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Adaptive Release: guidance framework for sites affected by coastal erosion and flood management

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Adaptive release: guidance framework for sites affected by coastal erosion and flood management

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Front cover: General view of Martello Tower from the south west, showing sea defences. Bawdsley, Suffolk © Historic England Archive (DP046352)

SUMMARY
This report focuses on Adaptive Release as a new management option and has been produced with special consideration of those sites that are affected by Flood and Coastal Erosion Risk Management (FCERM) delivery, and where environmental change is likely to lead to loss and/or landscape alteration. There is a specific challenge in FCERM strategy delivery about what happens to heritage that will not benefit from protection. Without active protection, these sites are threatened by environmental processes, and currently there are no clear answers regarding how their future will be managed, and no clear pathway regarding responsibility for determining this future and making difficult decisions. Adaptive Release is a positive, proactive option that supports the transformation of a heritage asset (including its values and significance) within the landscape context.

Within the heritage sector, there is widespread recognition that the accelerating effects of climate change will force a reconsideration of the care of at-risk monuments and sites. In some instances, it is and will be possible to prevent further damage to heritage that is at risk, but for many assets, there will be a point at which their current preservation becomes unsustainable. For these assets, it might be necessary to investigate options that favour processes of transformation and even decline. Invariably, any acceptance of change to one asset might have an impact on the wider landscape. Practical strategies and guidance to support both cultural assets and the natural environment undergoing this type of change are currently limited.

As statutory advisors on the historic environment, Historic England are engaged in the delivery of FCERM. This report presents a case study of a composite heritage asset at risk and proposes a framework to guide stakeholders in delivering Adaptive Release in areas affected by erosion and flood defence management. The framework guidance was developed in collaboration with Historic England and the Environment Agency.

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1 INTRODUCTION

The purpose of this report is to present a composite case study and a framework that can guide heritage professionals, local authorities and trusts, owners, planners, public engagement groups, consultants, and other interested parties on considering the implementation of an Adaptive Release (AR) approach on a site that might be reasonably expected to be considered in Flood and Coastal Erosion Risk Management (FCERM) decision-making. While this framework has been produced in relation to FCERM, it has been designed to have a broader applicability.

This report was created in collaboration with Historic England (HE) and the Environment Agency (EA). Sites undergoing flood, erosion, and risk defence strategic planning present opportunities to test new approaches for managing environmental change proactively, and to explore the effects of the anticipated loss of heritage assets as a consequence of climate change (or in response to it). Given the challenges such sites face, there are often no clear options available to deliver public benefit by planning for these changes. AR could provide one such option.

The framework is meant to assist stakeholders in discussions on considering AR as an option, and to guide them in its implementation. To do this, the report focuses on a heritage asset at risk upon which AR is applied as an approach – a Martello Tower. Due to the trialling of the approach, the report does not identify a real-life Martello Tower; instead, it uses characteristics of various Martello Towers that were researched during the course of this work. The report provides two different scenarios of Martello Towers to demonstrate the application of AR.

2 ADAPTIVE RELEASE

AR is a new management approach that has been proposed to support the transformation of heritage assets.[1] The term stems from work carried out under the Landscape Futures and the Challenge of Change project, a collaboration between the University of Exeter, University College London, the National Trust, Historic England and Natural England (following on from the Heritage Futures research programme). [2] Workshops that took place during this project emphasised the sector's need to start having conversations and develop innovative techniques to address heritage asset transformation. [3]

AR is an approach that integrates cultural and natural heritage management because it seeks to "accommodate and interpret the dynamic transformation of a heritage asset and its associated values and significance"[4] within the broader landscape. This combination ensures a holistic appreciation of the heritage ecosystem, and the maximisation of the 'public values' of a place or asset

AR becomes an option when an external threat is expected to have a high impact on a heritage asset (see Figure 1).

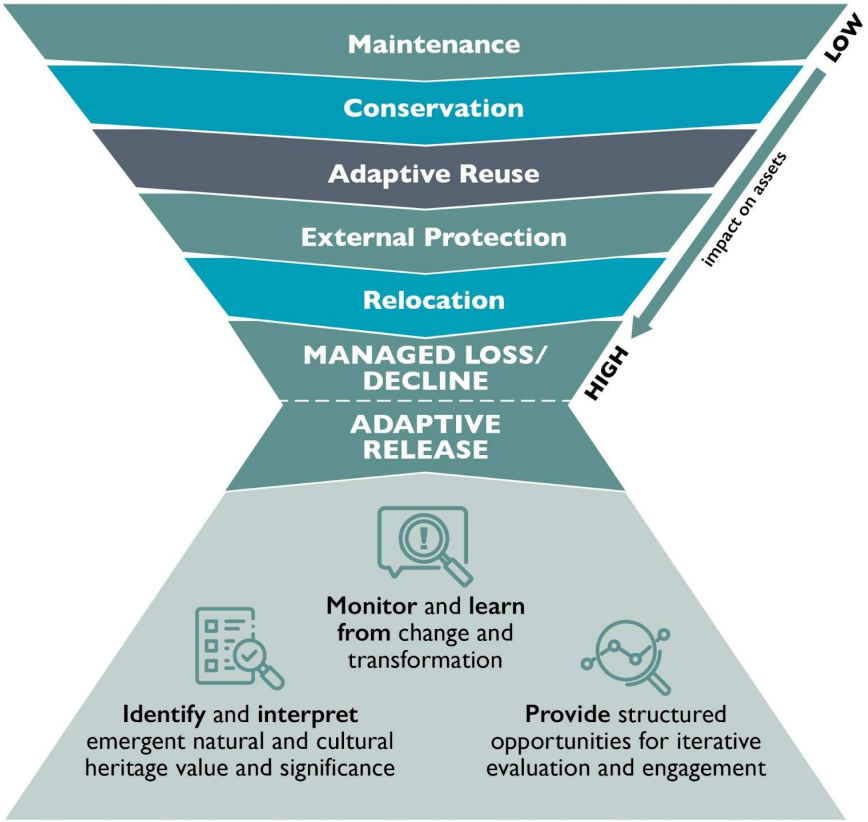

Figure 1: Low- to high-impact options for heritage asset management, opening into adaptive release working principles. Source: DeSilvey et al. 2022.

In cases where there is expected to be a higher impact on heritage assets, current management options include relocation and managed decline: i.e. without

intervention there is a concrete risk of loss over the short or long term. AR can be seen as an alternative option at this stage as it can focus attention on the *opportunities* for maximising public benefits and value (natural and cultural) involved in the process of change.

