

DESCRIPTION OF WORKS

ZONE 1 : COWLEY TO ST DAVIDS	
East bank downstream of Cowley Bridge and Cowley Field	<ul style="list-style-type: none"> • New 360m long 2.0 to 3.0m high flood embankment to protect railway with a riverside slope at 1:8 gradient to allow grazing/mowing by landowner. • New drainage ditch to collect run-off from railway • New 65m long 3.0m high sheet-pile wall to tie into existing railway defences
Sidings Field and Wagonners Way	<ul style="list-style-type: none"> • At 'Sidings Field', widen existing 790m long grassed earth bank and raise by 1.4m above existing levels to 2.5m above surrounding ground levels, planted with species-rich grassland. • Restore 2ha of land area to wetland habitat, incorporating a large multi-stage backwater with a 5m minimum offset between the backwater and the flood-bank. The linear backwater will have aquatic ledges at different depths, re-seeding of upper slopes (wetland meadow mix) and pre-vegetated coir pallets placed intermittently around backwater. Backwater will be designed to drain fully into the river during low flows (to ensure no entrapment of fish) • Create sandmartin nesting sites along the edge of the river at the existing Radial Gate structure.
Olds View and St Davids Station	<ul style="list-style-type: none"> • Provide 120m of new 1.1m high brick-clad flood defence wall to protect Olds View and the railway station from the River Exe. • Provide 360m of new 1.0m high brick-clad flood defence wall to protect the station from the River Exe in the vicinity of the Signal Box. • Parapet and soffit improvements to enhance resilience of two existing railway bridges south of St Davids Station • New 60m long 0.7m high flood embankment between the River Exe and Exwick Flood Relief Channel to protect railway, planted with species-rich grassland.
St Andrews Road	<ul style="list-style-type: none"> • IPP (e.g. temporary defences) to be deployed in some areas along St Andrews Road.
ZONE 2: EXWICK AND FLOWERPOT FIELDS	
West Bank, Station Road	<ul style="list-style-type: none"> • Widen and raise by 0.35m the current grass-covered earth embankment that runs for 140m from the east of the Riverview Drive residential area southwards to Station Road and include a sheet-pile cut-off. • Enhance the sward of the whole field at Exwick Acres with a diverse seed mix that brings in pollinating insects and provides space for a different experience by users. • Incorporate access track on east side of earth embankment. • Install 1.5m high timber clad flood gate to allow the defence line to cross Station Road. Re-profile carriageway and footpath at Station Road. • Replace and raise existing masonry-clad flood wall to 0.7m high, reclaiming stone cladding for proposed flood wall,

	extending south of Station Road by 60m.
Exwick Playing Fields	<ul style="list-style-type: none"> • Construct 220m of 0.4 to 0.8m high flood defence bank between Station Road car park and Exwick Health Centre, seeded with an amenity grass mix. • Construct 70m of 0.9m high flood defence bank at Exwick Health Centre. • Construct 810m of 0.3 to 0.8m high ground raising and flood bank between Exwick Health Centre and the Exwick FRC railway bridge around edge of existing playing fields. • Strengthen bridge and parapet over Exwick FRC in agreement with Network Rail.
East Bank, Station Road, Waggoners Way and St David's Station	<ul style="list-style-type: none"> • Install 1.1m high steel flood gate at level crossing. The gate will generally be kept open and recessed into an adjacent flood defence wall, but will be closed in the event of a flood warning of sufficient magnitude.
ZONE 3: CENTRAL EXETER	
East Bank, Bonhay Road and Eagle Cottages	<ul style="list-style-type: none"> • New 60m long 1.0m high grass covered earth bank through the ECC park next to the Exeter-Waterloo railway line. • New 175m long 1.0 to 1.9m high defence wall (clad in bricks or timber where visible from the road or gardens) running south from the park next to the river and along the western side of Bonhay Road. Construct pedestrian flood gates within flood defence wall to allow continued access to gardens. • Modify inlet to existing higher leat to allow complete closure in flood conditions. • Improve existing IPP at the Mill-On-The-Exe Public House including improvements to flood resilience of building. This will include works to the inlet and outlets from the mill leat that runs in culverts under the property. • Improve standard of protection to vulnerable properties in the vicinity of the Bonhay Road, Eagle Cottages, Princess Alexandra Court, Exe Street and Tudor Street by constructing a series of walls around Eagle Cottages and Princess Alexandra Court. The defences will be integrated with existing brick-clad boundary and building walls (including some glass parapet flood defences to maintain river views). Overall length of new walls total 120m and finished defence levels will be up to 1.4m above existing ground levels and adjacent building floor levels. Construct pedestrian and vehicular flood gates within flood defence walls to allow continued access to property gardens. Defences to Eagle Cottages will include a glass barrier above brick clad parapet height. • Infill gaps and raise existing 1.5m high bank between the road and the river to the south of the junction of Tudor Street and Bonhay Road by 0.7m, to a height of 2.2m above adjacent ground levels, and extend this southwards through the park to connect to the Exe Bridges. Total embankment length 235m. Provide a vehicle access gate through the defence. Plant new trees to replace any trees felled to accommodate the bank through the park.

