

Flat Cliff

The problem

Based upon information that has become available since production of the SMP2, it is considered that the northern section of the Flat Cliff frontage (containing the sole access route to and from the hamlet) is marginally unstable, while the central and southern sections are marginally stable to stable.

Indeed, following shallow slides at the headscarp in the northern section, one local resident has constructed his own 'retaining wall' comprised from scaffold poles and corrugated tin sheeting in attempt to prevent loss of a section of the access road.

The coastal change projections along the frontage suggest that the access road is under threat in the present day, the first properties (mostly Lower Flat Cliff) are likely to be lost in 20-50 years and the remaining properties (mostly Upper Flat Cliff) are likely to be lost in 50-100 years.

Whilst the recommended SMP2 policy is for No Active Intervention, the SMP2 also recognised that there should be the development of a plan for adaptation to this approach.

If the access road were to be severed, there is no alternative means of the residents gaining access/egress to/from their properties and, in effect, the community is lost. If people elect to remain living there, there is no means for emergency services to access the site. Also, Yorkshire Water would not be able to access the site to maintain its pumping station, which serves much of Filey Bay.

Consequently, a SMP2 policy of No Active Intervention is not suitable for managing the residual risk that remains to lives, property and infrastructure at Flat Cliff prior to the eventual (medium or longer term) loss of properties.

In developing the Coastal Strategy, we are aiming to resolve the following key challenges:

- (1) encouraging adaptation to coastal change over the short, medium or long term epochs (as appropriate); and
- (2) suitably managing the residual risks in the meantime (given that delivery mechanisms for the above do not currently exist).

Whilst the latter approaches will include land use planning, development control and contingency planning to enable warnings and (if necessary) evacuations during landslip events, it could also include localised and time-limited 'interim' management measures to buy more time before the access road and/or properties is/are lost.

The solution(s)

It remains our intention that the vision of the Coastal Strategy is to facilitate relocation of the Flat Cliff community, and that the pathway to achieving this should start to be set out.

However, the Coastal Strategy must also propose a means of managing, rather than ignoring, the residual risk in the meantime and therefore we propose to also consider the following as short-term,

Comment [SAW1]: This is the key principle and Natural England fully supports this approach.

temporary, management measures at the pinch point where the access road is at threat of imminent loss:

- Local slope stabilisation works
 - Retaining walls at the headscarp
 - Shallow drains
 - Deeper drains
 - Soil nailing
- Toe protection works (in association with slope stabilisation works)
 - Sand-filled geotextiles bags – these degrade over time and the sand falls to the beach
 - Gabion baskets – these have an effective life of ~10 years
 - ‘Sacrificial’ clay berm – the marine erosion gradually washed away the clay, which is of the same material type as that released from the cliff

The request to Natural England

Given the imminence of loss to the access road, we would like Natural England’s early views on the acceptability or otherwise of the potential slope stabilisation and/or toe protection works along this northern section of Flat Cliff. We would be grateful if this could consider the general principle of both types or works and any specific options that would or would not be acceptable.

We would also welcome Natural England’s view on the potential for extension of these works across the whole Flat Cliff frontage, rather than just the northern section at the access road.

Note: Further background information from the *SMP2* and the *Flat Cliffs Stability Assessment and Management Plan* is provided below.

Natural England’s DRAFT comment August 2015

The Flat Cliffs area does not currently have any designations, although a proposal for the land to be included within an extension to Flamborough Head SSSI is due to be presented to Natural England’s board in Autumn 2015. If the board approves the proposal then formal consultation with relevant bodies and landowners will begin. The Flat Cliffs area is due to be included in the SSSI in order to provide conditions for maritime grassland communities and associated invertebrates to thrive as well as to maintain the continuity of coastal processes within Filey Bay. This is also supported by the SMP policy of No Active Intervention. With this in mind, any coastal protection works or slope stabilisation works have the potential to interrupt those coastal processes and be potentially damaging to the proposed SSSI.

However, given the imminent risks to communities, services and access in this area, our view is that temporary measures to slow down the coastal processes to allow time for coastal communities to

adapt to prevailing conditions are likely to be acceptable. Any works should be part of a realistic and specific programme of measures working towards coastal adaptation which may include relocation of the access road and removal of properties at risk. Coastal protection and slope stabilisation works should not be an adhoc response to risks on the site and should only be implemented in the areas at highest risk such as the northern area to protect the access road. The lifetime of any proposed measures should be identified within a legally enforceable process such as a planning condition.

With respect to the measures indicated above, temporary toe protection works may be acceptable, especially measures that will degrade over time in an environmentally acceptable manner. Slope stabilisation works that damage the existing habitats on the site are likely to be least acceptable, detailed survey and assessment work is likely to be needed before any groundworks could take place where there are existing habitats on site.

