is a vital piece of Cornish heritage. Each year, more than 200,000 people from around the world make their own pilgrimage to this rugged headland jutting out into the Celtic Sea, and we want to ensure that as many visitors as possible can immerse themselves in its landscape and history, and learn about the myths and legends associated with this important place.

At present, the steep winding staircases around the castle prevent many visitors from enjoying their visit fully, and in places erosion threatens to damage the ecology and archaeology of the site. A new bridge linking the castle's mainland and island wards has been proposed to improve access and allow visitors to further appreciate its spectacular setting.

A new bridge could also provide an uplifting new experience for visitors, and may with time become a landmark in its own right in the future. However, in a place of such natural beauty and historical importance, it is vital to ensure that any changes are suitable. As part of the Pre-Application planning process, we are seeking your thoughts on the project to ensure we get it right.

Six key themes have informed these designs:

ACCESS

The island courtyard of Tintagel Castle is just under half a mile from the entrance to the site on the Tintagel High Street. There are several potential routes to the island, but all involve steps and the final ascent includes a steep, narrow winding staircase which presents a physical challenge for many visitors. This route prevents some older visitors, young families and physically disabled people from visiting the island at all. Our research suggests that access

to the island also prevents many more from fully enjoying and appreciating the castle site. A new footbridge would seek to help as many people as possible get the best out of their visit.

CONGESTION

Tintagel Castle is one of Cornwall's most popular heritage sites with up to 3,000 people a day visiting in the summer months. The steep and narrow steps regularly cause congestion, with visitors occasionally queuing for up to 45 minutes to leave the site. This is frustrating, particularly for those young families who make up a third of visitors. Congestion also makes it difficult for staff and emergency services to attend medical incidents on the island. A new bridge would improve the experience of visitors to Tintagel Castle, and make visits safer.

ROUTE

The steep steps linking Tintagel Castle's mainland and island wards mean that many visitors miss the mainland ward and gateway, and leave unaware of this important part of the monument. Restoring the historic link between the mainland and island would allow visitors to experience the castle in a similar way to the historic inhabitants who crossed a narrow isthmus onto the island. This would help visitors enjoy a more complete picture of life at the castle, and enhance their knowledge of the place they are visiting.

CHARITABLE AIMS

Recent investment in Tintagel Castle's facilities has produced an increase in the number of visitors to the site. A new bridge could further encourage visitors to this part of Cornwall, cementing Tintagel Castle's position as one of Cornwall's most popular places. As an independent charity, it is vital for English Heritage to encourage people to visit and enjoy places like Tintagel Castle, in order to help with our mission of caring for our heritage.



PHOTOMONTAGE - PROPOSED BRIDGE, VIEW FROM NORTH



PROPOSED BRIDGE UNDERSIDE



PROPOSED BRIDGE DECK

CONSERVATION

Alongside the potential bridge, landscape improvements are proposed to protect and enhance vulnerable areas of the site through footpath improvements. Our research suggests that this is vital to reducing erosion on the site, and protecting the archaeological remains beneath. Proposals involve 'floating' or 'no-dig' footpaths to protect against the loss of the underlying archaeology and ecology.

DESIGN

In order to do justice to its setting, any new bridge must be of the highest design quality. The bridge should be 'of its place' and through its structured elegance and beauty it should be in harmony with the extraordinary setting and landscape. Its position, in a wild and dramatic natural landscape with rich historic and archaeological significance, is one that arouses great passion and the proposal to make an intervention into this setting is not one that can be taken lightly. Our designs follow four key principles:

- Balancing with a landscape of national, historic and mythical significance;
- Ensuring minimal impact on archaeology and landscape;
- Improving access for visitors, and offering new viewpoints as part of their visits;
- Conserving the surrounding heritage, archaeology and landscape;

An international competition prompted 137 architects and engineers to enter their designs, and the winning design by Ney and Partners with William Matthews Associates was selected via assessment by an expert panel, in consultation with stakeholders and members of the public. The final proposals will be subject to a number of consents and regulatory approvals, including planning permission and Scheduled Ancient Monument Consent. As the planning pre application process begins, we want to hear your views on the project to ensure our proposals meet your expectations.

