

Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential

Sources of flood risk

Location of site within catchment
 The site is located on either side of the River Wey, within Weymouth, mostly located east (downstream) of Town Bridge. A small area of the southern section of the site extends to the coastline at Newton’s Cove.

Existing drainage features
 The River Wey, which runs through Weymouth, bisects the site. There are no additional watercourses within the site boundary or in close proximity to the site.
 It is understood that the northern section of the site is drained north (in combination with the town centre area) via the combined sewer system to the Wessex Water owned Radipole pumping station on the west side of the lake. Surface water sewers are present in the section to the south of the River Wey, with much of this section being drained north to the River Wey in Weymouth Harbour; one surface water sewer drains east to the sea at Newton’s Cove. It is understood that drainage near Town Bridge on the north of the river is assisted through pumping.

Joint probability assessment
 All hydraulic modelling undertaken as part of this assessment has used a joint probability approach based in the Environment Agency best practice FD2308 guidance. This avoids overestimating the amount of flood risk when multiple sources of flooding are being considered in conjunction. Rather than running all combinations of conditions for each event, the models were run for tidal dominated (TDT) event, fluvial dominated (FDT) event. For example, in a 0.5% AEP TDT event, the tidal boundary has 0.5% AEP conditions, whereas the fluvial boundary has 33% AEP conditions. The tables below detail the event combinations that were simulated for the TDT and FDT events.

TDT Event AEP (%)	50	5	2.5	1.33	1	0.5	0.1
Tidal AEP (%)	50	5	2.5	1.33	1	0.5	0.1
Fluvial AEP (%)	1000	500	100	100	50	33	6

FDT Event AEP (%)	50	10	5	2	1	0.5	0.1
Tidal AEP (%)	MHWS	MHWS	MHWS	100	50	33	6
Fluvial AEP (%)	50	10	5	2	1	0.5	0.1



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For the surface water modelling a similar approach was taken when considering the downstream boundaries to avoid overestimating the extent of flood risk. As a result, for the 3.3% and 1% AEP events, the 50% AEP TDT and FDT boundary levels were applied to the model while the 5% AEP TDT and FDT levels were applied to the surface water model for the 0.1% AEP event.

Fluvial dominated	<p>Available data and mapping: A detailed coastal and fluvial TUFLOW model of Weymouth, developed for the Environment Agency in 2019 and updated as part of this Level 2 SFRA study has been used to describe the risk of fluvial flooding to the site.</p> <p>WEY4 – Fluvial defended 3.3% AEP (depth) WEY4 – Fluvial defended 1% AEP (depth) WEY4 – Fluvial defended 0.1% AEP (depth)</p> <p>WEY4 – Fluvial defended 3.3% AEP (hazard) WEY4 – Fluvial defended 1% AEP (hazard) WEY4 – Fluvial defended 0.1% AEP (hazard)</p> <p>WEY4 – Fluvial defended 3.3% AEP (velocity) WEY4 – Fluvial defended 1% AEP (velocity) WEY4 – Fluvial defended 0.1% AEP (velocity)</p> <p>Data analysis:</p> <p>3.3% AEP (1 in 30-year) event: Proportion - <1% Max depth - 0m Max velocity - 0m/s Max hazard - 0</p> <p>1% AEP (1 in 100-year) event: Proportion - <1% Max depth - 5.57m Max velocity - 0.3m/s Max hazard - 4.38</p> <p>0.1% AEP (1 in 1,000-year) event: Proportion - 1% Max depth - 5.76m Max velocity - 0.54m/s Max hazard - 4.63</p>	<p>Mean depth - 0m Mean velocity - 0m/s Mean hazard - 0</p> <p>Mean depth - 0.39m Mean velocity - 0.03m/s Mean hazard - 0.79</p> <p>Mean depth - 0.36m Mean velocity - 0.05m/s Mean hazard - 0.78</p>
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0.1% AEP (1 in 1,000-year) event:

Proportion - 58%	
Max depth - 7.44m	Mean depth - 1.23m
Max velocity - 4.51m/s	Mean velocity - 0.32m/s
Max hazard - 7.18	Mean hazard - 1.73

Flood characteristics:

The results described below are based on the defences proposed as part of the Weymouth Harbour and Esplanade Flood and Coastal Risk Management Strategy (2020). An Outline Business Case is currently being prepared to assess the level of protection offered by the scheme. Any Site-Specific Flood Risk Assessment should consider the OBC once this is completed.

Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.

Almost the entire northern section of the site is at risk of flooding in a 1 in 30-year (3.3% AEP) event plus climate change. Flood depths are greatest along Custom House Quay, either side of Town Bridge. Depths decrease with distance from the river. Impacts are similar in the 1 in 100-year and 1 in 1,000-year events plus climate change. Flood depths are greatest along Custom House Quay, reaching depths of 2.0-2.4m within 30m either side of Town Bridge. Water velocity is greatest along Custom House Quay, with velocities in the range of 0.6-1.0m/s along much of this section. However, further east where the edge of the quay is raised, velocities reach a maximum of 2.5m/s. High velocities occur in similar locations during the 1 in 100-year and 1 in 1,000-year events plus climate change, but are more wide spread, with velocities in excess of 1.0m/s becoming more prevalent. The maximum velocity in the 1 in 1,000-year event plus climate change remains at approximately 2.5m/s.

In the southern section of the site, a band approximately 25m wide bordering the river and extending further inland from Cove Row to include the Brewer's Quay site is at risk of flooding in a 1 in 30-year (3.3% AEP) event plus climate change. Flood depths are generally between 1.2-1.7 in much of this area, reaching a maximum at Brewer's Quay. Impacts are similar in the 1 in 100-year and 1 in 1,000-year events plus climate change. Flood depths increase to at least 1.4m in much of this area, with a maximum of 2.0m at Brewer's Quay. Flow velocities are mostly less than 0.2m/s in the majority of the flooded section of the site but reach a maximum of 0.6m/s just north of Brewer's Quay. A localised section at Nelson Wharf slipway has velocities of over 2.0m/s.

In both north and south sections of the site almost all the areas at risk of flooding in both a 1 in 30-year (3.3% AEP) event plus climate change and 1 in 100-year (1% AEP) event plus climate change have a 'Significant' flood hazard rating (1.25 to 2.0), with Custom House Quay to the west of South Parade and sections of Nothe Parade having an 'Extreme' rating (greater than 2.0).

In a 1,000-year event plus climate change, flood hazard ratings are similar to the 1 in 100-year (1% AEP) event plus climate change but the 'Extreme' hazard rating area increases to include the eastern part of Brewer's Quay and St Edmund Street.



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In this event, the southern section of the site begins to flood first with Nothe Parade being flooded from the river both west and east of the tidal barrier, the water then reaches a depth such that tidal water bypasses the tidal barrier along Nothe Parade.

In the northern section of the site water enters from the east from the ferry peninsular and from where the Esplanade joins the ferry peninsular. This forms a significant flow west along Custom House Quay. Water then enters the site directly from the river along the length of Custom House Quay, except for the raised section in the east of the site, to flood much of the northern section of the site. The southern section, apart from Nothe Parade, floods after the northern section with water entering westwards along Nothe Parade and then directly from the river and flowing south to Brewer’s Quay.

Surface Water (no downstream boundary)

Available data and mapping:
 The detailed InfoWorks ICM surface water model, developed for this Level 2 SFRA study has been used to describe the risk of surface water flooding to the site.

WEY4 – Surface water (no downstream boundary) 3.3% AEP (depth)
 WEY4 – Surface water (no downstream boundary) 1% AEP (depth)
 WEY4 – Surface water (no downstream boundary) 0.1% AEP (depth)

WEY4 – Surface water (no downstream boundary) 3.3% AEP (hazard)
 WEY4 – Surface water (no downstream boundary) 1% AEP (hazard)
 WEY4 – Surface water (no downstream boundary) 0.1% AEP (hazard)

WEY4 – Surface water (no downstream boundary) 3.3% AEP (velocity)
 WEY4 – Surface water (no downstream boundary) 1% AEP (velocity)
 WEY4 – Surface water (no downstream boundary) 0.1% AEP (velocity)

Data analysis:

3.3% AEP (1 in 30-year) event:

Proportion - 26%	
Max depth - 4.59m	Mean depth - 0.15m
Max velocity - 9.51m/s	Mean velocity - 0.18m/s
Max hazard - 29.27	Mean hazard - 0.74

1% AEP (1 in 100-year) event:

Proportion - 32%	
Max depth - 4.59m	Mean depth - 0.17m
Max velocity - 9.51m/s	Mean velocity - 0.18m/s
Max hazard - 29.27	Mean hazard - 0.78

0.1% AEP (1 in 1,000-year) event:

Proportion - 39%	
Max depth - 4.59m	Mean depth - 0.2m
Max velocity - 9.51m/s	Mean velocity - 0.21m/s
Max hazard - 29.27	Mean hazard - 0.83

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Flood characteristics:
 Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.

In a 1 in 30-year (3.3% AEP) event, flooding in the northern section of the site is concentrated along the roads with maximum depths reaching 0.3-0.4m around Town Bridge. Elsewhere in the northern section of the site depths are less than 0.2m. Flood depths during the 1 in 100-year (1% AEP) event are generally similar, with a maximum depth of 0.5m on Custom House Quay near Town Bridge. During a 1 in 1,000-year (0.1% AEP) event the flooded area in the northern section of the site is slightly larger again with depths increasing to 0.8m by Town Bridge. Along Custom House Quay further to the east of the bridge and inland in this section of the site depths are 0.1-0.3m.

In a 1 in 30-year (3.3% AEP) event, in the southern section of the site flooding is concentrated along Trinity Road, western section of Nothe Parade and the area extending south from Cove Row. Here depths reach 0.3-0.6m along the roads. The area just south of Brewer’s Quay has depths of 0.2-0.3m. Depths along the roads just south of Cove Row increase to a maximum 0.7m during the 1 in 100-year and 1 in 1,000-year events. Trinity Road, Trinity Street and the western section of Nothe Parade also flood to depths of 0.2-0.4m and the roads just south of Brewer’s Quay to 0.3m during the 1 in 100-year (1% AEP) event, while flood depths elsewhere range from 0.3 to 0.6m during the 1 in 1,000-year event.