In the context of sites that (a) feature heritage assets and (b) are affected by erosion and flood defence management, it is often difficult to find ways to deliver both cultural and ecological benefits that help build resilience at landscape scale.[5] Furthermore, the FCERM strategy also calls for more dynamic approaches (or adaptive approaches) to dealing with the uncertainty of sea level rise.[6] AR could be a useful option to consider on sites where there is environmental threat and climate-induced hazards, whether these sites are coastal or inland (riverine).

The key difference between managed decline and AR is essentially through AR's focus on early engagement with stakeholders, ongoing monitoring, and proactive harnessing: rather than simply 'letting it go', AR involves some 'holding on' in order to open up new pathways so that stakeholders glean a variety of gains from an asset as it changes.[7] For AR to be a meaningful option, it requires stakeholders to actively steward assets that will undergo transformation (and potentially, inevitable loss). The purpose of identifying a steward is to ensure that a group/individual oversees activities, such as monitoring the heritage asset and the wider landscape to capture any changes of significance and values *over time*. AR is not a pathway to neglect, but an active commitment to work with environmental processes while sustaining cultural heritage interest.[8]

Importantly, AR is an iterative and flexible option: as an asset is monitored and evaluated through time, AR allows for changes in approach, something that is particularly valuable when considering management of places and assets in the face of uncertainty. This aligns with the EA's evidence to support an adaptive approach to flood and coastal risk management.[9] Increasingly, uncertainty surrounding environmental change as well as organisational and political directions has led practitioners and policymakers to adopt adaptive approaches, enabling flexibility that can accommodate changing circumstances.

The national FCERM strategy for England[10] uses the term 'adaptive pathways' to outline the sequence of potential actions to take to anticipate climate threats and societal changes: "These actions are linked to specific thresholds or tipping points where a change in circumstances (for example, higher sea levels or increased occurrences of flooding events) happens and further action is needed".[11] The idea behind adaptive pathways is to evaluate actions taken and to explore alternative pathways to take – whether these are short-term shifts that can be implemented quickly or longer term in scope.[12]

AR fits well with the adaptive pathways strategy: it is an option to be chosen when adaptive pathways that identify thresholds and tipping points highlight a need for proactive approaches to heritage assets at risk. In addition, AR as an option incorporates a range of stakeholders in its application and monitoring activities. This aligns with the adaptive pathways strategy of stakeholder engagement.[13] AR as an option therefore encourages transparency and responsibility in decision-making

processes, and allows for flexibility in accommodating changing situations and circumstances.

3 ASSESSING IF ADAPTIVE RELEASE IS APPROPRIATE

This section identifies eight themes for key stakeholders to consider before embarking on an AR approach in sites affected by coastal erosion or flood management. This preliminary assessment will generate site-specific queries that can be discussed with a wider group of interested stakeholders.

There is a general concern in the heritage sector around resourcing and allocation, and while it is inevitable that any intervention in the heritage sphere requires an extension to that resource, it is pertinent to consider here that AR is a *solution*, and while not the only solution, all solutions require investment. If AR does not occur, an asset will either require significant investment to protect and maintain, to reuse (but if loss is inevitable, this investment is necessarily time-bound), to relocate, or will enter a process of de facto managed (or unmanaged) decline: a process that requires investment and collaboration but does not necessarily maximise or exploit possible gains.

In this regard, estimation of the resource required by AR should be balanced by the estimation of resource required by its alternative. Potential expenses for alternative solutions might include exponential spending on maintenance and defence or addressing the negative publicity of neglect. Pursuing managed decline also has its resource implications which may in fact be similar, or more, than AR. AR might be considered equivalent to the processes required to remove an asset from the Heritage at Risk register and could be considerably less financially costly.

We raise these points in order to highlight AR as an alternative to other approaches, and to stress that all approaches have significant cost. All potential costs should be balanced with the potential risks of a) taking no action, and b) taking other actions. As an iterative and adaptive approach, AR should also be considered for its flexibility: certainly, in its initial stages it can be enacted within the limitations of the resources available at the time. It might also fit within existing mitigation or capital schemes associated with FCERM or other schemes.

That said, the time and resource cost of AR must be considered by stakeholders. As a process, AR can only occur with a level of commitment from interested parties who will need to engage with it, and/or facilitate it. In particular, AR can only go ahead with the permission and engagement of the asset owner.

The following themes will allow stakeholders to assess whether AR is a possible pathway for an asset.

3.1 Nature of the Threat

Within the context of this framework, AR presents a possible solution for sites with anticipated environmental threats. At these sites, trend analysis associated with pre-existing schemes and monitoring will have identified timeframes in which

thresholds and/or tipping points will be reached, and in which the impact of the threat will have concrete effects on a heritage asset. Within the timeframes associated with the impact of the threat, adaptive pathways will be developed which can include an engagement with AR as a possible pathway.

3.2 Nature of the Gain

AR sees the physical transformation of an asset from one state to another. The heritage asset, the loss of which - *in its present state* - is inevitable, will transform into another positive state (for example, one that is beneficial to habitat enrichment, or one that reveals/allows access to new archaeological information). In essence, the change is from one set of complex cultural and natural heritage values to another. The process of change will deliver considerable benefit *as it transforms*. This is what we mean by *gain*. The transitional gains might include benefits accrued by people involved in the process, such as knowledge or skills acquisition. It might include economic gain if the process results in increased footfall in local economic areas. The latter might be particularly important if the loss of the cultural heritage asset is seen to negatively affect the local economy. Other gains might be actively pursued by using the asset in its state of decline as a canvas for other activities, such as traditional skills training. Some gains might be more personal/community-related and affective/intangible in nature, which we will discuss below (see 3.5, Engagement and Monitoring).

In the examples below, the end-state of the cultural heritage asset becomes a living state - a net gain - for marine ecology and geomorphology, having also delivered considerable cultural, educational and economic gains.

3.3 Ownership

In considering how AR might be enacted we have identified that assets in private and public ownership have different constraints which will have a bearing on how AR might take place. Restrictions on access to private land might make particular activities difficult and might be challenging to justify should public money be employed. It may also be difficult to get private owners on board with plans; clear commitments and agreements from all parties with regards to access and process would need to be made. However, we consider that privately owned assets might still be suitable for AR provided owners are willing and engaged. Pursuing an AR approach with uncooperative owners is likely to be fruitless.

Access to publicly owned assets allows deeper community involvement and engagement, but might also come with challenges as assets transform, particularly if there are objections.

