DATED _____

SEVERN TRENT WATER LIMITED

- and -

- and -

- and -

- and -

SECTION 104 AGREEMENT

relating to the provision of sewers at

Reference

T H I S AGREEMENT is made the day of Two thousand and

B E T W E E N:-

1 "The Developer" of , , ,

2 "The Owner" [Needed if Developer and Owner are different persons of

3 "The Adjoining Owner(s)" [Needed if the Works are being constructed within the Site but outside the Green Land of

4 "The Surety" of

5 "The Undertaker": SEVERN TRENT WATER LIMITED whose registered office is at Severn Trent Centre 2 St John's Street Coventry CV1 2LZ (which expression includes any contractor or contractors, agent or agents for the time being appointed by the Undertaker to administer this Agreement)

NOTE: IF A PARTY IS NOT APPLICABLE, DO NOT DELETE IT BUT INSERT 'NONE'

DEFINITIONS

In this Agreement the following words or phrases shall have the following meanings:

Accessories:	As defined in Section 219 of the Act
Act:	The Water Industry Act 1991 (as amended by the Water Act 2003) and including any statutory modification or re-enactment thereof.
Cash Deposit:	(Not applicable if clause 7 of this Agreement does not apply) shall mean £**
CDM:	Construction (Design and Management) Regulations 1994 as amended or replaced
Diverted Sewers:	Sewers and Lateral Drains (if any) which the Developer proposes to construct to replace existing public sewers and Public Lateral Drains (if any) (which existing public sewers and Public Lateral Drains are to be abandoned as public sewers and Public Lateral Drains upon the issue of the Vesting Declaration and to be transferred automatically from the ownership of the Developer at no cost to the Undertaker subject to the Developer (or the Owner or the Adjoining Owner(s) (as the case may be) if there is a party so defined) indemnifying the Undertaker from all liabilities arising directly or indirectly from such abandoned public sewers and Public Lateral Drains and at the Developer's choice removing them entirely from the Green Land at no cost to the Undertaker.)
Drawings:	Subject to any alteration in accordance with S.2 of the First Schedule this expression shall mean those drawings, calculations and other design or working drawings relating to the carrying out of the Works or any part or parts thereof numbered ** which are not annexed hereto.
Estate Roads:	Roads or proposed roads which are or are intended to be maintained at public expense
Final Certificate:	A certificate issued under paragraph S.8.4 of the First Schedule by the Undertaker to the Developer confirming that :- (a) the Works have been constructed in accordance with this Agreement; and (b) all defects notified to the Developer following final inspections by the Undertaker have been remedied to the Undertaker's satisfaction. For the

avoidance of doubt the issue of a Final Certificate does not vest the Works in the Undertaker and they remain the responsibility of the Developer until a Vesting Declaration (defined below) is issued

Financial Limit:	(not applicable if no Surety is named on page 1 of this Agreement) (but is applicable in the case of a cash deposit in lieu of a surety) shall mean £
Green Land:	The land situate at and which is shown edged green on the attached Layout Plan or Plans
Inspection Fees:	£0.00
Lateral Drains or Public Lateral Drains	As defined in Sections 219 and 106(1A)(b)(i) of the Act
Layout Plan:	The plan or plans attached to this agreement which shows the Site and the layout of the Works
Maintenance Period:	The period from the date of issue of the Provisional Certificate until the Works are vested in the Undertaker
Period of Construction:	from the date of this Agreement
Protected Strip:	The strip of land shown coloured yellow on the Layout Plan having a width of metres and (unless the contrary shall be stipulated or be clear from the Drawings or the Layout Plan) the Protected Strip shall lie one half to each side of the centre-line of those parts of the Works which are not being constructed within the Estate Roads and/or public highways and any existing sewers and any Diverted Sewers or Public Lateral Drains (other than any sewers or Lateral Drains which may be abandoned pursuant to this Agreement) as are shown on the Drawings or the Layout Plan and includes any part or parts of the Protected Strip
Provisional Certificate:	The certificate issued under S.8.1 or S.8.3 of the First Schedule
Sewer or Sewers:	As defined in Section 219 of the Act
Site:	Shall comprise the Green Land and other land (if any) on under in or through which the Works are proposed to be executed
Specification:	The 7th Edition of Sewers for Adoption or (in relation to health and safety matters or changes in relevant legislation only) the corresponding provisions of the then current edition subsequent to the 7th Edition and any Appendices provided by the Undertaker
Vesting Declaration:	A written declaration signed on behalf of the Undertaker vesting the Works in itself as public Sewers Accessories or Public Lateral Drains
Day or day:	Any day except Saturdays, Sundays, Bank or other public holidays.
Undertaker's Rights	All rights exercised by the Developer and/or granted to the Developer by the Owner and/or the Adjoining Owner(s) in relation to the construction, use, maintenance, alteration, repair and replacement of the Works together with discharges therefrom to any Watercourse. For the avoidance of doubt any covenants that the Developer is subject to shall have no effect on the Undertaker
Watercourse	A watercourse as defined in Section 219 of the Act, but also including a canal, pond or lake
Works:	Subject to any alteration in accordance with S.2 of the First Schedule this expression shall mean all those Works being Sewers Lateral Drains pumping stations and Accessories and shall include valve chambers overflow chambers outfall structures and (where appropriate) balancing facilities as shown on the