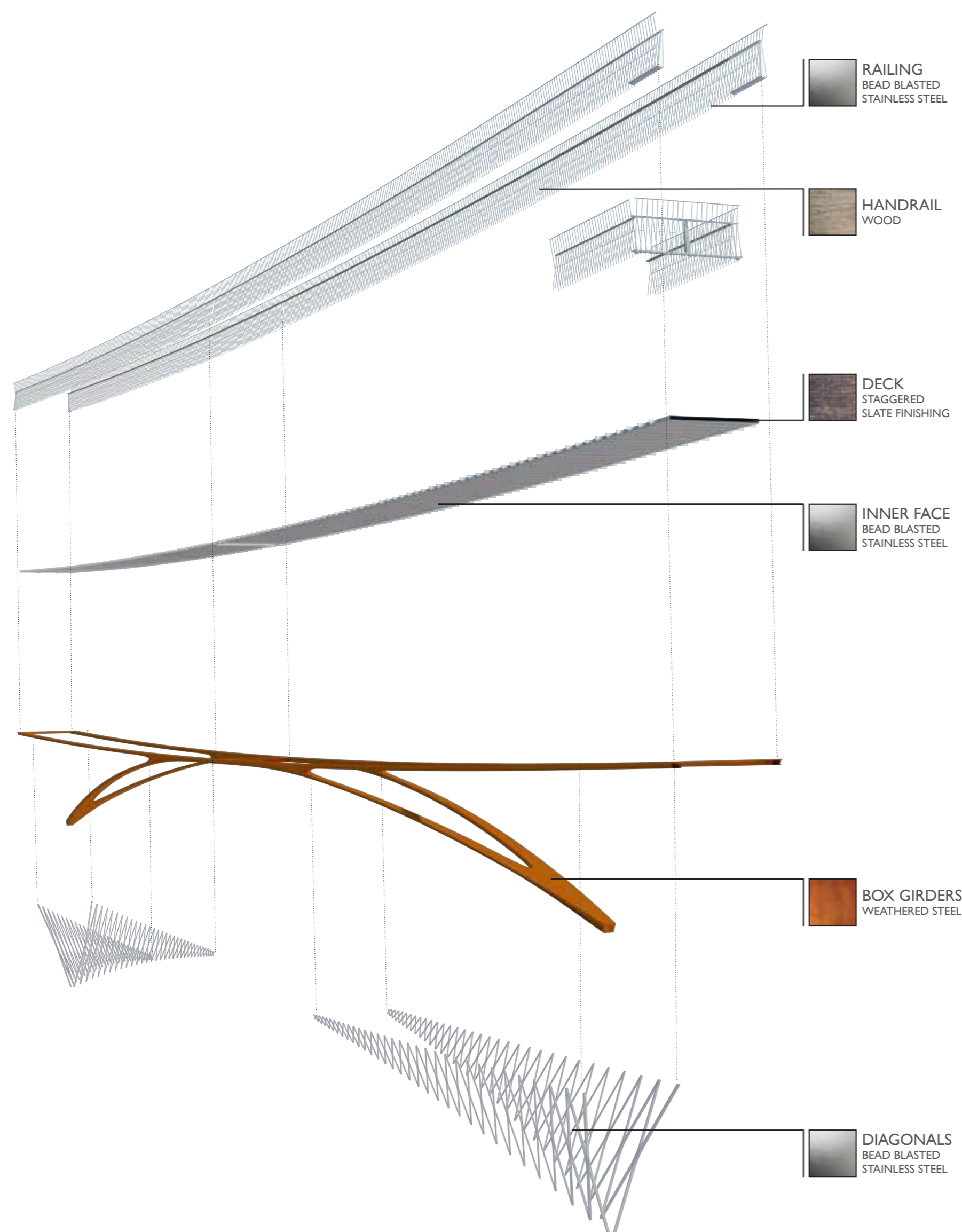
BRIDGE CONCEPT

The Tintagel Castle footbridge is based on a simple concept: to recreate the link that once existed and filled the current void. Instead of introducing a third element that spans from side to side, we propose two independent cantilevers of approximately 33m length each, that reach out and touch, almost, in the middle. The functional width is 2,50m.

Visually the link highlights the void through the absence of material in the middle of the crossing. The structure, 4.5m high where it springs from the rock face, tapers to a thickness of 170mm in the centre, with a clear joint between the mainland and island halves. The narrow gap between them represents the transition between the mainland and the island, here and there, the present and the past, the known and the unknown, reality and legend; all the things that make Tintagel so special and fascinating.



