Dispute referred under Section 99 and Section 30A Water Industry Act 1991

Requisition of offsite sewerage infrastructure in Maidstone

Taylor Wimpey UK Limited vs. Southern Water Services Limited

Final Determination

June 2013

Contents

1. Introduction

A. The purpose of this document

1.1 This determination concerns a dispute referred to the Water Services Regulation Authority ("**Ofwat**") by Taylor Wimpey UK Limited ("**Taylor Wimpey**") under section 99 and section 30A of the Water Industry Act 1991 ("**the Act**") on 15 May 2009.

1.2 The dispute is between Taylor Wimpey and Southern Water Services Limited ("**Southern Water**") as to the amount required to be paid in pursuance of an undertaking required by Southern Water in connection with the provision of a public sewer requisitioned for the housing development and YMCA building at a former brownfield site in Maidstone ("**the Site**"). Adjusting for refunds made, Taylor Wimpey has paid £167,403 to Southern Water for the works Southern Water carried out. Taylor Wimpey disputes the amount on the grounds that the works undertaken to the public sewer were not necessary for the purposes of providing sewerage services to the Site and therefore the requirement to pay the amounts requested by Southern Water in relation to the provision of sewerage services to the Site are not reasonable.

1.3 As part of this determination we have considered i) whether the works were necessary and appropriate in light of Southern Water's duty under section 98(1) to provide the public sewer for the drainage of domestic premises following a notice served by Taylor Wimpey pursuant to section 98(2) of the Act; and ii) whether Southern Water's costs were reasonably incurred in providing the sewer in accordance with section 100(2) of the Act. In order to establish the above, the scope of this determination considers:

a. **The capacity of the existing infrastructure** - whether there was adequate capacity within the existing infrastructure to manage any additional discharges and the evidence used to make this assessment; and

b. **The actual works carried out** - whether the actual works delivered were appropriate in order to provide the required public sewerage for the relevant domestic premises.

1.4 We issued a first draft determination to the parties on 23 February 2012. The first draft determination stated that we did not consider that Southern Water had provided strong and reliable evidence to demonstrate that the works were necessary for the provision of a public sewer to the Site and therefore that the

costs associated with such works were reasonably incurred. Both parties provided comments on the first draft determination. In addition to their representations the parties also provided additional evidence. The reports provided by the parties are set out in Table 2.

1.5 Southern Water commissioned an additional evidence report as part of its representations on the first draft determination dated 23 February 2012. This was prepared by Halcrow Management Sciences Limited (the "Halcrow Report") and seen by both parties. The Halcrow Report plus the subsequent evidence submitted by each party, changed our position from that in our first draft determination dated 23 February 2012.

1.6 As our determination changed significantly from our first draft determination, we issued a second draft determination to the parties on 8 January 2013 to provide them with a further opportunity to make representations on our proposed determination. This second draft determination was based on the additional evidence provided in and following the Halcrow Report.

1.7 The parties made representations on our second draft determination and we have taken these into account. This document sets out our final determination in this matter.

1.8 It should also be noted that in preparing this determination we have not sought to respond to every point made by the parties in the significant volume of documents and correspondence received. Nor do we seek in this document to summarise or deal explicitly with each individual point made by the parties. This determination refers only to the facts and information that we have considered, acting reasonably, are relevant to enable us to reach a decision.

B. Overview of Ofwat's determination

1.9 In reaching our decision we have considered whether there was reasonable evidence available to Southern Water which indicated that the works in question were necessary to provide drainage to the Site in accordance with section 98(1) of the Act and therefore whether the costs relating to the works were reasonably incurred by Southern Water in accordance with section 100(2) of the Act. We consider that the onus is on companies to demonstrate that the works they are proposing to carry out or have carried out already are supported by robust and reliable evidence.

1.10 Our conclusion, as set out in detail in this determination, is that the works carried out, and certain of the costs incurred by Southern Water in this case are reasonable. However, we have identified that 57 metres of the original

225mm sewer was upgraded to a 300mm sewer and that recovery by Southern Water from Taylor Wimpey of the costs of this element of the upgrade is not appropriate in this instance having regard to the provisions of the Act. Therefore the costs of this section of the upgrade should be calculated by Southern Water and refunded to Taylor Wimpey with the associated interest.

2. The legal framework

2.1 Where an owner or occupier of premises requires drainage to its premises, it can decide to either:

(i) provide the infrastructure itself and have it adopted by the incumbent sewerage undertaker at an agreed date (self-lay); or

(ii) requisition the infrastructure, so that the sewerage undertaker provides the infrastructure required.

2.2 In this case, the public sewer outside of the boundary of the site (offsite) was requisitioned by Taylor Wimpey, pursuant to section 98 of the Act and the dispute which we have been requested to determine in this instance relates only to this requisition sewer rather than self-laid sewerage.

A. Requisitions

2.3 Under section 98(2) of the Act, an owner or occupier of premises may request that a sewerage undertaker provides a public sewer to provide drainage to the premises. Under section 98(1) of the Act, subject to certain conditions being fulfilled (as set out in section 99 of the Act, which can include a requirement to contribute to the cost of the sewer), section 98 of the Act provides that the sewerage undertaker is under a duty to provide the public sewer. For there to be a duty on the sewerage undertaker the public sewer must only be used for domestic purposes, as set out in section 98(5) of the Act. A request to provide a public sewer is referred to as a "**requisition**".

2.4 In certain circumstances the works required to provide drainage to a site will involve enlarging the public sewer already in place as opposed to providing a completely new public sewer. In both scenarios a requisition can be used to have the required infrastructure provided to enable drainage to the site.

2.5 Section 99(2) of the Act provides that a sewerage undertaker can recover a contribution from the owner or occupier of the premises towards the costs that the sewerage undertaker reasonably incurs in providing a requisitioned public sewer.