During the 1 in 30-year (3.3% AEP) event velocities are mostly less than 0.1m/s but increase to 0.1-0.2m/s along much of Custom House Quay, and to 0.4m/s near Town Bridge. This area has a ‘Moderate’ flood hazard rating (between 0.75 and 1.25), the rest of the northern section of the site has a ‘Low’ flood hazard rating (less than 0.75). During the 1 in 100-year and 1 in 1,000 year events velocities generally increase along the roads, in particular velocities along Custom House Quay reach 0.7m/s, with the highest speeds again modelled near Town Bridge. Much of the flooded area still has a ‘Low’ flood hazard rating during the 1 in 100-year and 1 in 1,000-year events, with small areas of ‘Moderate’ and ‘Significant’ flood hazard rating by Town Bridge.

South of the River Wey, during the 1 in 30-year (3.3% AEP) event velocities reach a maximum of 1.0m/s along Spring Road and the southern end of Cove Street. During the 1 in 1,000-year event moderate velocities (greater than 0.3m/s) extend along Cove Street and are also observed on Trinity Road and Nothe Parade and a peak velocity of 1.8m/s is seen along the eastern side of Brewer’s Quay.

During the 1 in 30-year (3.3% AEP) event areas around Cove Street, Cove Row and Hope Street generally have a hazard rating of ‘Moderate’ (0.75 to 1.25) with some small areas increasing to ‘Significant’ (1.25 to 2.0). Elsewhere the hazard is generally classed as ‘Low’ (less than 0.75).

During the 1 in 100-year (1% AEP) event approximately half of the flooded areas of the southern section of the site have a flood hazard rating of ‘Moderate’ or ‘Significant’. These are in the areas around Trinity Road, Nothe Parade, Cove Street, Cove Row and Hope Street. The rest of the flooded area have a ‘Low’ flood hazard rating.

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In the 1 in 100-year (1% AEP) event plus 45% climate change uplift, surface water depths increase from the 1 in 30-year (3.3% AEP) event plus 40% climate change uplift. In the northern section of the site depths reach 1.0m by Town Bridge. Along Custom House Quay further to the east of the bridge and inland in this section of the site depths are 0.1-0.6m. Velocities are 0.2-0.7m/s along most of Custom House Quay (except the section to the east of South Parade), with highest velocities just east of Town Bridge. In the rest of the northern section of the site velocities increase to 0.5m/s on the north-south running streets. The section of the site east of South Parade has velocities of less than 0.1m/s. Much of the flooded area has a 'Low' flood hazard rating, with an area of 'Moderate' and 'Significant' flood hazard rating either side of Town Bridge from Nicholas Street to East Street.

In the southern section of the site surface water depths are 0.6-0.9m along the roads just south of Cove Row, with depths of 0.3-0.7m away from the roads in some of this area. Trinity Road, Trinity Street and the western section of Nothe Parade also flood to depths of 0.3-0.6m and the roads just south of Brewer's Quay to 0.5m. Velocities are greatest on the flow path along Spring Road and Upper Cove Street, reaching a maximum of 1.6m/s along the eastern side of Brewer's Quay. In the section of Cove Street between Brewer's Quay and the river and on Trinity Road, Newberry Gardens, Hope Street and Nothe Parade velocities are 0.2-0.5m/s. There is also a localised flow route from Barrack Road to Hope Street with velocities of 0.5m/s. Elsewhere in the flooded sections of the site velocities are less than 0.1m/s. Much of the flooded area of the southern section of the site has a flood hazard rating of 'Moderate' or 'Significant'. The areas with a 'Significant' rating are on the flow route along Spring Road, Cove Street, Hope Street and the southern end of Newberry Gardens, along some of the waterfront areas and including much of the area just north of Brewer's Quay. The rest of the waterfront areas and rest of the area between Cove Row and Brewer's Quay have a 'Moderate' rating. The rest of the flooded areas have a 'Low' flood hazard rating.

In the 1 in 1,000-year (0.1% AEP) event plus 45% climate change uplift, surface water depths increase from the 1% AEP event plus 45% climate change uplift. In the northern section of the site maximum depth increases to 1.2m by Town Bridge, depths remain above 0.4m on Custom House Quay as far east as South Parade and depths of 0.2m extend north up the roads away from the river nearly to the site's north edge. Velocities remain similar to the 1% AEP event plus 45% climate change uplift along Custom House Quay from Town Bridge to South Parade (0.3-0.7m/s) but increase slightly to 0.6m/s on some of the north-south running streets. Flood hazard ratings remain similar to the 1% AEP event plus 45% climate change uplift.

In the southern section of the site surface water depths increase to 0.8-1.0m along the roads between Cove Row and Brewer's Quay, the eastern end of Trinity Street and the western end of Nothe Parade. Depths increase to 0.6m on Spring Road and Newberry Gardens to the south of Brewer's Quay. Velocities increase to a maximum of 2.2m/s along the eastern side of Brewer's Quay and are at least 0.8m/s along the flow path from Spring Road to Brewer's Quay. On Nothe Parade velocities increase to 0.8m/s at the west edge of Nelson Wharf and on the flow route from Barrack Road to Hope Street velocities increase to 0.7m/s. Most of the flooded areas from Trinity Road, Cove Row and Nothe Parade south to Brewer's Quay and Spring Road have a 'Significant' flood hazard rating.



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Proposed land use	Tourism, leisure, retail, residential

Surface water (tidal dominated downstream boundary)	Available data and mapping: The detailed InfoWorks ICM surface water model, developed for this Level 2 SFRA study has been used to describe the risk of surface water flooding to the site.	
	WEY4 – Surface water (tidal downstream boundary) 3.3% AEP (depth)	
	WEY4 – Surface water (tidal downstream boundary) 1% AEP (depth)	
	WEY4 – Surface water (tidal downstream boundary) 0.1% AEP (depth)	
	WEY4 – Surface water (tidal downstream boundary) 3.3% AEP (hazard)	
	WEY4 – Surface water (tidal downstream boundary) 1% AEP (hazard)	
	WEY4 – Surface water (tidal downstream boundary) 0.1% AEP (hazard)	
	WEY4 – Surface water (tidal downstream boundary) 3.3% AEP (velocity)	
	WEY4 – Surface water (tidal downstream boundary) 1% AEP (velocity)	
	WEY4 – Surface water (tidal downstream boundary) 0.1% AEP (velocity)	
Data analysis:		
3.3% AEP (1 in 30-year) event:		
Proportion - 27%		
Max depth - 3.04m		Mean depth - 0.18m
Max velocity - 1.03m/s		Mean velocity - 0.1m/s
Max hazard - 2.9		Mean hazard - 0.71
1% AEP (1 in 100-year) event:		
Proportion - 33%		
Max depth - 3.14m		Mean depth - 0.2m
Max velocity - 1.27m/s		Mean velocity - 0.11m/s
Max hazard - 3.08		Mean hazard - 0.76
0.1% AEP (1 in 1,000-year) event:		
Proportion - 40%		
Max depth - 3.19m		Mean depth - 0.23m
Max velocity - 1.76m/s		Mean velocity - 0.15m/s
Max hazard - 3.18		Mean hazard - 0.82
Flood characteristics: Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.		

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In a 1 in 30-year (3.3% AEP) event, flooding in the northern section of the site is concentrated along the roads with maximum depths reaching 0.8m on Custom House Quay near Town Bridge, depths reduce to 0.2m eastwards to East Street. Elsewhere in the northern section of the site depths are less than 0.2m. To the west of East Street, velocities are 0.1-0.2m/s along much of Custom House Quay and the streets running north from it, decreasing to less than 0.1m/s east of East Street. West of Town Bridge velocities reach a maximum of 0.3m/s. An area of approximately 60m west and east of Town Bridge has a 'Moderate' flood hazard (0.75 to 1.25) and 'Significant' flood hazard (1.25 to 2.0) rating, the rest of the flooded areas of the northern section of the site have a 'Low' flood hazard (less than 0.75) rating.

In the southern section of the site flooding is concentrated along Trinity Road, western section of Nothe Parade and the area extending south from Cove Row. Here depths reach 0.3-0.6m along the roads. The area just south of Brewer's Quay has depths of 0.2-0.3m. Velocities exceed 0.5m/s along much of Spring Road and the Brewer's Quay section of Cove Street, reaching a maximum of 1.0m/s. Along roads elsewhere in the site velocities are 0.1-0.3m/s and less than 0.1m/s away from roads. Trinity Road and Nothe Parade both have sections of 'Moderate' flood hazard rating. The roads north of Brewer's Quay to Cove Row all have a 'Moderate' flood hazard rating, with sections of both Cove Street and Hope Street having a 'Significant' flood hazard rating. There are small areas of 'Moderate' and 'Significant' hazard rating along the flow path from Spring Road, Newberry Gardens to Cove Street. The rest of the flooded area has a 'Low' hazard rating.

In a 1 in 100-year (1% AEP) event in the northern section of the site flooding reaches a maximum depth of 0.9m on Custom House Quay near Town Bridge, depths reduce to 0.2m eastwards to East Street. Elsewhere in the northern section of the site depths are less than 0.2m. Velocities reach 0.4m/s along sections of Custom House Quay (except the section to the east of South Parade) and 0.1-0.4m/s on the streets running north from it. To the east of South Parade, velocities are less than 0.1m/s. The pattern of flood hazard rating is similar to the 1 in 30-year (3.3% AEP) event. Compared to the 1 in 30-year (3.3% AEP) event, a slightly larger area either side of Town Bridge has a 'Moderate' and 'Significant' flood hazard rating. The rest of the flooded areas of the northern section of the site have a 'Low' flood hazard rating.

