

Cornwall Dune and Beach Management Plans

Prepared for
Cornwall Council

April 2015

CH2MHILL®

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1 Introduction

1.1 Background

Over a period of four days, three members of CH2M's project team visited the eight Dune and Beach Management Plan (DBMP) sites to capture information about each site and take ground-level photos. At each site, client representatives, stakeholders and local community groups were given the opportunity to attend, meet with the project team, discuss their aims and objectives for the site, and raise any issues and concerns. A list of the DBMP sites is presented in Section 1.2. Data collected during the site visits will inform later stages of the project, including:

- Stage 1 – Baseline Understanding
- Stage 2 – Define Issues and Objectives; and
- Stage 3 – Develop Future Management Options.

A site visit report for each site is presented within this document and provides;

- a list of attendees at each site;
- a map showing site location;
- a summary of information collected;
- a summary of potential management solutions identified on the day of the site visit for consideration in later stage of the project;
- a section on 'Data Sources' where CH2M's project team were informed of, or provided with, relevant information at the site or following the site visit; and
- a selection of photographs taken during the site visit to highlight salient points.

1.2 Sites Visited

The site visits took place on the 9th to 12th March 2015. The 8 sites visited are listed below and shown in Figure 1.1.

- Praa Sands;
- Harvey Towans (Hayle);
- Summerleaze Beach (Bude);
- Widemouth Bay;
- Porthtowan;
- Fistral Beach;
- Constantine Bay; and
- Par Sands.



Figure 1.1 Map showing location of the eight sites visited.

129 **2.1 Attendees**

| Name | Role | Organisation |
|----------------------------|-----------------------------------|--|
| Anne-Marie Moon | Senior Coastal Scientist | CH2M Hill |
| Emily Hewitt | Environmental Scientist | CH2M Hill |
| Tim Wood | Project Manager | Cornwall County Council |
| Nick Ely | Project Manager | Environment Agency |
| Jake and Catherine | Residents | Representing Alex from little cottage who was unable to attend |
| Christine Bell | Resident | House on cliff at western end |
| CLlr Tanis Board | Counsellor and Resident | Breage Parish Council |
| Norman Coward | Resident, café and car park owner | |
| Carole Crow | Resident | House on cliff at eastern end |
| Lindsey and Brad Trethewey | Residents | House on cliff at eastern end |
| Ian and Jane Gibson | Residents | In process of purchasing house on cliff at eastern end |

130 **2.2 Location**



2.3 Issues and Observations

It was noted at the start of the site visit that beach levels are presently very low at the eastern end of the beach, having dropped significantly over the past 3 weeks. This was suggested to have been the result of westerly winds and waves moving material along the beach, from the western end to the eastern end. The beach levels at the eastern end of the beach are noted to have shown a corresponding increase in level.

It is possible that the sand would return to the eastern end of the beach should an easterly storm occur, as the material has not been lost from the system. This is a very dynamic beach and residents noted that beach levels regularly change

At the eastern end of the beach there is an area of rocks at the bottom of the slipway (see photograph 2.1). Residents stated that these were deposited here recently (over the past 3 weeks; i.e. February 2015) and that they need clearing as in the past they have prevented RNLI and lifeguard access to the beach.

Residents noted that the sand level had dropped drastically in the vicinity of the slipway and café in the last couple of weeks – estimated at 4m drop. Sand usually comes up to the bottom of the hand rail (see photograph 2.1).

Residents at the western end currently hire machinery to move rock from lower down the beach to the toe of the cliff to help manage erosion risk. Christine noted that when looking down from the top of the cliff there is black geotextile visible just above the rock and that there is erosion and evidence of cliff slips above this, indicating that the erosion protection needs to be extended higher up the cliff face. It was noted that there is less or no vegetation cover on the cliff face on where there have been cliff falls. The importance of the vegetation as UK BAP habitat (Maritime Cliff and Slopes) requires key consideration together with opportunity for enhancement. Residents have been informed that it would be too costly to construct rock revetment here (i.e. not economically viable). There was a significant drop in beach level and erosion of the cliff at the western end as a result of the 2013/ 2014 winter storms and a significant landslide took place immediately east of the cafe. Here works have been carried out to stabilise the eroded cliff line, re-profiling the slope, placing geotextile (to be vegetated) and placing rock across a significant area. This was undertaken for the council and designed by Mott Macdonald. Residents have concerns that this now makes access difficult and risks people becoming cut off by the tide. They have observed that the tide now fills this area first and visitors are forced to walk across the rock as they cannot get around it on the sand to reach the steps, causing health and safety issues. There are steps immediately to the east but we were informed that they are private RNLI steps.

There are significant areas of peat exposed which residents stated are not usually visible (see photographs 2.2, 2.3 and 2.4) indicating lower beach levels.

Moving east across the beach the dune face had been eroded (during the 2013/ 2014 storms). On the bare sand dune faces there are health and safety issues as in the summer children climb, slide down and dig into the sand on the dune face. There are also steps which have become difficult to use due to drops forming from the bottom step to the beach (see photograph 2.5). Residents noted that there were not enough access points along the beach. To the east of this section the marram grass observed was replanted by residents and the parish council in earlier years (circa 1983). The importance of the dunes as a UK BAP habitat requires a key consideration together with opportunity for enhancement

At the eastern end of Praa Sands the cliff face is very steep and is eroding. In particular there was significant erosion resulting from the 2013/ 2014 storms. It was noted that this was the result of erosion from the sea but also flooding from the road behind resulting in saturation of the cliffs and erosion. Since then the gulleys have been cleared reducing this issue.

At one property trees were lost from the garden due to erosion during these storms, and one tree remains on the beach (photograph 2.6). Beach levels have increased around the tree trunk. A buried electrical cable attached within the garden has also become exposed with one end hanging down the face of the eroded cliff to just above beach level.