2.6 As set out in section 99(2)(a) and Section 100A of the Act, this "**requisition charge**" is calculated by reference to the annual borrowing costs of a loan of the amount required to cover the costs incurred in providing the public sewer and the estimated revenue in respect of the drainage charges payable (by

sewerage customers) over each of the 12 years following provision of the public sewer. Where the estimated revenue exceeds the borrowing costs incurred in providing the public sewer, the owner or occupier of the premises will not be required to make any payment. Where the borrowing costs exceed the drainage charges payable, the sewerage undertaker is entitled to require the owner or occupier of the premises to pay the difference to the sewerage undertaker.

2.7 The owner or occupier of the premises can choose to pay this requisition charge to the sewerage undertaker either by way of an annual amount over the 12 years following provision of the public sewer (the **"relevant deficit"**), or a single lump sum payment made following provision of the public sewer, which is referred to as the discounted aggregate deficit (the **"DAD"** or **"commuted sum"**).

2.8 This amount can only be requested once the public sewer has been provided. Prior to the provision of the public sewer, the sewerage undertaker is entitled, under Section 99(1)(b) of the Act, to request security from the owner or occupier of the premises.

2.9 Where any amount has been deposited by the owner or occupier of the premises with a sewerage undertaker as security, section 99(4) of the Act provides that the sewerage undertaker is required to pay interest to that person. Interest rates should generally be applied in accordance with Ofwat's Information Notice on interest rates and its appendix 1.

2.10 There are two distinct scenarios in which Ofwat can determine a dispute in relation to requisitions. These are any dispute between a sewerage undertaker and any other person as to:

a. the undertakings or security required by the sewerage undertaker; or
b. the amount required to be paid in pursuance of any such undertaking.

Either party to the dispute may refer it to Ofwat for determination under section 99(6) of the Act.

B. Costs that may be included in calculating the requisition charge

2.11 Section 100(2) of the Act sets out the costs that a sewerage company may include in calculating the requisition charge. They are the **"costs reasonably incurred"** in providing the sewer**.** The same section of the Act specifically provides that costs incurred in the provision of additional capacity are not to be included in the costs reasonably incurred when calculating the requisition

charge. We interpret this provision to exclude any costs that were incurred in providing additional capacity over and above the capacity requisitioned by the owner or occupiers of the premises.

3. Factual background

A. The parties

(i) Southern Water Services Limited

3.1 Southern Water is appointed under the Act to provide water and sewerage services to customers in England, including the Maidstone area where the Site is located.

(ii) Taylor Wimpey UK Limited

3.2 Taylor Wimpey is one of the largest homebuilders in the UK, operating from 24 regional offices across England, Scotland and Wales. The area of Kent falls within the South East division of the company.

B. The Site

(i) Original use and redevelopment

3.3 The Site was a brownfield site in Melrose Close, Maidstone, Kent. Its pre-existing use comprised of a YMCA building, including a sports centre with some accommodation provision and open playing fields.

3.4 Planning permission for the redevelopment of the Site was first requested on 22 January 2002. Planning permission was granted on 21 December 2007, for the redevelopment of the Site which comprised of a replacement sports centre and 83 residential units (17 one-bedroomed and 18 two-bedroomed flats, 46 three-bedroomed houses (mainly terraced) and 2 four-bedroomed houses).

3.5 On-site infrastructure was self-laid by Taylor Wimpey and adopted by Southern Water on 3 March 2009 under Section 104 of the Act.

(ii) The local sewerage network

3.6 The Site is located within the Aylesford catchment in Kent, which falls within the county of Kent, approximately 8km south of Gillingham. The Aylesford catchment serves the town of Maidstone and a number of outlying villages. The catchment area drains into the Aylesford wastewater treatment works ("WTW").

3.7 A plan of the drainage routes prior to the redevelopment at the Site is below at Figure 1. Prior to the redevelopment of the Site, drainage from the Site was via two main routes:

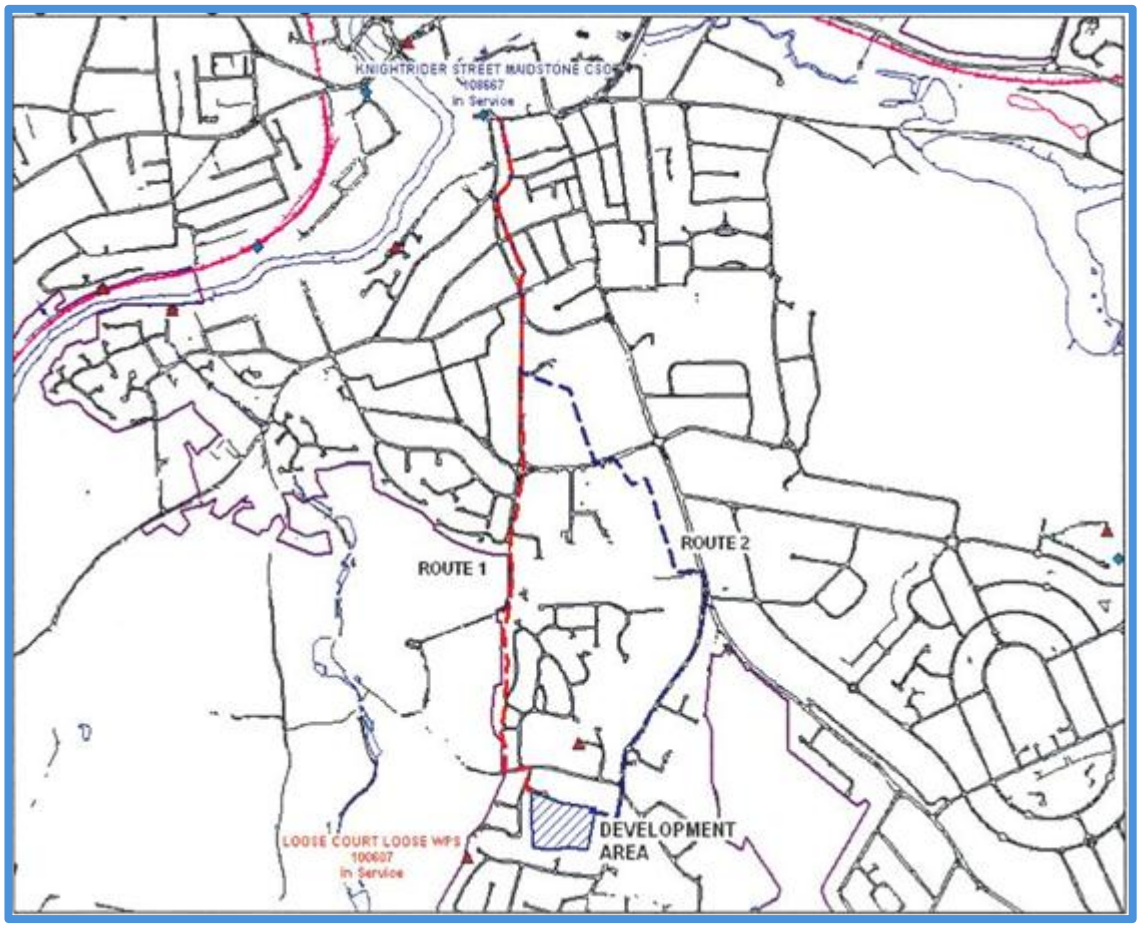
- **Route 1**: 1,340m of a 225mm sewer connected into a 450mm gravity sewer. This gravity sewer ran for a further 783m to the Knightrider Street combined sewer overflow.

