

FLOOD RISK ANALYSIS
SOUTH WEST WALES AREA
FLOOD RISK MAPPING & RIVER MODELLING CONSULTATION

DPS REFERENCE: SH/2013/115123

TITLE: Port Talbot Strategic SFCA

DATE RECEIVED: Numerous

DATE REPLIED: 02/02/15

Neath Port Talbot County Borough Council (NPTCBC) have employed numerous consultants over many years to produce numerous modelling reports and associated Strategic Flood Consequence Assessments (SFCA) for Port Talbot. The SFCA is required for planning purposes to quantify flood risk in Port Talbot from many sources but specifically from the sea and the rivers Afan and Ffwrdd Wyllt. Hydraulic modelling has been undertaken utilising Natural Resources Wales (NRW) hydraulic model as base model which has been enhanced with the addition of recently constructed infrastructure such as the Peripheral Distributor Road through Port Talbot. The hydraulic model has been used to quantify existing flood risk to proposed development; it has also been used to examine the effect of mitigating flood risk.

Our comments on the SFCA dated September 2014 Reference WB02944/R002 Rev V1 Final are detailed below.

Hydraulic Modelling

AFAN & FFWRD WYLLT MAIN RIVERS

The hydraulic model is considered appropriate for use within the SFCA but would require further work before it could be used for a detailed flood risk assessment.

BAGLAN BROOK & OTHER ORDINARY WATERCOURSES

The hydraulic model is considered appropriate for use within the SFCA but would require further work before it could be used for a detailed flood risk assessment.

Strategic Flood Consequence Assessment

GENERAL

Within Section 1.2.2 Fluvial and Tidal Flood Zone Mapping; Impact of Climate Change the following is quoted "*In terms of fluvial flooding,*

guidance within TAN15 along with other Environment Agency and DEFRA guidelines indicate that peak river flows will increase by 20% over the next 50-100 years. In the absence of flow data but presence of water level data, the DEFRA report FD2320/TR2, 'Flood Risk Assessment Guidance for New Development' (DEFRA, 2005) can be used to estimate the effects of climate change on flood levels. Section 11 of the DEFRA report outlines that a proposed development should set finished floor levels at 600mm above the 1% annual probability flood levels and include a 150mm freeboard."

The guidance within the DEFRA report is no longer considered to be appropriate, Natural Resources Wales do not report to DEFRA but to the Welsh Government and as such work to their guidance. TAN15 is the technical document supporting Planning Policy Wales on the subject of development within areas of flood risk and within the TAN it clearly states that no new development should take place within the 1% fluvial flood zone including the allowance of climate change. Safe access and egress is also an important consideration during flood events. The report does not mention climate change in relation to flood risk for flood events of 1 in 1000 annual probability.

CANDIDATE SITES

Harbourside Strategic Regeneration Area Main Site

The SFCA correctly identifies that the main site known as Harbourside is within Development Advice Map (DAM) zones A, C2 and C1 and the location has a range of flood risk ranging from significant to flood free. The SFCA goes on to say that Harbourside has been divided into phased development called Phases 1, 2 and 3. The SFCA goes on to say that phases 1 and 2 have been selected to avoid areas of most significant flood risk and phase 3 incorporates flood risk areas that would not be developed without a comprehensive flood alleviation scheme and that this is not likely to happen within the LDP period of 2011-2016. Individual sites within phases 1 and 2 are then analysed on their own merits and our comments on these individual sites are shown below.

