GNDP Financial Viability Testing

June 2013

Synopsis – This paper addresses the Inspector's note of 24th May. It sets of the results of the financial viability testing undertaken of the Joint Core Strategy proposals relating to growth in the Broadland part of the Norwich Policy Area.

This exercise reveals that the development proposed in the Joint Core Strategy will be viable for developers. It also reveals that it is reasonable to conclude that there is likely to be sufficient viability to incentivise willing landowners to make the sites available for development. There is a considerable uplift across the board in relation to existing use values but in current market conditions on some of the sites margins may be insufficient to incentivise release in the short term, especially if a greater proportion of infrastructure costs are borne in early phases.

Background

Having regard to the Inspector's note dated 24th May and the subsequent correspondence on the matter (letter dated 31 May from GNDP and response dated 3 June from Inspector) the GNDP has undertaken high level viability testing of the proposals within the emerging part Joint Core Strategy with the Broadland part of the Norwich Policy Area. The work has been guided by paras 173-177 of the NPPF and the Harman Report of 2012 (Viability Testing Local Plans, advice for planning practitioners).

There is already considerable information available to support the exercise and the assumptions made in it. In particular the three independent reports on viability commissioned by the Councils:

- The Affordable Housing Viability Study (Drivers Jonas Deloitte, 2010 (H6/EIP52), which looked at viability in relation to the impact of Policy 4: Housing Delivery.
- "Viability Advice on a Community Infrastructure Levy / Tariff for Broadland, Norwich and South Norfolk", GVA, December 2010 (EV1); and
- "Charging Zones Study", GVA, August 2011 (EV2).

The latter two studies looked at the viability of both residential and commercial uses across the GNDP area. A further report using a residual land value model provided by a developer and varying the assumptions was produced in December 2011 in "Supplementary evidence on residential viability" (ref EV6).

These three reports provide a backdrop of evidence to allow an overview of the submitted plan. The Affordable Housing Study was fully examined at the examination in public of the adopted JCS and the CIL viability studies took account of the Affordable Housing Study and post date the 2010 JCS examination. The

reports into the CIL Charging Schedule were also subject of examination and were taken into account in setting the level of CIL. CIL is due to come into force in Broadland District Council from 1st July 2013.

Other key inputs include the Local Infrastructure Plan and Programme (which is currently being updated) and the early stages of the Area Action Plan for the North East Growth Triangle. However, it should be noted that the viability impacts of policies in both the AAP (within the NEGT) and site allocations DPD (outside the NEGT) and the development management policies for Broadland will need to be the subject of further work to assess their detail as these plans emerge.

Structure of this exercise

A number of distinct exercises have been carried out as part of this work:

1) An assessment of likely implications of existing and proposed planning policy and infrastructure requirements

This assessment systematically reviews the requirements of both draft policy 10 with regard to the North East Growth Triangle and the other policy requirements of the Joint Core Strategy (JCS). Policy 10 is examined in more detail as this policy could in theory be changed at this stage if this was necessary to ensure viability. Other policy requirements are effectively fixed at this stage as the policies were not remitted, however it should be noted that these policies can be flexibly applied on a case-by-case basis where evidence suggests that such an approach is necessary to allow development to proceed. Likely infrastructure costs have been reviewed in the light of the emerging LIPP and expected operation of CIL.

This assessment is attached at Appendix 1 and has informed the assumptions used later in this exercise.

2) Development of a number of model site typologies representative of a range of scales to development and broad locations within the Broadland Part of the Area

Using emerging work on the AAP for the NEGT and the Broadland site allocations plan a number of site typologies have been developed. These typologies represent a range of development sites that may come forward in the Broadland part of the NPA contributing towards the delivery of housing targets proposed. Due to the nature of this area there is considered to be comparatively little scope for smaller scale developments to contribute significantly to meeting the need for 9000 homes over the plan period. The overwhelming majority of the homes delivered are likely to be on larger sites currently in agricultural use which will need to be allocated for development. Therefore the site typologies all reflect these circumstances.

However, the emerging proposals allow considerable scope for different characters and forms of development being brought forward across the Broadland NPA and particularly within the North East Growth Triangle. There are also a range of landownership positions within the Growth Triangle ranging from instances where large parcels of developable land are in the control of single landowners/consortiums to other areas where there are more multiple landowners. To reflect this, a range of

site typologies have been developed testing both typically development forms being seen currently within the area, individual parcels of larger development areas, and larger scale developments of differing densities. These site typologies have been best fitted to broad locations for development in the Broadland NPA.

It was originally intended to assess 4 typologies however, owing to the limitations of the model being used it was necessary to develop a fifth typology to allow the assessment of employment aspects of the proposals. A description of the typology types, the associated assumptions and the reasons for them is attached as appendix 2. A summary of this is produced in table 1 below.

Table 1: Summary of typologies modelled

Typology No	Broad location	Character	Site area (gross ha)	Site area (net ha)	Units	Density per net ha
1	Village outside NEGT	Mixed houses	6	4.5	150	33
2	Estate within NEGT inside NDR	Typical suburban	5	4.3	150	35
3	Large dev within NEGT inside NDR	Higher density mixed houses and flats	42	23.9	1000	42
4	Large dev within NEGT outside NDR	Lower density mixed houses and flats	142	79.5	3000	38
5	Large dev within NEGT outside NDR	Serviced employment land	25	18.75	n/a	n/a

3) The production of simple residual valuation exercises for the site typologies in particular locations within the Broadland NPA

The valuations have been produced using the HCA Area Wide Viability model, a strategic tool designed to assist forward investment planning. This model was chosen as it was an available, established and externally validated model designed to be used in the plan making process. It is not a site specific viability tool and has not been used as such. Specific sites have not been assessed, instead a range of typologies have been tested in distinct broad locations.

Owing to the simplicity of the model it has a number of limitations in assessing the proposals in the JCS. In particular it cannot model the non-residential elements of development proposed necessitating the production of a simple residual valuation for the employment proposed. This also means that any commercial elements of the residential led schemes are assumed to be self funding.

A further limitation of the model is that the affordable housing is assumed to be the same proportion for all housing types provided on a site. This runs contrary to what is expected to be the case as evidence suggests that currently the demand from Registered Providers is predominantly for smaller units (a trend that is expected to be reinforced in future as a result of the changes to benefits regimes) whereas open market demand is currently strongest for larger units. Information on the possible implications of this is set out below.

