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Calderdale MBC Local Plan Potential Sites Assessment

Summary Report

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This report describes work commissioned by Jason Morris, on behalf of Calderdale Metropolitan Borough Council, by an email dated 2nd March 2016. Mike Williamson of JBA Consulting carried out this work.

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Purpose

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1 Local Plan Potential Development Sites Review

1.1 Introduction

In order to inform the Sequential Approach to the allocation of development through CMBC's upcoming Local Plan, this review entails a high level GIS screening exercise overlaying the potential development site allocations against Flood Zones 1, 2, 3a, 3ai and 3b and calculating the area of each site at risk. Flood Zones 1, 2 and 3a are sourced from the Environment Agency's Flood Map for Planning (Rivers and Sea) and Flood Zones 3b (functional floodplain) and 3ai were delineated as part of the Level 1 Strategic Flood Risk Assessment (2016). Surface water risk to potential sites is assessed by way of the Environment Agency's updated Flood Map for Surface Water (uFMfSW).

The accompanying Development Site Assessment Excel spreadsheet provides a breakdown of each site and the area (in hectares) and percentage coverage of each fluvial flood zone and each surface water flood zone. Fluvial Flood Zones 3b, 3ai, 3a, 2 and 1 are considered in isolation. Any area of a site within the higher risk Flood Zone 3b / 3ai that is also within Flood Zone 3a is excluded from Flood Zone 3a and any area within Flood Zone 3a is excluded from Flood Zone 2. This allows for the sequential assessment of risk at each site by addressing those sites at higher risk first.

It is important to consider that each individual site will require further investigation, following this review, as local circumstances may dictate the outcome of the recommendation. Such local circumstances may include the following:

- Existing planning permissions may be in place on some sites where the Environment Agency have already passed comment and / or agreed to appropriate remedial works concerning flood risk. Previous flood risk investigations or FRAs may already have been carried out at some sites,
- Some sites may be able to develop around the flood risk. Planners are best placed to make this judgement i.e. will the site still be deliverable if part of it needs to be retained to make space for flood water?
- Surrounding infrastructure may influence scope for layout redesign or removal of site footprints from risk,
- Current land use. A number of sites may be brownfield thus the existing development could be taken into account as further development may not lead to increased flood risk. However, the Environment Agency may have their own views on this in regard to health warnings as new-build properties in risk areas could be built with flood protection in mind,
- Cumulative effects. New development may result in increased risk to other potential or existing sites. This should be assessed through a Level 2 SFRA, if required.

1.2 Potential Development Sites

The potential development sites assessed are sub-divided by their proposed uses, including:

- Residential (New Housing Site) - 289 sites
- Employment (New Employment Site) - 28 sites
- Residential and / or employment (Mixed Use) - 31 sites

Development viability is assessed, based on the flood risk vulnerability classification in Table 2 of the Flood Risk and Coastal Change Planning Practice Guidance¹ (FRCC-PPG), and subsequent strategic recommendations were made and are discussed in Section 0 of this report.

A number of potential development sites do not have a proposed use specified, including:

- Filtered (1,157 sites) - following previous site assessments these sites are those which are no longer currently being considered for housing or employment use. This could be for a number of reasons including the proximity of the site to the existing settlement boundary, constraints such as the risk of flooding and damage to areas important for nature conservation, or because the site is below the size threshold for allocation (0.25 ha) or already has planning permission.

- Urban Extensions (13 sites) - significant areas which could potentially support the large scale of growth required in the district including services, facilities and infrastructure. They could provide an alternative to allocating a larger number of smaller sites spread across the district.
- Unknown (61 sites) - proposed use not specified.

Despite the proposed use of these potential sites not being specified and therefore not enabling an assessment of flood risk vulnerability, the level of risk has still been calculated and included in the Development Site Assessment spreadsheet. Many of these sites that don't specify a proposed use can still be assessed for viability, without knowing the vulnerability such as where risk is considered too great regardless of the proposed use i.e. in Flood Zone 3b.

For those sites where it is possible to make strategic recommendations, the following may apply:

- Strategic Recommendation A - consider withdrawing the site based on significant level of flood risk;
- Strategic Recommendation B - Exception Test required if site passes Sequential Test;
- Strategic Recommendation C - consider site layout and design if site passes Sequential Test;
- Strategic Recommendation D - site-specific FRA required; and
- Strategic Recommendation E - site permitted on flood risk grounds due to little perceived risk, subject to consultation with the LPA / LLFA.