The Pill Box at the very eastern end of the beach indicates higher beach levels at this location (photograph 2.7) as sand levels have increased around it. Residents noted that there has been erosion of the cliff behind the pill box. It was stated that in 1985 it was not possible to walk behind the pill box as it was too close to the cliff. Previous to this it was on the cliff top. Sand at present, has covered large rocks at this end of the beach, making walking and access from The Coast Path to the beach a little difficult to gauge safe footing. The erosion of cliff over recent years has forced the coast path, which previously ran along the cliff edge, onto the beach at this point (see photograph 2.8). The coast path requires key consideration of safe route and access. The route from the beach at the western end is via the sandbar café, again with residents noting that there were not enough access points along the beach.

There are signs of erosion/slumping on the cliff face. At little cottage new garden fences have had to be constructed along the cliff edge as previous ones were lost as the cliff retreated.

Residents along this section of the beach have employed a company to design sea defences including rock revetment. The report outlining the design, prepared by Philip Desmonde Partnership Ltd, has been provided since the site visit. This needs to be considered in the beach management plan. There are no government funds available however residents are prepared to pay for private defences.

Cllr Tanis Board provided photographs to show the change in beach level over time and other information relating to past changes to the beach.

Emails addresses were provided by those who would like further information.

2.4 Potential Management Solutions

- Construction of proposed private coastal defence to protect cliff toe from erosion at western end.
- Protection to cliff toe at eastern end - look into alternative low cost options as well as rock revetment.
- Beach recycling if material does not return from the western end to the eastern end – however impacts across the whole beach system would need to be considered in detail.
- Beach nourishment and significant coastal defences are likely to be effective but uneconomic due to the number of assets at risk.
- Beach monitoring to continue to show where material is moving from and to.
- Beach reprofiling to manage beach levels and rock at access points. This should be linked to trigger levels set based on monitoring data.
- Review location and number of access points to beach and signage for access points.
- Dunes were not noted to be an issue and hence no significant management is required.

2.5 Data Sources

- Notes and photographs provided by Cllr Tanis Board. To be returned to her at the earliest opportunity. Tanis also informed us that she had a lot of other historic photographs and that we are welcome to contact her to see them. Her telephone number is on the scanned letter as she does not use email.
- Tim Wood has photos of Praa Sands showing higher sand levels than present and photos of the beach pre and post rock armour, which he provided following the site visit.

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2.6 Photos



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Photograph 2.1



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Photograph 2.2



Photograph 2.3



Photograph 2.4



Photograph 2.5



Photograph 2.6



241
242 *Photograph 2.7*
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245 *Photograph 2.8*
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3 Harvey Towans

3.1 Attendees

| Name | Role | Organisation |
|-----------------|--------------------------|--------------|
| Anne-Marie Moon | Senior Coastal Scientist | CH2M Hill |
| Emily Hewitt | Environmental Scientist | CH2M Hill |

3.2 Location



3.3 Issues and Observations

The site visit started at the Bluff Inn car park. From here there are steps and ramp down onto beach at the south western extent of the site.

The team walked north east from here towards Harvey Towans. At the south eastern edge of the site fencing has been constructed to prevent access to the steep, unstable sand dune face with a walkway to channel access from the holiday chalets onto the beach. Along one section the sand seems to have built up and a new higher fence has been added (see photograph 3.1). Along the adjacent section the additional fence has not been added and footprints in the sand indicate the visitors have been stepping over the low fence to climb the dune face (see photograph 3.2).

There is a step in the beach immediately seaward of the toe of the dune. This could be the result of wave action (see photograph 3.3).

There are various sections of high dune with evidence indicating that visitors climb down steep dune faces to gain a more direct route to the beach. Walking within the dunes, key access points could be identified which link up to these sections, such as one section with “danger steep cliff” signs where

visitors have been walking down the steep dune face to access the beach, most likely because it is a more direct route from the car park to the beach than the designated marked routes (see photographs 3.4 and 3.5). Another such access point forms the most direct route from the properties within the dunes to the beach (see photographs 3.6 and 3.7). The South West Coast Path also runs through the dunes.

There is a notable amount of litter within the dunes. There were no obvious signs of fires or bbq's within the dunes, however this could be due to the timing of the visit as these could be seasonal issues.

Within the estuary, towards the western end of the site there is evidence of embryo dunes developing. It may be useful to review the location and size of the dunes on the spit feature during previous site visits and using monitoring data. The importance of the dunes as UK BAP habitat requires key consideration together with opportunity for enhancement.

The Wave Hub sub-sea buried connection cable has been noted at times to become exposed, however this was not observed on this visit. The cable runs from the offshore equipment, under the beach, through the dunes to a substation facility behind the carpark and residential properties within the dunes. At the western end of the beach, an electrical warning sign is present within the dunes, and fencing prevents access.

3.4 Potential Management Solutions

- Review access management to restrict access to steep eroding dune faces.
- Further information required from site managers to fully understand the issues at this site.

3.5 Data Sources

- No additional information provided.