To clarify, Natural England's view is that SMPs were developed to strike a balance between the needs for protection of coastal communities from flooding and erosion and the need to maintain natural coastlines and coastal processes wherever possible. The SMPs set the coastal management policy for each section of coast (hold the line, no active intervention etc) over 3 epochs, taking a long term view of the effects of climate change and sea level rise. During the development of SMPs it was made clear that the identification of coastal management policies within SMPs did not guarantee that funding would be made available for the delivery of these policies. SMPs do not consider the affordability of maintaining existing defences or constructing new ones, (this aspect would be covered within the coastal strategies) so SMP policies remain relevant in the event of changes to funding systems and should only be changed where all other options have been exhausted. Given that considerable effort was made to ensure that the right SMP policy decisions were made for the Flats Cliffs area (as indicated below) any proposed changes of SMP policy will require a robust and evidenced audit trail to explain why the change of policy is now required.

Background information

The overall management intent within the SMP2 for this frontage is to allow the coast to develop as naturally as possible, but encouraging the development of a plan for adaptation to this approach. The SMP2 policy from the short term onward over the period of the SMP2 is for No Active Intervention. However the SMP2 acknowledged that to achieve this, thought needs to be given to address the current expectations and use of the frontage in terms of the important regional issues of the residential communities and tourism. In particular this necessitated developing plans in the short term for the initial (potentially imminent) loss of access to Flat Cliffs and the subsequent (still short term in the first instance but extending across the medium and longer term) loss of land and properties. Due to this, it is worth transcribing the full discussion of detailed policy development relating to this frontage from the SMP2, thus:

"The issues relating to Flat Cliff [and to a lesser degree Hunmanby Gap and Reighton Gap] are recognised to be very difficult, both in terms of the residential communities and in terms of broader value to the region of the large holiday parks. In the longer term, over the 100 year period and beyond, hard linear defence of these areas, which is what would be required to stabilise the cliff and prevent any property loss, would be considered unsustainable. This area is significantly further outwith the direct influence of Filey Brigg than is the Filey Town frontage and, as such, to hold this position over time would require increasingly more effort, with increasingly greater influence on the whole development of the bay. In effect, heavy protection of Primrose Valley and Flat Cliffs would have the effect of creating a totally separate bay system, virtually independent of that created by the influence of Filey Brigg. Protection in this area may, over the longer term, actually increase rates of erosion at Hunmanby Gap as the coast adjusts to a new line of equilibrium. Therefore, despite the significant economic loss at Flat Cliff and the impact on Primrose Valley Holiday Village, the long term policy for the area should be one of no active intervention. To achieve this, but still allow adaptation in respect of both residents and the more general land use of the area, requires prompt realistic thought and discussion as to how the threat to people, property, infrastructure and business is to be managed; over the next few years in terms of access to the properties at Flat Cliff; over the next 5 – 20 years with respect to the actual loss to properties and the management of safe access between the cliff top and the beach; and, over the longer term, as to the impact and future operation of the holiday park.

The [2002] strategy has determined over a 50 year time frame only a very marginal benefit cost ratio for long term defence of the Flat Cliff area and, certainly, the approach of a substantial rock revetment would tend to drive management of the frontage along a longer term policy of defence and unsustainability. Other options for a more temporary approach to defence were also considered by the [2002] strategy. While over the short term it was not considered that minor works would have any significant impact on the natural environment, view accepted by the SMP2, such works were found to have virtually no economic benefit and would not be justified in terms of public funding. A continuing concern with such an option would also be the recognised difficulty of gaining strict acceptance to the concept that such work would provide only temporary additional protection. Extension of protection over the medium term and long term would have an increasing impact on the management of the bay.

The [2002] strategy made recommendations for rapid response monitoring covering the area of the access to Flat Cliff. While associated with the monitoring is a recommendation that the council develop an evacuation contingency plan, a more broadly based management approach is felt to be more appropriate. It is recommended that this be considered by the community of Flat Cliff.

Comment [SAW2]: Natural England shares this concern.

The actual implications of abandoning property within the relatively short period of time allowed for by the monitoring needs to be established in more detail with residents. The need to maintain an important access to the beach associated with the holiday use of the area and the longer term needs of the holiday park also needs to be considered from a planning perspective. Furthermore discussion is needed with respect to the continued access to and operation of the pump station and pipeline. The loss of this infrastructure clearly has potential implications over the extent of Filey Bay and these issues have to be addressed under the preferred policy of the frontage.

The current approach of monitoring is felt to provide, potentially, only limited warning time and those affected by failure of the coastal slope need, therefore, to realise that this is likely to provide merely an immediate warning of failure of the over-steepened access length.

The short term policy from the SMP2 is for no active intervention, confirming the previous SMP policy and that concluded from the [2002] strategy. The medium and longer term policy is similarly for no active intervention."