Consideration of asset transfer can also be made. In some instances, transferral of ownership to a trust or other body may allow better stewardship options.

3.4 Health & Safety and Liability

At some stage of the AR process, it is likely that an asset will become unstable and potentially dangerous. In a public setting, this is a high risk and other public bodies will have duties of care and their own (or national) standards, to which they will need to adhere. Levels of complexity within organisations will therefore need to be considered: where one arm of an organisation may embrace AR, another might, at a later date, take a more risk averse stance. At the earliest stage therefore, health and safety matters and clarity over liability and damage should be sought from the relevant stakeholders.

If an unstable structure requires fencing or other protection to protect the public, materials used should ideally be sustainable, removable without leaving a residue, or biodegradable.

3.5 Engagement and Monitoring

In order for AR to deliver the public benefits that it is intended to, early and ongoing engagement with stakeholders is essential, this includes local communities and communities of interest as well as professional, management and regulatory stakeholders. Engagement must be more towards co-creation than communication – if you are to maximise public value through AR then you need to understand what values the place or asset has, or could have.

Early engagement with relevant stakeholders will ensure that the regulatory framework is assessed and a plan of action is agreed upon, particularly in cases where the targeted asset(s) is designated:

> ...for adaptive release of designated assets to be viable in practice, early consultation with the relevant regulatory authorities will be critical, and some clarification of the regulatory expectations around consent will be needed.[14]

Ongoing engagement with relevant stakeholders is a key aspect of an AR approach. This can be done through periodic community consultation, the frequency of which can be determined by the stakeholders and stewards. In some cases, facilitation may be required. For instance, the facilitator can assist to ensure all stakeholders attending can understand the information presented, particularly where an expert provides quantifiable data. Facilitation may also be useful in cases where there are tensions between local groups in regard to an asset or the possible planning of a site. A range of complementary activities can take place to promote ongoing engagement which would enhance personal/ community wellbeing and social cohesion, such as encouraging people to share photographs and videos of the site through time; enabling community archaeology groups to record features; involving local disability groups to participate in monitoring activities; enrolling local schools to explore dynamic coastlines with pupils; using social media to poll locals, etc.

These ongoing activities might contribute to the assessment of values and significance and determine whether these shift through time in the dynamic landscape.

Programmatic and longer-term partners might also be sought, through partnerships with arms-length bodies such as Arts Council, or regional arts groups, or research organisations and funders, who might see AR projects as a means for locating opportunities for funding and situating research.

3.6 Time and Resources

AR is a long-term management approach, which also means long-term commitment to a process which might extend over several years or more.

Concern around long-term commitment, whether through tracking process, implementing monitoring, enabling facilitation, and the impact therefrom on (already deemed insufficient) resources – both financial and human – is widespread and valid. This concern extends to agencies and other organisations, partners, and individual staff.

In deciding, therefore, whether allocation of resources into AR is possible, stakeholders need to weigh the estimated investment required in any other process that might happen in its stead. The longevity of AR projects should also be considered a boon: it offers time to plan for activities, and increased resources can be absorbed over lengthy periods, allowing for the pursuit of funding opportunities and resource allocation, potentially over several budget cycles. However, the iterative nature of AR means that there is the potential, at each review stage, to modify the approach in line with available resources as well as changes in other circumstances (e.g. condition, environmental pressures, social and cultural changes, access)

While there is currently no particular funding allocation for AR, as the approach becomes more normalised, funding streams may open. Seedcorn funding might be sought for initial survey and public engagement activities if targeted assets are listed or scheduled through existing funding streams. Other funding could be sought along the way through natural environment-based streams, especially in cases involving surveying and monitoring the establishment of ecological features. Otherwise, developing partnerships with Higher Educational Institutions could generate ongoing activities while reducing the financial burden, especially if partnerships can meet needs that satisfy both the educational learning outcomes and conservation/archaeological outcomes. Commitment, therefore, can be broken down in shorter project cycles, and afford the opportunity of modifying a course of action if, along the way, a new environmental event significantly alters the assets, the landscape and the previously forecasted timelines.

The perspective of longer-term commitment to enable cultural heritage and natural environment processes to flourish may lead some organisational staff to question whether it is possible to manage a process that appears to have no end in sight. Yet,

some initial steps fit within existing project cycles (see section 4, AR Framework) and can be absorbed into existing workloads (e.g. Heritage at Risk Project Officers might take an active periodic role in AR on an asset that is included on the HAR Register). Locally situated organisations or groups might take on primary stewardship roles of the site and coordinate the AR process, while organisations such as HE and EA remain expert advisors and contribute at various decision-making points throughout the AR process, limiting their resource expenditure. Practically, this local involvement might take the structure of a trust, charity, or unconstituted community organisation, or might be associated with the local authority or town or parish council and might be a blend of staff and volunteers who would coordinate activities, such as monitoring assets and communicating with stakeholders and the broader public. Local organisations might be more successful in ensuring longer-term commitment on a site they feel attached to.

3.7 Flexibility

All aspects of AR require flexibility. Changing environmental conditions, as well as the condition of the asset in question may require considerable shifts in approach, while stakeholders must also be flexible and responsive to human agency: the likelihood of changing conditions and attitudes among stakeholders and community members is high, especially over long periods.

Changes (such as ownership or a significant environmental event) might trigger the need to re-assess whether AR remains a viable option. It is inevitable that the changes inherent in the environmental processes that initially triggered AR are reflected in the organisational processes that will implement AR: it is likely that some AR plans will fail due to shifting priorities, changing responses, and even individual decisions. It is important to acknowledge that such 'failure' will have encompassed successes along the way and may also lead to future successes even at the same site. Initial failures should not prevent further attempts. In the words of Samuel Beckett, 'Try again. Fail again. Fail better.'

3.8 Risk

AR inevitably comes with considerable risks. These include physical, commercial, financial, and reputational risks. Robust risk assessment procedures need to be in place ahead of implementation of AR and should be iteratively addressed through the lifetime of the AR project.

As with costs, risks should be balanced by the risks of alternative approaches.

4 ADAPTIVE RELEASE FRAMEWORK

4.1 Introduction

The purpose of the AR Framework is to guide assessment and decision-making in management of assets at risk of high impact from environmental threat, and enable planning and implementation of an AR. It will help:

- Establish whether assets are viable candidates for AR through understanding a) their broad condition (form and fabric, ownership, use); b) the threat; and c) the potential for gain.
- Identify the character and significance of assets and their settings in order to guide planning for AR.
- Identify the point at which it is no longer viable to structurally maintain the asset in its current state.
- Identify the point in time when a plan for AR should be actively implemented.
- Identify where and when professional advice and support can be sought, and from whom.
- Identify vital stakeholders with whom to engage.
- Accord with national and local planning policies regarding the historic environment, neighbourhood issues, biodiversity, siting and design.