PHOTOMONTAGE - PROPOSED BRIDGE; VIEW FROM SOUTH-EAST TO ISLAND



EXPLODED AXONOMETRIC VIEW: BRIDGE STRUCTURE

DETAILING

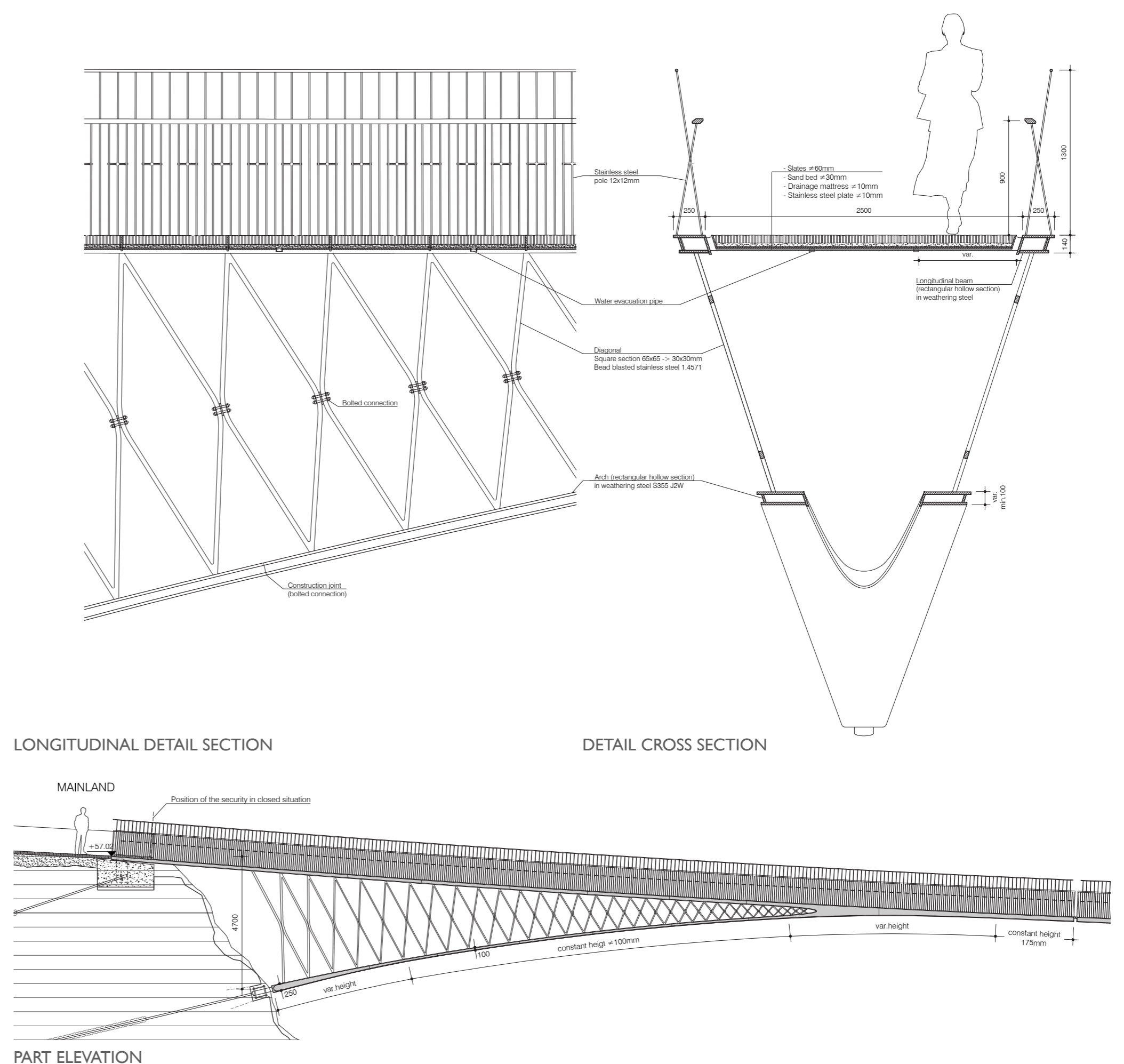
The materials of the bridge are simple, durable, and appropriate to the context of the site. The main structure and balustrading is in steel, the deck surface is slate and the handrail is oak.

For the main structure, we propose to use Corten / weathering steel. Weathering steel does not require corrosion protection and over time will develop a rusty red / brown patina that will reflect the rugged wildness of the site. For those elements touched by the visitor we propose shot peened

stainless steel which is more tactile, refined and which will be an interesting counterpoint to the weathering steel. The mid grey shade of stainless steel will tend to disappear visually and give an intangible aspect to these items, as well as having the advantage of being low maintenance.