Appendix B to the Harman report sets out some key considerations with regard to viability assessments. These have all been addressed in the viability assessments produced:

1) Net vs gross site areas – this is set out clearly in the site typologies and range from 86% on the smallest site to 55% on the largest.
2) Strategic infrastructure and utility costs. These costs are fully reflected in the model. On the larger sites these are estimated at £12,000 per unit. This is based on local information. They are broadly in alignment within the range suggested for larger sites by Harman (£17,000-23,000), once allowance is made for a proportion of strategic costs to be covered by CIL which is separately allowed for in the model.
3) Impact of cashflow. This is dealt with in accordance with the default settings of the HCA model.
4) Costs of promoting schemes. Owing to the nature of the proposals being assessed, large plan-led (having already been the subject to a Strategic Environment Assessment) these are expected to be at the lower end of the range. Therefore 8% has been assumed on larger schemes, 10% on smaller schemes.
5) Return on development and overheads. 20% return on GDV is assumed for private residential development on smaller sites, 17.5% on larger sites. 6% return on cost on affordable homes is assumed across all sites. Build costs have been adjusted to reflect 7.5% on cost assumption to cover developer overheads.

The summary outputs of the residual valuations are attached as Appendix 3. The model itself will be made available. The separate assessment of typology 5 is set out in Appendix 4.

4) Consideration of the results and whether they indicate a likelihood of competitive returns to a willing landowner

A summary of the results of the model is given in table 2 below:

Table 2: Summary of results of model			
Typology	Existing Use Value for site	Residual Value for site	RLV per gross Ha
1	£120,000	£3,166,220	£527,703
2	£100,000	£1,800,543	£360,109
3	£840,000	£16,692,527	£397,441
4	£2,840,000	£28,742,455	£202,412
5	£500,000	£1,898,435	£75,937

This suggests that all the development typologies assessed are viable insofar as they are able to meet their costs, deliver against policy requirements and provide a profit for the developer. However, it does not include any assessment of whether there is sufficient viability to provide competitive returns to a willing land owner to enable the development to be deliverable (the threshold level).

There are a number of ways of doing this assessment. The Harman report suggests that it should be done by reference to the premium over current and credible alternative use values allowing for impact of taxes and other costs on landowner incentive (however, gives no guide as to what this level of uplift may be). It is also possible to define the threshold level by reference to historic land sales and market expectations, and this was looked at in some detail in evidence produced to support the introduction of CIL and was considered during the CIL examination.

The Harman report suggests an iterative and collaborative approach should be taken to establishing threshold levels during the plan preparation process. This study has been subject to its own tight time constraints, but it has been able to draw on earlier collaborative work. This was done in relation to the CIL process and its evidence. It is also relevant to note, in relation to issues raised on pages 28-31 of the Harman report, that the nature of the Broadland NPA landowners is that they are unlikely to be forced or distressed sellers and that they therefore are likely to take a long term view. In addition, the major landowners in the area have all indicated a willingness to sell.

In view of the above circumstances it is considered appropriate to examine a range of ways of assessing threshold levels and three possible ways have been identified. These are as follows:

1) Simple uplift of 10 times existing use value for gross area. Evidence presented by Savills at the CIL examination [document ref EX5, Savills response to GNDP note on proposed rate of residential CIL] suggested

£80,000 to £140,000 per gross acre (£200,000-£350,000 per gross ha). The lower end of this range is 10 times the existing use value of the Broadland NPA growth locations;

2) Based on the evidence prepared by GVA for CIL [doc ref EV1, GVA 2010] adjusted to reflect the downward impact on land values associated with the introduction of CIL. In para 9 of the CIL inspectors report he suggested that it may be reasonable for CIL to adjust threshold levels by up to 25%. This would equate to £395,000-£465,000 per ha in the inner area and £370,000 per ha in the outer area.
3) Based on the evidence prepared by GVA for CIL as above but with no assumption about how CIL will impact on land values. This suggested the threshold values in the inner area were £520,000 - £620,000 per ha and £495,000 per ha in the outer area.

The HCA model requires a single threshold value to be inputted (to establish what it terms as a benchmark value) and in the GNDP has chosen to use the second of the above methodologies applied as follows:
- Residential development land within the NEGT inside the route of the NDR and elsewhere within the NPA is valued at £430,000 per gross ha (mid point of the inner GVA range reduced by 25% to affect CIL);
- Residential development land within the NEGT outside of the route of the NDR and elsewhere within the NPA is valued at £370,000 per gross ha (outer GVA figure reduced by 25% to reflect CIL).

As the GVA report was not explicit whether values used were net or gross it has been considered appropriate to apply values to gross areas for the smaller sites modelled. For larger sites values have been applied to net areas with an assumption that Existing Use Value (EUV) needs to be achieved for the remaining land within the gross site area. This is understood to be in accordance with a number of local land deals and is considered particularly appropriate within the NEGT where much of land expected to used to provide for strategic open space/recreation etc has little prospect of ever being developed due to environmental constraints.

The results of the model presented alongside this method of establishing the benchmark value is set out in table 3 below:

Table 3: Summary of results of model – achievement of benchmark value as presented in appendix 3 (method 2)

Typology	Benchmark value per ha	Site benchmark value	Residual Site Value	Benchmark /RSV
1	£430,000	£2,580,000	£3,166,220	+£586,220
2	£430,000	£2,150,000	£1,800,543	-£349,457
3	£430,000	£10,655,400	£16,692,527	+£6,037,127
4	£370,000	£30,672,000	£28,742,455	-£1,929,545
5	n/a	n/a	£1,898,435	n/a

For comparison purposes the results of the modelling has also been presented against the two other ways of establishing the benchmark value. Table 4 uses a 10 times uplift on existing use value across gross site area (method 1). Table 5 uses method 3 (same as method 2 but with no adjustment for CIL).

Table 4: Summary of results of model – achievement of benchmark value using uplift on EUV (method 1)					
Typology	Benchmark value per gross ha	Site benchmark value	Residual Site Value	Uplift on EUV	Benchmark /RSV
1	£200,000	£1,200,000	£3,166,220	x26.39	+£1,966,220
2	£200,000	£1,000,000	£1,800,543	x18.01	+£800,543
3	£200,000	£8,400,000	£16,692,527	x19.87	+£8,292,527
4	£200,000	£28,400,000	£28,742,455	x10.12	+£342,455
5	£200,000	£5,000,000	£1,898,435	x3.8	-£3,101,565

Table 5: Summary of results of model – achievement of benchmark value using method 3				
Typology	Benchmark value per ha	Site benchmark value	Residual Site Value	Benchmark /RSV
1	£570,000	£3,420,000	£3,176,573	-£253,780
2	£570,000	£2,850,000	£1,800,543	-£1,049,457
3	£570,000	£14,007,000	£16,720,768	+£2,685,527
4	£495,000	£40,612,000	£28,742,455	-£11,869,545
5	n/a	n/a	£1,898,435	n/a

The three approaches to benchmark value give a range of results. These show the range of residual values against benchmark to be as follows:

Typology 1 – Highest +£1,966,220 Lowest -£253,780

Typology 2 – Highest +£800,543 Lowest -£1,049,457

Typology 3 – Highest +£8,292,527 Lowest +£2,685,527

Typology 4 – Highest +£342,455 Lowest -£11,869,545

With regard to typology 5 this exercise cannot be done as there is no benchmark level established. The employment land proposed in the part JCS is at Rackheath and is likely to be delivered as part and parcel of the wider development proposed in this area. Therefore the potential impact of this on the overall viability of the development at Rackheath should be considered. The characteristics of the residential development at Rackheath are most reflective of typology 4. As typology 5 shows that employment development is viable and results in an uplift on EUV inclusion of the employment area within the development area would marginally improve viability if benchmark were assessed using methods 2 and 3 (as this would assume that the benchmark value for the additional land would be EUV). The overall net to gross area of the larger site would be 47.6%. If method 1 was taken, as employment land values are considerably below the £200,000 per gross ha benchmark, overall viability would worsen.