- **Route 2**: To the east of Route 1, a 225mm / 375mm sewer, which increased to a 600mm sewer before decreasing to the same 450mm gravity sewer as Route 1. Route 2 ran along the main route into Maidstone from the South and was heavily used.

3.8 The 450mm gravity sewer which met both Route 1 and 2 then continued northwards for 3km, increasing in diameter, before discharging to a 2.1m diameter circular sewer which continued another 1.25km to Castle Road Allington Waste Pumping Station (WPS). From the WPS, flows discharged to the Aylesford WTW which is approximately 7.5km from the Site.

3.9 The 225mm sewers in the immediate vicinity of the Site were made from vitrified clay pipes and were originally designed to convey foul only flows. Over recent years as the catchment has developed, new surface water connections have been made and it now operates as a combined system. The data held by Southern Water does not give a date of construction. However, Southern Water consideres the drains probably date from the time of the surrounding developed area which appears to be circa 1970s construction.

Figure 1 – Previous drainage routes



(iii) Planning

3.10 At the date of the first request for planning permission in 2002, Southern Water was of the view that the sewerage network in the Aylesford catchment was overloaded and therefore properties in the area were at risk of sewer flooding. Southern Water noted that any additional flows would need to have been drained to a point on the existing system where spare capacity existed[1]. Southern Water's position on the available capacity on the network was based on the "Planning application capacity check report dated January 2002" ("Planning capacity check report").

3.11 Taylor Wimpey's first request for planning permission was refused. The grounds for this refusal have not been provided to us. Taylor Wimpey resubmitted its application in June 2003.

[1] Southern Water's response to Maidstone Borough Council, dated 4 February 2002, regarding the planning application.

3.12 Outline planning consent to redevelop the Site was approved by Maidstone Borough Council on 17 October 2005. Southern Water stated that there was insufficient spare capacity within the sewerage network and again, that any additional flows would need to be drained to a point on the existing system where spare capacity existed[2].

3.13 The outline planning consent included a condition that required, prior to the commencement of the redevelopment, details of disposal of sewerage were to be submitted to and approved by the planning authority and for those works to be completed before first occupation of the Site.

3.14 Full planning permission was received on 21 December 2007. The condition in the outline planning consent requiring provision of details concerning the disposal of sewerage was formally discharged on 20 May 2009.

C. The Requisition

(i) Satisfying the planning requirements

3.15 In February 2004, Taylor Wimpey and Southern Water entered into discussions regarding how best to provide drainage services to the Site.

3.16 In a letter dated 27 February 2004, Southern Water set out the following options:

1. That the proposed discharge from the redeveloped Site was restricted so that it did not exceed the existing discharge;

2. That Taylor Wimpey could serve notice on Southern Water to provide Taylor Wimpey with a public sewer via Section 98[3] of the Act; or

3. Taylor Wimpey could enter into a "hybrid" Section 98 Agreement[4] which would look at local reinforcement works that could be carried out in order that the proposed discharge could be connected immediately adjacent to the Site. This was presented by Southern Water as the most cost-effective solution.

3.17 On 5 December 2005, Taylor Wimpey confirmed that the preferred approach was the “hybrid” Section 98 Agreement.

[2] Southern Water’s response to Maidstone Borough Council, dated 30 June 2003, regarding the planning application.
[3] Section 98 sets out the duty of a sewerage undertaker to provide a public sewer to be used for drainage of domestic purposes.
[4] An agreement which combines elements from outside the Act and from section 98.

3.18 On 24 July 2006, Taylor Wimpey submitted a completed requisition application form and paid the required deposit.

3.19 Following a survey and design work Southern Water provided Taylor Wimpey with a formal offer letter dated 1 May 2007.

3.20 On 25 June 2008, the "Section 98 Agreement" was signed and agreed by the parties. The Section 98 Agreement included a description of the works Southern Water was to carry out.

3.21 In summary, the offer was to carry out the following works along Route 1 of the existing sewerage system to:

a. duplicate 150mm gravity sewer from the junction of Cripple Street and Melrose Close to existing manhole TQ76531602;
b. upsize the existing 225mm sewer to 300mm between manhole TQ76531902 and proposed manhole MHF07;
c. replace the existing 225mm sewer with a 300mm gravity sewer from proposed manhole MFH07 to existing manhole TQ76541202;
d. upsize the existing 225mm to 300m between existing manhole TQ76541202 and existing manhole TQ76541203.

(ii) Actual Works

3.22 The works started on the Site on 16 January 2009 and were completed on 19 June 2009. The actual works differed from the works agreed under the Section 98 Agreement dated 25 June 2008. A comparison of the proposed works drawing and the "as constructed" drawings can be made with the following observations:

a. duplication of the 150mm gravity sewer from the junction of Cripple Street and Melrose Close to existing manhole TQ76531602 (the same as the proposed works);
b. upsizing of the existing 225mm sewer to 300mm between manhole TQ76531902 and proposed manhole MHF6(a) (as opposed to MHF07 as per the proposed works);
c. replacement of the existing 225mm with a 300mm gravity sewer from proposed manhole MFH6(a) (as opposed to MHF07 as per the proposed works) to existing manhole TQ76541202;
d. upsizing of the existing 225mm to 300m between existing manhole TQ76541202 to proposed manhole MFH09 (as opposed to existing manhole TQ76541203 as per the proposed works).