In the southern section of the site water depths are 0.4-0.7m along the roads just south of Cove Row, with depths of 0.3-0.5m away from the roads in some of this area. Trinity Road, Trinity Street and the western section of Nothe Parade also flood to depths of 0.2-0.4m and the roads just south of Brewer's Quay to 0.4m. Velocities are greatest on the flow path along Spring Road and upper Cove Street, reaching a maximum of 1.3m/s along the eastern side of Brewer's Quay. In the section of Cove Street between Brewer's Quay and the river and on Trinity Road, Nothe Parade, Newberry Gardens and Hope Street velocities are 0.1-0.3m/s. Elsewhere in the flooded sections of the site velocities are less than 0.1m/s. The roads south from Cove Row to Brewer's Quay largely have a 'Significant' flood hazard rating, with much of the rest of this area having a 'Moderate' flood hazard rating. Trinity Road mostly has a 'Moderate' flood hazard rating and Nothe Parade west from Nelson Wharf has a 'Significant' flood hazard rating. The areas of 'Significant' hazard rating along the flow path from Spring Road, Newberry Gardens to Cove Street are larger than in the 1 in 30-year (3.3% AEP) event. The rest of the flooded area has a 'Low' hazard rating.

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In a 1 in 1,000-year (0.1% AEP) event the flooded area in the northern section of the site is slightly larger with depths increasing to 1.1m by Town Bridge. Further east along Custom House Quay depths reduce to 0.3m by East Street and from here to the eastern boundary of the site depths are less than 0.2m. Inland in the northern section of the site depths are 0.1-0.3m. Velocities reach a maximum of 0.3-0.5m/s on flow paths following the streets north to south from out of site to Custom House Quay. Along Custom House Quay to the west of South Parade velocities are 0.1-0.4m/s, to the east velocities are less than 0.2m/s. The area of Custom House Quay near Town Bridge with a 'Significant' flood hazard rating extends from St Nicholas Street to Maiden Street. The area with a 'Moderate' flood hazard rating extends beyond this from the western boundary of the site to East Street. The rest of the flooded areas of the northern section of the site have a 'Low' flood hazard rating.

In a 1 in 1,000-year (0.1% AEP) event, in the southern section of the site, flood extents increase slightly on the 1 in 100-year (1% AEP) event. Water depths are 0.5-0.7m along the roads just south of Cove Row, with depths of 0.3-0.6m away from the roads in some of this area. Trinity Road, Trinity Street and the western section of Nothe Parade also flood to depths of 0.2-0.5m and the roads just south of Brewer's Quay to 0.5m. Velocities are greatest on the flow path along Spring Road and Upper Cove Street, reaching a maximum of 1.8m/s along the eastern side of Brewer's Quay. In the section of Cove Street between Brewer's Quay and the river and on Trinity Road, Newberry Gardens, Hope Street and Nothe Parade velocities are 0.1-0.5m/s. On Nothe Parade, in a localised area just west of the Nelson Wharf slipway, velocities increase to 1.0m/s. There is also a flow route from Barrack Road to Hope Street with velocities of 0.5m/s. Elsewhere in the flooded sections of the site velocities are less than 0.1m/s. The flow path along Spring Road and Newberry Gardens to both Cove Street and Hope Street to the river all has a 'Significant' flood hazard rating. Leading to this, lower St Leonard's Road also has a 'Significant' flood hazard rating. Nothe Parade west from Nelson Wharf and a section of Trinity Road have 'Significant' flood hazard ratings. The area south of Cove Row between Trinity Street and Hope Street away from the roads has a 'Moderate' flood hazard rating. The rest of the flooded areas have a 'Low' flood hazard rating.

Surface water (tidal dominated downstream boundary) plus climate change

Available data and mapping:

The detailed InfoWorks ICM surface water model, developed for this Level 2 SFRA study has been used to describe the risk of surface water flooding to the site. For the climate change scenarios, future defences, based on the specifications outlined within Appendix A and C of the Weymouth Harbour and Esplanade Flood and Coastal Risk Management Strategy (2020) were applied to the model based on interventions undertaken across all three phases. An Outline Business Case is currently being produced to assess the future coastal defences for Weymouth. When undertaking a Site-Specific Flood Risk Assessment, this should be considered.

- WEY4 – Surface water (tidal downstream boundary) 3.3% AEP + 40% CC (depth)
- WEY4 – Surface water (tidal downstream boundary) 1% AEP + 45% CC (depth)
- WEY4 – Surface water (tidal downstream boundary) 0.1% AEP + 45% CC (depth)

- WEY4 – Surface water (tidal downstream boundary) 3.3% AEP + 40% CC (hazard)
- WEY4 – Surface water (tidal downstream boundary) 1% AEP + 45% CC (hazard)
- WEY4 – Surface water (tidal downstream boundary) 0.1% AEP + 45% CC (hazard)

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WEY4 – Surface water (tidal downstream boundary) 3.3% AEP + 40% CC (velocity)
 WEY4 – Surface water (tidal downstream boundary) 1% AEP + 45% CC (velocity)
 WEY4 – Surface water (tidal downstream boundary) 0.1% AEP + 45% CC (velocity)

Data analysis:

3.3% AEP (1 in 30-year) event:

Proportion - 51%	
Max depth - 3.23m	Mean depth - 0.48m
Max velocity - 1.34m/s	Mean velocity - 0.16m/s
Max hazard - 3.61	Mean hazard - 1.15

1% AEP (1 in 100-year) event:

Proportion - 55%	
Max depth - 3.33m	Mean depth - 0.5m
Max velocity - 1.66m/s	Mean velocity - 0.17m/s
Max hazard - 3.61	Mean hazard - 1.18

0.1% AEP (1 in 1000-year) event:

Proportion - 68%	
Max depth - 5.24m	Mean depth - 1.41m
Max velocity - 2.16m/s	Mean velocity - 0.24m/s
Max hazard - 6.66	Mean hazard - 1.74

Flood characteristics:

The results described below are based on the defences proposed as part of the Weymouth Harbour and Esplanade Flood and Coastal Risk Management Strategy (2020). An Outline Business Case is currently being prepared to assess the level of protection offered by the scheme. Any Site-Specific Flood Risk Assessment should consider the OBC once this is completed.

Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.

In a 1 in 30-year (3.3% AEP) event plus 40% climate change uplift surface water flooding is much greater than the 1 in 1,000-year (0.1% AEP) event.

In the northern section of the site, flooding inundates almost the entire area. The maximum depth is 2.1m by Town Bridge, but depths exceed 1.0m along all of Custom House Quay. Depths decrease away from the river but generally exceed 0.5m on the roads. Velocities exceed 0.3m/s along the length of Custom House Quay, with greatest velocities in the east from South Parade to the eastern boundary (0.6-1.0m/s). Other roads have velocities of up to 0.2m/s. All of Custom House Quay has an 'Extreme' flood hazard (greater than 2.0) rating, most areas inland have a 'Significant' (1.25 to 2.0) flood hazard rating with smaller areas of both 'Moderate' (0.75 to 1.25) and 'Low' (less than 0.75) flood hazard rating.



Dorset Council

L2 SFRA - Detailed Site Summary Tables

Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential

In the southern section of the site, flooding inundates the roads alongside the river and the area inland from Cove Row bordered by Trinity Road, Brewer’s Quay and Hope Street to 0.3-0.6m depth on the roads. Spring Road and Cove Street are also flooded south from Brewer’s Quay (0.2-0.4m depth). Highest velocities are found south of Brewer’s Quay on Spring Road, Newberry Gardens and Cove Street (0.3-1.3m/s). Away from this flow path, velocities are generally less than 0.1m/s except on the flow route from Barrack Road to Hope Street and on Nothe Parade (0.3-0.4m/s). Much of the flooded area inland from the river to Brewer’s Quay and some of Cove Street and Spring Road has a ‘Moderate’ flood hazard rating, with most of Cove Row, Cove Street and Hope Street and sections of Spring Road and Newberry Gardens having a ‘Significant’ flood hazard rating. There are smaller areas of ‘Low’ flood hazard in these areas. Further from the river, the flooded areas have a ‘Low’ hazard rating.

In the 1 in 100-year (1% AEP) event plus 45% climate change uplift surface water extents are similar to the 1 in 30-year (3.3% AEP) event plus 40% uplift with climate change.

In the northern section of the site, flooding inundates almost the entire area; depths and velocities are very similar to the 3.3% AEP event plus 40% uplift with climate change. Almost all of Custom House Quay has an ‘Extreme’ flood hazard (greater than 2.0) rating, most areas inland have a ‘Significant’ rating with smaller areas of both ‘Moderate’ and ‘Low’ hazard rating.

In the southern section of the site, flood depths increase on the roads alongside the river and the area inland from Cove Row bordered by Trinity Road, Brewer’s Quay and Hope Street (0.5-0.9m depth on the roads). Highest velocities are found south of Brewer’s Quay on Spring Road, Newberry Gardens and Cove Street (0.5-1.6m/s). Away from this flow path, velocities on the roads are between 0.1-0.2m/s and away from roads are generally less than 0.1m/s except on the flow route from Barrack Road to Hope Street and on Nothe Parade (0.2-0.5m/s). The flood hazard ratings increase with all of Cove Row, Cove Street, Hope Street and Nothe Parade having a ‘Significant’ flood hazard rating.

In the 1 in 1,000-year (0.1% AEP) event plus 45% climate change uplift, surface water extents and depths increase on the 1 in 100-year (1% AEP) event plus 45% climate change uplift.

In the northern section of the site, the maximum depth increases to 3.2m on Custom House Quay by Town Bridge and also increases to at least 2.0m on all the north-south roads in this section. Velocities increase to a maximum of 1.2m/s at the eastern end of Custom House Quay but exceed 0.5m/s along much of its length and are at least 0.2m/s on the north-south roads. Most of the northern section of the site has an ‘Extreme’ flood hazard rating, including all of the roads, the rest of this section has a ‘Significant’ rating.



Dorset Council
L2 SFRA - Detailed Site Summary Tables

Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential

In the southern section of the site, depths exceed 2.0m in all of the area between Cove Row and Brewer's Quay, Nothe Parade and most of Trinity Road. Further inland on Spring Road and Newberry Gardens, north of the Spring Road roundabout, depths increase to 0.8-1.2m. Velocities increase to 2.0m/s on Spring Road to the east of Brewer's Quay but exceed 1.0m/s along much of Spring Road. Velocities also exceed 1.5m/s in the Nelson Wharf car park area and are at least 0.4m/s along Nothe Parade and reach 0.6m/s on the Barrack Road to Hope Street flow route. Elsewhere, velocities remain below 0.2m/s. All of the low lying area inland from Cove Row plus Nothe Parade and much of Trinity Road have an 'Extreme' flood hazard rating, nearly all of the remaining flooded areas have a 'Significant' rating.

