



Afonwen sea wall Methodology

Site set up and access

- Consents and permits will all be agreed from Marine licencing and NRW prior to commencement on site.
- All paperwork and licencing will be available within the site file, all constraints and protective measures set out on the licences must be adhered to with additional protection measures put in place to protect the beach environment.
- All access to trackside will be via the Network rail access gate at [///mocking.rooting.newspaper](#)
- The area at both sides of the railway line will provide a stone hardstanding for the set-up of site compound and storage areas.
- All refuelling points will be set up within the compound a minimum of 10mts away from any watercourse / coastline with extinguishers and spill kits locally stored, all COSHH regulations adhered to with bunded containers and warning signage.
- Access to the beach will be gained by removing the palisade boundary fence line at [///holds.shrubbery.strays](#) which is situated to the West of the site compound and works area.
- All plant and machinery required for the works to the sea wall will travel East along the beach at Low tide to the work area.
- All plant movements will be supervised by a banks person who will maintain contact with the operator via back to back radio. Should other beach walkers need to cross the



access route dumper/excavator operator will be instructed to stop to allow safe crossing.

- Reversing is only permitted in segregated turning areas.
- The maximum plant operating speed on site will be 3mph.
- Plant access and designated walking routes will be set up using marker posts and site access plans distributed and briefed to all operatives on induction, all works are programmed for low tide working and towable lighting towers will be placed providing access egress lighting across the shoreline, these will be removed at the end of each shift.
- Signage will also be placed at the start of each shift giving information to other beach users of works and minimise disruption to their enjoyment.
- Lighting of the work site will be via lighting towers placed track side and shining down to prevent dazzle to plant operators, these lights will be static and left for the works duration, as they are well above the tidal heights.

Sheet pile repairs

- 35t excavator with wide low-pressure tracks fitted to reduce ground pressure and reduce rutting will be used for concrete excavation and sheet pile installation and the stacking of rock armour in front of the replaced sheet piles all these works carried out working from the beach side.
- All plant machines will be modern and fit for purpose with a provable maintenance schedule and all current industry noise reduction fitted.
- All plant will run on bio diesel and use bio oil grease to lower the risk of pollution, spill kits will be supplied on all machines along with spill kits placed around the work site for



emergency use should a spill occur, both plant vehicles will also be fitted with plant nappies in case of pipe failure, during all works carried out beach side an industry competent plant fitter will be on site in case of breakdown.

- The existing sheet piles are to be removed in sections with whatever is removed is to be replaced on the same shift to prevent further erosion of the sea wall. This process is to continue until the affected area is complete. Any gaps in the sheet piling which area unable to be completed due to tidal constraints are to be protected in the short term using temporary sand bags where required.
- All sandbags are to be purchased “empty” and filled with beach sand adjacent to the sheet pile works on site, when the temporary sandbag protection is completed return sand back to the same area of beach as from where removed, ensure all hessian sacking and ties are removed from site.
- Sandbag protection should only be treated as short duration protection works between tide times on the first two shifts, once sheet piles achieve maximum penetration of the beach no further protection is required.
- The new sheet piles are to be installed as per the approved Network rail design and within the environmental parameters set out within the NRW marine licence.
- A 20 tonne tracked dumper will be used for transporting all existing sheet piles and spoil materials from the beach side to the compound tip, and bringing the rock armour onto the beach for sheet pile protection.
- Sheet piles to match existing will be installed using the excavator on the beach, then the rear of the sheet piles will be back filled and compacted to design specification.
- A concrete pump will be used for concreting the capping, this will be parked track side with no access to the beach and allow controlled flow of concrete to the back of the



sheet piles, the installation of the concrete will be programmed to commence as the tide retreats to allow maximum curing time of the concrete before contact with the sea.

- Concrete capping will be replaced using a rapid set c35 or greater mix of concrete, with stainless steel dowels resin fixed in situ to join the slabs together with a fibre additive added to the mix to replace steel reinforcement and prevent future delamination of the concrete.
- The concrete will be trowel finished to all edges and brush finish to surface.
- The stacking of rock armour will be carried out as final works using local sourced rocks (not lime stone) and placed in a random style to match existing rock armour along the beach.
- Once works are complete, the team are to remove all plant and material from site and ensure all spoil materials and old sheet pilings are disposed of correctly with all waste transfer notices being filed and quantities added to the site waste management plan.