Beneath the deck the diagonals linking the deck and the lower chord are also in stainless steel. These bars, of varying sizes, are extremely compact, ranging from 65/65mm at the supports to

30/30mm in the middle of the bridge. As a result from a distance they will disappear which will emphasize the general outline of the structure. The surfacing of the deck is narrow strips of slate laid vertically on a bed of sand and drainage mat. Similar, if more rustic, types of paving are already in use in other parts of the site: it is typical of the region and it provides a durable anti-slip finish. The slates are laid in stainless steel trays that form the structure of the deck. All of these elements are maintenance-free.





PHOTOMONTAGE - PROPOSED BRIDGE;VIEW FROM NORTH-WEST TO MAINLAND.

CONSTRUCTION METHODOLOGY

Subject to the necessary permissions, it is hoped that the new bridge could be constructed between October 2018 and March 2019. Unfortunately, this is likely to involve the closure of the site whilst major works take place, but it is hoped that some areas of the site could be opened during the erection of the bridge, to allow visitors and local residents to watch the construction unfold. The works may also require a number of Public Footpath diversions; however these should not be significant and should not prevent walkers from navigating the Coastal Path. The construction methodology has been designed to limit impact on the village wherever possible.

The intention is for each half of the bridge to be built independently as cantilevers. This technique allows construction to advance sequentially into the void from the abutments, without the need for temporary supports. All plant and construction material required for the site would be brought in and removed using a cable crane. Temporary pylons are installed and a fixed track cable is slung between them. A carriage is hung from the track cable, and drawn along it in both directions by a hauling cable connected to a winch. The intended construction sequence is as follows:

1. Installation of the cable crane - The cable crane will be installed using a helicopter. It will carry all the required equipment for the further operations.

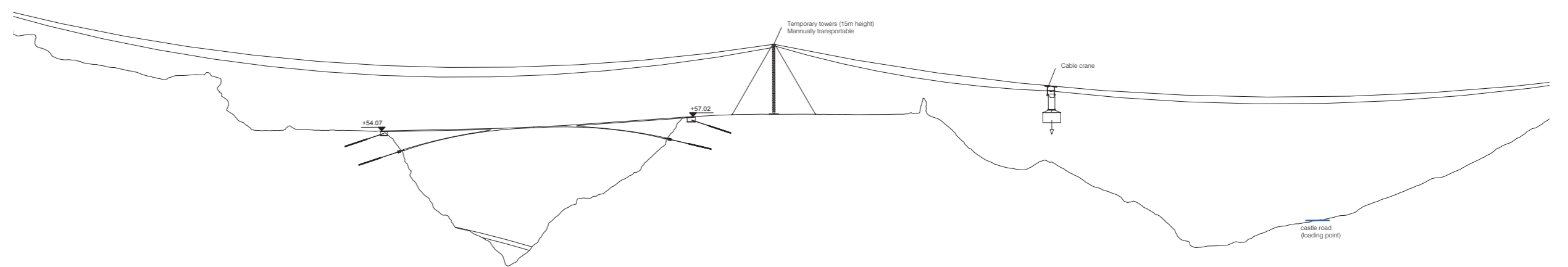
2. Rock anchors and Bridge foundations - In total four separate foundations are required, for the upper and lower chords and the mainland and island sides. Ideally each upper foundation would require

an area of 4x5m to be excavated using hand tools down to the stable bedrock, into which the four rock anchors would be drilled. Rope access technicians would be required to form the lower chord excavations which are roughly 500mm in diameter and 1000mm deep. Specialist equipment would be required to install the rock anchors at both the upper and lower levels. This would be delivered / removed by the cable crane, along with the rebar cages and concrete required to form the bridge footings.