3.6 Photos



Photograph 3.1



Photograph 3.2



Photograph 3.3



Photograph 3.4



Photograph 3.5



Photograph 3.6



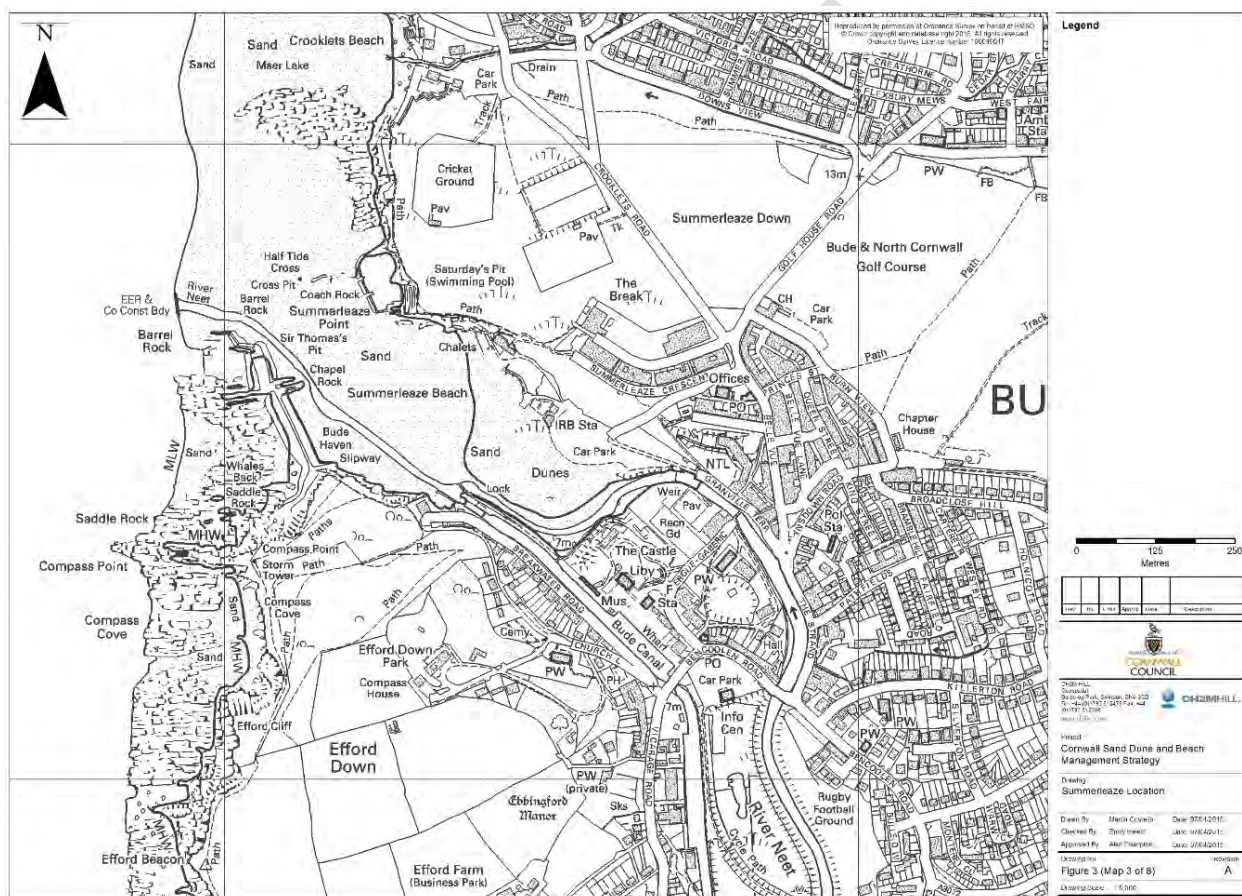
Photograph 3.7

4 Summerleaze Beach

4.1 Attendees

| Name | Role | Organisation |
|-----------------|--------------------------|--------------------------|
| Emma Allan | Senior Coastal Scientist | CH2M Hill |
| Anne-Marie Moon | Senior Coastal Scientist | CH2M Hill |
| Gareth Cann | Countryside Ranger | CORMAC, Cornwall Council |

4.2 Location



4.3 Issues and Observations

There used to be a number of rangers at this site and a warden, named Alan, who identified issues on a daily basis (for example engineering problems and sand issues).

Recent changes to funding mean that there is no longer any funding available for “coastal management” and there is now only a Head Ranger and a contractor (Gareth Cann, Countryside Ranger, CORMAC) to look after the site. The Head Ranger is responsible for allocating funding for the site and Gareth undertakes monthly checks focussed mainly on health and safety; they include the following:

- Beach safety;
- Car park;
- Litter;
- Defence structures;
- Play areas;

- Handrails; and
- Steps.

Litter used to be cleared regularly and was mechanised using a tractor with a rake. Litter clearance is now monthly or less frequent and by hand to prevent natural strandline material such as seaweed being removed. The changes have led to increased litter on the beach. Volunteers have begun beach clearance events and locals often collect litter to keep the beach tidy. Such organisations include the Cleaner Seas Project, Widemouth Task Force and Beavers. *Strandline seaweed is left in place during the winter, but during the summer it smells and because the beach is such an important tourist beach, it is cleared.

The main issue at Summerleaze is a build-up of sand in dune area; the dunes levels are the highest observed in the past 5 years. Sand is building up in the car park and on access paths resulting in health and safety issues. Otherwise, the dunes seem healthy with good sand accumulation and healthy marram grass growth.

- The car park requires clearing of sand fairly regularly. As the time of the site visit it could be seen that the sand had been pushed to the edges of the car park forming high steep dunes (see Photograph 4.1). In the past, a tractor was used to recycle sand from the dunes to the beach, but this ceased with funding cuts described above. When sand is cleared from the car park it cannot be returned to the beach as it is considered to be hazardous material because it could contain oil, diesel etc. Local farmers can therefore take the sand under a bi-law. This results in sand being lost from the system.
- Sand had built up behind the RNLI buildings where the dunes are migrating landward. Again this requires resources to clear (see Photograph 4.2).
- The main access path to the beach, which also serves as the access to the permanent disabled beach huts, is tarmac and had significant sand cover at the time of the visit with sand having buried the wall along the side of the access path (see Photograph 4.3). This will take significant work to clear and hence significant costs.
- The wall containing the dunes either side of the access path is cracking under the weight of the accreting and advancing dunes.

Gareth used to coppice willow from the marshes and put it at Widemouth, but no longer undertakes this activity.

The beach huts along the back of the beach are rented and provide a source of income to Cornwall Council; they are now less in number than in the 60's and 70's. These used to be taken down in the Autumn and put back up in the Summer but this year some have been left to see if they can withstand the conditions. Gareth noted that these would need some work such as re-roofing. The wall beneath the blue beach huts are exposed and the wooden access steps are frequently being replaced.

The River Neet used to flow over the Summerleaze Beach car park, but has been re-routed and channelised in its current position. As noted in the previous site visits the river channel is maintained by gabions (where sand used to be washed out) and there are rocks placed along the dune toe. These rocks could have been placed when the sewer pipe was placed through/ under the dunes (thought in about the 90's). The pipe goes under the beach and through the breakwater. During times of high river flow and big sea, the river 'backs-up' and in 2014, sand was stripped from the river banks.

The breakwater is constructed of slate. The sewerage pipe was placed through it and concreted in at a later date, so they now have ongoing issues with patch and repair works often being required, particularly after storm events. The Harbour Master pays for repairs to the breakwater.