It is anticipated that an AR process will most frequently be initiated by or through a historic environment representative (whether HE, EA, LA or other). However, the AR Framework can be used by any stakeholder to determine whether AR is a potential solution and will guide stakeholders to relevant expertise in order to establish whether that potential can be capitalised. Liaison with the historic environment sector, through contact with HE and the LA is advised as early as possible.

4.2 The Planning Context

Assets that are inscribed onto the National Heritage List for England (NHLE) have legal protection. Works to alter them may require Scheduled Monument Consent:

- Any works resulting in the demolition or destruction of or any damage to a scheduled monument.
- Any works for the purpose of removing or repairing a scheduled monument or any part of it or of making any alterations or additions thereto; and
- Any flooding or tipping operations on land in, on or under which there is a scheduled monument.[15]

For Listed Buildings, Listed Building Consent is required for:

- Any works for the demolition of a listed building or for its alteration or extension in any manner which would affect its character as a building of special architectural or historic interest.[16]

Interventions may also require planning permission.

While the duty of care owners owe to assets appears to be strongly weighted to protect and preserve, both policy and guidance acknowledge the necessity of accepting change, and in some cases, accepting inevitable loss (e.g. the 1979 Act acknowledges a state when 'it is no longer practicable to preserve [the Scheduled Monument] (whether because of the cost of preserving it or otherwise)'.[17] In reality, the acceptance of loss is a moot area in need of clarification but not entirely at odds with the current historic environment planning context.[18]

This framework for AR responds to the need to plan for the inevitable loss of a heritage asset and its change into another state. It is applicable only when there is a foreseeable and inevitable threat to its survival. AR may be seen as a solution to other threat scenarios (for example, where the conservation deficit of an asset outweighs any possibility for its repair and reuse).

4.3 Triggering Adaptive Release

AR is necessarily triggered by an acknowledgement that an asset will undergo drastic change due to external factors. Once this change and its inevitability is identified, it offers an opportunity to maximise the gains offered by the change. The identification of this trigger is effectively the "why" of AR. The AR Framework is made up of two phases, each with distinct stages, which offer guidance on the "how," "who," "when," and "what" of the process:

- Phase 1. Site Assessment which aims to understand the current state of the asset, its setting and significance, the change that it faces, and the risks inherent in its release. This assessment provides a baseline for determining Phase 2.
- Phase 2. Adaptive Release Plan, which lays out the "how," "who," "what," and "when," by detailing key stakeholders, their roles and responsibilities, how and when stakeholders and communities will be engaged, the timeline in which AR will occur, and what events and what planning is required.

AR is always a collaborative project: liaison with stakeholders cannot take place too soon. While Phase 1 can be undertaken by a single stakeholder or group, consultation with other stakeholders – particularly those with a statutory or caretaking role or duty relating to the asset or site – is essential, and the sooner such consultation is engaged, the more robust the planning phase of the assessment will be. It should also be acknowledged that much of the data necessary for preliminary assessment will be held by different stakeholders.

The Assessment stages can be used to inform and develop the AR Plan and can also be used during the AR Plan stage to inform any planning applications that need to be made.

Adaptive Release Framework Stages	
Phase 1: Assessment	
Stage 1	Site summary
Stage 2	Cultural heritage assessment
Stage 3	Ecological assessment
Stage 4	Change assessment
Stage 5	Risk assessment
Stage 6	Gains assessment
	Produce Site Assessment
Phase 2: Adaptive Release Plan	
Stage 7	Stakeholders and Stewardship
Stage 8	Engagement Plan
Stage 9	Activity Schedule
Stage 10	Adopt Adaptive Release Plan
Asset release	

PHASE 1: ASSESSMENT

AR can only take place with the engagement and consent of an asset's owner. The first phase of implementing AR is essentially evidence-gathering in order to build a rich foundation for implementing the second phase: the AR Plan. This assessment should involve gathering available data and materials relating to the site and asset in order to gain an understanding of its current status, its cultural and ecological values and significance, its potential end-state, and the gains that might be achieved as it alters state.

Sources of information may include (but are not limited to):

- Land Registry data, deeds, etc.
- NHLE data
- Archaeology Data Service (ADS)
- Historic Environment Record (HER)

- Management plans
- Environmental Impact Assessment studies (EIAs)
- Rapid Coastal Zone Assessment Surveys (RCZAS)
- Shoreline Management Plans (SMPs)

Stage 1: Site Summary

Site and management issues: find out key information about the site which will enable identification of stakeholders, constraints, potential hazards, as well as opportunities.

Identify ownership issues and use of the site and/or assets within the site:

- Ownership: is the asset under the stewardship of a different entity or agency than its owner? Is it leased?
- Boundaries: identify property boundaries as well as asset boundaries
- Site access: identify both public and private access routes
- Services: waste, water, electricity, telecoms may all have underground or overhead channels that need to be considered

Identify statutory and non-statutory status of the site and/or assets within the site:

- Cultural heritage designations: is the site or its assets on the NHLE? Are there any local or other non-statutory designations?
- Natural heritage designations: are there any biodiversity or other ecological designations or identified characteristics that are of interest?

Site plan: it will be necessary to have good quality site plans and mapping.

Stage 2: Cultural Heritage Assessment

Assess what information is available in order to gain a full understanding of the significance of the asset and its setting, and its heritage value. There may already be extensive information about the site. If this is the case, review the available information. If it is not possible to establish the significance at this stage, determine what will be necessary to establish the significance of the asset. The process of establishing a better understanding can then be built into the AR Plan.

Significance and Setting

Heritage assets are designated for their special interest and managed according to their significance.

Establishing the significance of an asset allows informed decision-making. In a planning context, it allows decision makers to understand how proposals will affect assets. In an Adaptive Release context, establishing significance will enable stakeholders to set goals for cultural heritage gains. While AR will result in a possible total change to the form of the asset that embodies its heritage significance, it acknowledges and foregrounds opportunities to identify and interpret combined natural and cultural significance, and to accept an eventual *shift* in primary significance from cultural to natural. The duration of the release will also allow for creative and experimental engagement that will potentially, even for a short period, enhance its significance. It will certainly allow for a full record of significance to be built.