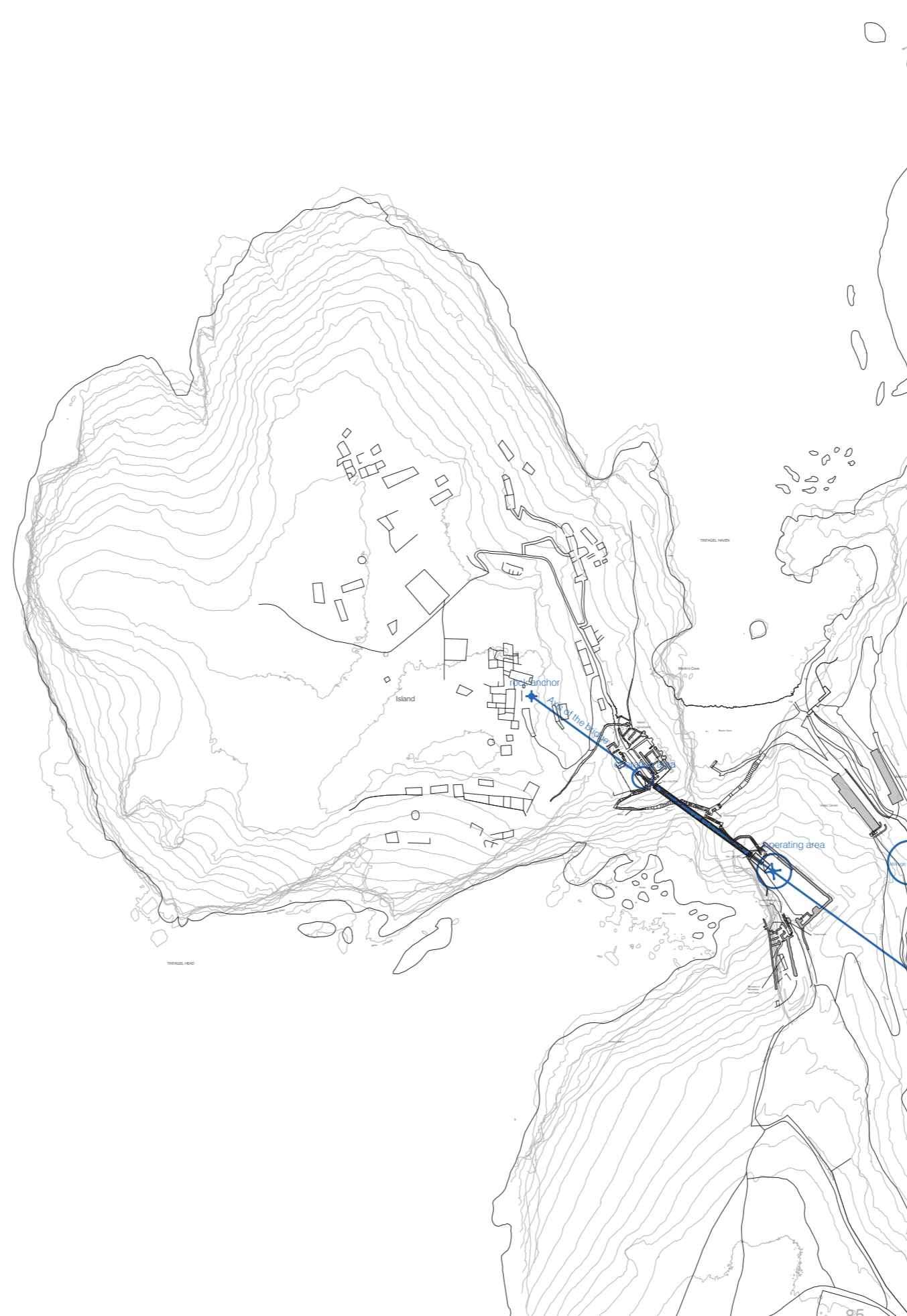
3. Bridge steel structure - The bridges would be delivered in 4 to 5 ton segments. Prior to leaving the workshop there will be a trial erection of each half to ensure that all the connections work and that the installation team is familiar with the process. Each segment would be delivered directly to the appropriate location on the site using the cable crane, and lowered into position. On the upper and lower chords, male-female connections with a self-locking mechanism automatically position and secure the new segment on the previous one. At this stage (Preliminary Design), the intention is to deliver and install each segment including the balustrading and with only the floor and handrail finishes missing. This is inherently safer and quicker than each part being delivered separately and installed in a second phase.

4. Finishing - Once each bridge is structurally complete the slate and handrail finishing will be applied and the landing points completed.