5) Sensitivity Testing

In considering the results set out above it is necessary to reflect on the nature of the model, the lack of specificity about the particular developments that will come forward and the work that remains to be done in relation to site specific planning documents.

Owing to the nature of the modelling exercise the results illustrated in this paper are prone to considerable variation depending on the assumptions used in the model. Throughout this exercise care has been taken to ensure robust and credible assumptions are taken appropriate to strategic assessments of this nature. To illustrate this, a limited amount of sensitivity testing has been done.

The results are highly sensitive to sales values achieved in relation to the private residential element. A 5% uplift in these sales values would have a dramatic impact on the overall viability. If a 5% uplift on sales values is achieved on site 4 for instance the Benchmark/RSV (set out in table 3 above) improves from -£1,929,545 to +£4,118,647 (5% change in sales value results in 21% change in residual site value).

The impact of build cost and infrastructure assumptions are slightly less significant but still important. A 5% change in build cost on typology 4 results in a 19% change in RSV. A 5% change in infrastructure cost on site 4 results in a 3% change in RSV.

Under point 3 above it is noted that there is a particular weakness with the model not being able to reflect differing types of provision in private and affordable stock. In all typologies policy compliant levels of affordable housing have been assumed and the model applies this level to all types of properties. To assess this impact an assessment has been done on typology 1 (see appendix 5) which indicates in this instance if a more typical likely distribution of affordable housing provision is assumed this would improve sales revenue to the developer by £1m resulting (once an allowance for increased CIL and developer profit is made) in an uplift in the residual value of the site by over 22%.

Also with regard to Affordable Housing a test has been carried out on the base model to see at what rate of affordable housing typology 4 achieves benchmark value under table 3. This shows that the benchmark value is achieved when the rate of affordable housing provision is reduced to 28%.

No sensitivity testing has been done in relation to sales values inflation as the Harman report suggests that a zero assumption should be made in relation to the first five years. It could be argued that increasing the supply of housing to the extent proposed within the Broadland part of the NPA would exert a downward pressure on house prices. Conversely it could be argued that due to the impact of improved accessibility resulting from the measures to be delivered through the NATS (NDR and significantly improved public transport access) that house prices would increase. In the circumstances the safest course of action has been to assume that these two pressures cancel one another out.

6) Conclusions

This exercise reveals that the development proposed in the Joint Core Strategy will be viable for developers. It also reveals that it is reasonable to conclude that there is likely to be sufficient viability to incentivise willing landowners to make the sites available for development. There is a considerable uplift across the board in relation to existing use values but in current market conditions on some of the sites margins may be insufficient to incentivise release in the short term, especially if a greater proportion of infrastructure costs are borne in early phases.

This situation described above is not uncommon in relation to many major developments and in practice land deals can be concluded on the basis of challenging or even negative residual valuations (particularly for longer term strategic developments) on the basis that the increase in sales values over time will exceed cost increases and viability will improve. There is growing national evidence to suggest that confidence is returning to the market and clear signs that it is turning up in terms of prices and lending. In this circumstance it is not unrealistic to suggest that certain landowners/developers may be prepared to proceed with early phases of the larger developments in the NEGT in the expectation of unlocking future development values.

In practice this will need to be tested in more detail through subsequent development plan documents and the development management process. But the results to date give considerable confidence that there is sufficient prospect of the development being viable to justify the proposals being taken forward for this further, more detailed consideration.

This result of this exercise is not sufficiently clear cut to demonstrate that there is no risk that the rate of build out envisaged in the JCS housing trajectories may not be delivered in full within the plan period. Should there prove to be insufficient incentive to release sites for development in the short term there is considerable scope for that to be addressed through: firstly, flexing the nature of design from that assumed; or failing this, secondly, through reducing the policy requirements for open space and affordable housing on a case by case basis through well established procedures in the planning system.

The proposed inclusion of policy 21 in the JCS through MM2 is considered to be an appropriate response to this circumstance insofar as it would allow alternative locations for growth if the proposals in the JCS are not likely to deliver at anticipated trajectories.

Greater Norwich Development Partnership
June 2013

Appendix 1

Commentary on implications of policy requirements on viability of growth in Broadland NPA

This commentary reviews the requirements set out in policy 10 submitted Joint Core Strategy, and other policy requirements, related to the viability assessment of development in the Broadland Norwich Policy Area.

Additional Costs implied by Policy 10

The impact of the requirements of policy 10 is reviewed in the table below, reflecting the Councils' approach to Community Infrastructure Levy and Section 106 payments. None of these policy requirements are considered to add exceptional costs to development

The effect of this approach is outlined in the table.

Policy 10 proposals	**Potential impact on development / Funding sources**
at least 7,000 dwellings (rising to a total of at least 10,000 dwellings after 2026)	N/A
a district centre based around an accessible 'high street' and including a new library, education and health facilities. This may be provided by building on the proposed centre at Blue Boar Lane or by the creation of a second district centre elsewhere in the Growth Triangle. The development will also require new local centres	No impact. The commercial development will be self financing. Community facilities to be funded under CIL or other public funds.
new pre-school provision and up to six new primary schools plus a new secondary school with an initial phase to open as early as possible. To facilitate early provision the early phases of development will concentrate on family housing	Land for required statutory education facilities will need to be provided in strategic developments , transfer to be dealt with through S106. Provision of facilities to be CIL funded or other funding sources
new employment allocations for local needs including expansion of the Rackheath employment area	Appropriate land will need to be made available, but as commercial development it will be self-funding
retention of existing important greenspaces and significant levels of heathland re-creation to provide stepping stones to link Mousehold Heath to the surrounding countryside. Building design	Strategic provision will be CIL funded. Land for on-site informal open space / green infrastructure to be provided, though specific standards for provision are yet to be