The Bude Sea Pool is no longer maintained by the council due to the high costs involved (estimated at £30,000 - 40,000/ year). This is now maintained by the Friends of Bude Sea Pool who charge membership fees and hold events to raise money. Work was undertaken after the storms in 2013/2014 to repair the front of the Sea Pool. Locals help out e.g. hand rails were donated.

Beach levels are low across Summerleaze and Crooklets.

377 • At Summerleaze Middle Beach (adjacent to the sea pool), the beach has a significant proportion of
378 pebbles but before the storms in 2013/ 2014 it was a sandy beach. Gareth noted that the rocks
379 became exposed last winter (2013/2014) but beach levels had started to increase again. Since the
380 last couple of big spring tides the levels have fallen and more pebbles have appeared.

381 • At Crooklets, the beach is also losing sand, and Gareth noted this is a pattern that has been going
382 on for years (i.e. before the 2013/2014 storms). He also noted the formation of a large sand bar
383 offshore of Crooklets

384 Locals and tourists like a sandy beach. Tourism is very important at Bude.

385 Gareth described the weather conditions, westerly winds are predominant. Large spring tides
386 (particularly the high spring tides experienced in early 2015), strip the beach of material, which is then
387 returned under gentler smaller tides.

388 4.4 Potential Management Solutions

389 • Gareth suggested that sand removed from the access path could be placed in the mouth of the River
390 Neet, from where it would flow to sea and be washed back onto the beach.

391 • The majority of sand movement into the car park occurs during the Winter. The timing of sand
392 clearance from these areas could be planned. For example, it could be undertaken at the start and
393 end of the busy summer season.

394 • A staggered sleeper system could be placed within the front-face of the dunes to help slow the rate
395 of dune accretion/climbing.

396 4.5 Data Sources

397 None to report.

398 4.6 Photos



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400 *Photograph 4.1*



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Photograph 4.2



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Photograph 4.3

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5 Widemouth Bay

5.1 Attendees

| Name | Role | Organisation |
|------------------|--------------------------|-------------------------------------|
| Emma Allan | Senior Coastal Scientist | CH2M Hill |
| Anne-Marie Moon | Senior Coastal Scientist | CH2M Hill |
| Gareth Cann | Countryside Ranger | CORMAC, Cornwall Council |
| Bobbie Heathcote | Parish Councillor | Marhamchurch Parish Council (north) |
| Cllr Tony Prry | Parish Councillor | Marhamchurch Parish Council |
| Cllr Ray Hockin | Parish Councillor | Marhamchurch Parish Council |

5.2 Location



5.3 Issues and Observations

The northern dunes are low but there is some marram grass. The cliffs to the north are eroding; in the 1920's the Old Salt House existed and a road ran in front of it.

At the junction of the northern cliffs/dunes, a small wooden bridge was located at the access point from dunes to beach (the current coastal path route), but was ripped out in storms in 2014. A stream flows through this area, and Gareth suspects the coastal path may need re-routing, but there was evidence at the time of the site visit that sand is building back-up again and this may not be necessary.

The front face of the dunes is eroding and there are boulders, which used to be buried. In the past Gareth and volunteers have implemented dune management techniques to trap sand, including a fine mesh fence, although it did not prove successful and was unsightly. More recently, techniques such as

planting Christmas trees and willow coppice have been implemented to help stabilise the dune front. The willow is cleared from another site and so is a waste material being reused. Where willow has been planted the dunes have begun to build behind (see Photograph 5.1).

Landwards, the sand is mobile and migrating towards the Beach House.

- In front of the privately owned beach huts, sand builds-up restricting access (see Photograph 5.2). During the site visit, we were informed that sand has built up to the roof of the beach huts.

- A car park was created by flattening the dunes, but was closed down in the 2000's as sand kept blowing onto the car park/

- Sand also blows onto the road (Marine Drive), although we were informed that the volume of sand on the road was not as bad this last winter (2014/2015) as last winter (2013/2014).

At the location of the Council-run car park (to the south of the stream), formerly dunes, sand is blown onto the car park and requires clearing. When sand collects in the car park it cannot be returned to the beach as it may be polluted by oil, diesel etc. from cars.

Seaward of the car park, pebbles were removed from the beach last winter to leave a significant drop at the foot of the access steps and disabled access ramp. The cobbles are now building back up and the bottom few steps are buried beneath the cobbles (see Photograph 5.3).

To the south, at Black Rock end, the dunes are more fixed but the front face is eroding to form a steep-cliffed face (see Photograph 5.4). There are issues with water running down dunes and eroding. Within the dune face and dunes, there are large areas of bare sand where dunes have been trampled and there are many pathways through the dunes. There are a few main paths that are very eroded. Management needs to control access.

As with Bude the beach levels are lower since the 2014 storms. The rock is more exposed and there are pebbles present where it was previously more sandy. At one point there was a slimy grey clay present between the rock at black rock. This was not present at the time of the site visit.

5.4 Potential Management Solutions

- Need to implement sand trapping management techniques, although need to be aware that fencing could be taken for BBQs etc. as Widemouth is a popular beach site. Plastic fencing may not look aesthetically pleasing.

- Gareth would like to undertake a coordinated Christmas-tree planting event during winter 2015/2016.

- Plant marram grass within the dunes to help stabilise them.

- Willow could therefore be potential option, especially as it is available at no cost.

5.5 Data Sources

None to report.

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5.6 Photos



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Photograph 5.1



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Photograph 5.2



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Photograph 5.3



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Photograph 5.4

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6 Porthtowan

6.1 Attendees

| Name | Role | Organisation |
|-----------------------|--|---|
| Emma Allan | Senior Coastal Scientist | CH2M Hill |
| Emily Hewitt | Environmental Scientist | CH2M Hill |
| Mark O'Brien | Officer | Cornwall Council |
| Alison Mills | | |
| CLlr Mrs Joyce Duffin | | Cornwall Council Member |
| Lyn Davis | Porthtowan Parish Councillor Member | St Agnes Parish Council Porthtowan Dunes Community Group |
| Jude Struger | Resident Chairman | n/a Porthtowan Dunes Community Group |
| Nicky Pearce | Resident Secretary | n/a Porthtowan Dunes Community Group |
| Jack O'Shea | Resident Member | n/a Porthtowan Dunes Community Group |
| Nora Stapleton | Resident Member | n/a Porthtowan Dunes Community Group |
| Phil Reed | Technical advisor to PBA | |



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- The access path to the beach via Beach Road (opposite Blue Bar) is covered by sand and is uneven. Cornwall Council and St Agnes Parish Council are working together and will soon implement a project to improve the beach access path and provide disabled access to the beach in order to maintain and fulfil the criteria requirements for Blue Flag status and the Cornwall Council Seaside Award (see Photograph 6.1).