Surface water (fluvial dominated downstream boundary)	<p>Available data and mapping: The detailed InfoWorks ICM surface water model, developed for this Level 2 SFRA study has been used to describe the risk of surface water flooding to the site.</p> <p>WEY4 – Surface water (fluvial downstream boundary) 3.3% AEP (depth) WEY4 – Surface water (fluvial downstream boundary) 1% AEP (depth) WEY4 – Surface water (fluvial downstream boundary) 0.1% AEP (depth)</p> <p>WEY4 – Surface water (fluvial downstream boundary) 3.3% AEP (hazard) WEY4 – Surface water (fluvial downstream boundary) 1% AEP (hazard) WEY4 – Surface water (fluvial downstream boundary) 0.1% AEP (hazard)</p> <p>WEY4 – Surface water (fluvial downstream boundary) 3.3% AEP (velocity) WEY4 – Surface water (fluvial downstream boundary) 1% AEP (velocity) WEY4 – Surface water (fluvial downstream boundary) 0.1% AEP (velocity)</p> <p>Data analysis:</p> <p>3.3% AEP (1 in 30-year) event:</p> <p>Proportion – 26% Max depth – 3.04m Max velocity – 1.03m/s Max hazard – 2.91</p> <p>1% AEP (1 in 100-year) event:</p> <p>Proportion – 32% Max depth – 3.14m Max velocity – 1.27m/s Max hazard – 3.08</p> <p>0.1% AEP (1 in 1,000-year) event:</p> <p>Proportion – 39% Max depth – 3.18m Max velocity – 1.75m/s Max hazard – 3.18</p>	<p>Mean depth – 0.15m Mean velocity – 0.1m/s Mean hazard – 0.68</p> <p>Mean depth – 0.17m Mean velocity – 0.12m/s Mean hazard – 0.73</p> <p>Mean depth – 0.2m Mean velocity – 0.16m/s Mean hazard – 0.79</p>
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Dorset Council

L2 SFRA - Detailed Site Summary Tables

Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential

Flood characteristics:
 Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.

In a 1 in 30-year (3.3% AEP) event flooding in the northern section of the site is concentrated along the roads with maximum depths reaching 0.3-0.4m around Town Bridge. Elsewhere in the northern section of the site depths do not exceed 0.2m. Velocities are mostly less than 0.1m/s but are 0.1-0.3m/s along much of Custom House Quay, increasing to 0.4m/s near Town Bridge. This area has 'Moderate' flood hazard (0.75 to 1.25) rating, the rest of the northern section of the site has a 'Low' flood hazard (less than 0.75) rating.

In the southern section of the site flooding is concentrated along Trinity Road, western section of Nothe Parade and the area extending south from Cove Row to Spring Road. Here depths reach 0.3-0.6m along the roads. The area just south of Brewer's Quay has depths of 0.2-0.4m. Velocities reach a maximum of 1.0m/s along Spring Road and Cove Street but are less than 0.3m/s on other roads. Most of the roads between Cove Row to Brewer's Quay, and Nothe Parade have at least a 'Moderate' flood hazard rating, with small areas of 'Significant' flood hazard rating on Hope Street, Cove Street and Nothe Parade. The rest of the flooded area has a 'Low' hazard rating.

In a 1 in 100-year (1% AEP) event in the northern section of the site flooding reaches a maximum depth of 0.5m on Custom House Quay near Town Bridge but does not exceed 0.2m in the rest of the flooded areas. Velocities are 0.2-0.5m/s along most of Custom House Quay (except the section to the east of South Parade), with highest velocities near Town Bridge. The north-south running streets west from South Parade have velocities 0.1-0.4m/s. In the rest of the northern section of the site velocities remain less than 0.1m/s. Much of the flooded area still has a 'Low' flood hazard rating, with small areas of 'Moderate' and 'Significant' flood hazard rating by Town Bridge.

In the southern section of the site water depths are 0.4-0.7m along the roads just south of Cove Row, with depths of 0.3-0.5m away from the roads in some of this area. Trinity Road, Trinity Street and the western section of Nothe Parade also flood to depths of 0.2-0.4m and the roads just south of Brewer's Quay to 0.4m. Velocities are greatest on the flow path along Spring Road, reaching a maximum of 1.3m/s along the eastern side of Brewer's Quay. In the section of Cove Street between Brewer's Quay and the river and on Trinity Road, Newberry Gardens and Hope Street velocities are 0.1-0.3m/s. Elsewhere in the flooded sections of the site velocities are less than 0.1m/s. Approximately half of the flooded areas of the southern section of the site have a flood hazard rating of 'Moderate' or 'Significant'. These are in the areas around Trinity Road, Nothe Parade, Cove Street, Cove Row and Hope Street. The rest of the flooded area has a 'Low' flood hazard rating.

	<p>Dorset Council</p> <p>L2 SFRA - Detailed Site Summary Tables</p>
	<p>Site details</p>
<p>Site Code</p>	<p>WEY4</p>
<p>Address</p>	<p>Custom House Quay and Brewery Waterfront, Weymouth</p>
<p>Area</p>	<p>13.2 hectares</p>
<p>Current land use</p>	<p>Tourism, leisure, retail, residential</p>
<p>Proposed land use</p>	<p>Tourism, leisure, retail, residential</p>
	<p>In a 1 in 1,000-year (0.1% AEP) event the flooded area in the northern section of the site is larger with depths increasing to 0.8m by Town Bridge. Along much of Custom House Quay further to the east of the bridge and inland depths are 0.1-0.3m. Velocities are 0.2-0.7m/s along most of Custom House Quay (except the section to the east of South Parade), with highest velocities near Town Bridge. In the rest of the northern section of the site velocities increase to 0.5m/s on the main north-south running streets. The section of the site east of South Parade has velocities of less than 0.2m/s. Much of the flooded area still has a 'Low' flood hazard rating, with an area of 'Moderate' and 'Significant' flood hazard rating either side of Town Bridge.</p> <p>In a 1 in 1,000-year (0.1% AEP) event, in the southern section of the site, flood extents increase slightly on the 1 in 100-year (1% AEP) event. Water depths are 0.5-0.7m along the roads just south of Cove Row, with depths of 0.3-0.6m away from the roads in some of this area. Trinity Road, Trinity Street and the western section of Nothe Parade also flood to depths of 0.2-0.5m and the roads just south of Brewer's Quay to 0.5m. Velocities are greatest on the flow path along Spring Road and Upper Cove Street, reaching a maximum of 1.8m/s along the eastern side of Brewer's Quay. In the section of Cove Street between Brewer's Quay and the river and on Trinity Road, Newberry Gardens, Herbert Place, Hope Street and Nothe Parade velocities are 0.1-0.5m/s. There is also a flow route from Barrack Road to Hope Street with velocities of 0.5m/s. Elsewhere in the flooded sections of the site velocities are less than 0.1m/s. Much of the flooded area of the southern section of the site has a flood hazard rating of 'Moderate' or 'Significant'. The areas with a 'Significant' rating are on the flow route along Spring Road, Cove Street, Hope Street and the northern end of Newberry Gardens, plus along some of the waterfront areas. The rest of the waterfront areas and the area between Cove Row and Brewer's Quay have a 'Moderate' rating. The rest of the flooded areas have a 'Low' flood hazard rating.</p>
<p>Surface water (fluvial dominated downstream boundary) plus climate change</p>	<p>Available data and mapping:</p> <p>The detailed InfoWorks ICM surface water model, developed for this Level 2 SFRA study has been used to describe the risk of surface water flooding to the site. For the climate change scenarios, future defences, based on the specifications outlined within Appendix A and C of the Weymouth Harbour and Esplanade Flood and Coastal Risk Management Strategy (2020) were applied to the model based on interventions undertaken across all three phases. An Outline Business Case is currently being produced to assess the future coastal defences for Weymouth. When undertaking a Site-Specific Flood Risk Assessment, this should be considered.</p> <p>WEY4 – Surface water (fluvial downstream boundary) 3.3% AEP + 40% CC (depth) WEY4 – Surface water (fluvial downstream boundary) 1% AEP + 45% CC (depth) WEY4 – Surface water (fluvial downstream boundary) 0.1% AEP + 45% CC (depth)</p> <p>WEY4 – Surface water (fluvial downstream boundary) 3.3% AEP + 40% CC (hazard) WEY4 – Surface water (fluvial downstream boundary) 1% AEP + 45% CC (hazard) WEY4 – Surface water (fluvial downstream boundary) 0.1% AEP + 45% CC (hazard)</p> <p>WEY4 – Surface water (fluvial downstream boundary) 3.3% AEP + 40% CC (velocity) WEY4 – Surface water (fluvial downstream boundary) 1% AEP + 45% CC (velocity) WEY4 – Surface water (fluvial downstream boundary) 0.1% AEP + 45% CC (velocity)</p>

Data analysis:**3.3% AEP (1 in 30-year) event:**

Proportion - 36%

Max depth - 3.18m

Max velocity - 1.34m/s

Max hazard - 3.05

Mean depth - 0.22m

Mean velocity - 0.12m/s

Mean hazard - 0.81

1% AEP (1 in 100-year) event:

Proportion - 41%

Max depth - 3.33m

Max velocity - 1.66m/s

Max hazard - 3.1

Mean depth - 0.26m

Mean velocity - 0.13m/s

Mean hazard - 0.87

0.1% AEP (1 in 1000-year) event:

Proportion - 48%

Max depth - 3.61m

Max velocity - 2.28m/s

Max hazard - 3.19

Mean depth - 0.34m

Mean velocity - 0.17m/s

Mean hazard - 0.94

Flood characteristics:

The results described below are based on the defences proposed as part of the Weymouth Harbour and Esplanade Flood and Coastal Risk Management Strategy (2020). An Outline Business Case is currently being prepared to assess the level of protection offered by the scheme. Any Site-Specific Flood Risk Assessment should consider the OBC once this is completed.

Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.