West Bank, Okehampton Street	<ul style="list-style-type: none"> • Provide brick-clad flood walls to raise the defence level of 170m of existing grass-covered flood defence embankment that runs from Flowerpot Meadow Playing Fields to Exe Bridges by up to 1.3m, incorporating localised accommodation works (i.e. glass flood wall) to minimise impact on the Royal Oak Public House and adjacent car-park. At its highest point (next to Exe Bridges), the completed embankment will be approximately 3.0m above road level (Okehampton Street). This defence plays an important role in the protection of St Thomas. To improve the standard of protection of this embankment at Okehampton Street, a 110m long sheet-pile cut-off will be incorporated into the embankment into the underlying soil, thus reducing the risk of groundwater flow under the bank during high river flows. Landscape banks to reduce their steep profile, wherever space allows and plant with native non-woody species. • Localised ground-raising up to 0.5m high and 120m long will be provided in the landscaped area on the west bank between the two Exe Bridges. Cultivate and reseed Exe Bridges Area to develop species-diverse grass sward. • Improvements will be made to the quality of amenity and access along the top of the flood defence. • New trees will be planted to replace any trees that will be felled to accommodate the bank through Exe Bridges.
West Bank, Shooting Marsh Stile (downstream of Exe Bridges) and Haven Road	<ul style="list-style-type: none"> • Construct 170m of new mini-piled masonry-clad reinforced concrete wall on top of the existing masonry retaining wall to raise the defences at Gervase Avenue, Shooting Marsh Stile and the Malt House Public House. The wall will be approximately 2.0m above existing ground levels and the footpath will be raised to preserve river views over the new parapet, with steps adjacent to the defence alongside the Malt House. A bridging structure will be used over the roots of the mature London Plane Tree at this location to minimise impacts on the tree root zone. • South of the pub, the existing 190m long defence wall next to Haven Road will be raised to 1.0m above the footway and new raised access ramps will be provided to preserve access over the defence.
ZONE 4: EXETER QUAY	
West Bank, Piazza Terracina	<ul style="list-style-type: none"> • Existing buildings in the Waterside Development at Haven Road have thresholds above required defence levels, although lower-storey car-parking exists below this. • Raise ground levels at the openings between buildings by modifications to existing flights of steps. • Construct a masonry-clad 80m long defence wall to a height of 0.5m above ground level next to the grassed area between the Canal Basin and the river. • A timber-clad flood gate will be formed at the northern end of this defence, which will connect across access route to adjacent defences.
The Quay	<ul style="list-style-type: none"> • New waterproof boundaries will be provided to the recently completed redevelopment of the former nightclub. This will incorporate 65m of glass-panel flood defences. • A headwall and flow control structures will be provided to the rear (upstream side) of the existing Quay Bridge to prevent floodwater from entering the Cricklepit Leat during flood conditions. This structure will be fitted with an otter-friendly opening to allow continued use of the leat by otters.

