ENVIRONMENTAL SOLUTIONS FOR SOCIAL HOUSING

It would be extremely disappointing if environmental constraints were to scupper the Chancellor's new social housing and affordable home-building initiative. With foresight and preparation, I believe that this can be avoided.

One of the Philip Hammond's key autumn budget aims was to lay the financial and physical foundations needed in building 300,000 new homes each year by the mid-2020s, many of them on neglected land pockets that so far have not attracted commercial developers

Given the scale of the UK's housing shortfall, the Government's new cash commitment will be relatively modest. However, sorting out potentially complex environmental issues swiftly and cost-effectively will be an equal important priority. Typically, these can include historic contamination and ground stability, plus past and present utility services, access and transport.

However, we must also take into account the growing impact of extreme weather and increasingly erratic flooding of low-lying land. Later, I would like to explain the intense damaged that surface water fluvial and groundwater flows can cause.

In my experience, the best way to minimise environmental costs and risks is a holistic approach, from initial planning through to mitigation strategies and long-term occupancy, rather than focusing exclusively on gaining consent and then hoping for the best.

Budget marks a policy change

Mr Hammond is very keen to make inroads into the UK's housing shortage. He is particularly anxious to turn dormant land-banks that have existing but unused planning permission into active social housing developments; a start was made with the February 2017 rebranding of the former Homes and Communities as Homes England with a single clear goal – "To make a home within reach for everyone".

Social housing is a sub-set of the broad drive to accelerate more affordable home-building. It is provided for vulnerable residents by local authorities under a 'secured tenancy', with a right-to-buy, and by housing associations under an 'assured tenancy' with no purchasing rights. By their low-cost nature, both forms face land shortage pressures with significant environmental challenges.

New direction

The budget sets out to break through this barrier. Financially, the Government will provide an extra £15.3 billion, including loan guarantees. New powers are expected for the compulsory purchase of land that developers have 'banked' for financial reasons.

The Government also wants to remove delays that are holding back so many permitted developments.

There are novel funding mechanisms too that will probably benefit from a sound understanding of environmental risks and mitigation. Allowing councils to borrow against assets, such as new housing stock at very low interest rates, is one. Many are significant property owners. Another emerging tax-efficient social housing financial pump-primers is REITs (Real Estate Investment Trusts). These are public limited companies offering public and private investors attractive capital growth potential and dividend opportunities.

However, the Government is also likely to change the planning rules to speed up the release of strategically-important land. This is where I feel that pre-, post- (and preferably fully-integrated) planning consent environmental assessments could help to minimise risks for stakeholders and investors, occupants and emergency services. Importantly, this is also the best way to protect neighbouring properties that can be affected dramatically by nearby construction.

Environmental aspects and impacts

The Government's new strategy concentrates on city centres and districts surrounding transport hubs. Minimum density housing rules are likely to change. Not surprisingly, more attractive development lots tend to be snapped up early for more profitable four and five bedroomed homes; many local authorities struggle to nudge commercial developers towards less marketable locations.

How well environmental challenges are tackled often determines how effectively brownfield acres can be recycled into prime re-

development land. A common and potentially expensive problem associated with pre-used land is waste contamination. Static or dynamic, this frequently includes buried tanks and leaking or leached oil and chemical deposits. These can pose an immediate risk, or be activated by construction work. To be certain, pragmatic ground-related surveys are needed, especially if landfill and ground gas are known or suspected.

Stringent landscaping conditions can also apply. These need to be effective but also economically viable where extensive earthworks and planting programmes are stipulated. In all of these cases, knowing early makes decision-making much easier.

Greenbelt and undevelopable' land

Before looking at flooding issues, I would like to touch quickly on greenbelt and building innovations.

Greenbelt is another tricky political area that ignites passions. The idea of 'countryside' rings around urban centres began in London in 1935 and was extended to other conurbations by the Town and Countryside Planning Act 1947. Since then, greenbelt has been criticised for pushing up house prices and commuting distances. Although past and present Governments have ruled out greenbelt home-building, housing pressures could eventually force a policy change as more commuters drive and ride through these daily from remote dormitory homes to town centre jobs. The carbon footprint and air quality implications alone are worrying.

However, there is one factor that more than anything could affect the overall supply of safe development land.

When the heavens open

Flooding is a major restraint that could become more dominant as extreme UK weather appears to be increasingly frequent, intense and unpredictable. It is not clear whether this is a temporary, cyclical or permanent trend. Global warming suggest that sustainable planning should follow the precautionary principle. If worse can happen, assume that it will!

In the first instance, property should not be built on land with a defined unacceptable flood risk. Circa one-in-six homes already face such risks; the Government does not want this to increase. The Environment Agency has a duty to recommend against development if it considers the risks too high. However, its recommendations are not compulsory, although the agency says its advice is followed on most occasions.

By law, flood risk assessments apply to sites greater than a hectare with a known flooding risk. They are designed to divert home-building to low risk areas, prevent additional flood risks elsewhere, and ensure that proposed developments are appropriate to the local flooding risk. This doesn't mean that small sites should be exempt!

A zoning principle is used. Zone 1 means no risk of flooding from a 1,000-year event, Zone 2 from a 100-year event, Zone 3a covers a positive risk of flooding from a 100-year event. Zone 3b applies to functional floodplains where there is a risk of flooding from 20-year events. There is also a five-tier vulnerability classification system: - essential infrastructure; water compatible; highly vulnerable; more vulnerable; less vulnerable.

Building exceptions

Sometimes, however, local authorities have no choice where land availability is tight. Councils, as planning authorities, can agree to exceptions if rigorous conditions are met. There is an on-going debate about how extensively exceptions are being granted. Installing walls, banks, surge gullies, soakaways, swales and ponds, over-sized tanks and pipes can become more difficult in high-risk areas. The rule is also that post-development run-off must be no greater than original greenfield run-off.

The flip side of the coin argument is that because real flood risks cannot be resolved through policy, more environmental support is needed by architects and builders working with innovative building materials and ideas to cope with adverse flood plain conditions.

The Environment Agency encourages flood-resilient design and much research and development effort is being invested into the concept of 'living with water'. Solutions include relocating living space to the first floor. Ground floors areas are used as less water vulnerable garages and storage space. As flood water gets deeper – more than 600mm – static head pressures on walls are making it more viable to build to let flood water into properties, and then out again, followed by rapid restoration.

Extensive fluvial flow and groundwater damage

As I mentioned earlier, two frequently underestimated aspect of flooding are the extent and damage that can be caused by fluvial surface water flows and groundwater. Both could intensify with more extreme weather events.

Fluvial flows can be caused by river or coastal flooding but create an independent form of damage. The swift horizontal movement of water exerts shear forces that can prise loose, lift and move substantial volumes of soil, turf, tarmac and sediment over long distances.

Groundwater, on the other hand, is capable of generating strong destructive sub-surface water forces.

Winter rain in 2014 saw the clear waters of the River Itchen that normally flow gently through Winchester city centre quickly overtop their channel and flood low-lying areas. Itchen water flows are tied closely to groundwater levels in the chalk aquifer lying under much of northern Hampshire. The flows vary very little through normal years. However, prolonged winter rainfall can elevate groundwater levels for weeks.

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If anyone has any questions that they would like to ask me, please do get in touch. All conversations are confidential.

Matt Travis

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