In a 1 in 30-year (3.3% AEP) event plus 40% climate change uplift, surface water depths increase from the 1 in 1,000-year (0.1% AEP) event.

In the northern section of the site, all of Custom House Quay and the north to south roads are flooded. Depths reach a maximum of 1.2m by Town Bridge, and along Custom House Quay from the site's western boundary to East Street depths are at least 0.4m and 0.1-0.3m from here to the eastern boundary. Inland depths reduce greatly but reach 0.2m in some areas along the site's northern boundary. Velocities are highest along Custom House Quay to the east of East Street (0.1-0.5m/s). In the rest of the northern section of the site on the north-south running streets velocities reach 0.3m/s. Custom House Quay from the west edge of the site almost to East Street has a flood hazard rating of 'Significant' (1.25 to 2.0) with small areas of 'Moderate' (0.75 to 1.25) rating. The rest of the flooded area has a 'Low' (less than 0.75) flood hazard rating, with some areas of 'Moderate' along the eastern section of Custom House Quay.

In the southern section of the site, almost the entirety of the land between Trinity Street, Hope Street, Cove Row and Brewer's Quay, plus Trinity Road, Nothe Parade, Spring Road and upper Newberry Gardens is flooded. Along the waterfront from just east of Town Bridge to Nelson Wharf water depths are 0.3-0.6m. Water depths are 0.5-0.7m along the roads just south of Cove Row, with depths of 0.1-0.6m away from the roads in this area. South from Brewer's Quay, Cove Street, Newberry Gardens and Spring Road flood to depths of 0.2-0.4m. Velocities are greatest on the flow path along Spring Road, Newberry Gardens and upper Cove Street, reaching a maximum of 1.3m/s along the eastern side of Brewer's Quay. On Nothe Parade velocities reach 0.9m/s locally and on a flow route from Barrack Road to Hope Street velocities reach 0.4m/s. Elsewhere in the flooded sections of the site velocities are less than 0.1m/s. Virtually all Cove Row, Cove Street, Hope Street and Nothe Parade, plus some of Spring Road have a 'Significant' flood hazard rating. Much of the rest of this area, plus Trinity Road has a 'Moderate' flood hazard. Further from the river, the flooded areas have a 'Low' hazard rating.

Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential
	<p>In the 1 in 100-year (1% AEP) event plus 45% climate change uplift, surface water depths and extents increase slightly on the 1 in 30-year (3.3% AEP) event plus 40% climate change uplift.</p> <p>In the northern section of the site, depths are very similar to the 1 in 30-year (3.3% AEP) event plus 40% climate change uplift. All of Custom House Quay and the north to south roads are flooded. Depths reach a maximum of 1.2m by Town Bridge, and along Custom House Quay from the site’s western boundary to East Street depths are at least 0.4m and 0.2-0.3m from here to the eastern boundary. Inland depths reduce greatly but reach 0.2m in some areas along the site’s northern boundary. Velocities are highest along Custom House Quay to the east of East Street (mostly 0.2-0.5m/s). In the rest of the northern section of the site on the north-south running streets velocities locally reach 0.5 m/s. Elsewhere, velocities are less than 0.2m/s. Custom House Quay from the west edge of the site to East Street has a flood hazard rating of ‘Significant’ with small areas of ‘Moderate’ rating. The rest of the flooded area has a ‘Low’ flood hazard rating, with small areas of ‘Moderate’ along the eastern section of Custom House Quay.</p> <p>In the southern section of the site extents and depths increase slightly. All of the land between Trinity Street, Hope Street, Cove Row and Brewer’s Quay, plus Trinity Road, Nothe Parade, Spring Road and upper Newberry Gardens is flooded. Along the waterfront from just east of Town Bridge to Nelson Wharf water depths are 0.4-0.8m. Water depths are 0.7-0.8m along the roads just south of Cove Row, with depths of 0.3-0.7m away from the roads in this area. Trinity Street and St Leonard’s Road flood to depths of 0.3-0.7m with depths of up to 0.5m away from the roads in this area. South from Brewer’s Quay, Cove Street, Newberry Gardens and Spring Road flood to depths of 0.2-0.5m. Velocities are greatest on the flow path along Spring Road, Newberry Gardens and upper Cove Street, reaching a maximum of 1.7m/s along the eastern side of Brewer’s Quay. Locally on Nothe Parade velocities reach 0.8m/s, on a flow route from Barrack Road to Hope Street velocities reach 0.5m/s and up to 0.3m/s on Herbert Place. Elsewhere in the flooded sections of the site velocities are less than 0.1m/s. Much of the flooded area along Nothe Parade and inland from the river to Brewer’s Quay and some of Trinity Road, Cove Street, Newberry Gardens and Spring Road has a ‘Significant’ flood hazard rating. There are smaller areas of ‘Moderate’ flood hazard in these areas. Further from the river, the flooded areas have a ‘Low’ hazard rating.</p> <p>In the 1 in 1,000-year (0.1% AEP) event plus 45% climate change uplift, surface water extents and depths increase slightly on the 1 in 100-year (1% AEP) event plus 45% climate change uplift.</p> <p>In the northern section of the site depths are very similar but the maximum depth increases to 1.3m on Custom House Quay by Town Bridge. Maximum velocity (0.6m/s) is now found on Maiden Street as velocities have increased slightly on the north-south running streets but elsewhere velocities remain very similar to the 1% AEP event plus 45% climate change uplift. Flood hazard ratings increase slightly with the area of ‘Significant’ and ‘Moderate’ ratings extending further along Custom House Quay.</p>

Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential

In the southern section of the site, maximum depth increases to 1.1m in the Cove Row area, with many of the roads along the waterfront and inland to Brewer’s Quay having depths of at least 0.9m. Inland from Brewer’s Quay to the edge of the site depths on Spring Road are 0.3-0.6m. Velocities increase to a maximum of 2.2m/s on the eastern edge of Brewer’s Quay and are at least 0.7m/s on the Spring Road flow path, with Newberry Gardens having velocities of at least 0.5m/s. Locally on Nothe Parade velocities increase to 1.2m/s, on the flow route from Barrack Road to Hope Street velocities reach 0.7m/s and up to 0.5m/s on Herbert Place. Flood hazard ratings increase with all of the area between Cove Street, Cove Row and Hope Street having a ‘Significant’ rating, plus all of Nothe Parade and Spring Road. There is now a very small area of ‘Extreme’ (greater than 2.0) rating on Spring Road to the east side of Brewer’s Quay.

Tidal dominated	<p>Available data and mapping: A detailed coastal and fluvial TUFLOW model of Weymouth, developed for the Environment Agency in 2019 and updated as part of this Level 2 SFRA study has been used to describe the risk of fluvial flooding to the site.</p> <p>WEY4 – Tidal defended 3.3% AEP (depth) WEY4 – Tidal defended 0.5% AEP (depth) WEY4 – Tidal defended 0.1% AEP (depth)</p> <p>WEY4 – Tidal defended 3.3% AEP (hazard) WEY4 – Tidal defended 0.5% AEP (hazard) WEY4 – Tidal defended 0.1% AEP (hazard)</p> <p>WEY4 – Tidal defended 3.3% AEP (velocity) WEY4 – Tidal defended 0.5% AEP (velocity) WEY4 – Tidal defended 0.1% AEP (velocity)</p> <p>Data analysis:</p> <p>3.3% AEP (1 in 30-year) event: Proportion - 10% Max depth - 5.85m Max velocity - 1.24m/s Max hazard - 5.26</p> <p>Mean depth - 0.29m Mean velocity - 0.21m/s Mean hazard - 0.88</p> <p>0.5% AEP (1 in 200-year) event: Proportion - 31% Max depth - 6.03m Max velocity - 1.27m/s Max hazard - 5.62</p> <p>Mean depth - 0.32m Mean velocity - 0.2m/s Mean hazard - 0.96</p> <p>0.1% AEP (1 in 1,000-year) event: Proportion - 38% Max depth - 6.19m Max velocity - 1.25m/s Max hazard - 6.05</p> <p>Mean depth - 0.41m Mean velocity - 0.18m/s Mean hazard - 1.06</p>
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Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential

Flood characteristics:
 Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.

During a 1 in 30-year tidal event, flooding to the site is all north of the River Wey, along Custom House Quay, with a maximum depth of 1.1m in the immediate vicinity of Town Bridge. Depths decrease east from here to the furthest extent of the flood just east of East Street and west to 0.2m at the far west of the site. Velocities are highest west along Custom House Quay from East Street to the western edge of the site (typically 0.6-1.1m/s). Approximately 200m of Custom House Quay, mainly east of Town Bridge, has a 'Significant' flood hazard rating (1.25 to 2.0), with a small area of 'Extreme' flood hazard (greater than 2.0) rating beneath Town Bridge. Flood hazard ratings decrease to 'Moderate' (0.75 to 1.25) and 'Low' (less than 0.75) west, east and inland from this area.

In a 1 in 200-year (0.5% AEP) event, in the northern section of the site, Custom House Quay is flooded with a maximum depth of 1.3m in the immediate vicinity of Town Bridge. Depths decrease east from here to 0.1m or less at the far east of the site and west to 0.3m at the far west of the site. Depths decrease north to 0.3m on the edge of the site from Custom House Quay between Town Bridge and East Street. Velocities are highest (0.6-1.3m/s) along Custom House Quay between St Nicholas Street and East Street. This section of Custom House Quay has a 'Significant' (1.25 to 2.0) flood hazard rating, with a section of 'Extreme' rating under Town Bridge. Flood hazard ratings decrease inland and to the east and west.

In a 1 in 200-year (0.5% AEP) event, in the southern section of the site, most of Trinity Road (except the far western extent) and Nothe Parade are flooded. The flood extends inland for approximately 140m from Cove Row to inundate an area between Trinity Street and Hope Street including the Brewer's Quay site, depths are 0.3-0.6m across much of this area. Velocities are generally less than 0.1m/s but increase to 0.7m/s on some of the roads (up to 1.0m/s in two very localised locations on Cove Street and Hope Street). Brewer's Quay and Cove Street have a 'Significant' flood hazard rating, much of the rest of the inundated area has a 'Moderate' flood hazard rating, a very localised area at Nelson Wharf slipway has an 'Extreme' rating.

