# An Outline Plan for Learning and Engagement

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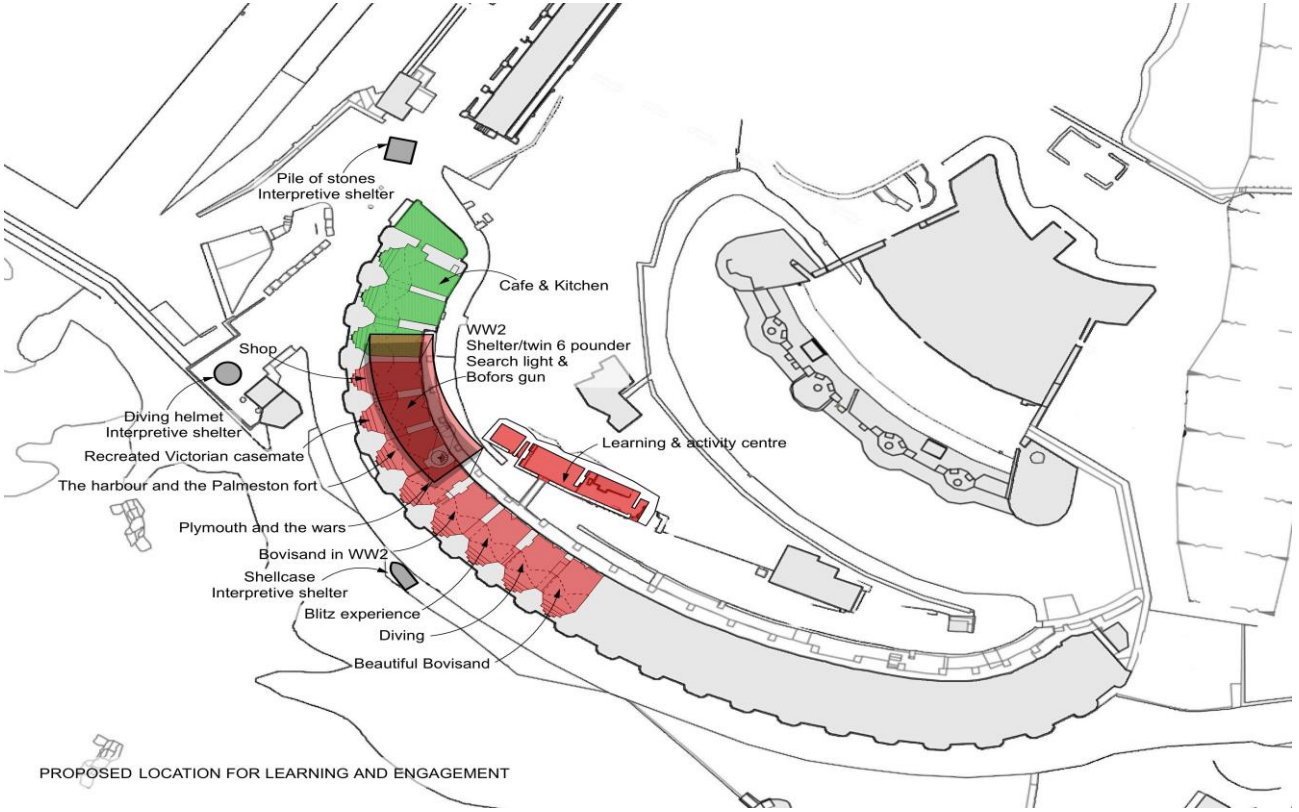
## 1. Our Proposal

Learning and engagement at Fort Bovisand will be underpinned by a magnificent site. The buildings will be totally refurbished, capitalizing on their historic authenticity. Sympathetic conversion of some of its historic assets to create new residential, commercial and recreational uses will make the site more animated than it currently is, even when there are only a few visitors, and will underpin the site's long-term sustainability. New visitor services and a variety of interpretive experiences will populate the site with appealing and meaningful interpretation. This will be attractive to holiday makers and the local and regional community and offer significant opportunities for repeat visits.

A learning hub will provide office accommodation for the site administration staff; a place for volunteers to work on a range of activities and to receive training; a base for site guides and learning materials and a classroom for lectures, formal learning and informal all weather activities. The site will be a centre for volunteering, for skills development and sharing and for formal and informal learning.

Eleven of the historic casemates will be given over to interpretive experiences and visitor services, including a temporary exhibition space. A further building will be converted to provide fully accessible toilets and the learning hub. Three sculptural shelters around the site will reflect its past and provide outdoor interpretation and trail points which interpret the views into and from the site. The former magazines below the casemates and the tunnels that connect them will be available for costumed guided tours with show and tell areas and for special events and activities.




## 2. Learning and engagement opportunities

The regeneration project will enable the Victorian casemates to be put back much closer to their original condition. One casemate will be recreated in historic detail, dressed with an appropriate cannon and sleeping area, to show the living and working arrangements for Victorian

era soldiers. There is a role too for Bovisand in presenting the story of all of the Palmerston Forts, one which is told to some extent at Crownhill Fort but which could be presented in a wider context at Bovisand. There is also an opportunity to communicate the earlier heritage of the building of the harbour, the watering station for ships and the creation of the breakwater and the amazing engineering it involved.

The defence of The Sound will be a major theme for interpretation and is one that begins with Staddon Point Battery and continued through the Victorian period. It perhaps becomes most resonant in terms of the Plymouth story during the Second World War (WW2). Bearing in mind that Plymouth's whole townscape and, to some extent its twentieth century psyche, have been shaped by WWII and the blitz. This is, however, a story that is currently very poorly covered in the city. The history of the nearby Mount Batten site, particularly in terms of flying boats, is also very poorly represented on the ground (although there is a website devoted to the memories of those who served there). Whilst every aspect of the sites heritage should be represented at Bovisand these stories also present a unique opportunity to use the site as a focus for WW2 remembrance and for borrowing, digitising and for making accessible personal wartime memorabilia. The roofs of the casemates are perhaps one of the most appropriate places to interpret this story, as this is one of the location from which defensive operations were mounted.

The significance of diving to the Bovisand story and its wide popularity in Plymouth makes the heritage of diving an appropriate and potentially popular aspect of the site for both interpretation and activity development. It is planned to refurbish the training pool to provide a safe environment for diving activities for young people, as part of a range of activities which celebrate the site's history. Disadvantaged young people who would benefit from engagement with heritage are more likely to be enthused by a 'toe in the water' diving activity as part of a visit to Bovisand. With volunteer support there is an opportunity to raise self-esteem and confidence through this type of engagement and promote interest in other aspects of the site.