3.23 Southern Water states that it is not unusual for conditions on site to dictate a change in design and in this case, the contractor encountered solid rock and clashes with existing utility services.

(iii) Costs

3.24 The formal offer by Southern Water dated 1 May 2007, stated the estimated cost of the works to be £482,436 with security to be paid to Southern Water equivalent to the requisition charge of £300,700. The offer stated that the final requisition charge would be calculated when the works were complete and the actual costs known. Interest would accrue on the balance of the deposit in accordance with Section 99(4) of the Act.

3.25 Taylor Wimpey paid Southern Water the requisition charge less the deposit Taylor Wimpey had already paid for the design works (£44,288 paid in 2006) resulting in a payment of £256,412.00.

3.26 Upon a review of the actual costs, initiated by Ofwat, Southern Water calculated the cost of the scheme to be £439,522.25. The requisition charge was £227,703.00. A refund of £76,830.75 (comprising £72,997.00 recalculation plus interest of £3,833.75) was provided to Taylor Wimpey on 15 December 2009.

3.27 Southern Water carried out a further audit of the final scheme costs which led to a further reduction in the requisition charge to £167,403.00. A further £66,557.16 (including interest) was refunded to Taylor Wimpey on 23 March 2011. This reflected the change in cost from the designed works and the actual works carried out.

3.28 Table 1 below provides a chronology of what amounts were paid to Taylor Wimpey and when:

Table 1 – Amounts paid

Date	Description	Cost of works	Requisition payment	Refund
25 June 2008	Section 98 Agreement	£482,436.00	£256,412.00 (£300,700 less £44,288 design fee paid in 2006)	N/A
27 November 2009	Recalculation of actual costs upon request from Ofwat	£439,522.25	£227,703.00	£76,830.75 (including interest)
23 March 2011	Audit of the final reconciliation of the scheme costs		£167,403.00	£66,557.16 (including interest)

3.29 Interest was applied by Southern Water on the amounts refunded and not on the full security amount. On 9 December 2010 Taylor Wimpey raised a separate dispute regarding this but it was subsequently agreed between Taylor Wimpey and Southern Water that the question of whether any interest was payable and at what rate could only be considered properly as part of the consideration of the wider issues in the dispute[5].

D. Request for a determination

3.30 Either party is entitled to submit a dispute to us at any time including after a section 98 agreement has been entered into and the works have been completed. On 15 May 2009 Taylor Wimpey submitted to Ofwat a request for a determination of the undertakings requested by Southern Water for provision of a public sewer. The material grounds of dispute upon which Taylor Wimpey's request was made related to the level of the requisition charge, and hence the undertakings requested. Taylor Wimpey, in its referral stated that:

- The infrastructure provided by Southern Water was not necessary to provide sewerage services to the Site. Taylor Wimpey claimed that there already existed a risk of sewer flooding in the area and that the Site would give rise to only a minimal increase in foul flows. The

[5] Email dated 18 March 2010 from Jennifer Harrington, Southern Water to Ofwat; and the email dated 9 December 2010 from Philip Day, ULS to Ofwat.

infrastructure expenditure was therefore already needed to resolve an existing risk of flooding not connected to the requirements of the Site.

- Taylor Wimpey also argued that the infrastructure charges or funding from the general customer base should have been used to fund the sewerage works that Taylor Wimpey were required to pay by Southern Water. Taylor Wimpey argued that it should not have been required to fund the works.

3.31 A number of reports have been carried out as part of this investigation and are referred to in this determination. For clarity, we have set these out in Table 2 below.

Table 2 – Overview of reports

Name	Description	Date of report
Independent review on behalf of Ofwat - MW Barber Associates ("**MWB Report**")	Report commissioned by Ofwat to provide advice in connection with the sewer requisition determination request by Taylor Wimpey.	20 August 2010
Final Review of Ofwat Report – Mott MacDonald ("**Mott MacDonald Report**")	Report commissioned by Southern Water to provide an internal factual assessment of the MWB Report. This was subsequently provided to Ofwat.	October 2010
Critique of Mott MacDonald Report – MW Barber Associates	Further report provided comments on the Mott MacDonald Report.	October 2010
Independent review of Southern Water's network modelling – Halcrow Management Sciences Ltd ("**Halcrow Report**")	Report commissioned by Southern Water reviewed the modelling evidence and the actual works carried out.	20 April 2012
Addendum to Independent review of Southern Water's network modelling (1) (Undertaken by Halcrow)	Further audit work undertaken on the reconstructed models.	16 May 2012
Addendum to Independent review of Southern Water's network modelling (2) (Undertaken by Halcrow)	A further addendum that includes a table showing the as-built flooding volumes.	6 July 2012

E. First draft determination dated 23 February 2012

3.32 Ofwat issued a first draft determination to the parties on 23 February 2012. The draft determination stated that we did not consider that Southern Water had provided strong and reliable evidence to demonstrate that the costs were reasonably incurred in two notable respects:

- Southern Water did not provide sufficient evidence that the works were necessary; and
- The actual works carried out by Southern Water differed from the proposed works.

3.33 We provided both parties with the opportunity to make written representations on the draft determination, and to submit comments on each other's representations. We received representations from Taylor Wimpey on 15 March, 29 March 2012 and from Southern Water on 16 March 2012.

3.34 Southern Water proposed in its representations dated 16 March 2012 that, in recognition of the need for a clear unequivocal expert view on the modelling, a further reporter (commissioned by Southern Water) should review the modelling evidence and the actual works carried out and report to Ofwat on the following questions:

- Was the modelling carried out by Southern Water to support its conclusions in line with accepted industry best practice at the time?
- Did the modelling outputs show that the additional flows from the development would increase flooding risk downstream?
- Did the modelling outputs provide justification for the works that were subsequently carried out?