Drawings and includes any part or parts of the Works

INTERPRETATION

1.1 This Agreement which is made under Section 104 of the Act is NOT a deed

1.2 References to gender shall include either gender or a corporate identity and the singular shall include the plural

1.3 The Interpretation Act 1978 shall apply for the interpretation of this Agreement as it applies to the interpretation of an Act of Parliament

1.4 If there is more than one person named as one of the parties then any covenants agreements liabilities or statements made by that party shall be deemed to be made by those persons jointly and severally

1.5 If there are no details shown against any one of the party definitions then this Agreement shall be interpreted as if there was no such party

1.6 In the event of there being separate parties defined as "the Developer" and/or "the Owner" and/or the Adjoining Owner(s) then:

1.6.1 the obligations in clauses 2.1 and 2.2 of the Agreement and S.20 of the First Schedule relating to matters of title or conveyancing shall be obligations of the Owner and/or of the Adjoining Owner(s) (as the case may be) and of the Developer; and

1.6.2 in the event of default by the Developer in respect of any matter under this Agreement the obligations of the Developer shall also become obligations of the Owner and, at the Undertaker's discretion, may be enforced against either the Developer or the Owner until this Agreement is replaced by a further agreement entered into by the Owner and/or a different Developer PROVIDED THAT these obligations shall only apply to that part of the Green Land that they own.

1.7 The provisions of this Agreement are personal to the parties hereto save:

1.7.1 on the reconstruction or amalgamation of the Developer; or

1.7.2 on the appointment of another person as sewerage undertaker for the area, including the Site, under the Act

1.8 This Agreement shall be governed in all respects by English Law

AGREEMENT

1 The provisions in the First and Third Schedules shall apply in respect of the Works and all other matters therein contained as though the same had been set out in full in this Agreement

2. 2.1 In respect of any part of the Works to be constructed in the Green Land the Owner (if any) hereby consents to the exercise by the Developer of its rights under this Agreement and acknowledges that the Undertaker shall be entitled to carry out the Undertaker's Rights following issue of the Vesting Declaration in addition to statutory rights that are exercised by the Undertaker pursuant to the Act

2.2 If any of the Works are to be constructed within the Site but outside the Green Land then the Adjoining Owner(s) shall join into this Agreement for the purposes of acknowledging and consenting to the arrangements herein

expressed between the Developer and the Undertaker. For the avoidance of doubt the Adjoining Owner(s) shall have no liability under the provisions of this Agreement apart from the obligations in S20 of the First Schedule in relation to the construction and future maintenance or repair of the Works

2.3 The Developer has sufficient rights in that part of the Site that is outside the Green Land to enable the Works to be carried out therein and to permit the use repair maintenance and discharge therefrom to any Watercourse prior to the date of the Vesting Declaration and to enable a valid and effectual declaration to be made in respect of the Works.

2.4 The Adjoining Owner(s) hereby consents and agrees to the arrangements contained within this Agreement as far as they relate to land in the ownership of the Adjoining Owner(s) (including clause 1.6.1 of the Interpratation) and acknowledges that the Undertaker shall be entitled to carry out the Undertaker's Rights following issue of the Vesting Declaration in addition to statutory rights that are exercised by the Undertaker pursuant to the Act

2.5. The Developer hereby confirms that the title of the Owner and the Adjoining Owner(s) (if such parties have joined in this Agreement) have been examined and establishes that parts of the Site where the Works are to be constructed are in their ownership at the date of this Agreement

2.6 The Owner and the Adjoining Owner(s) acknowledge that the Works during and after their construction and until the issue of the Vesting Declaration belong to the Developer

3. The Developer shall immediately upon completion of the Works (but without delaying whilst outfall connections to public sewers or other works are completed) forward to the Undertaker accurate 'as constructed' drawings of the Works (including any agreed variations to the original drawings)

4. No statutory or common law rights and powers of the Undertaker or the Developer shall be affected by this Agreement

5. Nothing in this Agreement is intended to confer on any third party (whether referred to herein by name, class, description or otherwise) any benefit or right to enforce a provision contained in this Agreement

6. The Developer shall, if requested, supply to every purchaser of land to be drained by means of the Works a copy or summary of this Agreement.

7. If as part of the Works the Developer is proposing to construct Diverted Sewers then the additional provisions of the Second Schedule shall apply.

8. The Developer (or the Owner or the Adjoining Owner(s) if there are parties so defined) either owns the freehold or the unexpired residue of not less than 200 years of a leasehold term or in the case of the Developer has sufficient interest in the Green Land or land adjoining the Green Land within the Site to enable certain development in relation to the same including the construction of the Works to serve the said development

9. 9.1 The Developer has sufficient rights in the Green Land to enable the Works to be carried out and to permit the use repair maintenance and discharge therefrom and into any Watercourse prior to the date of the Vesting Declaration and to enable a valid and effectual declaration to be made in respect of the Works.