The casemates provide opportunities for a range of interpretive approaches and activities. Some would provide excellent environments for large scale film projections and experiential interpretation. This could be both historic and contemporary film, in the latter case, promoting involvement for young people in film making, or could include underwater film made by divers.

The site offers astonishing viewpoints of The Sound - on a warm sunny day there could be no more beautiful place to gaze out to sea and learn about what can be seen. There is an opportunity though to create shelter from wind and rain on more inclement days using meaningful

interpretive icons around the site to accommodate interpretive information. There are also opportunities to use trail guides and apps for smart phones to interpret the wider site, the views from it and the footpath which connects Fort Bovisand to Mount Batten.

Volunteers who can be attracted to work with the Bovisand project might include retired naval personnel with engineering skills. A group of trained volunteer facilitators could provide hands-on activity-based learning around the materials associated with the site as well as its heritage stories. Similarly volunteers of all ages might be interested in giving guided tours of the tunnels in the guise of WW2 soldiers who unlock rooms and might deliver 'show and tell' on weapons, rations, equipment and life in Plymouth during the war.

The refurbishment of the site and the construction of the residential property will also offer opportunities for training, including apprenticeship employment, both in general building skills and in specialist skill associated with refurbishing and maintaining the historic fabric of the site.

## 3. Themes and stories summary

### 3.1 Defending the sound

Both the harbour and Fort Bovisand have played a critical role in defence of Plymouth: from providing a safe haven for ships from the elements; access to freshwater supplies for ships; a home for the big guns in the battery; a fort to deter French aggression; and the final action during the WW2.

The Navy needed a safe harbour from which to watch over the French fleet in Brest. Plymouth, the location of a Naval Dockyard, was ideal, but it was exposed to winds from the South-West. A breakwater was therefore built across The Sound in 1844 to provide a sheltered anchorage for the Fleet. Lying at the mouth of The Sound, between Bovisand Bay on the eastern side and Cawsand Bay to the west, it is nearly one mile long and 2½ miles out from Plymouth Hoe. As early as 1788 a plan was put to the Government to construct a pier from the eastern shore at Staddon to the Panther Rock, but it wasn't until 1806 that work began.

John Rennie was appointed as civil engineer - he was well known for his design of bridges, canals, docks, harbours and lighthouses and as a technical innovator, designing a diving bell that was used for works in The Sound. The plan was to set a solid wall of stone from a base 210 feet wide to a level just 10 feet above low water mark, where it was to be 30 feet in width[1]. The complete breakwater was estimated to cost £1,055,200 to construct, and it was expected that two million tons of stone would be needed. In March 1812, a 25 acre site at Oreston was purchased from the Duke of Bedford for £10,000 and opened as the Breakwater Quarry for the supply of limestone. It is said that the first limestone block weighed 7 tons and was dropped some 30 feet onto the seabed on 12th August 1812 - the Prince Regent's birthday. The stone was transported to site by smaller vessels and ten especially converted sailing barges. These barges were able to make four trips a day from the Quay at the Breakwater Quarry out to the Breakwater. The Breakwater, as it was originally constructed, comprised a central portion of 1,000 yards, with two arms each of 120 yards long and formed at an angle of 120 degrees to the main section. However, a severe gale in 1824 caused substantial damage, and the design of the breakwater had to be reworked to give flatter slopes to the structure. Further improvements were made subsequently. The final construction was 1,700 yards long and had consumed over 36 million tonnes of stone.

By 1819, there was also a completed jetty at Fort Bovisand, enabling crew from warships using the harbour as a stopping off point to collect freshwater from the nearby reservoir.

Further modifications were made when, in 1859, a Royal Commission report recommended that a fort be built on Shovel Rock in the middle of the Breakwater. The original plan was for a casemated work containing 100 guns and 600 men to close the gap in the defences between Fort Bovisand to the East and Fort Picklecombe to the West and to protect ships in The Sound.

[1] These measurements were later altered.

The Breakwater Fort was originally designed as a masonry work on four levels encased in granite, but experiments showed that only an iron structure would resist heavy shell fire from rifled guns. The design was trimmed down to a two-level iron fort with 18 Rifled Muzzle Loading (RML) guns on the top and the magazines and stores underneath. Work began in 1867, when the foundations were constructed 10m below sea level by divers. By the late 19th Century, the exterior was painted in a black and yellow chequer pattern to obscure the positions of the gun ports, some of this pattern still remains. In 1875, the armament consisted of fourteen 12.5 inch 38 ton RML guns to cover the sea to the South and the channels to the sides, plus four lighter 18 ton RML guns to cover the anchorage to the North.

By WW1 the fort had been disarmed as the guns had become obsolete and Breakwater Fort had, become a naval signal station. In 1936, the fort was used as an anti-aircraft (AA) training school with AA gun positions and additional buildings constructed on the roof. In 1942, two twin 6-pounder guns were installed to combat E-boats. A Bofors 40mm anti-aircraft gun was installed in 1943. The Breakwater Fort went out of military use in 1976 and spent some time as a base for offshore diver training operations by the diving company then based at Fort Bovisand.

***Staddon Point Battery***

The Staddon Point Battery, with Picklecombe and Eastern King, was one of three batteries recommended by the Inter-Service Committee on Harbour Defences in 1844. The battery was completed in 1847 and was originally surrounded on all sides by a dry ditch. The battery could accommodate up to three officers and 90 men and was laid out on three levels including stores on the lowest and barracks, kitchens and servants' rooms over. In 1850 the battery included an armament of seven 68-pounders and three 10-inch guns, in addition to nine guns of unspecified bore. In part, it was intended to protect Bovisand Pier, but its main purpose was to cover the eastern approach to Plymouth and the breakwater. The original appearance of the fort is recorded in late 19$^{th}$ Century photographs, which show the three-storied structure flanked by a pair of D-shaped towers. These were later demolished to their lower stories when the battery was re-modelled in 1898-9, although the mechanism for operating the drawbridge (on the north side) remains in position today. With the construction and arming of Fort Bovisand in 1870-2 the Staddon Point battery was disarmed and

instead became an accommodation block for the officers and garrison. In the 1860s the battery and new fort were linked by a covered way, protected by a wall with loopholes and a ditch along the east side of the site. During WW2 four 12 pounder QF guns were installed on the terrace.

***Fort Bovisand***

Victorian forts can be divided into two distinct types, the land front forts designed to protect against a land based attack and the coast defence batteries designed to defend against naval forces. Both were manned by regular garrison artillery and, in time of need, by volunteer artillery supported by field artillery and infantry regiments. The forts served as barracks throughout the Victorian period and almost all of them were fully armed by 1888. The forts referred to as 'Palmerston's Follies' are the coastal forts, built to defend a number of key areas of the British, Irish and Channel Island coastlines. They were built following the recommendations of the 1860 Royal Commission on the Defence of the United Kingdom, which was established to address the concerns about the increasing strength of the French Navy.