A number of dune stabilisation methods have been implemented by the local community and are being tested for their success, they include the following:

- Sand bails located within the dune face, placed 3-4 weeks ago (see Photograph 6.2), along with topping of the existing dunes and reshaping of the sand. The community are divided by the method of removal and reshaping of established dune and there is concern for the remaining patch of dune adjacent to the stream. Sand is accumulating around the bails, although children do play on them and horses eat them. There is dispute within the community regarding the eventual required height of the dunes and protection of the seascape view point from behind the dunes.
- Brush Wood fencing.
- Hoping to plant Marram Grass.

In the past, various methods of management have been trialled:

- Christmas trees were placed within the dunes, but not favoured by the local community so were removed.
- Fencing was placed in the dunes some time ago and were ok, but not favourable to the local community.
- Chesnut paling was used to stabilise the dunes but sand built up too quickly so were not favourable to the local community.
- Gabions were placed along the dune toe in the late 1980's/early 1990's, they worked initially, but then the dunes eroded. The gabions were moved to the opposite side of the beach, across the river mouth.
- Fencing has been placed between the dunes and the river (on the north side), to restrict access and discourage people from walking through the grassy area of dunes here. Some planting has taken place, including marram and smaller dune plants. Sometimes, the wind rips the marram grass out.

Children play in the dunes and jump of the fence into the dunes. A suggestion was made to add something outside of Blue Bar for children to jump from to prevent damage to the dunes.

During Winter 2013/2014, the beach was steep, rock was exposed as was Torrey Canyon oil.

Around the area of the lifeguard hut, the land can get flooded by seawater, although the flood water stops at the entrance to the car park. A South West Water drain does back-up on the north side of the river. The River is dredged/cleaned of sand and was last completed in January 2015.

The dunes on this side of the river, seaward of the gabions, are stable.

St Agnes Parish Council are undertaking an Open Development Plan and have started consultation.

6.4 Potential Management Solutions

- Plant marram grass for the purpose of stabilising the dunes, fencing may be required to protect the dunes whilst they recover. The local community would be happy to fence sections of the dune off whilst they recover, but not the entire dunes.
- In information notice board about the dunes and management activity would be welcomed and help to educate the general public about the site and the efforts being made to restore the dunes.
- Funding can be sort from 106 developers contributions (approximately 10-20k is currently available).

6.5 Data Sources

- An information pack was provided by Jui Stuger.
- Phil Reed has wave climate data from his work on the Wave Hub project 8 miles away at Hayle.
- Reference Cornwall Council (produced by Royal Haskoning) Sand Loss Report, January 2015.
- Plymouth University have undertaken studies of the beach and dunes at Porthtowan.
- In 2008/2009, Plymouth University undertook wave readings just off the beach.

6.6 Photos



Photograph 6.1



Photograph 6.2

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563 sand could move freely beneath it. In March 2014, the RNLI placed sand bags around the footings of the
564 station.

565 The dunes adjacent to the access path to the right of the RNLI Life Guard station have been stabilised
566 and protected with a solid dune fence put in during March 2014 (see Photograph 7.3).

567 Between the access path, to the right of the RNLI Life Guard station, and the southern end of the beach,
568 the dunes are eroding. During the last winter storms, the dunes eroded by approximately 7m from the
569 seaward face and the old dune fencing was destroyed (see Photograph 7.4). At the time of the site visit,
570 the dunes are showing some signs of recovery.

571 At the top of the dunes, much of the dune vegetation was burned on the day of the site visit. This was
572 due to accidental fire and not controlled burning (see Photograph 7.4).

573 There are a large number of access routes through the dunes and via the dune face to the beach which is
574 causing erosion.

575 Within the dunes, a number of plants are growing, some OK, others not native or desired:

- 576 • Tamarisk – ok
- 577 • Sea Buckthorn – ok
- 578 • Alexandris – grows quickly and requires maintaining, which is costly.
- 579 • Rosa Regosa – requires spraying to get rid of it.

580 At the southern end of Fistral Beach, rocks have been placed at the toe of the cliff to protect a pinch
581 point and coastal path.

582 **7.4 Potential Management Solutions**

- 583 • Any solutions needs to balance aesthetics, health and safety, cost/funding, flood and erosion risk.
- 584 • Restrict access pathways, although the question was raised as to whether focusing the paths causing
585 that particular area to deepen and erode.
- 586 • Start a Friends of Fistral Beach Dune Group
- 587 Encourage students from the local university to take-part in volunteer days helping with
588 implementation of dune management techniques.

589 **7.5 Data Sources**

- 590 • Reference Cornwall Council (produced by Royal Haskoning) Sand Loss Report, January 2015.