3.35 The further reporter, Halcrow Management Services Limited, provided the Halcrow Report.

3.36 The Halcrow Report notes that the modelling undertaken at the time is unavailable. We have been advised by Southern Water that this is due to the ending of the joint venture between the parties appointed as Southern Water's contractor. Therefore, whilst the model is identical to the underlying catchment model from the time of the requisition, the modelling in the report is reconstructed.

3.37 Taylor Wimpey provided its representations on the Halcrow Report on 19 June 2012. Taylor Wimpey considers that whether or not the modelling undertaken at the time was appropriate and in line with industry best practice can only be determined by reference to the actual modelling at the time.

Taylor Wimpey further stated that it considers that it is not appropriate for opinions contained within reports commissioned specifically by any of the parties to a dispute to be accepted as wholly independent by Ofwat in making a determination.

3.38 We consider that best practice should be that this evidence is available from the time when the capacity was being assessed in response to the requisition and during the design of the works. This evidence should be made available to the requisitioner and be able to withstand challenge. It is disappointing that Southern Water is unable to provide this and we would expect, as normal practice, for this information to be retained by the company. This would include making any necessary contractual arrangements with other parties to ensure this.

3.39 However, we accept that in exceptional circumstances this may not be possible and we are willing to accept it in this particular case. In general however, we would expect sewerage companies to be able to provide the evidence from the time of the requisition when requested.

3.40 We considered the information provided by Halcrow to be new evidence not previously considered as part of our investigation. The Halcrow Report concluded that whilst the specific modelling used for the development was unavailable for them to assess, they considered that the catchment modelling used to underpin this was appropriate for assessing the impact of the development at the design station. This conclusion merited reconsideration of our position in the first draft determination, resulting in us issuing a second draft determination to the parties.

3.41 It is commonly accepted in the industry that verified models are the tool used to establish an accurate picture of the hydraulic capacity of a network. Ofwat has accepted the Halcrow evidence as sufficiently robust and Ofwat is satisfied with the independence and relevant expertise of Halcrow to provide this evidence. Halcrow had been Southern Water's reporter and as such is a professional independent consultant who is accustomed to providing independent commentary on a wide range of regulatory information.

F. Second draft determination dated 8 January 2013

3.42 Ofwat issued a second draft determination to the parties on 8 January 2013, providing an opportunity for them make representations. We received representations from both parties on 6 February 2013.

G. Southern Water's comments on the second draft determination dated 8 January 2013

3.43 In its representations, Southern Water accepted the second draft determination's conclusion that 57m of the original 225mm diameter pipe was unnecessarily upgraded to 300mm. They stated that the costs incurred for this length of sewer were £25,759 and that they would liaise directly with Taylor Wimpey to determine the final build numbers and volumes for the Site in order to calculate the relevant deficit and the resulting refund and interest due to Taylor Wimpey.

H. Taylor Wimpey's comments on the second draft determination dated 8 January 2013

3.44 Taylor Wimpey's representations on the second draft determination detailed a number of concerns. They are as follows:

Demand on the Site

- Taylor Wimpey questioned whose responsibility it was to ensure the accuracy of the flow estimates (10 litres per second ("10l/s") for the Site, which in turn underpinned the modelling and requisition costs. They state that Southern Water should not have accepted a requisition for flows greater than the Site's 83 units would generate and should have had a responsibility to advise developers if their flow estimates could have a significant impact on the scheme's design and associated costs. We give our view on this in section 4.11.

Southern Water's model and modelling in relation to the Site

- Taylor Wimpey disputed the way in which the hydraulic modelling was undertaken and its use as the sole determinant of whether the sewer needed upgrading to take the additional flows from the Site. They considered that running the model on the basis of a 1:30 year rainfall event is not appropriate for assessing the impact of new foul flows on an existing sewer network and is not representative of a range of more frequent, less intense rainfall events. They also considered the parameters of the design model approach was too simplistic, stating that they should be compared with actual flows (which are generally less than the design flows used for sewers for adoption) and reported flooding incidents (recent or historic) from the sewer. We set out our view on this in section 4.20.

Existing Capacity

- Taylor Wimpey reiterated that it is unreasonable for Southern Water to require them to fund improvements to a sewer that already had a pre-existing flood risk, that is only marginally increased by the new flows from the Site and potentially only in the most extreme rainfall events. They also noted that the overall increase in flood volumes identified by the model was unrepresentative of the minor increases at the individual manholes along the sewer system. We give our view on this in sections 4.24 and 4.30.

Double recovery of costs

- Taylor Wimpey stated that the requisition charge Taylor Wimpey must pay for the undertaking should be reduced by the amount of infrastructure charges separately levied by Southern Water in order to ensure the developer is not paying twice for the same service. The issue of infrastructure charges was not part of the scope of determination agreed with the parties to this case and has not been a formal part of our investigation. We do however set out our expectations regarding the levy of infrastructure charges in section 4.34.

Interest Payments

- In addition Taylor Wimpey asked Ofwat to confirm the basis on which Southern Water should calculate its interest payments to Taylor Wimpey. We set out our view on this in section 4.33.

3.45 We have considered each of the comments received from Taylor Wimpey and have set out our response to each of the above as part of this determination.

4. Ofwat's determination

A. Introduction

4.1 In line with the agreed scope of this determination (set out in section 1.3), in this section, we set out our final decision on whether:

a. The capacity of the existing infrastructure was such that the Works were required in order to provide sewerage services to the Site; and

b. The actual works delivered by Southern Water (and therefore the costs incurred) were required to meet the sewerage service needs of Site and the objectives of Taylor Wimpey's requisition.

4.2 In order to make a decision on the above and to respond to the representations made by the parties in response to our first and second draft determinations, we have considered:

i) the demand of the Site in terms of sewerage services required (see sections 4.6 – 4.11);

ii) the suitability of the hydraulic model used by Southern Water to ascertain whether there was sufficient capacity in the existing infrastructure to accommodate the additional flows from the Site (see sections 4.12 – 4.18);

iii) the appropriateness of the modelling scenario used by Southern Water to determine the capacity of the existing infrastructure (see sections 4.19 – 4.24); and

iv) whether the actual works delivered met the capacity requirements of the requisition and nothing more (see sections 4.25 – 4.31).