Lord Palmerston was the Prime Minister of the day and the chain of defences were named after him. Many people thought that they were excessive - they were the most costly and extensive system of fixed defences undertaken in Britain during peacetime and as, by the time they were completed, the threat (if indeed it had ever fully existed) had passed, they were seen as follies. However, some modern historians see them as crucial to the security of British harbours during the 20th Century. Some of the forts have been actively preserved or given new uses, but many of them have fallen into disrepair in recent times.

***Big Guns***

The town of Plymouth has a long history of facing the threat of attack. During war with the French in the 14$^{th}$ and 15$^{th}$ Centuries, Plymouth was plundered and burnt twice. Elizabeth I twice ordered improvements to the defence of the town during the threat from the Spanish Armada. By the mid-1600s, the town defences included a long list of big guns, although these were reduced to about 300 after the Peace of Utrecht in 1713. There were other threats which were met with temporary batteries and fortifications, until in 1844 it was recommended that a permanent battery should be erected.

Bovisand was originally designed to have twelve 18 pounder guns; the available height would later enable larger guns with a greater range. Later on, the fort was one of only a few equipped with Anderson's Cupola device, a blast furnace used to melt pig iron. This was used in conjunction with shells patented by a Mr Martin; the molten iron was poured into the shells, sealing the hole as it solidified. When the shell hit the target it broke up, sending molten iron flying all over the place. The shells became obsolete in the 1860s because they could not be adapted for use with rifles.

The fort built in 1861 was designed to have 32 guns served by 180 men. The guns were put into casemates incorporating a strong iron shield with a porthole through which to fire. This shield protected the crews from fragments of shells bursting against the rocks in front of the fort if under attack and also provided protection for the gunners when reloading. There was also a fire-curtain to the rear to prevent smoke from filling the casemates.

A clever system called the Moncrieff Disappearing Mounting used a system of weights and counterweights to force the gun back and down so that reloading could be done in the gun pit. Fort Bovisand became one of the first coastal defence batteries to benefit from the Watkin Depression Range Finder and Position Finder. This recorded the range and the bearing of an enemy ship and transmitted the information to the guns. In 1903 two Maxim guns were erected on the base of the two towers of the battery. These became the main armament of the fort and remained so until 1942.

***Training***

In the early 20th Century, Fort Bovisand was used for military training. There are documents held at the Imperial War Museum written by members of the Royal Artillery Regiment about their training at Bovisand Fort. G Munday describes his training at Bovisand and his service on the Western Front with 177 Siege Battery. Dr Parsloe worked as a Medical Officer with the Royal Army Medical Corps both in England and on the Western Front throughout the First World War detailing his work as a newly-qualified civilian doctor at Fort Bovisand in Plymouth on the outbreak of hostilities.

***RAF Mount Batten***

A Royal Naval Air Station (RNAS) was commissioned at Cattewater in February 1917 and two hangars were erected close to the breakwater, on which a railway track was laid to enable a steam crane to lift seaplanes into and out of the water. Both the airship base and RNAS Cattewater came under the control of a large RNAS establishment at Tregantle, in Cornwall. On 1st April 1918 the Royal Naval Air Service

merged with the Royal Flying Corps to become the Royal Air Force and RAF Cattewater came into existence and, in April 1922, the base was turned over to a Care and Maintenance Unit.

In 1923 the Cattewater Seaplane Station Bill became enacted and the base re-opened in October 1928 as RAF Mount Batten, to provide a base for flying boats to defend south-west England. A variety of seaplanes were stationed at RAF Mount Batten. The first squadron (No.203) became operational with the Supermarine Southampton, twin-engine biplanes, known as Southamptons. In January 1929, No.204 squadron was formed - later that year they were provided with Fairey seaplanes until they too converted to Southamptons, whilst No.203 Squadron left in April 1929. In January 1930 No.209 Squadron was re-formed and entered service with the large Blackburn Iris flying boats; one of which came to grief shortly after landing in 1933, when it hit the steam pinnace "Alexandra". In 1934 No.209 squadron re-equipped with Blackburn Perth flying boats, leaving Mount Batten in May 1935. The total strength in early 1935 stood at 23 officers and 203 airmen, but later that year No.204 Squadron left the base, being replaced by two Royal Naval Fleet Air Arm units, becoming the Fleet Air Arm's floatplane base.

The variety of planes and squadrons continued and the Base became so crowded that the Fleet Air Arm had to move back to Lee-on-the-Solent. By the outbreak of World War 2 a squadron of the new Sunderland flying boats stationed at Mount Batten. On 9th Saturday September 1939 a Sunderland launched the first attack on a German U-boat in the Channel and on Monday 18th September 1939 they helped to rescue the crew off the SS Kensington Court, which had been torpedoed 70 miles off the Isles of Sicily. The Sunderland's pilot, Flight-Lieutenant Barrett, was able to drop eight of his bombs on the spot where the U-boat had submerged before landing to pick up 14 of the crew from the stricken cargo vessel. All the crew were saved and as a result Flight-Lieutenant Barrett was awarded the Distinguished Flying Cross (DFC) at the first wartime investiture on Wednesday 1st November 1939.

One notable flying boat flight landed at Mount Batten in the early hours of Saturday, 17th

January 1942, with Sir Winston Churchill and Lord Beaverbrook on board. Their 18-hour flight had covered 3,287 miles, following which they left Plymouth for London by train. Sunderlands continued to visit Mount Batten from Pembroke Dock right up until Wednesday 30th January 1957, when Air Vice Marshall G I L Saye, the air officer commanding No.19 Coastal Command, embarked on a flight from Pembroke Dock to return to the base for the disbandment ceremony of No.201 and No.230 Squadrons, the last in Britain to fly Sunderlands. No.205 Squadron provided the aircraft for the last operational flight of a Sunderland flying boat on 15th May 1959. The formal end of flying from Mount Batten came on Saturday 5th March 1960, when a special ceremony was held at the base. In the 1950s Mount Batten became a main base for the Air/Sea Rescue service and their launches became a familiar post-war sight moored in the Cattewater. No.19 Group Coastal Command RAF left Mount Batten in 1968, which was the beginning of the run-down of the Station. The ceremony for the disbanding of the RAF Marine Branch was held at Mount Batten on 8th January 1986 and the site closed on Sunday 5th July 1992.