Assets do not exist in a vacuum, and AR requires a full understanding of an asset's setting too. The change that an asset will undergo as it is released will have a considerable impact on its setting. In this context, AR allows for a more considered engagement with setting, and in order to inform that engagement, a full understanding of setting is required.

Significance: The value of a heritage asset to this and future generations because of its heritage interest. That interest may be archaeological, architectural, artistic or historic. Significance derives not only from a heritage asset's physical presence, but also from its setting (NPPF, Annex 2: Glossary).

Setting of a heritage asset: The surroundings in which a heritage asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or negative contribution to the significance of an asset, may affect the ability to appreciate that significance or may be neutral (NPPF, Annex 2: Glossary).

See DeSilvey et al. (2022) for further discussion of significance in an Adaptive Release context.

Stage 3: Ecological Assessment

Establish the ecological and geomorphological baseline for the site/asset and identify any designations. Collect biodiversity species/habitat information on the site and locale.

Stage 4: Change Assessment

Assessment undertaken in this stage will identify trends relating to the nature of the change that has and will take place at the site due to:

- The nature of the threat
- Changes in maintenance/defence regimes

The changing nature of environmental conditions affect the asset going forward. During Stage 4, the balance between the nature of the changes taking place (to and around the asset) need to be fully considered.

Establish as far as possible what the nature of the change that will be caused by action following the actualization of the threat, and how this will impact on the heritage asset (e.g. will erosion cause undermining, or will destabilisation occur through material deterioration?), and as far as possible, the timescales in question. At this stage, consultation and/or workshopping with key stakeholders might be beneficial to better understand the change and adaptation pathways.

If maintenance or defence regimes are going to change or cease, establish the likely structural effects these changes will cause (e.g. will the cessation of regular painting/rendering regimes lead to faster deterioration?).

Identify what constraints may occur over time such as restrictions to access (e.g. will coastal morphological change cut off access? Will potential collapse make access hazardous?). As far as possible establish predictions for when such events will occur.

Identify opportunities that may open up as changes occur (e.g. will erosion reveal previously concealed remains? Will stewardship changes increase access possibilities?).

Stage 5: Risk Assessment

Identifying the changes that the site and asset will undergo during Stage 4 will inform the analysis of risk. The risk assessment should address:

- Risks associated with the changes that the form and fabric of the asset will undergo (e.g. will deterioration of the asset result in a danger to life from falling masonry? Is there a possibility of the leaching of toxic substances as deterioration occurs? The asset in disrepair is considered by locals to be an eyesore.)
- Risks concerning legal and procedural matters (e.g. what are the risks to the liability holder? What are the risks from changing personnel?)
- Possible risks as yet unknown (e.g. the threat to the asset occurs faster than anticipated; policy changes affect the ability to undertake AR)
- Can mitigation be used to reduce the risk level? (e.g. can loose masonry be made safe? Can toxic substances be removed in advance of deterioration?)

The Risk Assessment should take the form of a live document that can be updated as the AR Plan is developed. At this early stage it can also be used to understand whether AR is the right choice for the asset. A matrix can be used to quantify and qualify the risk, and whether it outweighs the gains, or simply demonstrates too many difficulties. Scoring mechanisms can be used to weight risks, and to understand the effects of risk avoidance and mitigation measures.

	Severity of Risk					
Likelihood of Risk		1	2	3	4	5
	1	LOW	LOW	LOW	MED	MED
	2	LOW	MED	MED	HIGH	HIGH
	3	LOW	MED	HIGH	HIGH	VERY HIGH
	4	MED	HIGH	HIGH	HIGH	VERY HIGH
	5	MED	HIGH	VERY HIGH	VERY HIGH	VERY HIGH

Stage 6: Gains Assessment

This assessment will identify the likely end-state of the asset and the gains that may be achieved through reaching that end-state, as well as gains achieved through the AR process. (While it is acknowledged that there is no 'end' to the environmental processes at play in AR, the 'end-state' conceptualises the state at which withdrawal of resource from the AR process can occur, and/or transfer of responsibility for the asset's state might take place; e.g. an asset's physical deterioration within an ecological habitat requires no further historic environment input, and the site is to be maintained by an ecological conservation group). The site will continue to be in flux and change, but the end-state represents the state in which it is anticipated that the asset will have effectively been released, and the stewardship of the AR process withdrawn.

Gains might expect to include biodiversity and geomorphological gains, but other gains may be attained through the process. These might include (but are not limited to):

- Cultural heritage gains (the asset contributes further to knowledge/archival resource, access is improved (this could be visible and/or physical),)
- Ecological gains (nature conservation and/or opportunities to expand native distributions may occur)
- Educational gains (the asset is used as a learning environment or to deliver learning goals)
- Skills gains (training)
- Community gains (the asset is used to provide new or better services to the community, and by the community for its own goals) and personal gains (where individuals might be enriched through engagement with the transformation of the asset)

At this stage, it may be clear that some interventions may need to be made to enable the end-state or to enable particular gains (e.g. planning permission is necessary to allow training activity to occur; access limitation is necessary during a nesting season). Those that can be identified at this stage can be recorded and incorporated into the AR Plan.

Production of Site Assessment

The Site Assessment will comprise a document or collection of documents that hold information regarding the site, its significance, and its potential. This should provide an accessible digital record that can, if required and where reasonable, be made accessible in non-digital formats. The Site Assessment will feed the development of the Activity Schedule and will also serve as a record for what current knowledge exists relating to the asset. Site Assessment work would ideally be held by principal stakeholders and be made accessible and available to other stakeholders (e.g. using an online shareable drive).

Phase 2: The Adaptive Release Plan

The second phase of the framework consists of the production of the AR Plan. The AR Plan will be a dynamic, live document that responds to changing situations regarding the threat, additional knowledge that is created, stakeholder engagement and site transformation. The document will also be subject to a scheduled periodic review at agreed periods over the remaining lifetime of the asset. It contains the "who," "what," "how," and "when" of the AR Plan for the asset. If the production of the AR Plan does not fit within the resource allocation of key stakeholders, funding sources should be identified and pursued.