Policy 10 proposals	Potential impact on development / Funding sources
including, for example, appropriate use of 'green roofs' will help provide linkage between greenspaces	determined through future DPDs.
restoring and conserving historic parkland and important woodland. A significant area north of Rackheath will be provided as green space to act as an ecological buffer zone and ensure no significant adverse impacts on the Broads SAC, Broadland SPA and Broadland Ramsar site	Historic parkland and woodland may be incorporated in land provided under open space / green infrastructure requirements (see above). If serving strategic needs (ie additional to that development) CIL will be applicable and other possible funding sources. The buffer zone will be provided as part of on-site informal open space / green infrastructure (see above).
Bus Rapid Transit to the city centre, possibly via Salhouse Road and Gurney Road, and a choice of safe and direct cycle routes to the centre	Off site CIL or other funding sources. On site through highway provision as part of the development.
safe and direct cycle and pedestrian routes, and orbital bus services, to Broadland Business Park, Rackheath employment area, airport employment areas and to the surrounding countryside	On site through highway provision as part of the development. Orbital bus services to be provided by commercial operators.
new rail halts at Rackheath and Broadland Business Park	May be taken forward as part of development if commercially viable. CIL and or local/national transport funding potentially to contribute to achievement.
permeability and community integration across the Northern Distributor Road and with existing communities. This will be crucial for the successful development of the area	On site through highway provision as part of the development. Offsite through NDR design (public funded) and CIL
a new household waste recycling centre.	Provision by Waste Disposal Authority (Norfolk County Council).
Nb. Where a facility is primarily needed to serve a specific individual development, and land is required to be transferred to a public authority, the land will be expected to be transferred at no cost to the public authority. Where a facility is needed to serve more than the individual development within which it is located, any land transfer over and above that needed for that specific development would be regarded as a payment in kind of CIL. This is expected to be particularly relevant to secondary school provision.	

Policy 10 also states that a single co-ordinated approach will be required across the NEGT area, to be provided through the preparation of an Area Action Plan (or equivalent) by the local planning authority (Broadland District Council). More detailed masterplanning will be required for each quarter. Policy 10 is intended to provide guidance to these processes. Specific requirements may arise through these processes, and these would need to be justified through them including through viability testing.

In conclusion, under JCS Policy 10 there are no unusual or exceptional costs applying to the development in the NEGT. Other than on-site measures as normally expected in the design of significant development, other infrastructure requirements are to be provided via other mechanisms, primarily through the use of CIL and other public funding sources.

Examination of other JCS policy requirements and impacts on viability of growth in Broadland NPA

Policy proposals	**Implications for Development Costs**
Policy 1 – Addressing climate change and protecting environmental assets	Addressed through design of development and taken into account in land-take and construction costs
Policy 2 – Promoting good design Design principles set out to assist in the design of development, including encouraging good practice such as masterplanning for major developments. Nb.Building for Life aspects of the policy no longer applicable	It is common practice for significant development to employ good design practices, including masterplanning, undertaken by approporiate professionals; therefore standard assumptions relating to professional fees are likely to be adequate.
Policy 3 – Energy and water Above standard requirements for renewable energy provision (10+ homes) 500+ homes to use any economies of scale to maximise	Some additional costs will arise from these “sustainability” factors, and will need to be taken into account in construction costs. For

Policy proposals	**Implications for Development Costs**
provision from decentralised low carbon sources Water – Code 4 currently Code 6 for 500+ dwellings by 2015	larger developments and the target of maximising use of decentralised low-carbon sources, utilising economies of scale should help to negate any additional costs.
Policy 4 – Housing Delivery Affordable housing at 33% - Assume 85% affordable rent, 15% intermediate tenures – no grant Mixed tenure housing with care provision required	Affordable housing provision reduces the potential value of a scheme, as the values are less than for open market housing. However, where a scheme would be unviable there is provision for the affordable housing requirement to be reduced.
Policy 5 – The Economy	No added costs assumed
Policy 6 – Access & Transportation	No added costs assumed
Policy 7 – Supporting Communities	No added costs assumed apart from those addressed in policy 10
Policy 8 – Culture, leisure and entertainment	No added costs assumed apart from those addressed in policy 10

Appendix 2

Assumptions used in housing viability assessment scenarios

In order to assess the viability of development under the remitted policies of the Joint Core Strategy four "scenarios" or typologies for development have been produced and the HCA Area Wide Viability Model used to test these.

These are:
Typology 1 Small scale site not in the NEGT – 150 Dwellings in a village location.

Typology 2 Small scale site within NEGT and forming a separate part of a larger area – 150 dwellings in urban fringe. Assumed to be in AAP Core Development Area 1.

Typology 3 Medium scale site within NEGT and forming a phase of a larger area – 1000 dwellings in urban fringe. Assumed to be in AAP Core Development Area 2.

Typology 4 Large strategic site within NEGT – 3000 dwellings. Assumed to be in AAP Core Development Area 3.

Although generic in nature, these reflect the type of developments that are likely to come forward and illustrate a range of scenarios for consideration and comparison. Reasonable assumptions are then used to provide estimates of the values of the various factors required for inputting into the HCA Model for each. These are set out in the table 1 below.

Typology 5 25 Ha Employment allocation is addressed in Appendix 4.

In order to provide some background context to the assessments, a brief characterisation of future development sites in Broadland NPA, making reference to the Area Action Plan core development areas, is also included.

Table 1. Assumptions used in Typologies for HCA Model
Typologies
1. Dwelling mix Typology 1 is based on a recent planning permission for 150 dwellings in a Broadland NPA village. The other typologies are modifications of this to reflect a broader dwelling mix, allowing for a proportion of smaller flats. A higher proportion of flats are included in the larger strategic developments where new communities are being created and reflecting the need to provide for the full range of housing requirements, with a slightly higher proportion in the urban edge Typology 3. Typology 1 = 38% x 2 bed houses, 37% x 3 bed houses, 25%x 4+ bed houses. Typology 2 = 1% x 1 bed flat, 2% x 2 bed flat, 35% x 2 bed house, 37% x 3 bed house, 25% x 4+ bed house. Typology 3 = 7.5% x 1 bed flat, 7.5 % x 2 bed flat, 25% x 2 bed house, 40% x 3 bed house, 20% x 4+ bed house. Typology 4 = 5% x 1 bed flat, 5% x 2 bed flat, 25% x 2 bed house, 35% x 3 bed house, 30% x 4+ bed house. It is also envisaged that a substantial proportion of the properties in the large strategic developments will be terraced and semis, and with some being 3-storey. For all typologies it is assumed that 67% is open market housing, 33% is affordable housing (85% affordable rent tenure, 15% shared ownership) in accordance with JCS Policy 4.
2. Dwelling sizes Dwelling sizes can vary greatly, and so the figures used are estimates of "typical" sizes based on a review of planning permissions in the area and information from Housing Officers. Open market: 1 bed flat = 45 sq.m. 2 bed flat = 60 sq.m 2 bed house = 65 sq.m 3 bed house = 80 sq.m 4+ bed house = 120 sq.m Affordable Housing: 1 bed flat = 46 sq.m. 2 bed flat = 67 sq.m 2 bed house = 70 sq.m 3 bed house = 85 sq.m 4+ bed house = 110 sq.m
3. Site size This is based on the net density with an allowance for strategic landscaping, recreational open space (inc. sustainable drainage systems),and schools as

appropriate. The specific policy requirements for the open space etc are to be determined through future Development Plan Documents; therefore the figures used here are indicative only. Net densities are expected to be higher in the large strategic developments in the NEGT, as are the strategic open space elements. Open space figures are based on an allowance per 1000 people, assuming 2.5 people per dwelling. Generous amounts are used for this, based on figures discussed within the Growth Triangle Area Action Plan Issues and Options Consultation Draft (December 2012) though these are not adopted policy. In practice these are likely to be an over estimate, as there will be scope for "overlapping" of the elements, eg formal recreational space within informal open space, and utilisation of school playing fields.