There were a few well known residents, including TE Lawrence, known as Lawrence of Arabia. He began working in the workshops at RAF Cattewater under the pseudonym of Shaw in March 1929 and, as the weeks passed, his increasing commitment to service duties meant he felt little inclination to read or to write letters. The workshops dealt with both aircraft and the boats used as tenders. Boats were an unexpected pleasure. On 6th April 1929 he wrote: *There is a lot of office work: but beyond that a motor boat, to which I'm a spare man, when available. In summer that will be very pleasant'*. This was not a new enthusiasm. In his twenties, while working as an archaeologist at Carchemish beside the River Euphrates, Lawrence had arranged to have a canoe shipped out from England. Before that he had spent many happy hours in punts and canoes at Oxford.

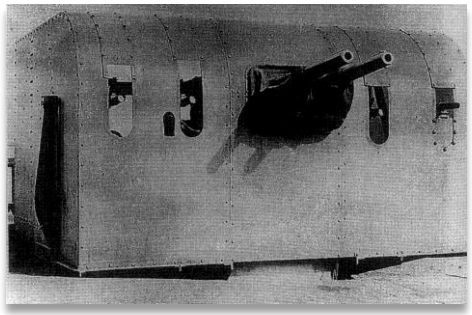
In the autumn of 1929 he became part owner of an American Biscayne Baby speedboat. He wrote to Charlotte Shaw: *I get a great deal of new satisfaction out of her*. He shared the boat with his Commanding Officer. They used it experimentally for RAF work, including target towing. It showed them how useful fast workboats might be. Lawrence drafted letters to the Air Ministry, urging new and faster seaplane tenders. The value of speed for rescue was demonstrated by a tragic incident in February 1931. A flying boat crash-landed just a few hundred yards offshore and quickly sank. Help arrived too late to save many of the crew. Soon afterwards Lawrence was sent to Hythe, on Southampton Water, as part of a team that would oversee trials of a new, faster type of launch

for the RAF.

## 3.2 World War 2 at Bovisand

The outbreak of war in 1939 found most of the country in dire need of improved defences and armaments. Staddon Point Battery and Bovisand were only gradually re-armed for coastal defence. Initially Bren guns and Lewis guns were fired during daylight hours at occasional hit and run German raiders. These had learnt to shelter under the Sunderland flying boats returning from long patrols to Mount Batten, and then at the last possible moment the German raiders would veer away and shell and machine gun Plymouth docks.

In 1941 new searchlights were installed on the rocks in front of the fort. More lights needed more power and casemate 3 was turned into another engine room. In case of power failure – there were also 2 Ryder flares on the rocks in front of casemate 12. These in turn were replaced with 4 Lyon searchlights in 1943. Finding German E-boats was a priority and in order to be able to seek these fast moving craft, Director Mark 13s had been installed in May and June of 1941. In June 1941 all coast artillery units were renamed Coast Regiments and Coast Batteries. Under this new grouping, 157 Heavy Battery Royal Artillery, who were manning Bovisand, became 158 Coast Battery, a part of the 568 Coast Regiment Royal Artillery which had its headquarters at Wembury.



Early in 1942 two twin six pounders were mounted on top of the casemates. These too were focused on the German E-boats and were provided with armoured shields. They issued rapid fire guns at 70 rounds per minute from twin barrels. These were put on the roofs of casemates 11 and 16. More Bren guns also arrived, with 3 spigot mortars and Lee Enfield rifles. Hit and run attacks increased during 1943 and an anti-aircraft gun was supplied - a Projector UP2 inch naval pattern - a smaller but similar weapon to those used during the Blitz in London.

The anti-aircraft piece was replaced in December 1943 with a Bofors on the site of no. 2 emplacement. Further additions in 1942 included three-storey observation towers on top of the casemates, constructed with shuttered concrete and reinforced with iron girders. This arrangement was introduced for anti-torpedo defence and integrated observation, and the use of guns and searchlights. Such arrangements can also be seen at Scapa Flow, Landguard and Portland; the preservation of these structures at Bovisand is unique to the Plymouth area. A string of pillboxes were also constructed to defend the beach surrounding below the fort, some of which survive and are recorded in the NMR. In the early 1950s, the fort was converted and used as the Plymouth Fortress Seaward Defence HQ, until the disbandment of Coast Artillery in 1956. The fort was subsequently decommissioned.

***Plymouth Blitz***

During World War 2 the German Luftwaffe launched a series of aerial attacks on strategic British cites - these became knows as The Blitz The first bombs fell on the city on Saturday 6th July 1940 at Swilly killing 3 people and, during 1941, five further raids reduced much of the city to rubble. The devastating German air raids of the nights of 20th and 21st March, and 21st, 22nd, 23rd, 28th and 29th April have become termed the Plymouth Blitz. The royal dockyards at HMNB Devonport were the main target, but in just seven nights the centres of Plymouth and Devonport were laid to ruin. The last attack came on 30th April 1944. Civilian casualties very high, despite this the dockyards continued in operation. During the 59 bombing attacks, 1,172 civilians were killed and 4,448 injured. The resident population fell from 220,000 at the outbreak of war to, at one point, only 127,000. In 1941, most of the children were evacuated and on any night that a raid was expected thousands of

people were taken by lorry into the countryside, usually to the fringes of Dartmoor.

### 3.3 Diving

Bovisand was brought back into use from a state of being very overgrown and run down in the 1970s by a man called Commander Alan Bax. He developed it as a very popular diving centre at a pivotal time in the development of commercial and leisure diving. The main thrust of this activity was the development of off-shore drilling and of oil and gas installation in the North Sea. During this boom period for learning to dive, Fort Bovisand was a hugely important site. At that time the site had its own training pool and a decompression chamber as well as many of the other diving requirements which remain on the site today.


Today the site retains both its military links and its diving tradition through the presence of the The Joint Service Sub-Aqua Diving Centre (JSSADC), which is run by the MoD. It runs sub-aqua and associated courses in support of the Joint Services Adventurous Training Scheme. The centre runs courses in accordance with the British Sub-Aqua Club and the Royal Yachting Association training programmes and also offers more specialised courses from other training agencies such as Technical Diving International.

The site also accommodates a leisure diving company called Discovery Divers and around 2,500 people enter the water to dive each year either as direct clients of Discovery Divers or using their services in some way. The owners too have a long association with the diving heritage of the site and boast some of the most challenging diving available in UK waters. They also offer beginners courses and can offer wreck dives and plentiful marine life.

Bovisand is now advertised as the home of scuba diving in Plymouth. There are many excellent dive sites within easy reach from shallow scenic dives to much deeper and technically challenging sites. There are a significant number of shipwrecks from different time periods within striking distance.

***Early Diving Gear***

Ancient swimmers used cut hollow reeds to breathe air, the first rudimentary snorkel used to enhance our abilities underwater. Around 1300, Persian divers were making rudimentary eye goggles from the thinly sliced and polished shells of tortoises. By the 16th Century, wooden barrels were used as primitive diving bells, which operated on the basis of air being trapped under the open, bottomed container and the diver could venture out.