591

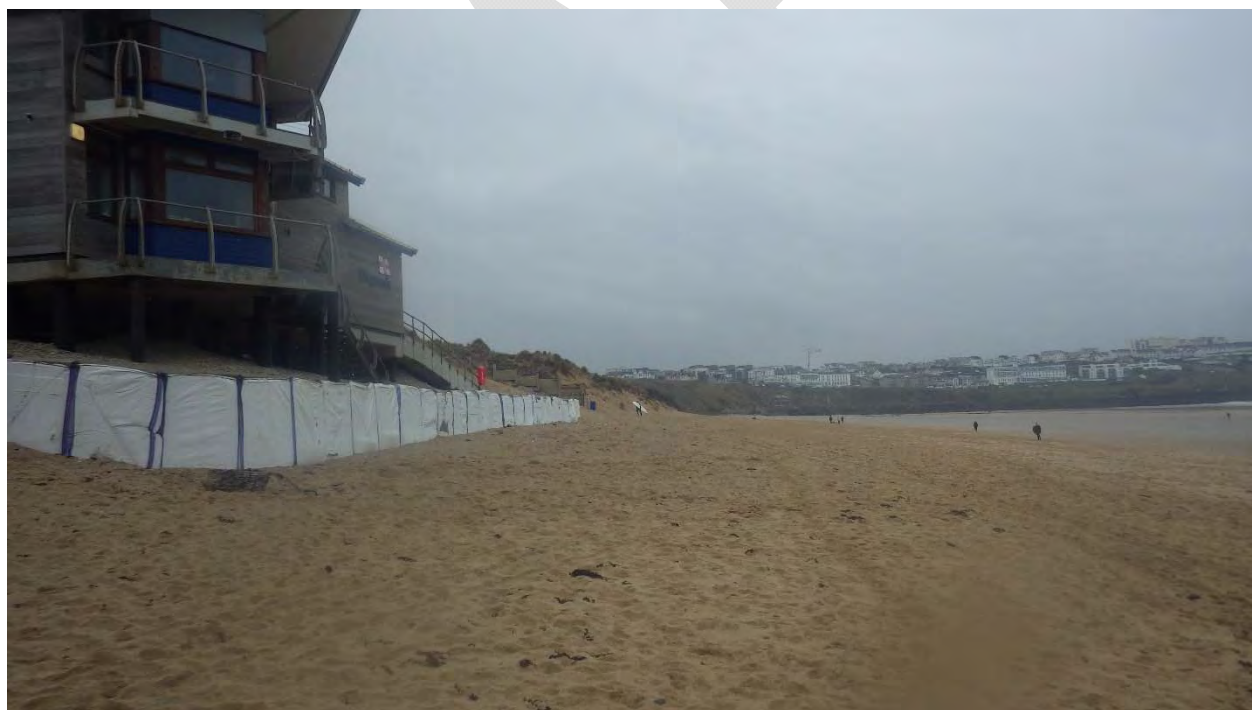
7.6 Photos



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Photograph 7.1



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Photograph 7.2



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Photograph 7.3



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599

Photograph 7.4

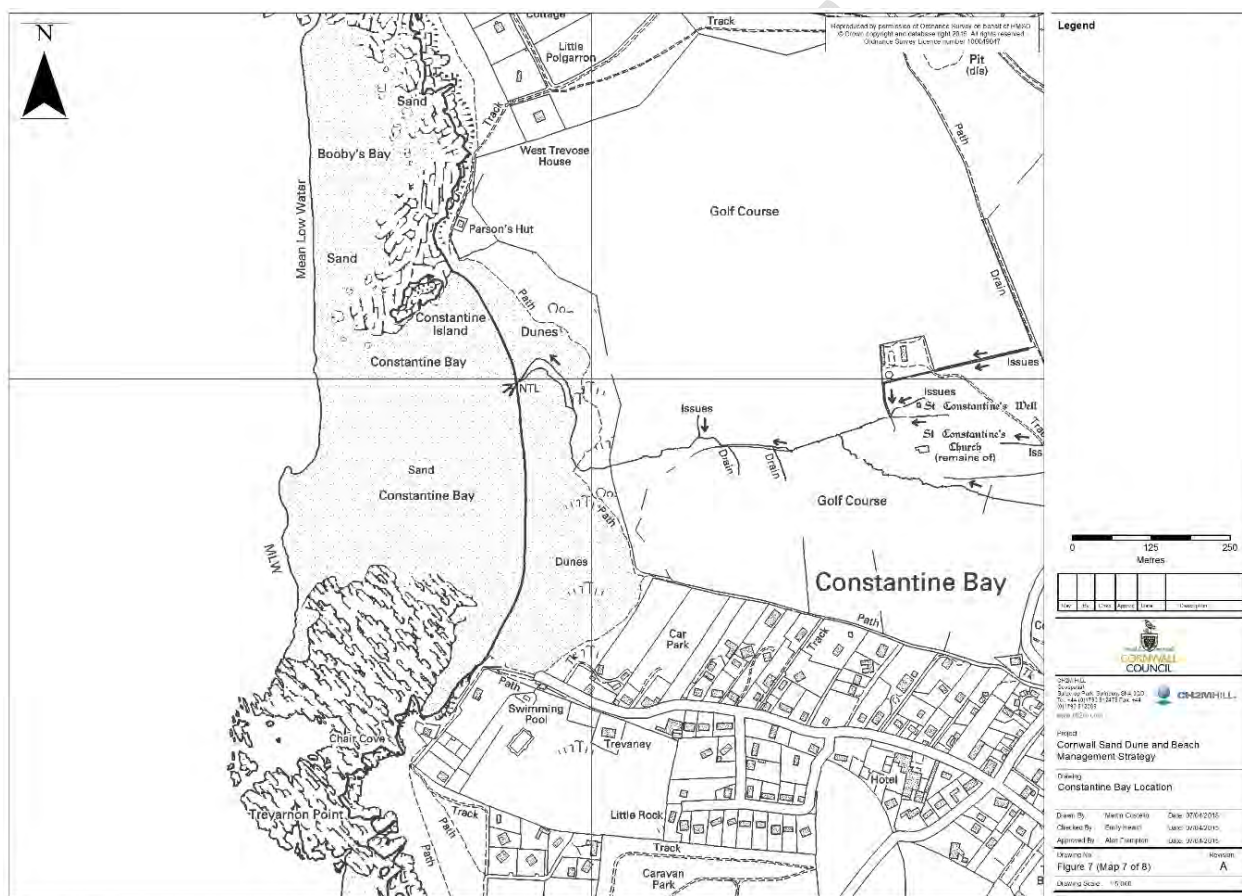
600

8 Constantine Bay

8.1 Attendees

| Name | Role | Organisation |
|---------------|--------------------------|----------------------------|
| Emma Allan | Senior Coastal Scientist | CH2M Hill |
| Emily Hewitt | Environmental Scientist | CH2M Hill |
| Jo Stuttaford | Resident | House adjacent to car park |

8.2 Location



8.3 Issues and Observations

At the time of the site visit, the beach car park was occupied by a site office and vehicles for the purpose of the seawall construction at the southern end of Constantine Bay.