For typology 1, the non-residential area is based on recreational provision of 2.4 ha per 1000 pop'n @ 2.5 people per unit (0.9Ha) with an allowance for strategic landscaping (0.6 Ha)..
Typology 1 = 6.0 Ha (4.5 Ha net @ 33d/ha plus 1.5 Ha).

For typology 2, the non-residential area is based on childrens play space provision of 0.8 Ha per 1000 pop'n (0.3 Ha) with an allowance for strategic landscaping (0.4 Ha). Balance of open space to be provided within larger development of which this is part.
Typology 2 = 5.0 Ha (4.3 Ha net @ 35d/ha plus 0.7 Ha).

For typology 3, the non-residential area is based on recreational provision of 2.4 ha per 1000 pop'n @ 2.5 people per unit (6Ha), allotments of 0.16 Ha per 1000 pop'n (0.4 Ha); informal open space of 4.19 Ha per 1000 pop'n (10.4 Ha), plus area for primary school (1.3Ha).
Typology 3 = 42.0 Ha (23.9 Ha net @ 42 d/ha plus 18.1 Ha).

For typology 4, the non-residential area is based on recreational provision of 2.4 ha per 1000 pop'n @ 2.5 people per unit (18Ha), allotments of 0.16 Ha per 1000 pop'n (1.2 Ha); informal open space of 4.19 Ha per 1000 pop'n (31 Ha), plus area for secondary school (10 Ha) and 2 primary schools (2.3 ha).

Typology 4 = 142 Ha (79.5 Ha net @ 38 d/ha plus 62.5 ha)

4. Existing Use Value

£20,000 / Ha for all typologies based on typical agricultural land values. (Savills Research, Q1. 2013. Eastern Region)

5. Threshold Values (benchmark)

See detailed explanation in main body of report.

Values

6. Blended Sales Rates

These are "blended" figures based on recent sales figures on the edge of the NEGT and average sales prices for Broadland and Norwich published by the

Land Registry; with slightly higher rates applied to two of the typologies to reflect possible higher design / construction standards and preferential locations etc.)

Typology 1 = £2250 / sq.m.
Typology 2 = £2100 / sq.m.
Typology 3 = £2250 / sq.m
Typology 4 = £2100 / sq.m.

7. Affordable Housing Values

Based on analysis of affordable housing transactions across GNDP area within the last 12 months

Capitalised value

	Affordable Rent	Shared Ownership
1 bed flats	£55,000	£56,000
2 bed flats	£74,000	£81,000
2 bed house	£78,000	£85,000
3 bed house	£94,000	£103,000
4+ bed house	£122,000	£133,000

Costs

8. Build Costs

The build costs used are based upon BCIS rates adjusted to allow for external works, contingencies, developer overheads and renewable energy / sustainability measures to meet JCS Policy 3. The rate used for typologies 3 and 4 reflects that an element of 3 storey housing may be incorporated within the mix of housing proposed. The rates are based upon the lower – mid quartile range and reflect that the majority of the housing proposed is likely to be delivered by large volume house builders who will have considerable economies of scale.

Typology 1 = £925 / sq.m.
Typology 2 = £925 / sq.m.
Typology 3 = £900 / sq.m
Typology 4 = £900 / sq.m.

9. Other costs

Industry typical rates, reflecting Harman guidelines and relating to the scale of the development, are applied to all the typologies.

Developer's return private = 17.5 - 20% of GDV private sales.
Developers return affordable = 6% of affordable construction costs
Professional fees = 8 -10% of total construction costs
Marketing costs = 3 % of private sales value
Legal fees = 0.5 % of private sales value

Site acquisition& stamp duty = 5.8 % of gross residual land value
Development finance interest rate for cashflow = 7.0%

Design & Sustainability = Within typologies 3 and 4 this is set at 3% and 2% to reflect the additional JCS policy 3 requirements for larger developments, as well as further assumed sustainability initiatives in respect of typology 3.

10. CIL / S106

These rates apply to all typologies.
CIL = £75 / sq.m (adopted rate)
S106 = £750 per unit. Assumed rate used in submitted viability assessments for CIL examination. This relates to on-site requirements, provision of land is included in site size under 3 above.

11. Inflation

This is applied in accordance with the Harman guidelines.

No inflation is applied to typologies 1 and 2.

For typologies 3 and 4 inflation is applied having regard to the timing assumed for the strategic sites included within the housing trajectories.

Inflation estimates for build costs are based on Bank of England Report May 2013 for target inflation rates; and for house prices are based on house price forecasts for the region published by Savills and Knight Frank.

No inflation is applied to the first 5 years. For sales values, a 4% increase is assumed from 2018-21, no change in 2022, and a 2% increase thereafter. For construction costs, 2% increase is assumed from 2018.

12. Infrastructure

Infrastructure costs include site access (inc. NEGT orbital links), estate roads, foul and surface water and drainage (inc SUDS), utilities (mains services), landscaping, playspace, site preparation / earthworks, offsite works and any abnormals. It is envisaged that there should not be major off-site works required as a cost to the developments as key strategic infrastructure is to be funded through other means, such as the funding in place for the Norwich Northern Distributor Road, strategic utility infrastructure funded by relevant bodies through their asset management plans, and through use of CIL funds and other potential sources such as Eco-community funding. Further information on the infrastructure to be provided within the growth triangle, as required under JCS Policy, and the relationship of this to development funding is set out in Appendix 1 "Commentary on implications of policy requirements on viability of growth in Broadland NPA".

The cost per dwelling used in typology 1 is based upon the developer agreed appraisal costs for a similar scale of development submitted in support of

CIL. The cost for typologies 2, 3 and 4 reflect the additional costs anticipated in servicing larger development sites, and have been arrived at following a review of cost plans submitted in support of a large-scale development within the NEGT. The additional cost is assumed at £4000 per dwelling. Typology 1 = £8000 Typology 2 = £12000 Typology 3 = £12000 Typology 4 = £12000
13. Timings For each typology timings for building and sales is in accordance with assumed rates for housing delivery as set out in the housing trajectory.

Broadland NPA Future Development Sites Characterisation

Future development within Broadland can be crudely broken down into two specific types of site: large strategic sites taking the form of new mixed urban quarters (approx 3,000 homes minimum) within the Growth Triangle; and, smaller, predominantly residential, sites ranging from as little as 20 homes to as many as 1,000 homes across the reminder of the Broadland Norwich Policy Area (outside the NEGT).