	<ul style="list-style-type: none"> • IPP will be provided to the Antiques Centre, including waterproofing of the lower part of the existing brick walls to 0.6m and installation of removable stop-log boards across the openings. • New demountable flood defences will be provided along The Quay road from Quay Bridge to The Waterfront pub at Kings Wharf. This will include a new timber clad gate across the road. Demountable defences will be stored locally in new timber-clad bench structures. • Back of defence drainage will be provided along the line of the temporary defences and connecting to a sump in the carpark next to the Antiques Centre. • IPP, in the form of demountable flood boards or flood doors will be provided to the Waterfront Pub in Kings Wharf and the historic tunnel boutiques and storage units along the Quayside. • In-channel habitat enhancement at Higher Leat (Cricklepit Mill Stream) outlet. • A back of the defence drainage system will be provided to the quayside to discharge into the Higher Leat (Cricklepit Mill Stream). When the Leat is outlet-blocked by high water levels in the Exe, temporary pumping of the trapped surface water will be implemented.
<p>ZONE 5: EXETER CANAL</p>	
<p>West Bank, Defences to the Canal</p>	<ul style="list-style-type: none"> • The Canal and Bromhams Farm Playing Field act as a flood defence to the Marsh Barton Area, but is in itself an important asset in terms of tourism, historic and cultural heritage and ecology. Furthermore, the east bank of the canal accommodates a single large sewer that connects the city of Exeter to the Countess Wear Treatment Works, and flood damage to the canal banks could lead to rupture of this. • Construct 540m of flood bank up to 0.7m high adjacent to the boundary of the existing allotments between Trew's Weir and Bromhams Farm Playing Field. Embankment is to be planted with wild flower seed mix. • Construct 400m of timber clad sheet pile flood wall around Double Locks Pub increasing flood defences by up to 1m above the footpath/cycleway. Intermittent slopes will be integrated into the sides of the flood wall to provide landscaping and biodiversity value. • 180m of 0.7m high bank raising to existing canal bank flood defences between Double Locks and Bridge Road. • Construct 75m of 0.4m high flood bank and raised cycle path along the alignment of the canal to tie into high ground at Bridge Road.
<p>ZONE 6: COUNTESS WEAR</p>	
<p>East Bank, Mill Lane, Countess Wear</p>	<ul style="list-style-type: none"> • Construct new 58m long, 1.2m high ,earth embankment from the high ground within Exeter City Pitch & Putt, across the existing Northbrook channel (new channel will be diverted - see Northbrook). • Install new flow control structure across Mill Leat, located upstream of existing channel bifurcation at Mill Drive and downstream of Northbrook diversion. The control structure will contain an automatic float device, which will stop flows into Countess Wear during high water levels. • Install new 100m long, 1.0m high reinforced concrete flood wall

	<p>that will pass through the Higher Wear woodland with a cycle/footpath ramp over the defence at the location of the existing footpath.</p> <ul style="list-style-type: none"> • Construct new 200m, 2.1m high flood bank in the Higher Wear field. Embankment slopes are shallow (1 in 8) to allow continued grazing of this land. • Install new flow control structure across the Mill Leat, at Waring Bowen Court car park, to control downstream flows into Mill Road and Mill drive. • Above the control structure, provide new vehicle access route into Higher Wear field from Waring Bowen court, to include a flood gate across the access entrance • Raise new defences at Waring Bowen Court and 30 Mill Road by installing a new sheet pile flood wall along existing property boundaries to connect to Mill Road. • Construct new 2.0m high 3.0m wide timber-clad flood gate across Mill Road. The support structure for the gate will be integrated into a new flood defence wall to connect into high ground on the eastern side of the road. • Render-finished reinforced concrete flood defence walls to Number 34 Countess Wear Road.
Higher Wear	<ul style="list-style-type: none"> • Provide in-channel enhancements at St James Leat including river restoration measures to provide improved in-channel habitats. Improve eel habitat and improve fish passage in existing channel and new diversions to complement existing eel habitat. • Improve existing public access while balancing recreational need with biodiversity. • Mosaic of wetland habitats, including channels, backwaters, scrapes and wet woodland habitats. • Include at least one new flowing channel – offtake from u/s end of backchannel and joining back further downstream.
North Brook	<ul style="list-style-type: none"> • Realign North Brook through crematorium with bridge over. • Enhancements constrained to below sewer. In-channel enhancements & longer channel for diversion route. • Sewer diverted 50m upstream • Refer to upstream of Topsham Road for example of typical river features.
Surface Water Pipes along Exe	<ul style="list-style-type: none"> • Surface water outlet pipes along the Exe will require threshold assessment and potential for additional flap valves at outlet.