Development Reference 1&9 Heilbronn Way

This site lies within DAM zones A and C1 and has a proposed use of Bulky Goods Retail. The SCFCA states that for pre development the site is not at risk of flooding from the Tidal 1 in 200 combined with Fluvial Median Flow annual probability flood (T200+FQMED) and the Tidal Mean High Water Spring combined with Fluvial 1 in 100 annual probability flood (TMHWS+F100) and thus complies with Technical Advice Note 15 (TAN15). However, the SFCA fails to state that the site is at risk of

flooding from the TMHWS+F100 with allowance for climate change. Thus the site does not comply with Table A14 of TAN15. Also for pre development the site is at risk of flooding from the TMHWS+F1000 with depths of flooding in the order of 600mm, velocities of 0.3m/s and rates of rise of 1.4m/hr and inundation within 1.3 hours which indicates that the site fails to comply with TAN15 table A1.15. An approximate hazard rating for the quoted combined depth and velocity is “Danger for Most includes the general public”

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

The SFCA concludes that the site can be considered suitable for development for retail use without increasing flood risk elsewhere and in compliance with TAN15. However, this site does not comply with TAN15 under existing pre development conditions nor has it been shown that it can comply with TAN15 post development.

Development Reference 2 Cramic Way

This site lies within DAM zones A and C1 and has a proposed use of B1. The SCFCA states that for pre development the site is not at risk of flooding from the Tidal 1 in 200 combined with Fluvial Median Flow annual probability flood (T200+FQMED) and the Tidal Mean High Water Spring combined with Fluvial 1 in 100 annual probability flood (TMHWS+F100) and thus complies with Technical Advice Note 15 (TAN15). However, the SFCA fails to state that the site has a small area at risk of flooding from the TMHWS+F100cc. Thus the site does not comply with Table A14 of TAN15. Also for pre development there is a small area to the north of the site at risk of flooding from the TMHWS+F1000 with depths of flooding in the order of 500mm, velocities of 0.3m/s and rates of rise of 0.9m/hr and inundation within 1.3 hours which indicates that this small area of the site fails to comply with TAN15 table A1.15. An approximate hazard rating for the quoted combined depth and velocity is “Danger for Most includes the general public”

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

The SFCA concludes that the site can be considered suitable for development for retail use without increasing flood risk elsewhere and in compliance with TAN15. However, this site does not comply with TAN15 under existing pre development conditions nor has it been shown that it can comply with TAN15 post development. However, if the small area at risk of flooding was omitted from the development area we may concur with this assertion.

Development Reference 3 Byass Works

This site lies within DAM zones A and C1 and has a proposed use of residential. The SCFCA states that for pre development the site is partially at risk of flooding from the TMHWS+F100. As such the site fails to comply with TAN15 table A1.14. Also for pre development the site is at risk of flooding from the TMHWS+F1000 with depths of flooding in excess of 1000mm, velocities of 0.3m/s and rates of rise of 0.7m/hr and inundation within 3.5 hours which indicates that the site fails to comply with TAN15 table A1.15. An approximate hazard rating for the quoted combined depth and velocity is “Danger for Most includes the general public”

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

The SFCA concludes that the site can be considered suitable for development for residential use without increasing flood risk elsewhere and in compliance with TAN15. However, this site does not comply with TAN15 under existing pre development conditions nor has it been shown without doubt that mitigation is feasible and in accordance with TAN15 post development. Modelling work has been carried out to investigate the effects of mitigation but it is questionable whether the work to date is of satisfactory detail to confidently allow a LDP site allocation without the paradox of future detailed analysis then showing the site cannot satisfy Planning Policy Wales and TAN15. Mitigation proposed would also require significant areas set aside for flood compensation storage and or compensation storage around individual development platforms all of which is unclear whether this would be acceptable or not. It is also not clear whether the areas to be designated as flood storage areas would be required as part of the development such as car parks for example; if this is the case the flood storage area would need to be shown as being suitable in terms of flood hazard for those using the facilities.