4.3 We set out our view on each of these points below in order to reach our final conclusion that the new evidence provided by Southern Water in the Halcrow Report is sufficient for us to reasonably conclude that the majority of the works carried out were necessary as a result of the requisition in question. Notably, Southern Water has provided sufficiently robust data to show the demands on the network in the Aylesford catchment. This catchment modelling data demonstrated that there was no existing spare capacity in the public sewer system through which the additional flows arising from the new development could be drained. This demonstrated that upgrade works were required to the sewer to enable it to accommodate the flows from the new

development. The modelling also demonstrated that the sewer already had an existing flooding risk which additional flows from the Site would further increase.

4.4 Southern Water has stated that the works were needed to alleviate the risk of further overloading the existing system and causing sewer flooding in the local network area. Southern Water has demonstrated that the result of the actual works provided the desired outcome namely, to ensure that flows from the Site were discharged into a point on the system such as to not have a deleterious effect downstream by increasing predicted flooding volumes. We therefore consider that the majority of the costs were reasonably incurred in order to meet the requisition's requirements, but that the upgrading of a 57m section of pipework resulted in the requirements of the requisition being exceeded and hence was unnecessary.

4.5 In addition to points a-d above, in response to Taylor Wimpey's representations on the second draft determination, we also set out below our view regarding:

i) the payment interest on payments made by Taylor Wimpey to Southern Water (see sections 4.32 – 4.33); and

ii) the double recovery of costs via infrastructure charges (see section 4.34).

B. Demand of the Site

4.6 Southern Water used a flow figure of 10l/s as the flow requirement of the Site. The documents available to Ofwat show that during initial enquiries and capacity checks, Southern Water approached Taylor Wimpey and queried whether the flow requirements expressed by Taylor Wimpey in its requisition, were considerably greater than the flow it would expect from a site of its size. Taylor Wimpey stated to Southern Water in an email dated 10 February 2006 that the requirement was on the basis of expected future development.

4.7 In the formal offer letter from Southern Water to Taylor Wimpey dated 1 May 2007 it stated:

"At the request of the developer additional capacity was to be provided for in this requisition, which was above that of foul flow requirements of this application. It should be understood that the additional capacity which will be made available by this requisition cannot be reserved."

4.8 Taylor Wimpey confirmed with Southern Water that the proposal was acceptable and that it wished to proceed with a formal requisition based on

the 10l/s flow requirement. From this date to construction of the Site we have seen no evidence that Taylor Wimpey advised Southern Water that it no longer required the additional capacity.

4.9 Taylor Wimpey does not deny that it initially requested this additional capacity but believes that the volume should have been recalculated by Southern Water to reflect the actual flow from the Site.

4.10 Southern Water was asked to provide for flows of 10l/s and this was confirmed by Taylor Wimpey when queried and confirmed as the basis of their requisition in their requisition application form and subsequent Section 98 Agreement with Southern Water. Taylor Wimpey had ample opportunity to raise the point with Southern Water if they had no longer required the initially stated capacity. Southern Water did make sufficient enquiry as to the appropriateness of this estimate. We determine that in this instance:

i) As there was no indication by Taylor Wimpey that the initially stated capacity would not be used for the Site (after being contacted by Southern Water); and

ii) given that Taylor Wimpey had sufficient technical expertise to set out its requirements,

it is reasonable for Southern Water to have relied upon the statements of Taylor Wimpey, after having received input from Southern Water, when providing the necessary infrastructure. As such, there was no additional capacity requested over and above the capacity requisitioned by Taylor Wimpey.

4.11 Therefore, we determine that it is reasonable and appropriate to use 10l/s for the purposes of this determination, as this is what was requested by the developer as part of the requisition at the time the modelling was undertaken.

C. Southern Water's Model

4.12 We need to determine what, if any, capacity was available in the existing infrastructure at the time of the requisition to accommodate the additional flow of 10l/s.

4.13 In relation to this case we have looked specifically at Southern Water's hydraulic modelling and how robust that modelling was in determining the capacity of the existing infrastructure.

4.14 Southern Water has confirmed that the hydraulic model on which the decisions were made on the requisition application was the Aylesford Infoworks catchment model dated 2005. The model used for the requisition is a verified model based on flow survey data from 2005. The modelling study was carried out in 2006 for this Site and therefore benefitted from an up-to-date catchment model incorporating recent actual flow data.

4.15 The hydraulic model used by Southern Water was not sufficiently detailed in the vicinity of the Site. The MWB Report observed that the information we have been provided with showed that Southern Water relied upon a hydraulic model that was derived from a catchment-wide Drainage Area Study[6] and applied it to one specific sub-catchment. This was further supported by the Mott MacDonald report which stated that since Southern Water's modelling team were aware of the deficiencies of the model additional measures could, and should, have been taken to provide greater confidence.

4.16 The Halcrow Report confirmed that the catchment model used to assess the impact of the development was a Type II Model, most typically used as a planning tool to identify hydraulic problems and carry out initial scheme proposals[7]. The Halcrow Report also states that additional detail should be added for the detailed design, but for this Site this was not carried out by Southern Water.

4.17 If the modelling carried out for this Site had had the additional detail of the sewerage network provided in a Type III model (which would incorporate a greater depth of information), the modelling may have estimated lower levels of flooding. This is because the additional sewerage network would provide some storage capacity not identified in a less detailed Type II model.

4.18 It is recognised by Southern Water (as stated in the Mott MacDonald report) that additional measures should have been taken to provide greater confidence in the model and as stated by Halcrow that a Type III model is more appropriate for detailed design. As Halcrow was able to retrospectively assess the additional network which should have been modelled it has been possible to identify what impact the model type had on the data used to design the works. Halcrow expect that the difference in the overall flooding volumes predicted by a Type II and Type III model would have been in the region of 1-2 m^3. This is a small volume compared to the predicted overall flooding volume once the Site was added to the system's existing flows (60.24m^3). As a result, we are satisfied that the impact of using a Type II

[6] A Drainage Area Study is a comprehensive study of an entire drainage catchment area, which uses a vast amount of asset and performance data on the condition, performance and future capabilities of the sewers in that area.
[7] Definition provided in the Wastewater Planning Users Group Code of Practice.

model rather than a Type III model is not material to the conclusion that the Works were required, since even reducing the predicted flooding volumes by this amount would not result in there not being a requirement for the Works.