The access path was buried beneath sand, as sand blows up the access path. The RNLI placed one boulder bag at the toe of the access path to assist in stabilising the bank of the footpath (see Photograph 8.1).

The seaward side of the access path and back of the beach is eroding and boulders have been put in place by Cornwall Council to help stabilise the beach (see Photograph 8.2).

Along the cliff face at the southern end of the beach, there has been a seawall in place since the 1940's. Since then, it has been added to and changed with various methods. The most recent seawall collapsed after the winter 2013/2014 storms. A new seawall is currently being constructed and is due for completion in Spring 2015 (see Photograph 8.3).

617 In front of the seawall, there was a period of 2 years during which there was no sand and just rock, but
 618 sand has now built back up.

619 The RNLI station foundations were recently built at the toe of the dunes. The hut that sits on top is
 620 temporary, being put up in Summer and taken away in Winter. Residents fought not to have a structure
 621 at all, so this set-up was a compromise.

622 The dunes eroded during winter 2013/2014.

623 An increasing number of access routes are being taken through the dunes and via the dune face which is
 624 accelerating erosion. People use the dunes for BBQs, which causes further erosion. They also leave the
 625 residual BBQ, which is a health and safety hazard.

626 Christmas trees were planted along the dunes over a period of one year, approximately 4 years ago,
 627 although they were eventually washed out of the dunes.

628 During the 1970's, the dunes suffered a large amount of erosion. In the 1980's/1990's, a programme of
 629 dune stabilisation was implemented by, what was at the time, North Cornwall Council, which included
 630 the placement of Chestnut paling, marram grass and re-contouring. This resulted in dune stabilisation
 631 and re-growth, and eventual burial of the Chestnut paling. Today, the Chestnut paling is exposed
 632 following erosion of the dunes during the 2013/2014 storms.

633 Trevoze Golf and Country Club also provides some funding to the dune stabilisation programme at the
 634 time, but generally do not look after the dunes. The stream that flows from St Merryn joins the beach
 635 near the golf club has changed course since the golf club have taken water from it for the purpose of golf
 636 course maintenance. They have also cleared the gully.

637 Along the beach, sand comes and goes and there is no strong pattern of change with the seasons at
 638 Constantine, as movement of material tends to be governed by particular wind and tide conditions that
 639 occur throughout the year.

640 The steps at the northern end of the beach are subject to washing away, last in 2000.

641 There is a problem with litter during the summer period, when tourism picks-up (during the summer
 642 there can be 3000 people on the beach). There are presently 1-2 bins in place during the winter and 6 in
 643 the summer, with 2 emptying's per day.

644 At the top of the access path, which is Parish Council Land, they let to a coffee man and Kelley's Ice
 645 Cream van in the summer. There is a problem with unlicensed outfits using the site to sell their goods,
 646 which requires addressing.

647 A potential source of income for funding could be the introduction of a parking meter in the beach car
 648 park, although we were informed on the day of the site visit that the cost of putting a meter in,
 649 enforcing and emptying it can be costly and outweigh the benefits of the a meter.

650 Skeleton were recently found on the headland between Constantine and Booby's Bay, and a 1000 year
 651 old forest was exposed on the foreshore of Constantine Bay, but has since been covered up with sand.

652 90% of the homes in Constantine are second homes.

653 **8.4 Potential Management Solutions**

- 654 • A solution to the parking meter costs, could be the addition of a volunteer box as it does not require
 655 resources to enforce it and the Parish Council could be responsible for emptying it.

656 **8.5 Data Sources**

- 657 • Jo Stuttford has access to photos and a report on the prehistoric forest which she can send to us.

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8.6 Photos



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Photograph 8.1



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Photograph 8.2



Photograph 8.3

DRAFT

666

9 Par Sands

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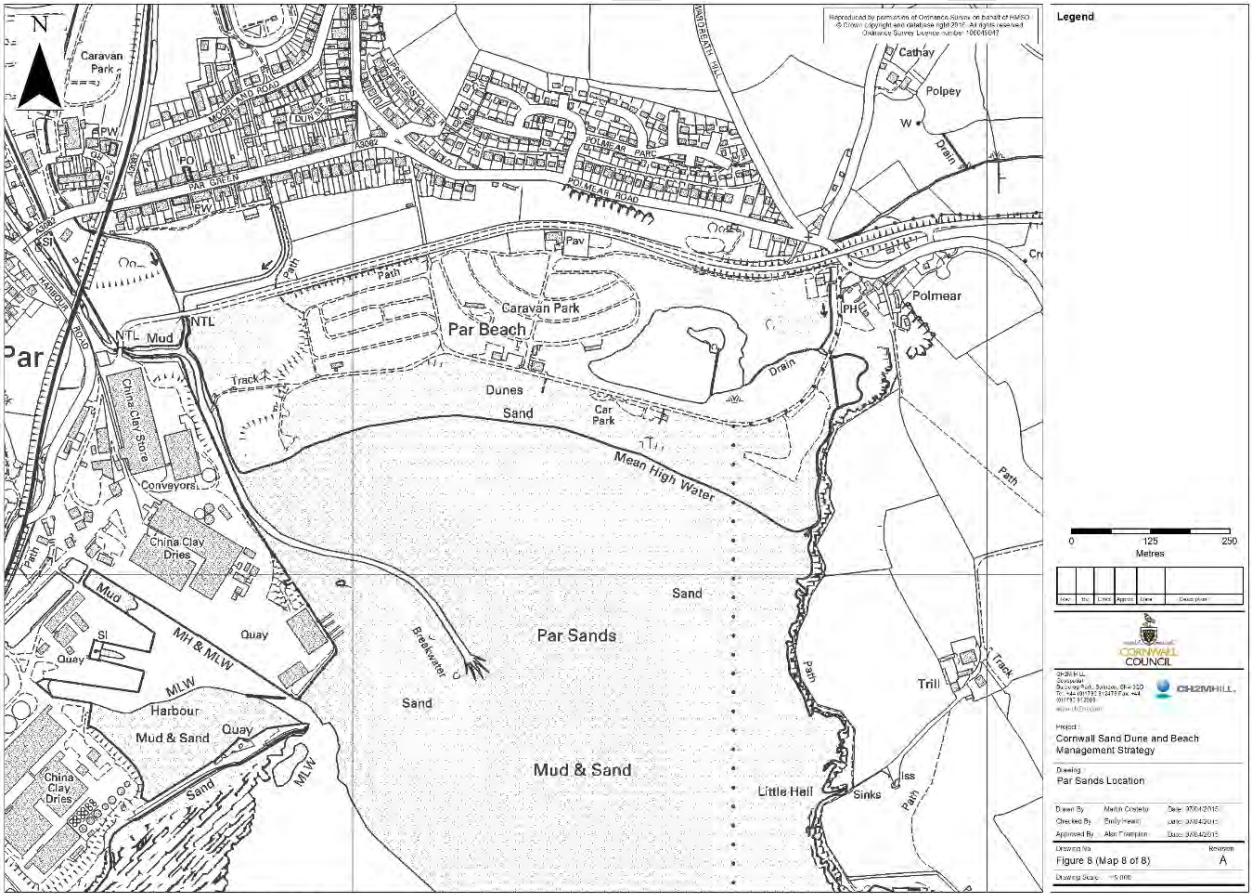
9.1 Attendees