There were several attempts to invent self-contained apparatus that would bring in fresh air and expel the old; inventors risked their lives testing out the prototypes and died from too much oxygen and too little. As time has passed peoples' understanding of the physical requirements to undertake extended dives, has advanced as well as in more sophisticated technologies and equipment. In Europe in the 1500s leather diving suits were used, combined with air from manual pumps to depths of 20 metres. This progressed over the next two hundred years until the well-known steel and brass diving helmet with rubber suits were being used, for extensive dives to undertake commercial salvage underwater. Modern scuba diving gear consists of one or more gas tanks strapped to the divers back, connected to an air hose and an invention called the demand regulator. The demand regulator controls the flow of air, so that the air pressure within the diver's lungs equals the pressure of the water.

Many of the developments and technology have connections to the Navy. The first diving school was set up in 1843 using the experience gained during the salvage of the warship HMS Royal George in 1843. The ship was the largest warship in the world at the time of launching in 1756 and after an active service she sunk during routine maintenance off Portsmouth with the loss of 800 lives.

***Physical effects of diving***

Research carried out by Paul Bert and John Scott Haldane helped explain the effects of water pressure on the human body and in turn defined the limits involved in compressed air diving. The British government commissioned the work by Haldane and the results were developed into tables that were used by the Royal Navy and the US Navy. There were technological advances in terms of pumps and other equipment, which allowed people to stay under water longer as well. In 1917, The US Navy began using the 'Mark V Diving Helmet' for all of its underwater salvage work, using a design that was largely unchanged until the1980s. The first scuba (self contained underwater breathing apparatus) apparatus was invented by Benoit Rouquayrol and Auguste Denayrouse, which included a diving helmet, a compressed air tank and an early rudimentary demand regulator. This is a very early version of what was later developed into modern day scuba equipment that is used in modern sport diving.

***Modern scuba diving***

Emile Gagnan and Jacques Cousteau invented the modern demand regulator and an improved autonomous diving suit. In 1942, they redesigned a car regulator and invented a demand regulator that would automatically refresh the air when a diver breathed. A year later in 1943, Cousteau and Gagnan began selling the Aqua-Lung. This was the point at which modern scuba diving marks its beginnings and from when diving was available to non-professionals.

From this point on, scuba steadily developed in the years to follow, becoming hugely popular as a result of a television programme starring Lloyd Bridges - The Sea Hunter - this inspired thousands to take up the sport. As the sport became more popular, there was an increase in the number of accidents and this prompted the formation of NAUI in 1960 and PADI in 1966 to train and certify divers. By the 1970s new equipment such as Buoyancy Control Devices, pressure gauges and single hose regulators became the norm, as did dive computers in the 1980s. Since the 1990s an estimated 500,000 new divers are certified every year.

***Shipwrecks***

Diving provides a unique way of examining the remains of ships. From Fort Bovisand there are over 10 wrecks that can be explored. They range from a 14$^{th}$ Century Merchantman sunk in great winds, discovered when a dredger brought up wood when deepening the area. The HMS Coronation was the pride of the navy when she capsized in 1691 with the loss of 400 men. The site was discovered in 1967 and finally confirmed as the Coronation when divers found a pewter plate bearing the coat of arms of the family of the captain. The Brigantine Die Fraumetta Catherina von Flensburg was sunk in 1786 during a great storm; the divers have removed just a few of what are believed to be piles of raw hides. The Glen Strathallan, once a trawler which was later converted to a yacht, was finally scuttled to provide training for divers.

There are also plenty of casualties from the two wars, HMS Foyle was a Destroyer-torpedo ship built by Cammell Laird in 1903 and struck by a mine, and HMS Abelard a drifter minesweeper. Sites like these are now listed under the Military Remains Act as a war grave. It's not just ships that litter the seabed, there is Lancaster ED 450 G.. One of the oldest finds from a wreck was the astrolobe, an early navigational instrument from the 17$^{th}$Century, although the ship on which it was used has not been found. In addition, HMS Scylla, a decommissioned warship, was deliberately sunk after being thoroughly cleaned and made safe - the idea here was to give divers "the opportunity to explore an intact warship free from damage or decay and witness its development into a 'living' reef". There is also a wealth of wild life including basking sharks and occasional dolphins.

*Bovisand Harbour in 1925*

## 4. Resources

There are a number of resources which can be drawn on to provide interpretation at Fort Bovisand. The first and most important exhibit is the site itself. Its design and construction and its long history in defence of The Sound, in engineering and in diving are all very evident in its appearance. The site is large and potentially confusing, so needs both clear signage and orientation and a range of simple and more

imaginative interpretation to bring it to life. The second significant exhibit is the views of The Sound which the site offers. Often full of activity, there are opportunities to explain what can be seen that is relevant to the Bovisand story.

Some initial research has been done, but the development work will need to include extensive research into the site's heritage. This will include both existing records and objects and also research into living and recorded memories, which can inform and enrich heritage stories further bringing the site to life. Some initial work has already revealed a number of existing resources which could be drawn on. These are:

***Retired or workless people with knowledge or skills***

As a naval base and a popular location for diving, it is likely that there are many people within the community who have specialist knowledge or skills which are relevant to Fort Bovisand. Some of these people will be able to be recruited as volunteers and offered both specialist training in skill sharing and given an opportunity to participate in enjoyable and rewarding work at the site.

***Plymouth Museum collections and archives***

Plymouth Museum supports the project and has some material which could be available for loan and display. This includes a lot of material around engineering and the breakwater, drawings, models and plans and archival information about the Palmerston Forts. The 'Plymouth, People, Port and Place' exhibition at the museum covers some of the war story, but there is very little being exhibited in the museum on the defence of Plymouth and the naval base which is a huge story. Some of the strongest material related to this is in the South West Film and Television Archive. The museum can also offer a research and assembly of information service to the project at very competitive rates of between £150 and £200 per day.

***SWFTA***

The South West Film and Television Archive SWFTA has a lot of good material on the war years, some film of the flying boats at Mount Batten is already shown in Plymouth Museum on small screens. Copyright for much of this material sits with SWFTA. It is potentially a rich source of both moving and still images for Bovisand interpretation.

***Devonport Naval Base Museum collections***

Devonport Naval Base Museum has recently rationalised its collections. The field gun collection has gone to Crownhill Fort and the Fire Brigade collection has gone elsewhere. The museum is going to be more accessible in the future because of a change in the high security boundary and organised group visits will be able to be accommodated by arrangement. There is a willingness to relocate more material to suitable sites. A Memorandum of Understanding has recently been signed between Plymouth Museum and the MoD which agrees that any material related to Plymouth will stay in the Plymouth area as part of any continued rationalisation. It is possible that there is some material related to the themes and stories at Fort Bovisand - if this is the case, it might be possible to re-locate it and Plymouth Museum would supervise its on-going care.