Development Reference 4/5 College Site

This site lies within DAM zones A and C1 and has a proposed use of educational. The SCFCA states that for pre development the site is partially at risk of flooding from the TMHWS+F100. As such the site fails to comply with TAN15 table A1.14. Also for pre development the site is at risk of flooding from the TMHWS+F1000 with depths of flooding in excess of 2000mm, velocities of 0.6m/s and rates of rise of 0.9m/hr and inundation within 3 hours which indicates that the site fails to comply with TAN15 table A1.15. An approximate hazard rating for the quoted combined depth and velocity is “Danger for All includes the emergency services”

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

The SFCA concludes that the site can be considered suitable for development for educational use without increasing flood risk elsewhere and in compliance with TAN15. However, this site does not comply with TAN15 under existing pre development conditions nor has it been shown without doubt that mitigation is feasible and in accordance with TAN15 post development. Modelling work has been carried out to investigate the effects of mitigation but it is questionable whether the work to date is of satisfactory detail to confidently allow a LDP site allocation without the paradox of future detailed analysis then showing the site cannot satisfy Planning Policy Wales and TAN15. Mitigation proposed would also require significant areas set aside for flood compensation storage and or compensation storage around individual development platforms all of which is unclear whether this would be acceptable or not. It is also not clear whether the areas to be designated as flood storage areas would be required as part of the development such as car parks for example; if this is the case the flood storage area would need to be shown as being suitable in terms of flood hazard for those using the facilities.

Development Reference 7/10 Riverside

This site lies within DAM zones A and C1 and has a proposed use of business. The SCFCA states that for pre development the site is partially at risk of flooding from the TMHWS+F100. As such the site fails to comply with TAN15 table A1.14. Also for pre development the site is at risk of flooding from the TMHWS+F1000 with depths of flooding up to 1000mm, velocities of 0.3m/s and rates of rise of 1.77m/hr and inundation within 0.5 hours which indicates that the site fails to comply with TAN15 table A1.15. An approximate hazard rating for the quoted combined depth and velocity is "Danger for Most includes the general public"

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

The SFCA concludes that the site can be considered suitable for business use without increasing flood risk elsewhere and in compliance with TAN15. However, this site does not comply with TAN15 under existing pre development conditions nor has it been shown without doubt that mitigation is feasible and in accordance with TAN15 post development. Modelling work has been carried out to investigate the effects of mitigation but it is questionable whether the work to date is of satisfactory detail to confidently allow a LDP site allocation without the paradox of future

detailed analysis then showing the site cannot satisfy Planning Policy Wales and TAN15. Mitigation proposed would also require areas set aside for flood compensation storage and or compensation storage around individual development platforms all of which is unclear whether this would be acceptable or not. It is also not clear whether the areas to be designated as flood storage areas would be required as part of the development such as car parks for example; if this is the case the flood storage area would need to be shown as being suitable in terms of flood hazard for those using the facilities.

Development Reference 8 Bankside

The SFCA states that this site is wholly within DAM zone A and as such does not require further comment. However, we believe that there is a very small area that is at risk of flooding and as such does require attention. Please also see our concluding comments on access.

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

Development Reference 6 Justice Centre East

The SFCA states that this site is wholly within DAM zone A and as such does not require further comment. However, please see our concluding comments on access.

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

Development Reference 11 Gas Works Site

The SFCA states that this site is mostly within DAM zone C1 and as such is protected by flood defences. The FCA goes on to incorrectly state that it is not at risk of flooding from the TMHWS+F100 and T200+FQMED flood events and as such complies with the flooding threshold of TAN 15. However, the site is at risk of flooding from the T200cc+FQMED and as such does not comply with the flooding threshold of TAN15 table A1.14.

The FCA concludes that the site is at risk of flooding during the T200cc+FQMEDcc and TMHWS+F1000 with flood depths up to 0.3m, velocities of 0.6m/s and rates of rise of 1.7 m/hr signifying non compliance with TAN15. An approximate hazard rating for the quoted combined depth and velocity is "Danger for Most includes the general public"

Mitigation is proposed in the form of land raising and profiling or flood defences but modelling to date has shown to increase flood risk elsewhere. Thus the mitigation to date has not confirmed it is feasible and

if this site is allocated there could be a paradox of an allocated site where flood risk mitigation is not feasible.