D. Southern Water's modelling in relation to the Site

4.19 The modelling used by Southern Water to predict flooding was based on a 1 in 30 year rainfall event. This tests whether the network would have sufficient capacity to ensure that there is no increase in flooding risk as a result of a rainfall event that occurs once in 30 years. Taylor Wimpey argues that the modelling should have been carried out on the basis of more frequent, lesser rainfall events (e.g. 1 in 5 year) since these are more typical and lead to more realistic outcomes for developers (this position was supported by the MWB Report). Taylor Wimpey also state that the design model results should have been compared with actual flows and historic flooding incidents.

4.20 We note that the MWB report questioned the appropriateness of running the hydraulic model on the basis of a 1 in 30 year design storm. However, we are satisfied that it was reasonable for Southern Water to run their hydraulic model on this basis. Sewerage infrastructure has to be resilient and provide customers with protection from flooding from relatively rare events. Providing this buffer inherently means that there will be more capacity than routinely required during other events and that there may not be historic records of actual flooding incidents. By 2008 the majority of sewerage companies were designing sewerage infrastructure on the basis of 1 in 30 year events. We recognise that design standards will vary between companies and individual sites. However we believe it is standard practice, when considering rainfall return periods for sewer flooding schemes, that schemes should be designed to handle a 1 in 30 year event to prevent internal flooding and a 1 in 20 year event to prevent external flooding. It is often prohibitively complex and expensive for companies to model effectively the variations in ground and connection levels to distinguish between these two levels of risk and it is our view that this was not common practice at the time of the modelling for this Site. As such we are satisfied that it was reasonable for Southern Water to use a 1 in 30 year event in order to be confident it was protecting its customers from both internal and external flooding.

4.21 We are satisfied that the model used by Southern Water was verified with actual flow data, which as outlined above was from a recent flow survey.

4.22 As identified by the reconstructed hydraulic model, Table 3 below shows the flooding volumes downstream of the Site for the existing network prior to development (Column A) and after the inclusion of the 10l/s flow from the

development (without the upgrading works) to show the impact of the Site (Column B).

Table 3 – Flooding volumes

	Predicted flooding (m^3)		
Manhole Reference[8]	**Existing (A)**	**Existing network with the addition of 10l/s to the existing flow (B)**	**Difference (C)**
Manhole 1	0.50	2.70	+2.2
Manhole 2	0.90	1.54	+0.64
Manhole 3	3.20	4.00	+0.8
Manhole 4	7.00	10.00	+3
Manhole 5	12.90	15.10	+2.2
Manhole 6	22.10	26.90	+4.8
Manhole 7	0.0	0.0	+ 0
Total	**46.60**	**60.24**	**+13.64**

4.23 Column A shows that prior to the requisition works there was already predicted flooding at six of the network's seven manholes and total predicted flooding of 46.60m^3. This indicates that, according to the modelling, there was no spare capacity in the local network and already an existing degree of flood risk. The subsequent inclusion of the 10l/s flows from the Site into the local network shows an increase in the predicted flooding of 13.64m^3, bringing the total predicted flooding to 60.24m^3 (as can be seen in Columns B and C). The Wastewater Planning Users Group Code of Practice on the modelling of sewers notes that there may be circumstances where small volumes of flooding are considered insignificant. For example, during heavy rainfall on roads volumes of as much as 25m^3 can sometimes be viewed as acceptable standing water. However the Code notes that inside a building, the smallest volumes are likely to be unacceptable. We are satisfied that a flooding volume of 60m^3 would not be acceptable regardless of whether this is internal or external flooding.

[8] Manhole references: Manhole 1 (TQ76531401); Manhole 2 (TQ76531902); Manhole 3 (TQ76541801); Manhole 4 (TQ76531402); Manhole 5 (TQ76531802); Manhole 6 (TQ76531403); Manhole 7 (TQ76541007)

4.24 On the basis of the evidence considered above we are satisfied that there was no spare capacity available in the existing infrastructure to accommodate the additional flows from the Site and it was reasonable and necessary for Southern Water to carry out the requisition works.

E. The actual works carried out and the existing capacity

4.25 In the first draft determination we stated that the MWB Report highlighted that the constructed works would not have delivered the objectives of the requisition agreements, namely to ensure that flows from the Site were discharged into a point on the system such as to not have a deleterious effect downstream.

4.26 The Halcrow report looked at the modelling with the upgraded works to assess their impact on the predicted flood volumes for the system and its individual manholes. This modelling highlighted a significant change in the predicted flooding at one of the system's manholes (see Manhole 5 in Table 4 below). This prompted Halcrow to re-run the model to explore the effect of returning one 57m section of pipework to its original 225m diameter. This led the Halcrow Report to conclude that the upgrade of this section of pipework was unnecessary to meet the requirements of the requisition. Table 4 below sets out how the predicted flooding volumes resulting from i) the "as built" works and ii) the actual works less, the upgrade of 57m of pipework differed from the pre-existing flood volumes.

Table 4 – Comparison of flooding volumes with the "as built" model.