***On-line resources***

The story of the RAF base at Mount Batten is well documented on a number of websites. The flying boats most strongly associated with the site were Sunderlands and it is considered unlikely that a working or complete aircraft still exists. There is a Sandringham in Southampton Hall of Aviation. The site www.wartimememories.co.uk is a rich source of memories and images as the screen grab which follows illustrates:

**Squadron Leader, Flight Sergeant Gordon Craig**

I am very grateful to Helen Craig for the following photos of her father Squadron Leader Flight Sergeant Gordon Craig. He flew with 10 Squadron on the Sunderland flying boats out of Plymouth, hunting for submarines.

**Squadron Leader,Flight Sergeant Gordon Craig at Mountbatten**

He told her many stories of landing in the cold waters of Plymouth Sound, limping into port with all the crew up on one of the wings to keep the plane upright and floating until it reached its slip. Sadly he passed away in 2006 aged 83.

**Wounded Sunderland – The Crew**

**I am gratefull to Maureen Kutner ('nee' Leech) for the following photos and information.**

My father was killed in WW2. He was a Flight Engineer (aka 'cannon fodder' - a rear gunner) in the 10th.

**Flt. Eng Leech**

Three weeks after I was born, in February 1942, he was sent to join his squadron in Mount Batten. His plane was shot down over the Bay of Biscay in September of the following year and he never had leave back to Australia. He was 23 years old and my mother was a widow at 20. I know that Sunderlands, because they could fly low, below the radar, frequently were able to pick up survivors from other planes and his plane had been mentioned in dispatches only the previous week for doing this. Unusually, no survivors or even any wreckage of DV969, were ever found. I have been to the War Memorial in Canberra and read in the log book the handwritten exchange between my father's plane, at that time flying over the Bay of Biscay, and the base, where the pilot reports a number of Junker 88s coming towards them. There was no further entry.

***Local enthusiasts***

Last summer, film maker Amanda Bluegrass made a short documentary called Ray: A Life Underwater. It's about Ray Ives, a man who still dives aged 75, after a long career as a commercial diver. The original suggestion for the film came from the manager of a marina, where Ray keeps a shipping container containing his life-long collection of diving equipment and finds. The film has been a huge success on YouTube. And Amanda Bluegrass is reported on other websites as saying:

*"When I entered Ray's 'museum' of treasure and got to know Ray, I knew I had a sure-fire hit for a film subject on my hands. It was like walking into an Aladdin's cave of artifacts, memorabilia and dive gear. Everywhere you look there is something fascinating, beautiful or just plain weird, and Ray has a lifetime of adventures to tell."*

Contact is now being made with Ray to see if his collection can be displayed at fort Bovisand, one of the locations which feature prominently in the film.

## 5. Outline concept and interpretive plan

***Target audiences***

The target audiences for development at Fort Bovisand are likely to be:

- Families from the local and regional community
- Families on holiday
- Retired or workless people seeking enjoyable and rewarding activity
- Special interest groups
- Young people
- School children and
- Divers

***Meeting audience needs***

The interpretive concept will need to be able to meet a range of audience needs and interests. It will provide a range of different experiences, to appeal to families, children, older people and those with a special interest in one of the site's key themes. There will be both immersive and interactive experiences and a temporary exhibition space and there will be learning hub and outdoor spaces for a range of activities as well as guided tours. The interpretation will stand up to repeat visiting offering engagement at different levels and layering of information and will be a framework to support a programme of formal and informal learning activities.

***The interpretive concept***

Visitors to the site will be greeted by a welcome sign which will have a strong identity which is reflected in all marketing material and the attraction's website; it will sign the way to the car park. After parking, visitors will walk down to the quayside which is the heart of the site and will be guided there by reinforcement signage leading the way. At the heart of the site, a three-dimensional and tactile sign structure will

introduce the site and show the location of further information such as visitor services and toilets; it will show what the site has to offer. It will also have the facility to advertise any events taking place on a particular day or in the near future.

The first 3 casemates on the curved set of buildings provide a welcoming café with a glazed extension and outdoor seating in fine weather. Next door to this is the shop and information point where visitors can be personally greeted. This is where the visit begins; seven casemates will be provided with different types of contrasting information on the site's key themes. Each casemate offers a different experience and takes the visitor on a journey to a different timeframe and a different aspect of Fort Bovisand's past.

The first space (casemate 4) is a recreated Victorian casemate exactly as it would have looked when it was first completed. Next to this is an interpretive exhibition documenting the story of the site from the construction of the harbour to the completion of the Palmerston fort and giving an overview of British defence in the age of the Victorians. Collections will be displayed and interactive and tactile media used to explain the Palmerston's Follies.

The third casemate story (casemate 6) interprets Plymouth and the world wars, when Bovisand was used as a training location in WW1. The story will be told of the RAF station at Catterwater and RAF Mount Batten. The emphasis will be on personal stories using photographs and memories with digital media. The forth casemate continues this story but is now all about the WW2. The relationship between Bovisand and the rest of Plymouth during this terrible time will be presented along with Fort Bovisand's role in its defence. Interpretive displays will contain borrowed collections where possible and replica and handling material where it is not. There will be some showcasing, graphics and models as well as handling exhibits and costume.

The fifth space is an immersive Blitz experience with film in the round, lighting effects and the sound of sirens. The sixth space is another immersive experience but also has more detailed interpretation and showcased objects as well as some objects on open display. The story of diving from its very beginning is told with the emphasis on Bovisand and the stories of some of the individual devotees such as Ray Ives. Finally there is an open space which can be used for temporary exhibitions and displays of photography and craft linked to Bovisand. This is also a suitable space to exhibit project work produced on site by volunteers or to hold special events.

There is an opportunity to go onto the roof and view Plymouth Sound as a WW2 soldier gunning for German E-Boats and firing at 'hit and run' bombers attacking the city. There will also be opportunities to take guided tours of the tunnels through the underground magazines with a

soldier as a guide. Three outdoor shelters will contain information and phone apps will be able to be downloaded to interpret short walks, around and from the site and longer ones along the coastal path to Mount Batten. The shelters which each epitomize an aspect of the sites heritage; one will appear to be a pile of stone ready to be used in construction. Another will be a hug shell case and the third will be a giant diving helmet.

A regular programme of events will also be offered during the season and particularly during the summer holidays. These will take place on the little rocky beach, in the training pool, on the quayside or in the learning hub.