North-East Growth Triangle

The specific sites which will form the new urban quarters proposed within the Growth Triangle have not yet been formally defined. The most advance piece of work available is that within the Growth Triangle Options Consultation Document. This is an issues and options consultation being undertaken under regulation 18 of the Town and County Planning (Local Plan) Regulations 2012.

This consultation document considers the Growth Triangle as being made up of three separate “sectors”. These sectors comprise the area north of the route of the proposed NDR; the area west of Wroxham Road and the area south-east of Wroxham Road. Within each of these areas a potential “core development area” has been identified. These are referred to below.

South-East Sector - Core Development Area 1

Site - Potential Core Development Area 1 spans Salhouse Road between Sprowston Manor Golf Course and Racecourse Plantation. The land to the north of Salhouse Road is in the control of one landowning trust. An option on this land is retained by Persimmon Homes. The land south of Salhouse Road is controlled by multiple smaller landowners. Whilst not strictly part of the Core Development Area, the resolution to grant planning permission for 600 homes and employment at Brook and Laurel Farm also lies within the south-east sector and would contribute to the delivery of the overall housing numbers within this sector as set out in the section on form below.

Form - Core Development Area 1 is proposed as a potential for a new urban quarter of at least 3,000 homes which supports its own range of retail, services, facilities and employment opportunities. It is proposed that the development should be based on the principle of polycentric walkable neighbourhoods which contain a network of social and functional centres including possibly a new high street, or other focal centre, for services, facilities and also possibly employment should be provided at the junction of Salhouse Road and the White House Farm Link Road, see transport section below.

Transport - Salhouse Road is the primary radial route which connects Core Development Area 1 to Norwich City Centre. This route is proposed as a BRT and cycling corridor, the latter connecting into the N&N Hospital to Heartsease

pedalway. The Gurney Road/Salhouse Road Bus Rapid Transport would also connect development at Rackheath to the city centre. Orbital road, public transport and cycle connections between Salhouse Road and Wroxham Road will be provided by the link road to be delivered as part of the White House Farm Development, north of Blue Boar Lane. Orbital links between Salhouse Road and Plumstead Road may be provided as part of new development in this area. The final link between Plumstead Road and Postwick Junction would be provided by the Brook and Laurel Farm development which has planning permission.

Green infrastructure – is expected to comprise two principle elements: formal and informal recreational facilities; and, landscaping and other connections in order to facilitate the delivery of the overall Green Infrastructure network. Particular priority links are between along the Salhouse Road corridor, as part of the Mousehold to Broads link, between Thorpe Woodlands and Rackheath Park, between Thorpe Woodlands and the Plumsteads, via the NDR overbridge and also a secondary connection between Thorpe Woodlands and Harrisons Plantation. Currently adopted policy standards for open space comprise the Fields in Trust 2.4ha standard (formerly the 6acre standard), with non-defined standards for informal open space (the AAP draft suggests provision commensurate with the maintenance of the 4.19ha per 1000 population district average as proposed by the PPG17 assessment, this is however only a consultation proposal at this time).

Western Sector – Core Development Area 2

Site - Potential Core Development Area 2 is located between Wroxham Road and St Faith's Lane. This land is predominantly under the control of Beyond Green Developments, who have submitted a planning application for up to 3520 dwellings, together with employment, commercial, recreation and open space, and community facilities.

Form - Core Development Area 2 is proposed for a new urban quarter of at least 3,000 homes which supports its own range of retail, services, facilities and employment opportunities. It is proposed that the development should be based on the principle of polycentric walkable neighbourhoods which contain a network of social and functional centres. The (undetermined) Beyond Green Developments application proposes 3-4 main centres.

Transport – The Wroxham Road forms the eastern boundary of the site, to the west is North Walsham Road. These would be the principal radial connections between the site and Norwich and would be the focus for core bus route enhancements. City cycling connections in the first instance would be provided as an extension to the Cringleford to Sprowston pedalway. Orbital connections are afforded by a main street to be provided as part of development between Wroxham Road and St Faiths Lane, a further public transport and cycling connection to the Airport Industrial Estate is also

proposed (through the AAP) either via a new connection to Hurricane way or via Repton Avenue, exploiting cycling and closed off bus links along this road.

Green Infrastructure - is expected to comprise two principle elements: formal and informal recreational facilities; and, landscaping and other connections in order to facilitate the delivery of the overall Green Infrastructure network. Particular priority links are between Catton Park and Crostwick Marshes, adjacent North-Walsham Road and between Beeston Park, Rackheath Park and Crostwick Marshes. Beyond Green Development have proposed the reinstatement of parkland on Beeston Park as part of their development proposals. Currently adopted policy standards for open space comprise the Fields in Trust 2.4ha standard (formerly the 6acre standard), with non-defined standards for informal open space (the AAP draft suggests provision commensurate with the maintenance of the 4.19ha per 1000 population district average as proposed by the PPG17 assessment, this is however only a consultation proposal at this time).

Northern Sector – Core Development Area 3

Site - Potential Core Development Area 3 lies north of Rackheath village and is predominantly the site promoted as the Rackheath Eco-community by Barratt Homes. The land is principally within one land ownership. An existing planning permission exists on the eastern side of the core development area for 80 homes. This is in a separate land ownership. In addition, a small area of land south of Rackheath Industrial Estate is also being promoted as a separate concern..

Form - Core Development Area 2 is proposed for a new urban quarter of at least 3,000 homes which supports its own range of retail, services, facilities and employment opportunities. It is proposed that the development should be based on the principle of polycentric walkable neighbourhoods which contain a network of social and functional centres. Also proposed is a 25ha Strategic Extension of Rackheath Industrial Estate.

Transport - The proposed Salhouse/Gurney Road Bus Rapid Transit corridor is the principal public transport connection to Norwich. This corridor would also act as the principal cycling corridor to the city, with the NDR being crossed at the proposed Newman Road overbridge. These transport corridors also support the delivery of Core Development Area 1.

Green Infrastructure - is expected to comprise two principle elements: formal and informal recreational facilities; and, landscaping and other connections in order to facilitate the delivery of the overall Green Infrastructure network. Particular priority links are between Rackheath Park and the Broads. The Eco-community masterplan shows this connection principally realised through a wide green infrastructure link along the eastern side of the development, coinciding with the route of a high pressure gas mains, and a retained buffer

zone north of the proposed eco-community development. Currently adopted policy standards for open space comprise the Fields in Trust 2.4ha standard (formerly the 6acre standard), with non-defined standards for informal open space (the AAP draft suggests provision commensurate with the maintenance of the 4.19ha per 1000 population district average as proposed by the PPG17 assessment, this is however only a consultation proposal at this time).