| Name | Role | Organisation |
|-----------------|--------------------------|--------------------|
| Emma Allan | Senior Coastal Scientist | CH2M Hill |
| Emily Hewitt | Environmental Scientist | CH2M Hill |
| James Clapp | | Cornwall Council |
| Nick Ely | Area Coastal Engineer | Environment Agency |
| Richard Parks | Resident Chair | Friends Par Beach |
| Mike Freemantle | Resident Treasurer | Friends Par Beach |

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9.2 Location



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9.3 Issues and Observations

672

The key issue at Par Sands is that there is low-lying land behind the dunes and should they breach this will result in significant flooding of the land behind.

673

674

The Par River, used to exist to the sea along the breakwater, but changed its course about 8 years ago and now flows out to sea further to the west in a straight line and against the footings/defences of the China Clay factory.

675

676

677 Upriver, the dunes on the east bank is eroding, particularly during the last floods. Stabilisation is
678 required.

679 At the western end of the beach there is a small section of landfill, which is comprised of seaweed and
680 littler picked up from the strandline (see Photograph 9.1). Some of this fill was washed away during the
681 2014 storms. The process of beach clearing is no longer undertaken, and seaweed is left to build-up
682 along the strandline in the summer for environmental reasons.

683 Surrounding the banks and strip of sand alongside the stream leading up to the slipway in this location, is
684 heavily deposited clay. The clay can be easily seen underneath the top layer of sand and presents a
685 distinct clay feeling underfoot. It is thought that the nature of clay is not insoluble and therefore poses
686 no problem. The deposited clay is the legacy from the industrial clay mining further upstream. The
687 slipway at this location leads to a field next to the carpark containing rare orchids and wetland that the
688 LNR management together with Friends of Par Beach are making management attempts to protect. It
689 was noted that vandalism of management measures (pulling up of newly planted trees) was currently an
690 issue.

691 Along the dunes, there is clear evidence of dune growth with the formation of embryo dunes and young
692 dune grass (see Photograph 9.2). Marram Grass is growing well and effectively stabilising the dunes. This
693 is likely to be a response to a dune planting programme in the 1980's when the dunes were fenced off
694 and Marram Grass was planted. There are gaps within the embryo dune, and it was questioned if they
695 will join to form one long ridge over time as sand continues to accumulate.

696 Within the dunes, Gorse, Sea Buckthorn and Rosa Regosa are all invasive species and fighting for space.
697 There is growth of Rosa Regosa within the new dunes and James would like to know if this can and
698 should be managed now, by removing it by spraying or whether it is acting to stabilise the dunes and
699 encourage dune growth.

700 High tides do reach the toe of the dunes.

701 At the eastern end of the beach, at Polmear stream, sand tends to be deposited in the mouth of the
702 stream by high tides. If there is a simultaneous big head of water the sand will be washed out from the
703 river, but if the weather is dry and there is no rainfall, the sand is not washed out and the stream
704 becomes blocked with sand. This occurs in the narrow entrance and James Clapp has to arrange for the
705 stream to be cleared to prevent backing-up of water upstream and flooding of the caravan
706 park/Polmear village.

707 During the summer, the stream flows out and over the east bank of the river (only over a small isolated
708 area at the bottom of the cliffs where Trill Farm is). Boulders were placed in the stream in the late 1970's
709 to help stabilise the bank of the river at a pinch point (see Photograph 9.3 and Photograph 9.4). They
710 were placed at the same time as a scheme at Polmear, when before it used to flood during high tides.

711 To the west, the beach at Carlyon Bay was recharged with material comprised of gritty sand and taram,
712 some of which was later found on the beach at Par.

713 Flooding occurred last year in February 2014 and the dune breached (Nick Ely is to provide details).
714 Presently, there is a flood warning system on the ground, which the Environment Agency respond to.

715 There is a clockwise movement of tidal currents within the bay.

716 **9.4 Potential Management Solutions**

- 717 • The dunes appear to be stable and in places accreting, so the need for intervention was questioned
718 on the day of the site visit. If there is one aim, it would be a preference to make the dunes more
719 robust.
- 720 • Should any dune stabilisation methods such as fencing be selected as an option, there would be a
721 preference for continued access. Communication with the local interest group and general public is
722 key.

9.5 Data Sources

- Cornwall Council undertook beach lowering analysis.
- St Blazey Catchment Flood Management Plan (addresses requirements of EU Water Framework).
- Nick Ely has difference elevation model plots that he can provide us, along with details of the location etc. of the breach that occurred in February 2014.

9.6 Photos



Photograph 9.1



Photograph 9.2



733
734

Photograph 9.3



735
736

Photograph 9.4

737