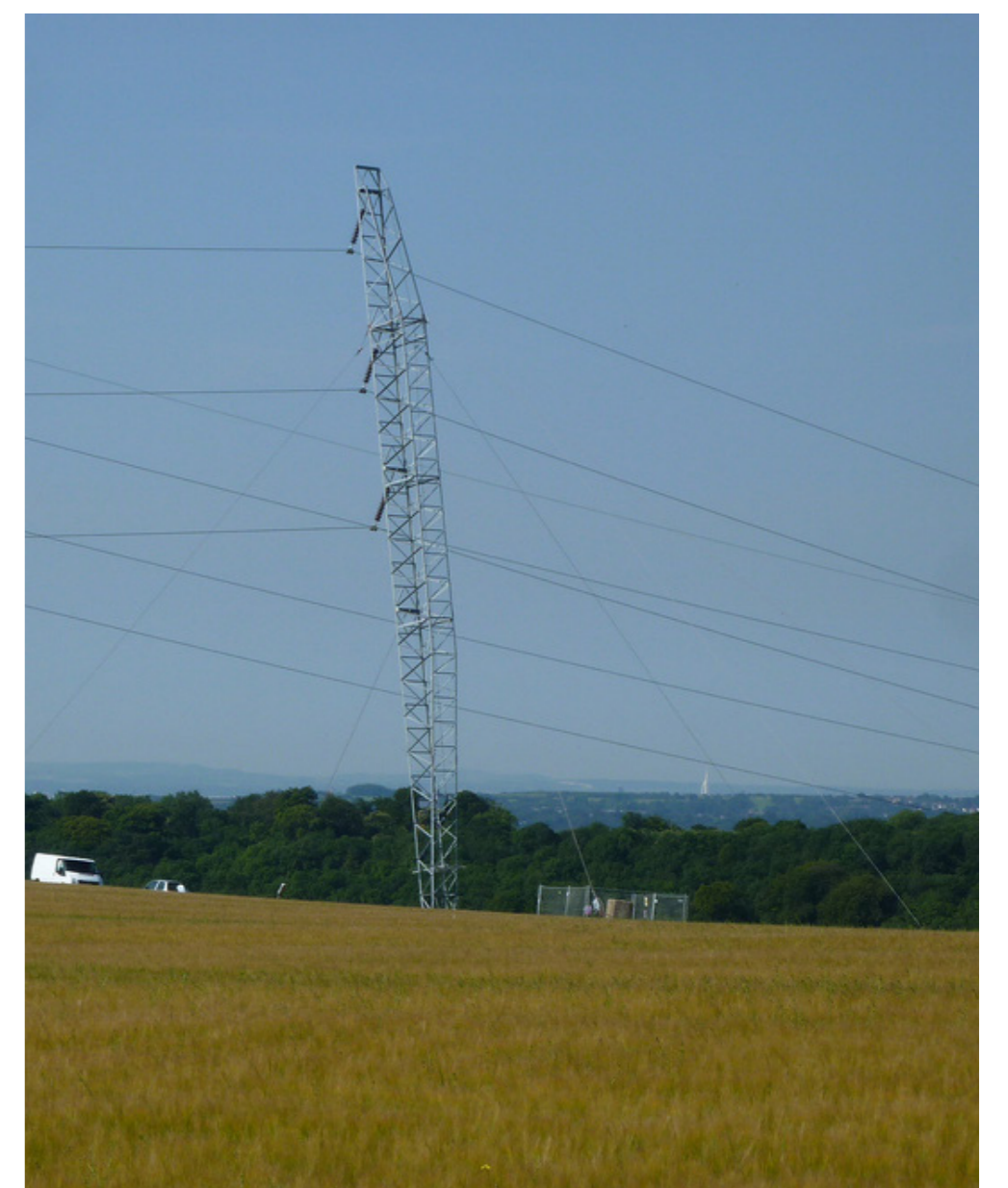
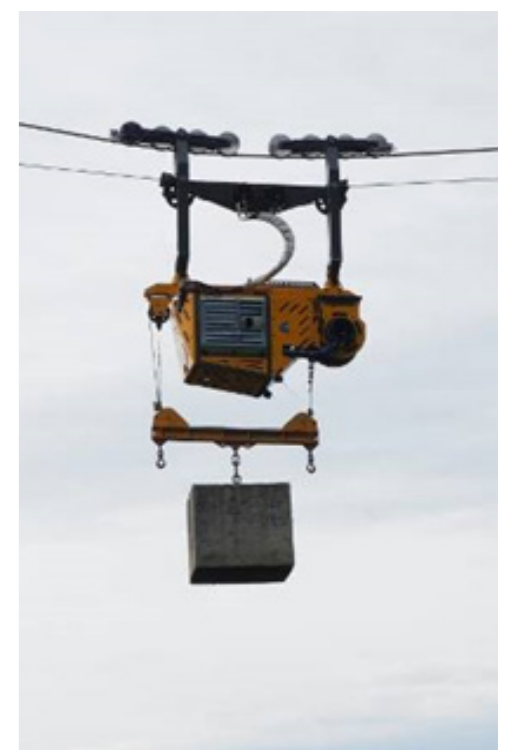
The aim of the design team is to contain the majority of the construction work within the site boundary.