Table 1-1 summarises the number of sites that each recommendation applies to. Out of the 1,579 potential development sites assessed, it was not possible to make a recommendation for 791 of them, due to their proposed use not having been specified.

Table 1-1: Number of sites per Strategic Recommendation

Site/Proposed use	Strategic Recommendation				
	A	B	C	D	E
New Housing	15	6	18	135	115
New Employment	1	0	0	20	7
Mixed Use	4	2	2	16	7
Filtered	104	0	21	264	0
Urban Expansion	1	0	0	11	0
Unknown	2	0	0	37	0
Total	127	8	41	483	129

2 Fluvial Flood Risk to Potential Development Sites

The following strategic recommendations provide only a guide, based on the flood risk information currently available. Information regarding local, site specific information is beyond the scope of this assessment. It is CMBC's responsibility to carry out sequential testing of each site using the information provided in the 2016 SFRA and this assessment, and more specifically using their local, site specific knowledge and advice from the Environment Agency. The following strategic recommendations should be read alongside the Development Site Assessment spreadsheet.

As mentioned in Section 1.2, the strategic recommendations are based on the FRCC-PPG in relation to Flood Zones 1, 2, 3a and 3b. Flood Zone 3ai however is an additional level of information produced for the 2016 SFRA and is not included in the FRCC-PPG. In line with Local Plan policies, as explained in the SFRA, any site with part of its area within Flood Zone 3ai should be subject to a detailed site-specific Flood Risk Assessment.

2.1 Strategic Recommendation A – Consider withdrawal of site

This strategic recommendation DOES NOT take account of local circumstances, only that part of a site area falls within a Flood Zone.

Strategic Recommendation A applies to any site where the following criteria is true:

- 10% or more of the site area is within Flood Zone 3b. The FRCC-PPG flood risk vulnerability classification table (Table 2) states that only water-compatible uses and essential infrastructure should be permitted in Flood Zone 3b, though any essential infrastructure must pass the Exception Test. Land allocated for housing falls in to the more vulnerable category and sites for employment are in the less vulnerable category. Development should not be permitted for more vulnerable and less vulnerable sites that fall within Flood Zone 3b. Mixed use sites should be placed into the higher of the relevant classes of flood risk sensitivity, therefore should be considered more vulnerable. If the developer is able to avoid 3b however, then part of the site could still be delivered.
- The scale of surface water risk on the site is significant enough that on-site mitigation is deemed unlikely to be achievable. This relates to any site with 10% or more of its area within the uFMISW 1 in 30 year event outline.

The 10% threshold is not included within any policy, it is merely considered that it is likely to be difficult for developers to deliver a site where 10% or more of the site area is considered as undevelopable. However, this 10% threshold does not account for local circumstances therefore it may be possible to deliver some of the sites included within Strategic Recommendation A following further, more detailed investigation through a Level 2 SFRA.

Strategic Recommendation A applies to 127 sites overall, 23 of which relate to fluvial risk from Flood Zone 3b. 104 of these sites are recommended for withdrawal based on significant surface water flood risk. 127 equates to 16% of the 788 sites for which strategic recommendations have been made.

2.2 Strategic Recommendation B – Exception Test

Strategic Recommendation B applies to sites where it is likely the Exception Test would be required if the Sequential Test is passed. This does not include any recommendation on the likelihood of a site passing the Exception Test. A more detailed assessment, such as a Level 2 SFRA, may be appropriate for such sites to inform on the likelihood of passing the Exception Test. However, the developer / LPA should attempt to avoid the risk area where possible.

This strategic recommendation DOES NOT take account of local circumstances, only that part of a site area falls within a Flood Zone.

Strategic Recommendation B applies to sites where the following criteria is true:

- 10% or greater of any residential site is within Flood Zone 3a. Only water-compatible and less vulnerable uses of land are appropriate in this zone.
- 10% or greater of any mixed use site that may entail residential use that is within Flood Zone 3a.

All development proposals in Flood Zone 3a must be accompanied by a flood risk assessment.

The 10% threshold is not included within any policy, it is merely considered that it could be difficult for developers to avoid Flood Zone 3a when 10% or more of a site area is within it. This 10% threshold does not account for local circumstances therefore it may be possible to avoid Flood Zone 3a altogether for some of the sites included within Strategic Recommendation B.

Strategic Recommendation B applies to 8 sites which equates to 1% of the 788 sites for which strategic recommendations have been made.

2.3 Strategic Recommendation C – Consider site layout and design

Strategic Recommendation C recommends a review of site layout and / or design at the development planning stage in order for development to proceed. A Level 2 SFRA or site-specific FRA would be required to inform on site layout and design.