In a 1 in 1,000-year (0.1% AEP) event, in the northern section, depths increase slightly to 1.5m in the vicinity of Town Bridge and to 0.5m in the far west of the site. Maximum velocities are 0.9m/s along Custom House Quay to the west of Town Bridge and 0.9-1.2m/s between St Mary Street and East Street. The areas of flood hazard are slightly extended from the 1 in 200-year (0.5% AEP) event. Flood waters first breach Custom House Quay to the west of Town Bridge, flowing east along Custom House Quay and inland. As the event progresses water overtops the edge of Custom House Quay along the section from Town Bridge to South Parade. This is joined by water from the sea front flowing through Alexandra Gardens and Pilgrims Way. Eventually water from the sea front also enters the site flowing south along South Parade.

Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential

0.1% AEP (1 in 1,000-year) event:

Proportion - 62%	
Max depth - 7.77m	Mean depth - 1.52m
Max velocity - 4.64m/s	Mean velocity - 0.4m/s
Max hazard - 9.18	Mean hazard - 2.01

Flood characteristics:

The results described below are based on the defences proposed as part of the Weymouth Harbour and Esplanade Flood and Coastal Risk Management Strategy (2020). An Outline Business Case is currently being prepared to assess the level of protection offered by the scheme. Any Site-Specific Flood Risk Assessment should consider the OBC once this is completed.

Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.

In a 1 in 30-year (3.3% AEP) event plus climate change, flooding inundates nearly all of the northern section of the site. Depths are greatest along Custom House Quay (1.9-2.7m) between the far west of the site and East Street, reducing to 1.4-1.8m from East Street to the east edge of the site. Depths reduce inland away from the river but remain above 1.2m for approximately 50m inland in the western half of the site. Velocities are 0.8-1.8m/s along much of Custom House Quay from the western boundary to South Parade. On Custom House Quay just east of South Parade velocities reach 2.6m/s and 1.9m/s where the tidal barrier reaches the land. North of the river in the vicinity of the junction of Belle View with South Parade velocities reach 1.8m/s. On the roads away from the river velocities are 0.3-0.7m/s except South Parade where velocities reach 1.3m/s. Almost the entire northern section of the site has an 'Extreme' flood hazard rating (greater than 2.0) or 'Significant' rating (1.25 to 2.0), with the 'Extreme' rating along all of Custom House Quay and St Edmund Street.

In a 1 in 30-year (3.3% AEP) event plus climate change, in the southern section of the site, all of Trinity Road to Nothe Parade will flood, with the area inundated extending inland from Cove Row to the Newberry Gardens / Spring Road roundabout. Depths are 1.5-2.0m in much of the Cove Row to Brewer's Quay area. Along Trinity Road depths are 1.5-1.9m reducing suddenly in the far west of the site. Nothe Parade has depths of 1.4-1.7m. Fastest velocities are located along Nothe Parade (2.2m/s near Cove Row, 1.6m/s near Nelson Wharf and 3.3m/s where the tidal barrage meets the land). The roads within the site have velocities of approximately 0.6-1.3m/s between Cove Row and Brewer's Quay. Away from the roads velocities are less than 0.5m/s. Almost the entire flooded southern section of the site has a 'Significant' flood hazard rating, or 'Extreme' rating (most of Nothe Parade, Cove Street, Hope Street and the eastern section of Brewer's Quay). There is a smaller area of 'Moderate' (0.75 to 1.25) hazard rating to the south of the Brewer's Quay site.

Site details

Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential
	<p>In a 1 in 200-year (0.5% AEP) event plus climate change, all of the northern section of the site is inundated. Here depths are greatest along Custom House Quay (2.0-2.9m) between the far west of the site and East Street, reducing from 2.0m near East Street to 1.5m towards the east edge of the site. Depths reduce inland away from the river but remain above 1.0m on all roads except in the western extremity of the site. Velocities are 0.7-1.8m/s along much of Custom House Quay from the western boundary to South Parade, with a very localised area of up to 4.5m/s by the western parapet of Town Bridge. On Custom House Quay just east of South Parade velocities reach 2.5m/s, reducing to 0.5m/s towards the eastern boundary of the site. Where the tidal barrier reaches the land, velocities increase to 1.9m/s. North of the river in the vicinity of the junction of Belle View with South Parade velocities reach 2.2m/s. On the roads away from the river velocities are 0.3-0.6m/s except South Parade where velocities are 0.5-1.4m/s. Almost the entire northern section of the site has an 'Extreme' flood hazard rating or 'Significant' rating, with the 'Extreme' rating along all of Custom House Quay.</p> <p>In a 1 in 200-year (0.5% AEP) event plus climate change, in the southern section of the site, all of Trinity Road to Nothe Parade will flood, with the area inundated extending inland from Cove Row to the roundabout at the junction of Newton's Road and Newberry Gardens. Depths are 2.0-2.2m in much of the Cove Row to Brewer's Quay section but reduce suddenly to 0.5m to the south of the Brewer's Quay site. Along Trinity Road depths are 1.6-2.0m reducing suddenly in the far west of the site. Nothe Parade has depths of 1.5-1.9m, reducing to 1.0 in the far east. Highest velocities are located along Nothe Parade (up to 2.0m/s at the west end, 2.5m/s at Nelson Wharf and 3.5m/s where the tidal barrage joins). The roads within the site have velocities within the range of 0.3-0.9m/s with an area of 0.5-0.7m/s near the roundabout to the south of Brewer's Quay. Away from the roads velocities are less than 0.1m/s. Almost the entire flooded southern section of the site has an 'Extreme' flood hazard rating or 'Significant' rating, with the 'Extreme' rating extending along much of Trinity Road, Cove Row and Nothe Parade and extending inland to include Brewer's Quay. There are only small areas of 'Moderate' and 'Low' hazard rating around the southern periphery of the flooded area.</p> <p>In a 1 in 1,000-year (0.1% AEP) event plus climate change, in the northern section of the site, depths increase slightly on the 1 in 200-year (0.5% AEP) event plus climate change to above 1.5m on all roads. Velocities increase to 0.9-2.6m/s along much of Custom House Quay from the western boundary to South Parade, where the tidal barrier reaches the land, velocities increase to 2.5m/s. Elsewhere in the northern section, velocities increase slightly. The 'Extreme' flood hazard rating extends to include much of the roads leading north from Custom House Quay.</p> <p>In the southern section of the site, extents and depths are similar to the 1 in 200-year (0.5% AEP) event plus climate change. Velocities and flood hazard ratings are very similar to the 1 in 200-year (0.5% AEP) event plus climate change.</p>
Reservoir	No risk of flooding from reservoir breaches has been identified within or around the vicinity of this site.

	<p>Dorset Council</p> <p>L2 SFRA - Detailed Site Summary Tables</p>
	<p>Site details</p>
<p>Site Code</p>	<p>WEY4</p>
<p>Address</p>	<p>Custom House Quay and Brewery Waterfront, Weymouth</p>
<p>Area</p>	<p>13.2 hectares</p>
<p>Current land use</p>	<p>Tourism, leisure, retail, residential</p>
<p>Proposed land use</p>	<p>Tourism, leisure, retail, residential</p>
<p>Groundwater</p>	<p>The JBA Groundwater Flood Map, at 5m resolution, shows that the entirety of the site to the north of the river is within the 'No risk' zone, deeming it as having a negligible risk from groundwater flooding during a 1% AEP groundwater flood event due to the nature of the local geology deposits. To the south of the river, a zone approximately 40m wide runs roughly parallel to Trinity Road and Nothe Parade that has groundwater flood levels between 0.5m and 5m below the ground surface. Along the northern boundary of this zone of flood risk, an area extending south from Cove Row to just north of Brewer's Quay and east between Nothe Parade and Barrack Road to the south west of the sailing club has groundwater flood levels between 0.025m and 0.5m below the ground surface. Within these zones there is the potential for tidally influenced groundwater flooding. The remainder of the southern section of the site is within the 'No risk' zone, deeming it as having a negligible risk from groundwater flooding due to the nature of the local geology deposits.</p> <p>This assessment does not negate the requirement that an appropriate assessment of the groundwater regime should be carried out at the site-specific FRA stage.</p>
<p>Flood history</p>	<p>Recorded Flood Outlines – Environment Agency: There are no recorded incidences of tidal or fluvial flooding occurring in or around the surrounding area of the site.</p> <p>Historic Flood Risk – Dorset Council (LLFA): flooding has been reported near Town Bridge (on the north bank, where drainage is assisted through pumping) and along Custom House Quay.</p>
	<p>Flood risk management infrastructure</p>
<p>Defences – present day</p>	<p>Northern section of the site, along the north bank of Weymouth Harbour (defences listed from west to east):</p> <p>ID: 85152, Type: Wall providing tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: 3 (Fair), Asset owner: Local Authority, Asset maintainer: Environment Agency. Parallel with this: ID: 128, Type: Wall providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Local Authority.</p> <p>ID: 68, Type: Wall providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Private individual, Company or Charity. Parallel to this: ID: 39029, Type: Natural high ground providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Local Authority.</p> <p>ID: 84428, Type: Wall providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: 3 (Fair), Asset owner: Local authority, Asset maintainer: Environment Agency. Parallel to this: ID: 179, Type: Natural high ground providing tidal protection, Design Standard of Protection: 1 in 1 year (100% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Private individual, Company or Charity.</p> <p>ID: 39028, Type: Wall providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Private individual, Company or Charity.</p>