	Predicted flooding (m^3)					
Manhole Reference	**Existing (A)**	**Existing network with the addition of 10l/s to the existing flow (B)**	**Actual Works with the addition of 10l/s to the existing flow (C)**	**Change against existing flood risk (D)**	**Actual Works minus upgrade of 57m of pipework with addition of 10l/s to existing flow (E)**	**Change against existing flood risk (F)**
Manhole 1	0.50	2.70	1.2	+0.7	1.2	+0.7
Manhole 2	0.90	1.54	0.0	-0.9	0.0	-0.9
Manhole 3	3.20	4.00	7.4	+4.2	7.4	+4.2
Manhole 4	7.00	10.00	9.0	+2.0	9.0	+2.0
Manhole 5	**12.90**	**15.10**	**0.0**	**-12.90**	**11.5**	**-1.4**
Manhole 6	22.10	26.90	23.3	+1.2	23.3	+1.2
Manhole 7	0.0	0.0	0.6	+0.6	0.0	0.0
Total	**46.60**	**60.24**	**40.9**	**-5.7**	**52.4**	**+5.8**

4.27 Where infrastructure is provided that has greater capacity than that requisitioned by the owner or occupier of the premises to supply a new development, our view is that only the costs which are attributable to the new development should be allocated to calculation of the requisition charge.

4.28 Columns C and D of Table 4 shows that the modelling showed that the actual works generated a significant change in the predicted flood volumes at Manhole 5, reducing predicted flooding from 12.90m^3 to 0.0m^3. However the actual works also saw an increase in predicted flooding at five of the seven manholes compared with existing conditions. In all but one of these this increase was not material, being 2m^3 or less. In addition for Manhole 7 there was new predicted flooding (0.6 m^3) where the existing network had no flood risk. The actual works resulted in the overall predicted flooding volume for the system being reduced by 5.7m^3 from the existing network results. Consequently in paying for these works, Taylor Wimpey would be paying to reduce some of the pre-existing predicted flood risk rather than just that associated with the Site's additional flows.

4.29 As shown in columns E and F, when the modelling was re-run to explore the effect of returning one 57m section of pipework to its original 225m diameter, the predicted flood volume at Manhole 5 rose again to 11.5m^3 (still a reduction on the existing network recording of 12.9 m^3). It also removed the new predicted flooding recorded at Manhole 7. With the removal of this 57m of upsizing, the overall predicted flooding volume was 52.4m^3, a 5.8 m^3 increase on the risk for the existing network.

4.30 On the basis of the information set out above we consider that the costs associated with 57m of 300mm pipe should be refunded to Taylor Wimpey, as we are satisfied that upgrading this length not necessary to meet the requirements of the Site alone, instead providing some capacity for existing properties supported by the same sewers. Excluding these costs would ensure Taylor Wimpey has not funded any mitigation of an existing flood risk and hence additional capacity beyond that needed for the Site.

4.31 The designed solution provided for the existing flow through the network plus the additional 10l/s flow from the development. We consider that allocating a refund for the 57m of 300mm sewer which should not have been increased from 225mm, allows for any additional capacity or betterment of the existing surcharging levels which may have been provided by the requisition works. On this basis, we do not consider that there should be any further apportionment in this case.

F. Payment of interest

4.32 Under section 99(4) of the Act, interest must be paid on any sums that have been deposited with a sewerage undertaker as security in relation to the provision of a public sewer to be used for drainage for domestic purposes (pursuant to section 98(1) of the Act). Security is money that a person requisitioning the works may be required to pay in advance of work being done. Section 99 of the Act provides that the undertaker shall pay interest "on every sum of 50p so deposited for every three months during which it remains in the hands of the undertaker" at rates approved or determined by us.

4.33 On the facts of this determination, we determine that interest is payable on Taylor Wimpey's security deposit of £44,288, calculated in accordance with section 99(4) of the Act. In calculating any interest due to Taylor Wimpey, the parties should apply interest rate(s) in accordance with our Information Notice 11/05 and its appendix 1. The amount of any interest payable is for the Courts to determine, if Taylor Wimpey and Southern Water are unable to agree this amount. This information notice anticipates the approach we think a Court is likely to take in determining the amount of interest payable in this case.

G. Double recovery of costs

4.34 Taylor Wimpey's response to our second draft determination states their belief that the requisition charge should be reduced by the infrastructure charge separately levied by Southern Water in order to avoid double recovery of the costs incurred. This specific issue was not part of the agreed scope for our investigation as set out above. Consequently during our investigation we have not sought or received sufficient evidence from the Parties on this matter. As a result we have insufficient evidence to determine whether there has been any double recovery of costs nor whether any infrastructure charge should be paid or refunded. We would only expect infrastructure charges to be levied in addition to the requisition charge where this is required to cover additional costs incurred by the water company for wider local network reinforcement works. We would not expect any infrastructure charges recovered to contribute to the same costs covered by the requisition charge. If infrastructure charges are levied by Southern Water for this Site, we would expect Southern Water to be able to provide clear evidence that there has been no double recovery of costs.

H. Conclusion

4.35 Southern Water has provided sufficiently robust evidence to show that there was no spare capacity within the existing system and that the majority of the works were needed to alleviate the risk of further increasing predicted flooding levels. We therefore consider that the majority of the costs were reasonably incurred, save for those specified in this determination, and that Southern Water is entitled to recover the costs of the work it carried out in this case from Taylor Wimpey.

4.36 However, as observed above, the report undertaken by Halcrow stated that a 57m length of sewer was unnecessarily upgraded from the original 225mm diameter pipe to 300mm, resulting in more capacity being provided than required by the Site. Southern Water has confirmed that the costs incurred in upgrading this section of pipework were £25,759. This figure, along with Taylor Wimpey's final actual build numbers and occupancy rates should be used to calculate the final requisition charge and any associated refund and interest due to Taylor Wimpey.

4.37 Southern Water is required to pay interest to Taylor Wimpey for the time Southern Water held security for the requisition charge. The interest rate

should be calculated in accordance with Ofwat's Information Notice on interest rates[9].

4.38 As it was not part of the agreed scope for this determination, we do not have sufficient evidence to determine on whether there has been any double recovery of costs through separate levy of infrastructure charges for the Site. As stated above, we would only expect infrastructure charges to be levied in addition to the requisition charge where this is required to cover additional costs incurred by the water company for wider local network reinforcement works. We would not expect any infrastructure charges recovered to contribute to the same costs covered by the requisition charge. If an infrastructure charge is to be levied we would expect Southern Water to be able to clearly evidence there has been no double recovery of costs.

[9] http://www.ofwat.gov.uk/regulating/charges/prs_in1105interest.pdf