This strategic recommendation DOES NOT take account of local circumstances, only that part of a site area falls within a Flood Zone.

Strategic Recommendation C applies to sites where the following criteria is true:

- <10% of the area of any site type is within Flood Zone 3b
- <10% of the area of any residential or mixed use site entailing residential use is within Flood Zone 3a
- The scale of surface water risk on the site is considered significant enough that the developer should factor possible on-site storage of surface water into the site design. This relates to any site with 10% or greater of its area within the uFMSW 1 in 100 year event outline. This does not include any site with 10% or greater of its area at risk from the 1 in 30 year event as these sites are recommended for withdrawal in Strategic Recommendation A.

The 10% threshold is not included within any policy, it is merely considered that it may be possible for developers to avoid any flood zone when less than 10% of the site area is at risk. This 10% threshold does not account for local circumstances.

Strategic Recommendation C applies to 41 sites which equates to just over 5% of the 788 sites for which strategic recommendations have been made.

Where Strategic Recommendation C applies to a potential site, the developer should consider the site layout with a view to removing the site footprint from the flood zone that is obstructing development. If this is not possible then the alternative would be to investigate the incorporation of on-site storage of water into the site design. Depending on local circumstances, if it is not possible to adjust the site boundary to remove the site footprint to a lower risk zone then this part of the development should not be permitted (for any site in Flood Zone 3b), or the Exception Test should be undertaken and passed as part of a site-specific FRA (for residential or mixed use sites in Flood Zone 3a).

Site layout and design should also take account of the requirement for an 8 metre easement buffer alongside watercourses where development is prohibited. This easement buffer is

recommended by the Environment Agency to allow ease of access to watercourses for maintenance works. The site layout / design, where part of a flood zone is included within the site footprint, should allow water to flow naturally or be stored in times of flood through the installation of suitable SuDS techniques.

2.4 Strategic Recommendation D – Subject to FRA

Strategic Recommendation D suggests that development could be permitted, assuming a site-specific FRA shows that the site can be safe, and that the developer / LPA can demonstrate that the site is sequentially preferable. Any site within Flood Zones 2, 3a or 3ai could still be rejected if the conclusions of the FRA decide development is unsafe or inappropriate.

This strategic recommendation DOES NOT take account of local circumstances, only that part of a site area falls within a Flood Zone.

Strategic Recommendation D applies to sites where the following criteria is true:

- Any site within Flood Zone 2 that does not have any part of its footprint within Flood Zone 3a or Flood Zone 3b, with the exception of highly vulnerable developments which would be subject to, and have to pass, the Exception Test
- Employment sites within Flood Zone 3a. No part of the site can be within Flood Zone 3b
- Any site within Flood Zone 3ai. No part of the site can be within Flood Zone 3b
- Any site 100% within Flood Zone 1 where surface water flood risk is considered to be significant enough so as to require investigation through a site-specific FRA (20% or greater of the site area within the uFMfSW 1 in 1000 year outline). This does not include any site with 10% or greater of its area at risk from the 1 in 30 or 1 in 100 year events as these sites are recommended for withdrawal and for incorporation of surface water in site design respectively
- Any site where the footprint area is 1 hectare or greater

Strategic Recommendation D applies to 483 sites which equates to 61% of the 788 sites for which strategic recommendations have been made. 422 (87%) of the 483 sites require an FRA due primarily to fluvial risk and 61 (13%) of the 483 sites are subject to an FRA based on surface water flood risk only.

131 sites are within Flood Zone 3ai though 16 of these sites also have more than 10% of their area within Flood Zone 3b thus are recommended for withdrawal (Strategic Recommendation A). 1 of the 131 sites is subject to the Exception Test (Recommendation B) as it is allocated for Mixed Use and has more than 10% of its area within Flood Zone 3a.

Also, 35 of the 131 sites are recommended for withdrawal based on significant surface water flood risk. Therefore, out of the 131 sites within Flood Zone 3ai, 79 sites should be subject to site-specific Flood Risk Assessments based entirely on their location within Flood Zone 3ai.

All development proposals within Flood Zone 2, Flood Zone 3a or Flood Zone 3ai must be accompanied by a site-specific Flood Risk Assessment. Any sites 100% within Flood Zone 1 that are 1 hectare or greater in area must be accompanied by a site-specific Flood Risk Assessment to determine vulnerability to flooding from other sources as well as fluvial. The FRA should determine the potential of increased flood risk elsewhere as a result of the addition of hard surfaces on-site and the effect of new development on surface water runoff.