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

Development Reference 12 Henshaw Street Site

The SFCA states that this site is within DAM zone C1 and as such is protected by flood defences. The FCA goes on to incorrectly state that it is not at risk of flooding from the TMHWS+F100 and T200+FQMED flood events and as such complies with the flooding threshold of TAN 15. However, the site is at risk of flooding from the TMHWS+F100cc and T200cc+FQMED and as such does not comply with the flooding threshold of TAN15 table A1.14.

The FCA concludes that the site is at risk of flooding during the T200cc+FQMEDcc and TMHWS+F1000 with flood depths up to 1.0m, velocities of 0.15m/s and rates of rise of 2 m/hr and speed of inundation of 0.75 hours signifying non compliance with TAN15. An approximate hazard rating for the quoted combined depth and velocity is "Danger for Most includes the general public"

Mitigation for the proposed residential development is proposed in the form of land but there is no mention of the consequences of increased flood risk elsewhere or evidence that land raising would be feasible. Thus the mitigation to date has not confirmed it is feasible and if this site is allocated there could be a paradox of an allocated site where flood risk mitigation is not feasible.

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

Development Reference 13 Green Park

The SFCA states that this site is within DAM zone C1 and as such is protected by flood defences. The FCA goes on to state that it is not at risk of flooding from the TMHWS+F100 and T200+FQMED flood events and as such complies with the flooding threshold of TAN 15. The site is also not at risk of flooding from the TMHWS+F100cc and T200cc+FQMED and as such does comply with the flooding threshold of TAN15 table A1.14.

The FCA concludes that the site is at risk of flooding during the T200cc+FQMEDcc and TMHWS+F1000 with flood depths up to 1.0m, velocities of 0.15m/s and rates of rise of 0.48 m/hr and speed of

inundation of 0.25 hours signifying marginal non compliance with TAN15. An approximate hazard rating for the quoted combined depth and velocity is “Danger for Most includes the general public”

No mitigation for the proposed residential development is proposed due to the peripheral nature of the flood risk.

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

Development Reference CCRS1/2 Glanafan Comprehensive School

The SFCA states that this site is within DAM zone C1 and as such is protected by flood defences. The FCA goes on to state that the site is at risk of flooding from the TMHWS+F100 and floods to a depth of 0.75m and as such does not comply with the flooding threshold of TAN 15.

The FCA concludes that the site is at risk of flooding during the T200cc+FQMEDcc and TMHWS+F1000 with flood depths up to 1m, velocities of 0.5m/s, rates of rise and speed of inundation are not reported but the site does not comply with TAN 15. An approximate hazard rating for the quoted combined depth and velocity is “Danger for Most includes the general public”

The FCA reports that there are a number of options for this site but none have been hydraulically modelled to prove that mitigation is possible. The FCA merely states that on site storage and or flood barriers would be possible forms of mitigation. Thus the mitigation to date has not confirmed it is feasible and if this site is allocated there could be a paradox of an allocated site where flood risk mitigation is not feasible.

The SFCA has not considered climate change in relation to the 1 in 1000 annual probability flood.

General Summary.

There are numerous sites that for the pre development situation do not meet the requirements of Planning Policy Wales and TAN 15. Mitigation of flood risk in the form of land raising and land re profiling is proposed on many sites for post development but without detailed analyse to show that the mitigation is feasible, particularly where on site flood water storage may be proposed within areas that are required for the development such as car parking and where hazard of flood waters must also be considered.

We are thus concerned that if sites were allocated without further work to confirm that mitigation is feasible, there could be a paradox of an allocated site being unable to satisfy flood risk requirements in the future. This is particularly pertinent to the fact that the 1 in 1000 flood event plus an allowance for climate change has not been considered on any of the sites.

For all of the sites we are aware that there may be flood risk to the access arrangements but that this is a matter for the Local Planning Authority.