Stage 7: Stakeholders and Stewardship

During this stage, additional stakeholders will be identified based on initial assessment work and current knowledge. Stakeholders are those with immediate as well as potential interest in the site, including, but not limited to, agency representatives (from HE, EA, NE) as well as LA representatives. It is likely that these organisations will have already been consulted or will have been involved in catalysing the initial Site Assessment phase. While the input of some stakeholders will be necessary (e.g. agency and LA representatives), the input of others is desirable, but no less important for the success of the project. Agency representatives may not have capacity to fully implement the AR Plan and a suitable locally based stakeholder should be sought to hold stewardship of the AR Plan. An ad hoc advisory pool or committee formed of these stakeholders is desirable. Other forms of organisational structure can be explored (e.g. Trust, Community Benefit Society, Charity).

Below are suggested stakeholders, but there is no limitation of potential involvement in delivering the AR Plan.

Stakeholder	Input	Role
Owners	Necessary	Custodian
Local Authority (heritage/conservation and planning/regeneration)	Necessary	Advisory
Historic England	Necessary	Advisory
Environment Agency	Necessary	Advisory
Natural England	Necessary	Advisory
Parish/Town Council	Necessary	Advisory/ Stewardship
Local heritage/archaeology group/trust	Desirable	Stewardship
Arts agencies and organisations	Desirable	Creative partnership
University departments	Desirable	Stewardship/ Creative input/ Educational gain
Local schools/ Heritage schools	Desirable	Stewardship/ Creative input/ Educational gain
Other constituted/ unconstituted groups (e.g. walking groups, special interest groups)	Desirable	Stewardship/ Creative input/ Educational gain
Community members (e.g. interested individuals/groups)	Desirable	Stewardship/ Other

Existing policy and partnership tools may prove useful in formalising agreements, such as:

- Heritage Partnership Agreement (HPA): an HPA owner-LA agreement to guide works to assets on the NHLE.[19]
- Conservation Management Plan (CMP): a conservation management plan is a document which sets out the significance of a heritage asset, its history and development, and its future management. It can also include an Activity Plan setting out management interventions and responsibilities.

Stage 8: Engagement Plan

Following stakeholder organisation/collaboration, a series of engagement events should be designed, implemented, and evaluated. The stakeholder team must identify concerned communities (e.g. residents, local SMEs, interest groups, public, private and third sector organisations) and proactively build engagement to consult on, and develop proposals. Engagement activities should be arranged so as to appeal and/or be accessible to groups that might otherwise be or feel excluded from local heritage activity (this might include arranging in person as well as online events and will necessitate proactive contact).

Stage 9: Activity Schedule

An Activity Schedule should be drawn up and agreed by the stakeholder group. The Action Plan should lay out the anticipated structural changes to the asset and the necessary input from stakeholders at set and agreed points. It will lay out anticipated points of collapse (as closely as can be anticipated) and timings for activities (e.g. monitoring work, school visits). The Action Plan is a live document that can be adjusted by stakeholders as change occurs. It is designed to allow all stakeholders to have an overview of the process and to contribute. It should also be open to the public.

Stage 10: Adopt Adaptive Release Plan

The AR Plan, including assessment stage, will be agreed by stakeholders and lodged with the body that will oversee its stewardship (e.g. parish council; local trust), with identified review/evaluation periods identified and incorporated into the Activity Schedule.

The AR Plan could, for instance, refer to any discussions or commitments relating to listing – including the challenge of managing a listed asset as it gradually transitions from a primarily *architectural* interest to an *archaeological* interest: "In such a situation, there may need to be a commitment up front to continued designation, to ensure that adaptive release is not applied cynically to justify neglect (and to facilitate de-listing and removal of development prohibitions). It is not clear that current designation practice could accommodate this kind of anticipatory revaluation." [20]

5 CASE STUDY

To determine how AR could be applied in practice, a series of meetings took place between the authors, HE and EA to identify a test case study as a vehicle to inform the development of criteria and a framework for AR. This test case was intended to use real life scenarios to work through the above framework.

5.1 Selecting a Case Study

Meetings with HE and the EA produced a list of potential case studies where an AR approach could be trialled. One of the criteria involved the test case site being part of the FCERM programme or, if not within the FCERM programme, the site would have had some recent defence management.

As we researched the proposed case studies, numerous issues transpired. For instance, in some cases, the ownership status of the asset complicated the proposal of an AR approach. In some cases, the site was too sensitive to be considered, such as when some stakeholders were already proposing options to 'save' the asset.

In other cases, we found sites that might be ideal candidates for trialling AR. However, for the purposes of this report, we were interested in exploring difficulties that might arise. For instance, two sites offered scheduled buried archaeology, and while these assets offered heritage assets at risk from environmental threat, the lack of above ground visibility meant there was no need to engage with the possible discomfort among communities of seeing an asset 'released'. Another site was located far from human settlement. While not being problematic in itself, we identified that communities were already invested in the ecological value of the site, rather than in its heritage, thereby limiting the opportunity to engage with, and work through, the potential pitfalls of AR. In such a site where AR, if applied to cultural assets, would result in a net gain for biodiversity but no obvious cultural gain, stakeholders would not be likely to present any opposition to the application of AR, and negotiation would be limited. We also hoped that the heritage asset being targeted would be listed or scheduled in order to investigate the challenges that this might pose.

The issues we faced in selecting a site involved not only the cultural asset being targeted for AR, but also the defence strategy from an EA perspective. In some cases, the degree and nature of coastal protection was under active review. An open discussion proposing an AR approach might hinder data analysis and local stakeholder discussions, particularly if our report were to name a site and specific assets that would be targeted for an AR approach.

For us, the difficulty in identifying an appropriate test case study was a finding in itself. It shows that there are many factors that need to be taken onboard when considering AR as an approach. It also demonstrates that in part, the ambiguities expressed by staff we spoke to stems from:

- the practical uncertainties of adopting an approach that is still being tested

- the anticipated tension in discussing the loss of heritage assets with a wider range of stakeholders and local communities.

To explore fully some of the more problematic pitfalls that AR might produce, we therefore set the following criteria for site selection:

- close to a residential community and/or community of interest
- a site with important ecological features, e.g. SSSI, recognised biodiversity
- visibility of the asset at risk of inevitable loss
- listed/scheduled asset, potentially on HAR Register

In order to accommodate some of the difficulties outlined above, yet fulfil our criteria, we have produced below a hypothetical case study based on examples of a specific asset type (Martello towers) at unspecified but particular locations, and in differing states. The towers discussed in the case study below use real life characteristics, care and ownership regimes, and threat situations of existing towers, but cannot be fixed to particular real-life towers. They are a composite of several towers, allowing us to think through Adaptive Release in different contexts.