HCA AREA WIDE VIABILITY MODEL

RESULTS & TESTING

TYPOLOGY 1 Version 3.1 March 2013

Broadland NPA	TYPOLOGY 1	20th June 2013/Stuart Bizley

Traffic Light settings		
25%		25%
8%		8%
		below 8 %

Values / Gap

Aggregate residual land value (RLV)	**£3,166,220**
Aggregate threshold land value (TLV)	**£2,580,000**
Funding surplus (RLV-TLV)	**£586,220**

S106 and CIL

Section 106 charges	**£112,500**
S106 adjust +/- percentage	%
Community Infrastructure Levy	**£635,411**
CIL adjust +/- percentage	%

HCA / other funding

Indicative HCA / other funding	☐ Apply grant
Total funding assumed	**£0**

Typologies to evaluate must be selected in this column. After RLV refresh they have to be re-selected.

Typologies	Check Select box to include Typology in results
TYPOLOGY 1 - Outside NEGT/Inside NPA	☑ Select
-	☐ Select
-	☐ Select
-	☐ Select
-	☐ Select
-	☐ Select
-	☐ Select
-	☐ Select
-	☐ Select
-	☐ Select

Residual Land Value Table			Threshold land values options selected in box	for	Residual minus Threshold	Dwellings	'Margin' above threshold
RLVs	RLV per hectare						
£3,166,220	£527,703	EUV / EUV plus premium	£2,580,000		**£586,220**	150	23%
£0	£0	EUV plus premium / Comparable value	£0		**£0**	-	
£0	£0	EUV plus premium / Comparable value	£0		**£0**	-	
£0	£0	EUV plus premium / Comparable value	£0		**£0**	-	
£0	£0	EUV plus premium / Comparable value	£0		**£0**	-	
£0	£0	EUV plus premium / Comparable value	£0		**£0**	-	
£0	£0	EUV plus premium / Comparable value	£0		**£0**	-	
£0	£0	EUV / EUV plus premium	£0		**£0**	-	
£0	£0	EUV / EUV plus premium	£0		**£0**	-	

Affordable housing percentages

Total dwellings selected	150
Average density (DPH)	33.33

Percentage affordable dwellings	**33%**
of which affordable rented homes	85%
of which social rented homes	0%
of which shared ownership homes	15%

Affordable Housing Value Sensitivity	
Affordable Rent adjust +/- %	%
Social Rent adjust +/- %	%
Shared Ownership adjust +/- %	%

***Note** : RLVs above reflect the s106, CIL and affordable housing percentage set before the "**Refresh Residual Land Values**" macro populates the RLV table. These values will not change if subsequently the "**Seek max AH**" macro calculates a different AH %, or s106 / CIL is adjusted.*

Developer's IRR	50%	for selected typologies

Homes & Communities Agency

v2.1
/ 2011

HCA AREA WIDE VIABILITY MODEL

TYPOLOGY 2 Version 3.1 March 2013

Broadland NPA | Typology 2 | 20th June 2013/Stuart Bizley

Traffic Light settings	25%	25%
	8%	8%
		below 8 %

RESULTS & TESTING

Typologies to evaluate must be selected in this column. After RLV refresh they have to be re-selected.

Values / Gap

Aggregate residual land value (RLV)	£1,800,543
Aggregate threshold land value (TLV)	£2,150,000
Funding gap (RLV-TLV)	-£349,457

S106 and CIL

Section 106 charges	£225,000
S106 adjust +/- percentage	%
Community Infrastructure Levy	£634,394
CIL adjust +/- percentage	%

HCA / other funding

Indicative HCA / other funding	☐ Apply grant
Total funding assumed	£0

Typologies Check Select box to include Typology in results		Residual Land Value Table: RLVs	RLV per hectare	Threshold land values for options selected in box		Residual minus Threshold	Dwellings	'Margin' above threshold
TYPOLOGY 2 - Inside NEGT	☑ Select	£1,800,543	£360,109	EUV / EUV plus premium	£2,150,000	-£349,457	150	-16%
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	£0	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	£0	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	£0	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	£0	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	£0	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	£0	-	
-	☐ Select	£0	£0	EUV / EUV plus premium	£0	£0	-	
-	☐ Select	£0	£0	EUV / EUV plus premium	£0	£0	-	

Total dwellings selected	150
Average density (DPH)	35.29

__Note__: RLVs above reflect the s106, CIL and affordable housing percentage set before the "__Refresh Residual Land Values__" macro populates the RLV table. These values will not change if subsequently the "__Seek max AH__" macro calculates a different AH %, or s106 / CIL is adjusted.

Developer's IRR 61% for selected typologies

Homes & Communities Agency

Affordable housing percentages

Percentage affordable dwellings	33%
of which affordable rented homes	85%
of which social rented homes	0%
of which shared ownership homes	15%

Affordable Housing Value Sensitivity	
Affordable Rent adjust +/- %	%
Social Rent adjust +/- %	%
Shared Ownership adjust +/- %	%

HCA AREA WIDE VIABILITY MODEL

TYPOLOGY 3 Version 3.1 March 2013

Broadland NPA	TYPOLOGY 3	20th June 2013/Stuart Bizley

Traffic Light settings		
25%		25%
8%		8%
		below 8 %

RESULTS & TESTING

Typologies to evaluate must be selected in this column. After RLV refresh they have to be re-selected.

Values / Gap

Aggregate residual land value (RLV)	**£16,692,527**
Aggregate threshold land value (TLV)	**£10,655,400**
Funding surplus (RLV-TLV)	**£6,037,127**

S106 and CIL

Section 106 charges	**£750,000**
S106 adjust +/- percentage	%
Community Infrastructure Levy	**£4,065,853**
CIL adjust +/- percentage	%

HCA / other funding

Indicative HCA / other funding	☐ Apply grant
Total funding assumed	**£0**

Affordable housing percentages

Percentage affordable dwellings	**33%**
of which affordable rented homes	85%
of which social rented homes	0%
of which shared ownership homes	15%

Typologies		Residual Land Value Table		Threshold land values for options selected in box		Residual minus Threshold	Dwellings	'Margin' above threshold
Check Select box to include Typology in results		RLVs	RLV per hectare					
TYPOLOGY 3	☑ Select	£16,692,527	£397,441	EUV plus premium / Comparable value	£10,655,400	**£6,037,127**	1,000	57%
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	**£0**	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	**£0**	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	**£0**	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	**£0**	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	**£0**	-	
-	☐ Select	£0	£0	EUV plus premium / Comparable value	£0	**£0**	-	
-	☐ Select	£0	£0	EUV / EUV plus premium	£0	**£0**	-	
-	☐ Select	£0	£0	EUV / EUV plus premium	£0	**£0**	-	

Total dwellings selected	1000
Average density (DPH)	41.77

Affordable Housing Value Sensitivity	
Affordable Rent adjust +/- %	%
Social Rent adjust +/- %	%
Shared Ownership adjust +/- %	%

***Note** : RLVs above reflect the s106, CIL and affordable housing percentage set before the "**Refresh Residual Land Values**" macro populates the RLV table. These values will not change if subsequently the "**Seek max AH**" macro calculates a different AH %, or s106 / CIL is adjusted.*

Developer's IRR	**24%**	for selected typologies

Homes & Communities Agency

HCA AREA WIDE VIABILITY MODEL

TYPOLOGY 4

Version 3.1 March 2013

Broadland NPA	TYPOLOGY 4	6th June 2013/Stuart Bizley

Traffic Light settings		
	25%	25%
	8%	8%
		below 8 %

RESULTS & TESTING

Typologies to evaluate must be selected in this column. After RLV refresh they have to be re-selected.