The FRCC-PPG states:

“Local authorities and developers should seek opportunities to reduce the overall level of flood risk in the area and beyond. This can be achieved, for instance, through the layout and form of development, including green infrastructure and the appropriate application of sustainable drainage systems, through safeguarding land for flood risk management, or where appropriate, through designing off-site works required to protect and support development in ways that benefit the area more generally.” (Paragraph 50).

2.5 Strategic Recommendation E - Permitted subject to consultation with the LPA / LLFA

Strategic Recommendation E recommends that development should be permitted, based on the flood risk evidence provided within this review. Further investigation may be required by the developer and the LPA / LLFA should be consulted as to whether a FRA may be required based on any further or new information that may not have been included within this review or the 2016 SFRA.

Strategic Recommendation E applies to any site that is <1 hectare in size with its area 100% within Flood Zone 1 and with either no known risk or minimal risk from surface water, based on the updated Flood Map for Surface Water

Strategic Recommendation E applies to 129 sites which equates to 16% of the 788 sites assessed.

3 Surface Water Risk to Potential Development Sites

This section assesses surface water risk to each site according to the updated Flood Map for Surface Water (uFMfSW). The accompanying Development Site Assessment Excel spreadsheet isolates each of the surface water outlines so that any area of a site within the higher risk 1 in 30 year outline is excluded from the medium risk 1 in 100 year outline and any area within the 1 in 100 year outline is excluded from the lower risk 1 in 1000 year outline. This allows for a sequential assessment of risk at each site.

Table 3-1 shows the number of sites recommended for withdrawal, discounting fluvial risk, based on 10% or more of a site area being within the uFMfSW 1 in 30 year event outline and those where site layout and design should look to include for surface water flood storage based on 10% or more of a site area being within the uFMfSW 1 in 100 year event outline.

NOTE: This assessment of surface water risk to sites DOES NOT take account of local circumstances, only that part of a site area falls within a surface water flood outline of the updated Flood Map for Surface Water.

Table 3-1: Viability of sites based on surface water risk only

Site/Proposed use	Updated Flood Map for Surface Water	
	=>10% site area in 1 in 30 year outline to consider for withdrawal	*=>10% site area in 1 in 100 year outline to consider site layout and design
New Housing	14	1
New Employment	0	0
Mixed Use	4	3
Filtered	85	30
Urban Expansion	0	0
Unknown	1	1
Total	104	35

*With <10% in 1 in 30 year uFMfSW outline

As discussed throughout Section 2, the percentage thresholds are not included within any policy, it is merely considered that where a site has 10% or greater of its area at risk from the 1 in 30 and 1 in 100 year event outlines then they may be difficult to deliver or may require the inclusion of surface water management in the site design. The percentage thresholds do not consider local conditions therefore further investigation would be required.

Where 20% or more of a site area is within the extreme 1 in 1000 year event outline, then this risk is considered, at a strategic level, significant enough to warrant investigation through a site-specific FRA. The FRA should investigate possible mitigation measures for flood storage or infiltration techniques through appropriate SuDS, were such an extreme event to occur. The 20% threshold does not consider local conditions.

For all sites at surface water flood risk the following should be considered:

- Possible withdrawal, relocation or redesign of the site,
- The requirement for a detailed site-specific Flood Risk Assessment incorporating surface water flood risk management, conducive to the scale of surface water flood risk,
- Any FRA may want to consider detailed surface water modelling, particularly for larger sites which may impact on risk at sites elsewhere,
- The size of development and the possibility of increased surface water flood risk caused by development on current Greenfield land, and cumulative impacts of this within specific areas,
- Management and re-use of surface water on-site, assuming the site is large enough to facilitate this and would achieve effective mitigation,
- Larger sites should look to leave surface water flood prone areas as open greenspace, incorporating social and environmental benefits into the site design,

- Effective surface water management should ensure risks on and off site are controlled,
- SuDS should be used where possible. Appropriate SuDS may offer opportunities to control runoff to Greenfield rates. Restrictions on surface water runoff from new development should be incorporated into the development planning stage. For brownfield sites, where current infrastructure may be staying in place, then runoff should look to be controlled to existing rates or, where possible, reduced,
- The LPA / LLFA should consider whether a Surface Water Management Plan (SWMP) may benefit certain areas. The SWMP could include more detailed modelled outputs further to the uFMfSW from which more informed recommendations on development viability can be made, beyond this strategic assessment.



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