5.2 Martello Towers

Martello towers are small artillery forts based on the design of a gun tower located at Mortella Point in Corsica. In England, 103 Martello towers were built between 1804 and 1812 along the south-eastern coast, spanning from Suffolk to Sussex. Their purpose was to defend against a possible invasion by Napoleon Bonaparte's army, after a renewal of war with France in 1803.

According to an online report on Martello towers in England (see Martello towers website), since their construction, 15 towers have been demolished for their masonry; 30 were washed away by the sea; 4 were destroyed through military experiments. A number of towers were used by the military during WWII. Today, a total of 47 Martello towers have survived in England: some have been restored and are used as museums, visitor centres and galleries; some have been transformed into residences; others are in poor condition or derelict.

In our example, Sandtown Tower is located on a beach under MoD ownership and is already in a state of partial disrepair. It cannot be seen from local residences, has limited access, and has no particular community of interest around it. In our scenario, Sandtown is under a managed realignment regime and has been so for some years.

Shingletown Tower is located on a shingle beach in a built-up area. Residences front the beach, and the tower is prominent. It is in front of the residences. HE and the Local Authority have supported the idea of conversion or use and some years ago it was acquired by a commercial developer with a view to conversion but as yet, no planning permission has been sought or received. In our scenario, a recent decision now sees Shingletown Tower on the "wet side" of retreat of the defences.

5.3 Applying Adaptive Release to the Case Study Sites

Stages	**Sandtown**	**Shingletown**
1. Site Summary	-MoD owned, site data available through MoD -No services -Access limitations due to live firing -GII Listed -Priority habitats	- Tower is company owned. Cafe operative within tower. Surrounding land (beach) is public. -Public access to area -Electricity/water/sewage services in place. -Scheduled -GII* Listed -On HAR Register -Priority habitats -Shingle beach recycling project
2. Cultural Heritage Assessment	-MoD archaeological data available -EIA reports available (associated with historic beach replenishment works) -NHLE list description is legacy -Survey: "South Coast Martello Towers" by The Conservation Practice (1996) -Additional information on Martello towers website	-Recent NHLE description -EIA undertaken as part of FCERM -HAR priority C; condition Poor -Survey: "South Coast Martello Towers" by The Conservation Practice (1996) -Additional information on Martello towers website
3. Ecological Assessment	-Habitat and species surveys available -EIA reports available (associated with historic beach replenishment works) -Local level landscape and natural heritage assessments available	-Vegetated Shingle Management Plan available -EIA undertaken as part of FCERM -Floral, avian and invertebrate species identified -Local level landscape and natural heritage assessments available
4. Change Assessment	-Trend analysis data available -Partial collapse has already occurred. Further disintegration to occur over time ahead of total collapse predicted in 10 years' time. -No further maintenance or defence work to take place Warning signs currently prohibit access to remains, but no further restrictions in place.	-Trend analysis data available -EIA geomorphology assessment details projected change -Retreat of defences mean tower no longer protected -Collapse anticipated in 20 years' time: access to be restricted and warning signs erected once tower has reached structural instability
5. Risk Assessment	-Safety: risk of asset deterioration causing safety risk	-Services: Services will need to be capped/removed once business use

	(mitigation: further restriction of access may be necessary, but current regime may suffice.) -Stewardship: members of the ad hoc committee change jobs/ organisational change means stakeholders withdraw (mitigation: build-in succession planning; ensure communication between organisations in order that any slack can be picked up) No further risks anticipated at present.	has ceased (mitigation: planning permission/SM consent may be necessary to undertake works). -Owner: Risk that owner will withdraw cooperation (mitigation: maintain strong communication with owner; review/reassess asset and ARP) -Stewardship: members of the ad hoc committee change jobs/ organisational change means stakeholders withdraw (mitigation: build-in succession planning; ensure communication between orgs in order that any slack can be picked up) -Safety: risk from falling masonry etc. (mitigation: possible need for fencing off structure/making safe) -Community: Risk that community will reject AR plan as it deteriorates (mitigation: strong and continued engagement with community/enable community involvement in solutions/responsiveness to community concerns/potential adaptation of ARP/strong leadership) -Anti-social behaviour: Risk that asset becomes a magnet for anti-social behaviour (mitigation: security monitoring and fencing off of structure)
6. Gains Assessment	Predicted end-state: tower remains after collapse form part of inter-tidal then marine ecosystem. Gain is biodiversity enrichment. Anticipated intermediate gains: -Community and interest group engagement with history/archaeology of tower -Ecological/ conservation stakeholder engagement with preparation for end-state	Predicted end-state: tower remains after collapse form part of inter-tidal then marine ecosystem. Gain is biodiversity enrichment and geomorphology gain as there is no longer an obstruction in shingle movement. Anticipated intermediate gains: -Artistic, archaeological, and historical community engagement with the tower (skills/knowledge/ educational/artistic skills) -Ecological/conservation stakeholder engagement with several local groups

		-Potential local community interest as yet uncertain
7. Stakeholders and Stewardship	MoD HE NE EA LA Town Council Community archaeology society Local residents Nearby university Martello tower interest group Representatives of above groups agree to form ad hoc stakeholder committee. MoD agrees to act as main contact and AR Plan steward.	Commercial company LA Town Council HE EA NE Shingle Beach Recycling Group Local conservation group Local schools, colleges, universities Local residents Martello tower interest group Representatives of above groups agree to form ad hoc stakeholder committee with a view to formalising as a trust. Town Council agrees to act as main contact and AR Plan steward. Commercial owner wants to play a major role in process.
8. Engagement Plan	"Town Hall" meeting held in local community centre. AR proposal put forward by MoD and HE. Meeting heavily advertised locally, including leaflet delivery to nearest homes. Radio announcements. Press release sent to local businesses and schools. Low attendance and low interest outside stakeholder interests. Martello Tower interest group holds additional meetings for members.	EA consultation on retreat of sea defences creates local concern for tower. AR proposal put forward in "Town Hall" meeting by LA and HE but rejected by local businesses and residents. Negative reporting in local press. AR suggestion shelved. On failing to sell tower (within 2 years) commercial owner contacts LA to discuss revisiting AR proposal. LA asks HE to facilitate further engagement. New stakeholder group created: Shingletown Tower Trust. Engagement plan drawn up. Owner reopens cafe in tower supported by LA and stakeholders. Plan developed to maximise revenue and interest in tower ahead of collapse. Smaller group/individual meetings held; including drop-in sessions with stakeholders and owner at tower cafe. Larger meetings are heavily advertised locally, including leaflet delivery to nearest homes, radio announcements, press release sent to local businesses and schools. Martello tower interest group holds