***Stories, locations and types of interpretation***

| Location | Key messages | Type of interpretation/media |
|---|---|---|
| Entrance | Welcome and overview. Opening times | **Outdoor signage** |
| Car park | Welcome orientation and more detailed visitor information | **Outdoor signage** |
| Central point | Orientation | **3 dimensional and tactile orientation point** |
| Casemate 5 | The design and construction of the casemates and how the fort was intended to operate | **Recreated Victorian casemate**<br>Set build, reproduction and, if possible, recreated/refurbished gun |
| Casemate 6 | The story of the site from the construction of the harbour to the completion of the Palmerston fort. An overview of British defence in the age of the Victorians and Palmerston's Follies | **Interpretive displays with borrowed collections**<br>Showcases, graphics, models and interactive exhibits |
| Casemate 7 | Plymouth and the wars. Bovisand as a training location in | **Interpretive displays with still and** |

| | | |
|---|---|---|
| | WW1; the RAF station and the story of Caterwater and RAF Mount Batten | **moving images and browsing material** focusing on memory, reproduced archival material and personal memorabilia |
| Casemate 8 | Bovisand in WW2. The relationship with the rest of Plymouth | **Interpretive displays with borrowed collections where possible and replica and handling material.** Showcases, graphics, models and interactive and handling exhibits and costume |
| Casemate 9 | The Plymouth Blitz | **Immersive in the round film experience using original and created film footage, sound and light** |
| Casemate 10 | The story of diving with the emphasis on Bovisand and the stories of some of the individual devotees such as Ray Ives. | **Immersive interpretive displays with borrowed collections.** Showcases, graphics, models, interactive exhibits and film |
| Casemate 11 | Temporary exhibitions and displays of photography and craft linked to Bovisand.<br>A place to exhibit project work produced on site by volunteers | Simple hanging system |
| Casemate's roof | Bofors gun, searchlight and telescope under cover | *Plans need to be made for acquisition, construction or repair* |
| Learning & activity centre | Learning material associated with engineering and science. Filming, digitisation and information management equipment for volunteer and project use | *Cost allowance needs to be made in Activities budget* |

| | | |
|---|---|---|
| 'Stones' shelter | The story of construction and engineering around Bovisand – the voice of John Rennie | Outdoor graphics and sound points or QR codes for smart phones |
| 'Helmet' shelter | Diving in and around Bovisand. Evidence of history under the water. Diving archaeology | |
| 'Shell case' shelter | The story of the Sound in Wartime, what it would have looked like then | |

## 6. Potential formal and informal learning opportunities

### 6.1 Current learning provision in Plymouth

There are a range of activities offered for Key Stage (KS) 1 and 2 pupils at Plymouth City Museum and Art Gallery and the Marine Aquarium. These cover historical subjects, art, the city of Plymouth and the natural environment of the sea. Both also offer sessions that can be delivered in school, including an innovative museum in transit event, which provides a week of activities for the whole school. There is also an annual events programme with activities aimed at tourists and families.

### 6.2 Future activities

Activities which could take place at Fort Bovisand will be used to engage visitors in the following ways:

- A series of school sessions based around the interpretative themes and aimed at different KS (1-3)
- Events for families and groups
- Guided tours

### 6.3 School sessions

***Plymouth at War***

This session will be aimed at KS2 pupils studying history and will use the building and primary sources to put together a picture of Plymouth

during WW2. Sources will include memories of people who lived in the city during the Plymouth blitz and archive material, including photographs. These sources will enable pupils to piece together the story.

The technological advances made during the war can be illustrated using the developments made to the equipment at Bovisand. Guided tours of the tunnels by WW2 soldiers will help recreate the atmosphere of the site and provide an opportunity to handle some of the equipment from this period.

For KS3 pupils the session will examine the changing nature of conflict, with reference to the Elizabethan and Victorian defences at Bovisand, but focusing on the role that the site played during WW2. Life for the people of Plymouth was completely disrupted during the Plymouth Blitz and pupils will discover this first hand, using oral histories and original sources.

***The right kit***

This session will examine the materials and technology at Bovisand. Using tactile elements KS1 and 2 pupils will investigate the materials used in the construction of the different stages of the fort and the breakwater. Pupils will develop their numeracy and literacy skills through the exploration of materials and construction.

Science will be explored through the various technologies used in the guns at Fort Bovisand and how technological developments impacted on the structure itself. There were many controversial decisions made during the history of the construction and arming of the fort, pupils can discuss these through role-play and object handling sessions.

This theme will be developed into a session aimed at students in Further and Higher Education and will need to be delivered by volunteers with a background in architecture or engineering.

***Victorious Victorians***

The main sections of the fort were built during the Victorian period, under the orders of Palmerston. During the 1850s coastal defence was vitally important because of the threat of an invasion by the French. Fort Bovisand was designed to house 3 officers and 90 soldiers, equipped with 12 18-pounder guns. This session will allow pupils to explore the life of a Victorian soldier, their work, rations and living conditions.

***Telling tales***

There is a large amount of memories and stories on websites and in museum collections. This project will develop the material along themes and into an accessible digital resource that can be used on site and remotely. Training will be offered to volunteers so that further material can be sourced and recorded.

***Wrecked***

Fort Bovisand has a long history of diving; during the 1970s it was one of only two places in Europe offering training. The dangerous coastline means that there were large numbers of ships wrecked along this coastline. Divers can still see wrecks dating from the 1300s. This session for KS2 will allow pupils to develop skills in historical enquiry and interpretation and will require them to organise the information and communicate their findings. Pupils will take the role of the historians trying to work out which ship each wreck is; using historical sources and evidence from the wrecks pupils will piece together the story of these ships, their routes, crew and cargoes and find out what caused the tragic wreck.

## 6.4 Events

Family events will occur during weekends and school holidays on subjects that highlight particular aspects of the key themes. Other events will be a mixture of drop in events, pre-booked sessions or targeted projects.

***Building blocks*** is an event that will encourage families to work together to solve some challenging architectural problems. They will compete against the clock to create a model structure from simple materials that will solve a problem, for example making a bridge from paper straws.

***Plymouth Blitz*** will allow visitors to experience life in Plymouth during The Blitz, using oral history and archive footage of the period. Visitors will be able to handle some objects from the period and will have a go at shopping with ration restrictions and old money.

***Guided tours***

WW2 soldiers will take visitors into the tunnels beneath the fort, unlock the rooms and demonstrate and allow visitors to handle some of the rations, equipment and replica archive sources.

***Oral history***
This 4 day course can be either run over 1 week or take place over 1 month and will allow participants to learn about collecting oral history, the principles and have chance to have a go, recording material that can be used in the development of the oral history archive.