Values / Gap

Aggregate residual land value (RLV)	**£28,742,455**
Aggregate threshold land value (TLV)	**£30,672,000**
Funding gap (RLV-TLV)	**-£1,929,545**

S106 and CIL

Section 106 charges	**£2,250,000**
S106 adjust +/- percentage	%
Community Infrastructure Levy	**£12,968,269**
CIL adjust +/- percentage	%

HCA / other funding

Indicative HCA / other funding	☐ Apply grant
Total funding assumed	**£0**

Affordable housing percentages

Percentage affordable dwellings	**33%**
of which affordable rented homes	85%
of which social rented homes	0%
of which shared ownership homes	15%

Typologies	Check Select box to include Typology in results	
TYPOLOGY 4 _ Large Site in NEGT	☑	Select
-	☐	Select
-	☐	Select
-	☐	Select
-	☐	Select
-	☐	Select
-	☐	Select
-	☐	Select
-	☐	Select

Total dwellings selected	3000
Average density (DPH)	37.73

Affordable Housing Value Sensitivity	
Affordable Rent adjust +/- %	%
Social Rent adjust +/- %	%
Shared Ownership adjust +/- %	%

Residual Land Value Table					
RLVs	RLV per hectare	Threshold land values options selected in box	for	Residual minus Threshold	Dwellings
£28,742,455	£202,412	EUV / EUV plus premium	£30,672,000	**-£1,929,545**	3,000
£0	£0	EUV plus premium / Comparable value	£0	**£0**	-
£0	£0	EUV plus premium / Comparable value	£0	**£0**	-
£0	£0	EUV plus premium / Comparable value	£0	**£0**	-
£0	£0	EUV plus premium / Comparable value	£0	**£0**	-
£0	£0	EUV plus premium / Comparable value	£0	**£0**	-
£0	£0	EUV plus premium / Comparable value	£0	**£0**	-
£0	£0	EUV / EUV plus premium	£0	**£0**	-
£0	£0	EUV / EUV plus premium	£0	**£0**	-

'Margin' above threshold
-6%

***Note** : RLVs above reflect the s106, CIL and affordable housing percentage set before the "**Refresh Residual Land Values**" macro populates the RLV table. These values will not change if subsequently the "**Seek max AH**" macro calculates a different AH %, or s106 / CIL is adjusted.*

Developer's IRR	**20%**	for selected typologies

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APPENDIX 4

Typology 5 -25 Hectare Employment Allocation

It is assumed that this typology forms part of the wider land use allocation relating to Typology 4 but that the land area is in addition to that assumed in the viability review for Typology 4.

A simple residual valuation is attached and which demonstrates that the delivery of the employment allocation is viable in the context that it produces a value significantly greater than existing use value and therefore may benefit the overall viability of Typology 4. See covering report for further consideration

It is anticipated that the allocation will be brought forward on the basis of the provision of serviced development parcels suitable for employment uses, principally B1 B2 and B8. After initial 'opening up works' have been carried out to enable site access and mains service connections are available the construction of additional infrastructure is likely to be undertaken on a phased basis in line with land sales therefore minimising the developers capital outlay prior to sales income and so aiding cash flow and therefore profitability.

The net developable area is assumed to be 18.75 hectares after allowing for estate roads , SUDS features and 'buffer' landscaping. Sales values of £350,000 per hectare have been applied to reflect the sites location outside the NNDR. There is limited evidence of recent transactions for the sale of employment land in the area however land available in arguably better locations in and around the GNDP area is on the market at prices ranging from £500-£750,000 per hectare. This is further evidenced by the last VOA Property Market report (2011) which states land values in the Norwich are of £425,000 per hectare.

Infrastructure costs of £125,000 per hectare have been applied and relate to the construction of estate roads, drainage (foul and surface water) as well as mains electricity and water connections. This figure is based upon the cost of servicing similar employment sites.

An allowance of 30% is made for developer profit and finance.

The residual value of the site is £1,898,438 compared to an existing use value of £500,000 assuming £20,000 per hectare existing use value.

APPENDIX 4

TYPOLOGY 5 - RESIDUAL VALUATION

Employment Allocation 25 hectares

Gross/Net	75%	
Net developable area =	18.75 Ha	
Infrastructure Costs	£125,000 per hectare	
	Sub Total	£2,343,750
Fees/Contingency		
	15%	£351,563
Total Cost		**£2,695,313**
GDV	18.75	£350,000 per hectare
	Total Value	**£6,562,500**
Developer Profit & Finance		
	30%	£1,968,750
Residual Value		**£1,898,438**
EUV	£20,000 per ha	
Existing Site Value		**£500,000**

APPENDIX 5

Calculation of Affordable Housing Sensitivity - Typology 1

Model calculation

150 Dwelling	Units	33% AH	OM
2 Bed-38%	57	19	38
3 Bed - 37%	55	18	37
4 Bed - 25%	38	13	25

Affordable Housing Revenue £4,762,867

Actual delivery on similar Scheme in Broadland NPA

150 Dwelling	Units	AH	OM	Difference to Model
2 Bed	57	32	25	-13 OM Dwellings
3 Bed	55	17	38	1 OM Dwellings
4 Bed	38	1	37	12 OM Dwellings
Total	150	50	100	

AH Revenue 85/15 split using values assumed in model applied to revised affordable types

	Units	£/Unit	Revenue
AR 2 Bed	27	£78,000	£2,106,000
SO 2 Bed	5	£85,000	£425,000
AR 3 Bed	14	£94,000	£1,316,000
SO 3 Bed	3	£103,000	£309,000
AR 4 Bed	1	£122,000	£122,000
Total	50		£4,278,000

Additional Sales Revenue on OM Dwelllings

	Units	£/Unit	Revenue	
2 Bed	-13	£146,250	-£1,901,250	
3 Bed	1	£180,000	£180,000	
4 Bed	12	£270,000	£3,240,000	
Total			£1,518,750	Gain in sales revenue from OM dwellings

Variation in AH Revenue £484,867 Less reduction in AH revenue

Additional Sales Revenue to Developer £1,033,883

Additional CIL £50,625

Adjustment for profit and sales costs 23% £237,793

£745,465

Purchase costs at 5.8% £43,237

Additional Residual Site Value **£702,228**

Model Calculated Site Value £3,166,220
Additional Residual Site Value 702228

Revised Residual Value **£3,868,448**

Uplift % = **22.18%**