		additional meetings for members. Interest becomes positive and support for AR plan grows over time.
9. Activity Schedule	Activity Schedule includes breakdown of anticipated events, stakeholder activities, interventions etc. Each stakeholder committee member updates Activity Schedule with their own plans and events, including: -Identification of major structural changes -Scheduling of archaeological monitoring activities. -Engagement activities with local school -Planning and monitoring activities of natural heritage features.	Activity Schedule includes breakdown of anticipated events, stakeholder activities, interventions etc. Each stakeholder committee member updates Activity Schedule with their own plans and events, including: -Identification of major structural changes -Scheduling of archaeological monitoring activities. -Engagement activities with local school -Planning and monitoring activities of natural heritage features.
10. Adopt AR Plan	AR Plan including Activity Schedule agreed by all committee members and lodged with MoD as steward. MoD steward reviews Plan annually: Year 1-5, annual review of data and revision of anticipated timeline of collapse Year 6-10, twice annual/quarterly review of data and revision of anticipated timeline of collapse.	AR Plan including Activity Schedule agreed by all committee members and lodged with the Town Council. As the Town Council is steward of the AR process, the tower is a yearly agenda item at the Town Council meeting, providing an annual review of data (Year 1-15) and revision of anticipated timeline of tower collapse. Year 15-20, twice annual/quarterly review of data and revision of anticipated timeline of collapse.

The above table summarises the steps taken in the development of the framework. Below, we outline the activities that (hypothetically) took place in the process of each scenario.

Sandtown Tower:

- MoD decision to dispose of property. Community consultation is undertaken regarding AR Plan. Community opts to continue with AR and extend it to another tower close by, though Martello tower interest group lobby for

relocation. New AR Plans are drawn up with more stakeholder involvement. Local archaeology group take over stewardship with support from LA.
- Local archaeology group gives volunteers training to undertake monitoring.
- Volunteers undertake monitoring and reporting.
- In later stages of collapse, university marine biology department is involved in planning and monitoring.
- Total collapse occurs earlier than anticipated, in Year 9. However, regular monitoring captures this.

Gains:
Biodiversity
Skills and training
Knowledge
Community

Shingletown Tower:

- Undergraduate engineering and environmental management students from local university undertake yearly monitoring and recording of tower as part of term project. However, change of staff means this course halts in Year 9; Local History Society offers to pick up monitoring and recording. University agrees to facilitate training for volunteers who then take up monitoring programme.
- Local primary school visits tower as part of the history curriculum. Visits become annual and broader primary school engagement develops over long term.
- Photography students at local FE exhibit their work at tower café.
- Some minor intervention and maintenance, such as capping and painting, occurs during height of tourist season (Years 1-15). Some maintenance is being done through local youth internship programs as skills training (e.g. cement rendering).
- Beach shingle recycling group and local conservation group develop programme of monitoring and research.
- Commercial owner ends all financial maintenance in Year 15 when clean-up from weather events and maintenance costs mean business is no longer cost-effective. Shingletown Tower Trust agree significant tipping point has been reached.
- Arts Council funded artist begins residence, resulting in “CollapseCam”, 24-hour webcam detailing deterioration of the asset.
- Destabilisation happens quickly. In Year 16, LA requests Shingletown Tower Trust to support the tower being fenced off to the public, partly due to unauthorised access problems and associated anti-social behaviour. Wider local community expresses concerns. Shingletown Tower Trust agrees and has input into fencing design. Access becomes by appointment with Shingletown Tower Trust. CCTV is erected.

- In Year 17, monitoring shows increased precarity of stonework, due to a series of significant storm events. Press interest is negative and positive: local press report residents upset at anti-social behaviour and perceived ‘eyesore’; local press also reports community and knowledge gains; national press report is balanced. Interest grows. Further national coverage, significant interest and coverage of cultural and community gains.
- “CollapseCam” becomes unexpectedly popular, bringing visitors to the site prior to collapse. Local businesses benefit. Press becomes more positive.
- In Year 18, precarity is such that LA insists the tower is made safe. Shingletown Tower Trust hold emergency consultation with stakeholders, the public and local conservation groups. All agree to precipitate collapse, but as close to ‘natural’ as possible. Heavy plant landside is used to push the tower. Due to undermining and destabilisation, little force is necessary.
- Ahead of collapse, local residents crowdfund for tower farewell beach party, which takes place on scheduled day.

Gains:
Educational
Skills and training
Knowledge
Economic
Community

ABBREVIATIONS

ADS	Archaeology Data Service
AR	Adaptive Release
CMP	Conservation Management Plan
EA	Environment Agency
EIA	Environmental Impact Assessment
FCERM	Flood and Coastal Erosion Risk Management (in England)
HAR	Heritage at Risk register
HE	Historic England
HER	Historic Environment Record
HPA	Heritage Partnership Agreement
LA	Local Authority
LFCC	Landscape Futures and the Challenge of Change (project/team)
NE	Natural England
NHLE	National Heritage List for England
NPPF	National Planning Policy Framework
RCZAS	Rapid Coastal Zone Assessment Surveys
SMP	Shoreline Management Plan

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ENDNOTES

[1] See LFCC Team 2022, p.2.

[2] DeSilvey et al. 2021.

[3] DeSilvey et al. 2021, p.420.

[4] DeSilvey et al. 2021, p.421

[5] See LFCC Team 2022, p.2.

[6] Allison et al. 2021.

[7] DeSilvey et al. 2021, p.424.

[8] LFCC Team 2022, p.2.

[9] Allison et al. 2021.

[10] HM Government 2020.

[11] Allison et al. 2021, p.4.

[12] Allison et al. 2021.

[13] See Allison et al. 2021.

[14] DeSilvey et al. 2022, p. 14.

[15] Section 2(2), Ancient Monuments and Archaeological Areas Act 1979.

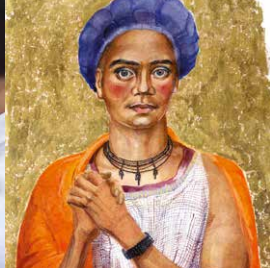
[16] See https://historicengland.org.uk/advice/hpg/consent/lbc

[17] Ancient Monuments and Archaeological Areas Act 1979, §30 (4), 14 (3)b.

[18] See DeSilvey et al. (2022) for a detailed analysis of current legislation and possibilities for enabling AR within it.

[19] See Historic England 2015.

[20] DeSilvey et al. 2021, p.424.



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