***Architectural Detectives***
Led by experienced historical architects this half day workshop will provide participants with the skills to understand historical buildings. The buildings at Fort Bovisand will be used as an example and basis for discussion abut the conservation of historic buildings.

***First put a toe in the water***
A fun, activities-based introduction to Bovisand heritage for targeted youth groups, which includes a diving experience in the training pool and then involves exploring the underground tunnels and recording the site from a personal perspective and presenting it to others.

## 6.5 Guided tours

Guided tours can be provided by trained volunteers and could be undertaken in WW2 soldiers costume or at time in Victorian costume. The tunnels beneath the casemates offer opportunities for show-and-tell tours using objects or mini sets accommodated in different space and could also be used for ghost tours Halloween events and treasure hunts.

# 7. Volunteering

Volunteers will be critical to the project and will be an essential resource for the provision of learning activities, for leading guided tours, giving presentations, carrying out maintenance, for marshalling traffic at larger events, for the collection and management of digital material and for providing diving experiences to young people. They themselves will be able to benefit from training provided for them at Bovisand and will also be able to share the skills which they have already acquired through education, work or life experiences. The involvement of volunteers

on the site will promote local buy-in and committed volunteers will be advocates for the project. Providing a manageable but diverse range of activities which volunteers can be actively involved in, will be as important, in terms of attracting and retaining volunteers, as it will for attracting target audiences to get involved in the site. A lively programme of activities and events and the availability of training will be beneficial to volunteer recruitment and retention.

Our Training Plan sets out a number of opportunities for volunteering and training that we have identified so far in discussion with colleges and volunteer organisations. These include training and participation in:

- Landscape maintenance and footpath construction
- Nature conservation activity
- Handling and cataloguing objects
- Digitization of images and cataloguing
- Guiding and interpreting
- Working with children

Plymouth City College has recently developed a volunteering qualification and there may be opportunities for volunteers at Fort Bovisand to take part in this new programme. There may be some funding available through this route which would contribute to meeting participant costs, which can be further explored at the next stages of the project. Plymouth City College is keen to explore collaborative learning opportunities with Fort Bovisand staff and volunteers. Initial suggestions for further exploration include management, team leadership training for staff and also health & safety and other workplace courses; student projects on site variously for the college's Travel & Tourism, Leisure and Sport courses. The diving heritage and stories at Fort Bovisand might offer particular opportunities for sport students.

Other collaborative routes for recruiting volunteers include using Volunteer Bureaux which advertise opportunities for volunteers and match those seeking volunteer work to sites offering activities which suit their skills, interests and abilities. Many heritage sites also offer work experience opportunities to local schools, provide placements or internships for students studying heritage management or similar courses, or work with charities who are encouraging young people with little education or training experience to develop their confidence in work place environments. Alongside these more formal routes for recruiting volunteers are local advertising campaigns using small scale posters in

shops, libraries and community centres and most important of all using the attraction's own web-site and its shop and information points to advertise the opportunities available.

A Volunteer Recruitment and Management Plan should be developed as part of the Activity Plan which will be produced subject to a successful First Round HLF application. This should include Job descriptions for volunteer roles, to describe the sort of jobs a volunteer might be asked to do, and a note of any skills required. Every volunteer who joins the project will then be clear about what is required and that it involves tasks that they are happy to undertake. When the project is underway volunteers should be asked to sign a Volunteer Policy - this will act as an agreement between the Fort Bovisand project and the volunteer. It will ensure that the volunteer's expectations and the museum's expectations match up and avoid any misunderstandings or conflicts which might otherwise arise. Record forms should also be used for each volunteer, just as would be the case with a member of staff, detailing basic medical and next of kin information. Similarly on the first day that a volunteer joins the project, a short induction covering fire, accidents and emergency procedures, and introducing staff and other volunteers should be provided. Volunteers are an immensely important resource and to be at their most effective should have a dedicated manager and a number of designated volunteer coordinators to manage rotas and emergency cover. It is important too to recognise the contribution volunteers make and to show and appreciation and mark achievements in an informal way as well as through qualifications.

## 8. Capital costs for interpretation

Outline costs have been estimated on square metre basis, using experience and a good knowledge of current market prices:

| | |
|---|---|
| Research and information assembly costs and identifying collections and objects for refurbishment | £8,000 |
| Photography, copyrights and usage fees | £12,000 |
| Allowance for conservation or repair as required | £40,000 |

| | |
|---|---|
| Text writing | £12,000 |
| Site signage | £25,000 |
| 3 dimensional and tactile orientation point | £15,000 |
| CM5 Recreated Victorian casemate<br>Set build, reproduction and, if possible, recreated or refurbished gun. | £40,000 |
| CM6 Interpretive displays with borrowed collections<br>Showcases, graphics, models and interactive exhibits. | £95,000 |
| CM7 Interpretive displays with still and moving images and browsing material focusing on memory, reproduced archival material and personal memorabilia. | £85,000 |
| CM8 Interpretive displays with borrowed collections where possible and replica and handling material. | £75,000 |
| CM9 Immersive in the round film experience using original and created film footage, sound and light. | £45,000 |
| CM10 Immersive interpretive displays with borrowed collections<br>Showcases, graphics, models, interactive exhibits and film | £95,000 |
| CM11 Simple hanging system | £5,000 |
| Roof railings, shelter and interpretation | £20,000 |

| | |
|---|---|
| 3 x interpretive shelters at £20,000 each | £60,000 |
| Phone apps | £20,000 |
| Total cost for interpretation | £652,000 |
| Design fees at 15% | £97,800 |
| **Total cost** | **£749,800** |

***Development costs for learning and engagement activities***

20% of the design fees for interpretation would need to be expended subject to First Round pass to develop the interpretive design to RIBA stage D, for submission for a Second Round HLF application at a cost of about £25,000. A further £25,000 to £30,000 should be allocated to the production of a detailed Activity Plan. All above costs would be subject to VAT.

## 9. Future consultation plan

Future and continued stakeholder and target audience consultation at the development stage of the project will need to include:

- Plymouth Art Gallery and Museum
- SWFTA
- Palmerston Fort Society
- The Royal Artillery Museum
- The Royal Naval Museum
- The diving Museum in Portsmouth

- Imperial War Museum
- The Royal Armouries
- Plymouth College
- Ray Ives
- The diving community at Bovisand and around Plymouth
- Volunteer Bureaus in and near Plymouth
- Retired Naval Personnel
- U3As or other similar organisations
- Youth group leaders working with NEATs and young people coordinated by appropriate youth leaders
- Family support organisations such as Sure Start
- Local special interest groups such as historical societies
- Local communities and neighbours
- Local schools