	<p>Dorset Council</p> <p>L2 SFRA - Detailed Site Summary Tables</p>
	<p>Site details</p>
<p>Site Code</p>	<p>WEY4</p>
<p>Address</p>	<p>Custom House Quay and Brewery Waterfront, Weymouth</p>
<p>Area</p>	<p>13.2 hectares</p>
<p>Current land use</p>	<p>Tourism, leisure, retail, residential</p>
<p>Proposed land use</p>	<p>Tourism, leisure, retail, residential</p>
	<p>ID: 178, Type: Natural high ground providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Private individual, Company or Charity.</p> <p>Outside of the northern section of the site’s boundaries but reducing flood risk to the site are:</p> <p>To the east are walls with Design Standard of Protection of 1 in 200-year (0.5% AEP) and to the north of the site boundary is the promenade providing coastal protection along the back of Weymouth beach.</p> <p>Southern section of the site, along the south bank of Weymouth Harbour (defences listed from west to east):</p> <p>ID: 157 and 156, Type: Natural high ground providing fluvial/tidal protection, Design Standard of Protection: 1 in 25-year (4% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Private individual, Company or Charity.</p> <p>ID: 102094, Type: Wall providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: 3 (Fair), Asset owner: Private individual, Company or Charity, Asset maintainer: Environment Agency.</p> <p>ID: 155 and 154, Type: Wall providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Private individual, Company or Charity. Parallel to this: ID: 94307, Type: Wall providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: 3 (Fair), Asset owner: Local Authority, Asset maintainer: Environment Agency.</p> <p>ID: 77816 and 153, Type: Natural high ground providing fluvial/tidal protection, Design Standard of Protection: 1 in 200-year (0.5% AEP), Condition: Not provided, Asset owner: Unknown, Asset maintainer: Private individual, Company or Charity.</p> <p>Outside of the southern section of the site’s boundaries but reducing flood risk to the site are:</p> <p>To the west and east of the site is natural high ground providing fluvial/tidal protection with Design Standard of Protection of 1 in 200-year (0.5% AEP).</p>
<p>Defences – proposed</p>	<p>Along both sections of the site, between 2020 – 2030, it is proposed to raise nine sections of the harbour wall and replace seven sections. All harbour walls are to be raised to the height of 3.74m AOD.</p> <p>To the east of the northern section of the site, the Esplanade sea defence section from the Pavilion to Brunswick Terrace will be replaced, between 2065 – 2067, and will have associated promenade works and set back walls that will raise the level to 4.65m AOD.</p> <p>The Outline Business Case and Weymouth Harbour and Esplanade Flood and Coastal Risk Management Strategy (2020) should be consulted to provide an understanding of the land which will need to be safeguarded against future development to enable the construction of these defences.</p>

	Site details
Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential
Residual risk	<p>Baseline in this context refers to the equivalent percentage AEP present day or climate change tidal flooding event without a breach.</p> <p>The modelled breach is located at Town Bridge downstream, approximately 40m downstream (east) of Town Bridge.</p> <p>Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself.</p> <p>In a 1 in 30-year (3.3% AEP) event, there are very minor increases on baseline flooding extent to the north of Custom House Quay with the breach. Flood depths remain the same, with a maximum of 1.1m by Town Bridge. Velocities increase significantly to 2.7m between the breach and Town Bridge, however elsewhere they remain similar to the baseline. Flood hazard ratings increase from a baseline maximum of 'Significant' (1.25 to 2.0) by Town Bridge to 'Extreme' hazard rating (greater than 2.0) in a small area, with a small increase in the eastward extent of the area of 'Significant' rating to the east of Maiden Street.</p> <p>In a 1 in 200-year (0.5% AEP) event with a breach downstream of Town Bridge, there are no increases on baseline flooding depth and extent. However, there is a significant increase in velocity to 2.8m/s between the breach and Town Bridge. There is also a small increase in the area of 'Extreme' hazard to the east of Town Bridge from the area in the baseline flooding.</p> <p>In a 1 in 30-year (3.3% AEP) event plus climate change and future defences with a breach downstream of Town Bridge, there are significant increases in depth along Custom House Quay to 2.0-2.9m from the west of the site to East Street and to 1.2-1.8m from here to the eastern edge of the site. Inland, depths exceed 1.0m west of East Street, except for on St Thomas Street just north of Town Bridge. Velocities increase to 0.8-2.6m/s along all of Custom House Quay with a localised maximum of 4.5m/s by the western parapet of Town Bridge. Velocities remain similar north of Custom House Quay but increase to 1.8m/s on the Esplanade. Flood hazard ratings remain the same as the 1 in 30-year (3.3% AEP) event plus climate change without the breach.</p> <p>In a 1 in 200-year (0.5% AEP) event plus climate change and future defences with a breach downstream of Town Bridge, there are no increases on baseline flooding depth and extent. Velocities are very similar to the baseline, with a slight increase on St Mary Street to 0.6m/s but a decrease to the west of Town Bridge to 3.0m/s. There are minor increases in flood hazard ratings to the north of the river with the 'Extreme' flood hazard extending a little further north away from the river in the vicinity of the breach.</p> <p>The modelled breach is located on Cove Row.</p> <p>Baseline in this context refers to the equivalent percentage AEP present day or climate change tidal flooding event without a breach.</p> <p>Significant depths, velocities and flood hazard ratings along the boundary with the harbour represent water levels within the harbour, rather than the site itself. High results caused by Nelson Wharf slipway being within the site have been omitted from the analysis.</p> <p>In a 1 in 30-year (3.3% AEP) event, there is no flooding on the south side of the river.</p>

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Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential
	<p>In a 1 in 200-year (0.5% AEP) event, there are very slight increases to flood extents to the south of the breach but no significant increases on flood depths. Velocities are generally very similar to the baseline but increase to 1.2m/s on both Cove Row by the breach and on Hope Street. Flood hazard ratings remain the very similar to the baseline.</p> <p>In a 1 in 30-year (3.3% AEP) event plus climate change, depths increase from the same event without the breach. All of the area between Trinity Street and Hope Street, extending inland to include the Brewer’s Quay site is flooded to depths of 1.2-2.0m and depths increase to 1.7m along both Trinity Road and Nothe Parade. Velocities increase on Nothe Parade to 1.9m/s at its west end, 2.9m/s at Nelson Wharf and 3.3m/s where the tidal barrier reaches the land. Velocities increase to 0.5-1.2m/s on the roads inland to Brewer’s Quay. Flood hazard ratings increase to ‘Extreme’ at the Brewer’s Quay site and on most of Nothe Parade, Cove Row, Hope Street and Cove Street.</p> <p>In a 1 in 200-year (0.5% AEP) event plus climate change, extents and depths are the same as in the baseline event. Velocities increase to 2.2m/s at the breach location but are very similar elsewhere. Flood hazard ratings are also very similar to the baseline.</p>
Emergency planning	
Flood warning	<p>Much of the north section of the site and the southern section from the river to the brewery site is located in the Environment Agency Flood Warning Areas 111FWTWEYH002 “Weymouth Harbour at Weymouth Harbourside” and 111FWTWEYH003 “Weymouth Harbour at Weymouth Town”. These both provide flood warnings for the English Channel.</p> <p>The site is located in two Flood Alert Areas: 111WATWEYH “Weymouth Harbour” and 111WACECD “East coast of Dorset”. These cover much of the northern section of the site and the southern section close to the river, extending south to include the brewery site. They provide flood alerts for the English Channel.</p>
Access and egress	<p>In the northern section of the site, access and egress is difficult from and to the north and east due to narrow and one way streets. Routes do lead to the Esplanade (and then the B3155) via South Parade and East Street. Access and egress is also possible via Town Bridge, again restricted by one way streets. The main egress route is via Custom House Quay west to Commercial Road which leads to the B3155. In the southern section of the site access and egress is via Spring Road and Rodwell Avenue to the west leading to the A354. Also Trinity Road leads west to North Quay and the A354.</p> <p>In the northern section of the site, a fluvial flooding 3.3% AEP event with climate change prevents access and egress along Custom House Quay (depths exceeding 2.0m near Town Bridge), requiring access and egress via the narrow streets leading to the Esplanade. In the southern section of the site, access and egress is prevented along all of the roads within 25m of the river and in the Brewer’s Quay area (depths exceeding 1.2m). This means there is no access to the eastern section of the site. Access and egress would need to be via Spring Road and Rodwell Avenue.</p> <p>Surface water flooding in the northern section of the site causes a flood hazard rating of ‘Significant’ on Custom House Quay at Town Bridge in both the 1 in 100-year and 1 in 1,000-year (0.1% AEP) events. In the southern section of the site, access and egress are made difficult by a flood hazard rating of ‘Moderate’ along the waterfront roads and a rating of ‘Significant’ on Spring Road.</p>

Site details

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Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
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All tidal and tidally influenced flooding events lead to significant flooding to the access and egress in the northern section via Custom House Quay. In a 1 in 200-year tidal flooding event depth is 1.3m and flood hazard rating is 'Extreme' at Town Bridge. This increases to greater than 2.0m depth with climate change. In the southern section of the site, 0.5% AEP tidal flooding causes 'Moderate' flood hazard rating on parts of Trinity Road. Tidal flooding with climate change creates an 'Extreme' flood hazard rating along the riverside roads including Trinity Road and south to Brewer's Quay, preventing access to much of the eastern area of the site. Spring Road, Rodwell Avenue and the west edge of the site remain free of flooding.

Requirements for drainage control and impact mitigation

Broadscale assessment of possible SuDS

Geology at the site (from BGS 625K mapping) consists of:

- Superficial deposits: alluvium (clay, silt and sand) underlies the whole site, except to the west of Town Bridge.
- Bedrock: Corallian group (limestone, mudstone, siltstone and sandstone) underlies the site, except west of Town Bridge, where the bedrock is Kellaways formation and Oxford Clay formation (undifferentiated) (mudstone, siltstone and sandstone). There is a strip approximately 100m wide along the south bank of the river in the southern section of the site where no bedrock is shown on the mapping.

Topography – there are no steep slopes within the northern section of the site. In the southern section, there are no steep slopes along the waterfront, extending south from Cove Row to Brewer's Quay. South of this, significant areas with steep slopes (gradients exceeding 5%) are found on the west and east edges of the Cove Street / Brewer's Quay area and to the south of Trinity Road and Nothe Parade.

Groundwater levels – the northern section of the site is not shown to be at risk of groundwater flooding. In the southern section of the site, the JBA Groundwater Flood Map, at 5m resolution, shows that a strip 75m to 100m wide parallel to the river and extending inland as far as the junction of Spring Road and Newberry Gardens has groundwater levels within between 0.5m and 5m below the surface. Within this, the area around Cove Street, Hope Street and to the south of Nothe Parade has groundwater levels of 0.025-0.5m below the surface. Within these areas there is the potential for tidally influenced groundwater flooding.