SECTION: CABLE CAR LOCATION



IMPLANTATION PLAN & CABLE CAR LOCATION



TEMPORARY PYLON FOR CABLE CAR



PHOTOMONTAGE - PROPOSED BRIDGE MODEL; VIEW FROM NORTH



ARCHAEOLOGICAL IMPACT ASSESSMENT



SITE INVESTIGATION WORKS



WINDTUNNEL TESTING



TRUE SCALE MOCK-UP MODEL OF BRIDGE CENTRE SECTION (DESIGN TO BE AGREED)



INVESTIGATIONS AND TESTING

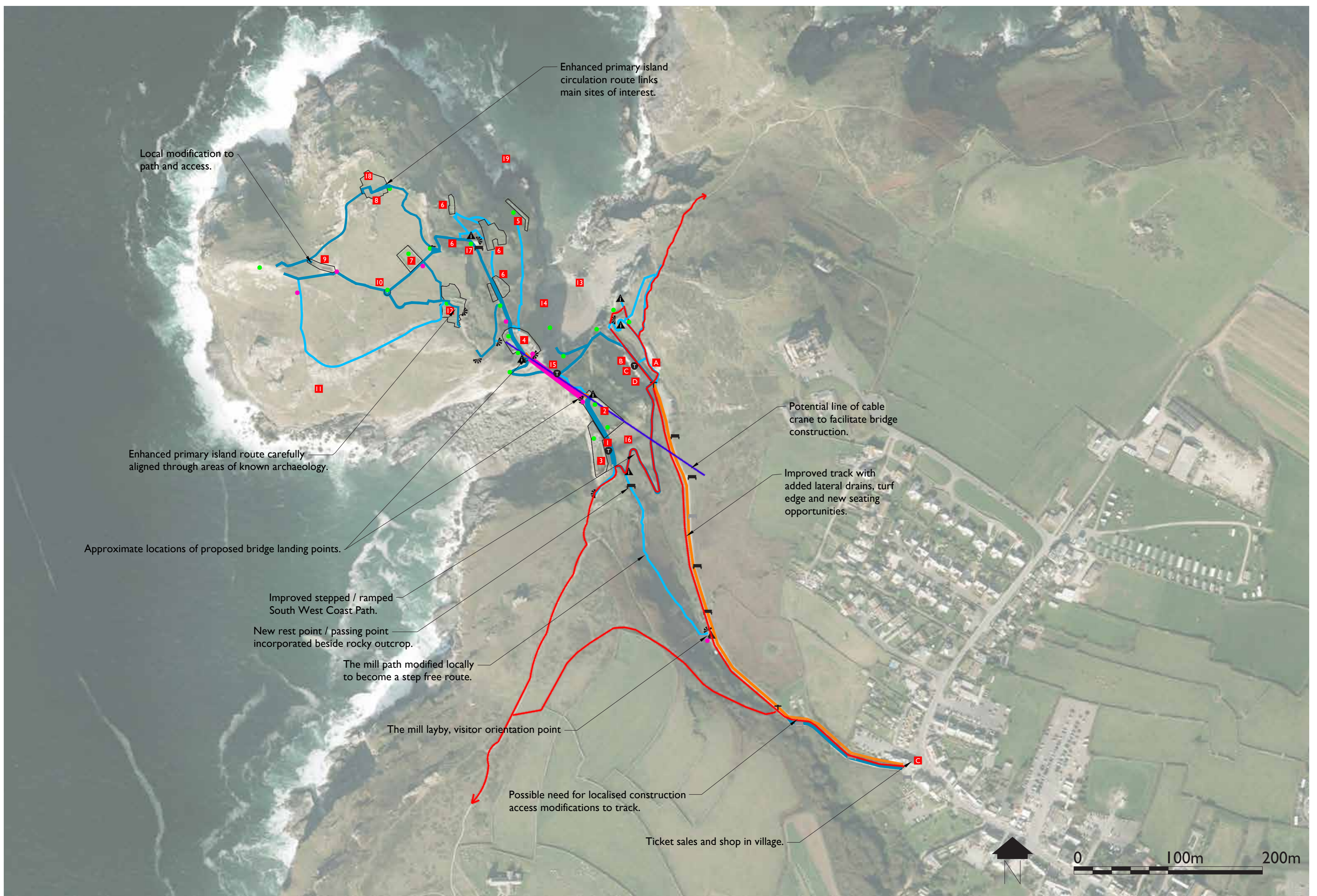
Over the last six months the design team have completed a number of critical tests and investigations to ensure the proposed design is viable, safe and minimises the impact on Tintagel's Archaeology and ecology. This work has included:

- Ground Investigations: Tintagel's geology has been tested to assess its strength and stability to ensure the cliffs are strong enough to support the new bridge. The testing will also enable us to lower and mitigate any geological impacts associated with the project.
- Wind Tunnel Testing – The wind strength and prevailing direction has been modelled for Tintagel and the bridge has also been stringently tested to ensure the structure can withstand Cornwall's rugged environment.
- Archaeological Impact - The bridge foundations have been designed to limit impact on the sites archaeology and an independent team of archaeologists have been appointed to appraise the plans and comment on mitigation strategies.
- A key aim of the design team is to ensure the rich ecology of the site is not unduly disturbed by the project. To this end, the ecology of Tintagel has been appraised and assessed. This work has included botanical surveys and studies of the sites cliff nesting birds.

The original plans for the bridge had a sheer gap at the centre that visitors would have to cross over. The size of the gap would vary depending on the external temperature, with the maximum opening set at 100mm. To test the concept of the gap a 1:1 model of the bridge ends was constructed out of timber. The proposal gave concern as it was judged to carry a high potential for trips. An alternate method, using a combed/toothed grill was also trialled. This approach was judged a success for three reasons:

- The grill still retained the concept of 'the gap', but the teeth allowed the physical opening to be more tightly controlled, thus lowering the risk of trips;
- The grill let additional light through the deck, alerting users to the change in the material and the approaching gap; and
- By letting more light through, the grill also gave the impression the break in the bridge was bigger and thus more dramatic.

The grill concept will be further tested at design stage, to include a further review of its safety by the design team, H&S advisers and consultation with access specialists/groups.



PROPOSED SITE PLAN

Proposals key

- Public rights of way through the site (including the South West Coast Path)
- Main, visible archaeology sites with regular grass cutting regime
- Proposed bridge location
- Proposed primary circulation route
- Proposed secondary circulation route
- Potential route (to be confirmed)
- Castle Road and Shared footway
- Castle Road
- Existing ticket / sales location
- Site information point to inform route decisions, possible volunteer / stall location at peak season
- Way-finding signage, adjustable where appropriate
- Key viewpoint
- Existing seat
- Proposed seat
- Potential line of cable crane to facilitate bridge construction
- Existing location of interpretation or feature
- Proposed location of interpretation or feature

Site Guide

- 1** Approach to the castle
- 2** Lower mainland courtyard
- 3** Upper mainland courtyard
- 4** Island courtyard
- 5** Iron Gate
- 6** Early Medieval remains
- 7** Garden
- 8** Northern ruins
- 9** Tunnel
- 10** Well
- 11** Southern cliffs
- 12** Chapel
- 13** The Haven
- 14** Merlin's Cave
- 15** Bridge
- 16** Great ditch
- 17** Viewing platform
- 18** Early Medieval remains
- 19** Cove
- A** Cafe
- B** Visitor Centre
- C** Shop
- D** Accessible toilets

LANDSCAPE AND PATH IMPROVEMENTS

The proposed footbridge and associated access path improvements, would considerably improve the visitor experience. The bridge in conjunction with new interpretation would enable a better understanding and closer experience to that of the original Isthmus crossing. Additional interpretation across the site would convey further information on the site's archaeology, geology and ecology. Access proposals will also improve access to areas of the site that are impossible for many visitors to reach.

It is therefore proposed to undertake a programme of access path enhancement at the site during the winter of 2017/18

to provide a formal network of paths, steps and routes that, notwithstanding the topographical challenges of the site, will afford a considerable improvement to the visitor experience and access. These enhancements will also afford greater protection to the designated biological and archaeological features of the Site.

The design of new access paths and the improvement of existing access paths will be subject to the highest level of scrutiny in terms of design quality. This will relate to landscape character and the mitigation of adverse effects on designated botanical or Scheduled Monument features.



FULMAR NESTING



ARMERIA MARITIMA



KEY PATHS ON ISLAND TO BE FORMALISED



CAROBROTUS EDULIS - NON NATIVE SPECIES



LANCEOLATE SPLEENWORT - NOTABLE VASCULAR PLANT



PROPOSED ACCESS PATH SURFACING AND STEPS TO MATCH SOME OF THE EXISTING



DELABOLE SLATE PITCHING USED IN HIGH FOOTFALL INTENSITY AREAS



QUEING TIMES TO ACCESS THE ISLAND CAN BE EXCESSIVE