Since publication of the SMP2 [in 2007](#), Scarborough Borough Council has, under its general duty of care, prepared the *Flat Cliffs Stability Assessment and Management Plan* (Halcrow, 2012) to inform residents of the expected levels of risk and to help them take an adaptive approach to the risks they face from coastal erosion and slope instability.

This work involved a ground investigation (in 2011) to develop a better understanding of the risks posed by ground instability and coastal erosion to the residents and assets within Flat Cliffs. It also made recommendations for ongoing *in situ* monitoring to provide forewarning of ground movement and for the preparation of an evacuation plan for the local authority and emergency services in the event of a significant landslide event.

The management strategy recommended by the report involved the following risk management approaches:

- Implement appropriate planning and building controls to ensure new development is not at risk of land instability, nor exacerbates instability on neighbouring property
- Day-to-day visual inspection by residents and reporting (to other residents and, depending on circumstances, to the local authority) of any changes in site conditions
- Residents to implement best practice for slope management (e.g. ensuring all properties' drains are functioning correctly)
- Maintenance and routine analysis of *in situ* slope monitoring by the local authority under the auspices of its duty of care
- Implementation and review of a hazard warning system (with actions linked to pre-defined thresholds) to alert residents of prevailing site conditions and actions to be taken given the risk level of cliff instability and ground movement observed, thus:

Hazard Warning Level	Ground stability conditions	Proposed actions
1	Ground stability conditions are stable. Rainfall and/or coastal erosion over the preceding month has been low or below average.	Residents to be vigilant and regularly inspect known areas and features of instability and report any new observations to the local authority through the Flat Cliffs Residents' Association. Continue monitoring of automated instruments and bi-annual review of inclinometers. Conduct annual inspection and damage survey of the site and re-survey the permanent ground markers. Analyse all data and identify trends and relationships between key parameters. Publish findings to inform stakeholders.
2	Ground stability conditions are stable. Rainfall and/or coastal erosion over the preceding month has been high or above average.	In addition to the above, increase the frequency of inspections and review of monitoring data to monthly. If two or more consecutive months of above average rainfall or erosion occur, inspection of the site by a local authority officer is recommended. They should assess the hazard warning level based on site observations and analysis of the monitoring data and recommend further inspection and follow-up as appropriate.
3	Ground stability conditions are unstable. Localised evidence of instability may include cliff failure and erosion, groundwater seepage, new and open tension cracks, settlement of the road and/or property.	In addition to the above, increase the frequency of inspections and review of monitoring data to weekly. Seek expert advice as appropriate. Undertake monitoring of inclinometers, a damage survey, and re-survey of permanent ground markers. Define the areas most at risk and consider evacuation of any elderly or inform residents from the area at risk.
4	Ground stability conditions are actively unstable and developing. The scale and rate of ground movement is serious and threatens property, buildings, the access road and services.	Alert the emergency services. Evacuate residents from properties and buildings affected by landslide. If there is danger of losing the access road, evacuate the entire community provided it is safe to do so. Otherwise seek refuge in the designated refuge area (at the southern end of the settlement, near the toe of the undercliff – see Appendix D, Figure X) and await evacuation by the emergency services. [Note that a safe escape route from the refuge area to the beach is not possible at high tide.] Seek expert advice; conduct daily site inspection and review of monitoring data. Assess the risks of re-occupation of the area and individual properties.

(source: Halcrow, 2012)

- Development of an emergency response plan for Flat Cliffs (similar to that which was developed for Cayton Cliffs) to co-ordinate the actions and responsibilities of the local authority and emergency services, given concerns about the current instability risk (especially in the northern part of the site which contains the only access road to the settlement). This recommendation has not yet been implemented.

The previous report does not provide advice on either: (i) promoting private coastal defences, slope stabilisation works or slope drainage systems (as interim measures to reduce the risk); or (ii) planning for and implementing coastal adaptation in order to avoid the risk, given the inevitable loss of access, property and services that will occur at Flat Cliffs.

Comment [SAW3]: Does this mean the 2012 Halcrow report or another report?

Instead, the report recommended that the Flat Cliffs Residents' Association co-ordinate risk communication, manage potential future landslip events, **plan possible private coastal defences and drainage schemes**, and plan alternative access routes to and from Flat Cliffs.

The previous two paragraphs appear to be contradictory, one says that advice on promotion of private defences was not included and the next says that it recommends that the Residents Association can plan private coastal defences, please clarify. Does this mean that the consultants are not recommending private coastal defences but that the Residents Association may investigate possibilities for private defences? In our view it is unwise to recommend that local residents can plan for private defences which are not compatible with the SMP policy. Moreover the report should make have made it clear that any defences can only be constructed on a temporary basis to allow time for long term adaptation to coastal change.