Surface water flood risk – in the northern section of the site Custom House Quay, especially near Town Bridge is especially affected by surface water flooding. In the southern section of the site Trinity Road, Trinity Street and the area extending south from Cove Row to Brewer's Quay and along Spring Road are especially affected by surface water flooding.

The site is not located within a Groundwater Source Protection Zone and there are no restrictions over the use of infiltration techniques with regard to groundwater quality.

Historic landfill - the site is not located within a historic landfill site.



Dorset Council
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BGS data indicates that the underlying geology is likely to have highly variable permeability. Therefore, permeability should be confirmed through infiltration testing. Off-site discharge in accordance with the SuDS hierarchy may be required to discharge surface water runoff from the site.

The northern section of the site is not considered to be susceptible to groundwater flooding, due to the nature of the local geological conditions. This should be confirmed through additional site investigation work. Below ground development such as basements may still be susceptible to groundwater flooding and due to the proximity of the site to the coast, groundwater may be impacted by sea water ingress.

In the southern section of the site, groundwater levels are indicated to be less than 1m below ground level during a 1% AEP event. Within these areas there is the potential for groundwater flooding to be influenced by sea water ingress. Detention and attenuation features should be designed to prevent groundwater ingress from impacting hydraulic capacity and structural integrity. Additional site investigation work may be required to support the detailed design of the drainage system. This may include groundwater monitoring to demonstrate that a sufficient unsaturated zone has been provided above the highest occurring groundwater level. Below ground development such as basements are not appropriate at this site.

Proposed attenuation features such as basins, ponds and tanks should be located outside of Flood Zone 2 or 3 to avoid the potential risks to the hydraulic capacity or structural integrity of these features. Surface water outfalls that discharge into Weymouth Harbour may be susceptible to surcharging/tide locking due to water levels in Weymouth Harbour. The impacts of tide locking/flood flows will need to be considered in terms of the attenuation storage requirements of the site and placement of the outfalls.

Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, amenity and biodiversity. This could provide wider sustainability benefits to the site. Proposals to use SuDS techniques should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.

Development at this site should not increase flood risk either on or off site. The design of the surface water management proposals should take into account the impacts of future climate change over the projected lifetime of the development.

Opportunities to incorporate filtration techniques such as filter strips, filter drains and bioretention areas must be considered. Consideration should be made to the existing condition of receiving waterbodies and their Water Framework Directive objectives for water quality. The use of multistage SuDS treatment will clean improve water quality of surface water runoff discharged from the site and reduce the impact on receiving water bodies.

Mapping suggests that permeable paving may have to use non-infiltrating systems given the possible risk from groundwater. This must be confirmed via site investigations to assess the potential for infiltration techniques across the whole site.

Opportunities to incorporate source control techniques such as green roofs, permeable surfaces and rainwater harvesting must be considered in the design of the site.

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<p>Address</p>	<p>Custom House Quay and Brewery Waterfront, Weymouth</p>
<p>Area</p>	<p>13.2 hectares</p>
<p>Current land use</p>	<p>Tourism, leisure, retail, residential</p>
<p>Proposed land use</p>	<p>Tourism, leisure, retail, residential</p>
	<p>The potential to utilise conveyance features such as swales to intercept and convey surface water runoff should be considered. Conveyance features should be located on common land or public open space to facilitate ease of access. Where slopes are >5%, features should follow contours or utilise check dams to slow flows.</p> <p>Developers should seek to discharge surface water at greenfield rates. Where this is not possible, a significant reduction in current brownfield runoff rates should be achieved in consultation with the LLFA. It may be possible to reduce site runoff by maximising the permeable surfaces on site using a combination of permeable surfacing and soft landscaping techniques. Surface water flood mapping indicates the presence of surface water flow paths during the 3.3% AEP event. Existing flow paths should be retained and integrated with blue-green infrastructure and public open space.</p> <p>If it is proposed to discharge runoff to a watercourse or sewer system, the condition and capacity of the receiving watercourse or asset should be confirmed through surveys and the discharge rate agreed with the asset owner.</p>
<p>Opportunities for wider sustainability benefits and integrated flood risk management</p>	<p>Implementation of SuDS at the site could provide opportunities to deliver multiple benefits including volume control, amenity and biodiversity. This could provide wider sustainability benefits to the site. Proposals to use SuDS techniques should be discussed with relevant stakeholders (LPA, LLFA and EA) at an early stage to understand possible constraints.</p>
	<p>NPPF and planning implications</p>
<p>Exception Test requirements</p> <p>(LA considerations)</p>	<p>The Local Authority will need to confirm that the sequential test has been carried out in line with national guidelines. The Sequential Test will need to be passed before the Exception Test is applied.</p> <p>Much of the site lies within Flood Zone 3a and some of the northern section within Flood Zone 3b, therefore, dependent on the proposed land use, the Exception Test is required for the site (see table 2 of the Planning Practice Guidance for further details).</p> <p>The Exception Test is needed if:</p> <ul style="list-style-type: none"> • 'More Vulnerable' and 'Essential Infrastructure' development is located within Flood Zone 3a and 'Highly Vulnerable' development is located within Flood Zone 2. • 'Highly Vulnerable' infrastructure should not be permitted within Flood Zone 3a and Flood Zone 3b. • 'More Vulnerable' and 'Less Vulnerable' infrastructure should not be permitted within Flood Zone 3b. • The site is located in an area at high risk of surface water flooding. <p>The development of a Local Adaptation and Resilience plan for Weymouth is recommended, considering the updated PPG, development of Nature Recovery Networks, requirements for Biodiversity net gain in development and to demonstrate that the development and use of land in the local planning authority's area contribute to the mitigation of, and adaptation to, climate change.</p> <p>To satisfy the exception test, development of this site would need to be compliant with the findings of the Local Adaptation and Resilience Plan.</p>

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<p>Area</p>	<p>13.2 hectares</p>
<p>Current land use</p>	<p>Tourism, leisure, retail, residential</p>
<p>Proposed land use</p>	<p>Tourism, leisure, retail, residential</p>
	<p>Land that needs to be safeguarded against future development to enable the construction of the proposed flood defences will be identified within the Outline Business Case.</p>
<p>Requirements and guidance for site-specific Flood Risk Assessment</p> <p>(Developer considerations)</p>	<p>Flood Risk Assessment:</p> <ul style="list-style-type: none"> • At the planning application stage, a site-specific Flood Risk Assessment will be required for this site as it exceeds one hectare in size, lies within Flood Zone 3 and is at increased flood risk in future. • All sources of flooding, particularly the risk of fluvial, tidal and surface water flooding should be considered as part of a site-specific flood risk assessment. • Development type and design should be carefully considered, residential development should be avoided on this site, except the areas of the southern section of the site that are inland from the river and the Cove Street / Hope Street area, as it is considered 'More Vulnerable' infrastructure, unless appropriate arrangements can be put in place to secure safe access and egress, or emergency plan provisions address matters affecting vulnerability of residents. • The northern site and river side and Cove Street and Hope Street areas of the southern site should be considered for 'Less Vulnerable' or 'Water Compatible Development' as the majority of these areas of the site lie within Flood Zone 3 and 'More Vulnerable' development cannot be steered to areas of lower risk. • The site-specific FRA should be carried out in line with the National Planning Policy Framework; Flood Risk and Coastal Change Planning Practice Guidance. • Consultation with the Local Authority and the Lead Local Flood Authority (both being Dorset Council) should be undertaken at an early stage. • The Outline Business Case for the future flood defences should be consulted to understand what land is safeguarded against future development to support the construction of the defences. <p>Guidance for site design and making development safe:</p> <ul style="list-style-type: none"> • The developer will need to show, through an FRA, that future users of the development will not be placed in danger from flood hazards throughout its lifetime. It is for the applicant to show that the development meets the objectives of the NPPF's policy on flood risk. For example, how the operation of any mitigation measures can be safeguarded and maintained effectively through the lifetime of the development. (Para 048 Flood Risk and Coastal Change PPG). • Arrangements for safe access and egress will need to be provided during the design flood event (defined as river or surface water flooding likely to occur with a 1% annual flood probability plus an appropriate allowance for climate change or tidal flooding with a 0.5% annual flood probability plus an appropriate allowance for climate change). The depth, velocity and hazard outputs can be used to support this. Designs and access and egress arrangements will need to incorporate measures so development and occupants are safe. • Provisions for safe access and egress must not impact on surface water flow routes or contribute to loss of floodplain storage. Consideration should be given to the siting of access points with respect to areas of surface water flood risk. Due to the significant flood risk posed to the site, a site-specific flood risk assessment may need to show that appropriate evacuation procedures and

Dorset Council
L2 SFRA - Detailed Site Summary Tables

	Site details
Site Code	WEY4
Address	Custom House Quay and Brewery Waterfront, Weymouth
Area	13.2 hectares
Current land use	Tourism, leisure, retail, residential
Proposed land use	Tourism, leisure, retail, residential
	<p>flood response infrastructure are in place to manage the residual risk associated with an extreme flood event.</p> <ul style="list-style-type: none"> • Flood resilience and resistance measures should be implemented wherever appropriate during the construction phase, e.g. use of boundary walls and raising of floor levels to a minimum of whichever is higher of 300mm above the: <ul style="list-style-type: none"> ○ average ground level of the site; ○ adjacent road level to the building; ○ estimated design flood level. • Flood resilience measures should be tested to ensure they do not increase flood risk elsewhere. • The risk from surface water flow routes should be quantified as part of a site-specific FRA, including a drainage strategy, so runoff magnitudes from the development are not increased by development across any ephemeral surface water flow routes. A drainage strategy should help inform site layout and design to ensure there is no increase in runoff beyond current greenfield rates. • Any surface water ponding should be incorporated into SuDS features and managed using blue/green infrastructure, wherever possible. • As the site is brownfield, developers should seek to discharge surface water at greenfield rates. Where this is not possible, a significant reduction in current brownfield runoff rates should be achieved in consultation with the LLFA. <p>Developers should refer to: Dorset Level 1 SFRA, Dorset Level 2 SFRA, Dorset Council’s National and Local List of Requirements for Planning Applications.</p>