9.2 The Developer and the Owner (if any) hereby acknowledges that the Undertaker shall be entitled to carry out the Undertaker's Rights following

issue of the Vesting Declaration

10. In the event of a conflict between this Agreement and the Seventh Edition of Sewers for Adoption the provisions of this Agreement shall prevail and have effect

11. THE agreements in clause 2 hereof are:-

(a) given in connection with the land on which the Works are being constructed which land at the date of execution hereof belongs to the Developer the Owner or the Adjoining Owner(s) as the case may be

(b) given in pursuance of Section 40 of the Severn-Trent Water Authority Act 1983

12. The Undertaker shall apply for this Agreement to be registered in the Register of Local Land Charges

AS WITNESS the hands of the parties the day and year first before written

THE FIRST SCHEDULE
(Being provisions applicable to the Works)

Construction of Works

S.1 If the Developer proceeds with the Works it shall at its own expense properly construct and complete them in accordance with Seventh Edition of Sewers for Adoption the Drawings and the Specification (and which Drawings and Specification shall be deemed to be part of this Agreement) or as varied by virtue of the powers contained in S.2 of this Schedule and the statutory provisions for the time being relating to new sewers and to the reasonable satisfaction of the Undertaker in the positions and to the extent shown within the Drawings and indicated by coloured lines and symbols as to foul and surface water sewers in accordance with Appendix VI of the said Seventh Edition of "Sewers for Adoption".

Minor Variations

S.2. The Developer shall not vary the Works nor make any additional connections not shown on the Drawings without first obtaining the Undertaker's written consent

Consent to discharge

S.3

S.3.1 In the case of a discharge from any part of the Works to controlled waters as defined by the Water Resources Act 1991 ('WRA' which expression includes any statutory modification or re-enactment thereof) the Developer shall:

S.3.1.1 before the commencement of any Works make application for and obtain any necessary consent to such discharge from the pollution control authority and, if appropriate, the land drainage authority and comply with the conditions relating to their consent PROVIDED however that the Developer shall not agree to conditions without the prior approval of the Undertaker (which approval shall not be unreasonably withheld or delayed) and shall if required by the Undertaker appeal against the same or any of them within the period provided within the WRA for the lodging of an appeal; and

S.3.1.2 transfer the consent to discharge referred to in S.3.1.1 to the Undertaker immediately prior to the issue of the Vesting Declaration or as soon as

practicable thereafter.

S.3.2 If any part of the Works is intended to discharge into any Watercourse which is owned by or comprises part of the undertaking of a navigation authority (as defined in the WRA) (otherwise than a natural Watercourse and whether the same is navigable or not) the Developer shall before the commencement of any of the Works which would drain to such Watercourse obtain the consent of the navigation authority to such discharge but shall not agree to any conditions relative to such consent without the prior approval of the Undertaker.

S.3.3 In the case of a discharge to an estuary or coastal waters the Developer shall before the commencement of any of the Works obtain requisite consents or approvals.

S.3.4 If the Works are to discharge to land (including any Watercourse) owned by any of the undertakings listed in Schedule 13 Part 1 of the Act the conditions referred to in S.3.2 above shall (so far as the context admits) apply to the Works.

Notification of Intended Commencement

S.4 The Developer shall give the Undertaker at least five days' written notice of the date on which it intends to commence the Works and shall with such notice submit to the Undertaker for inspection such plans drawings and other design or working Drawings not previously submitted to the Undertaker and which relate to the carrying out of the Works as the Undertaker may require and shall not commence construction until the Developer has completed this Agreement (unless otherwise agreed with the Undertaker) and supplied to the Undertaker a copy of the relevant form relating to the registration of the Site for CDM purposes

Period of Construction

S.5 The Developer shall construct and complete the Works within the Period of Construction and all parts of the Works including all outfalls and all connections to existing public sewers shall be completed and in working order before any foul or surface water drainage is discharged from any building or property served by the Works PROVIDED ALWAYS that if the Developer shall fail to construct and complete the Works within the Period of Construction the Developer shall comply with any revised standards for any part of the Works which have been notified to the Developer in writing by the Undertaker.

Building Over

S.6 The Developer shall not build plant or place anything over or within 2.5 metres measured horizontally from the centreline of any Sewer or Lateral Drain which are to be included in the Vesting Declaration (or such other distance as may be reasonably specified by the Undertaker) without the written consent of the Undertaker PROVIDED THAT consent shall be deemed to be refused if consent is not given within 10 days PROVIDED ALSO THAT this condition shall not apply to anything shown on the Drawings or the Layout Plan within the Protected Strip .

Backfilling

S.7

S.7.1 The Developer shall notify the Undertaker before covering up any part of the Works

S.7.2 Upon receiving such notice the Undertaker shall if it thinks fit arrange with the Developer to inspect the Works

S.7.3 If the Developer fails to give notice under S.7.1 or fails to comply with arrangements under S.7.2 it shall be liable for the full cost of reopening the Works even if the same are found to comply with this Agreement

S.7.4 (Provided notice is given as above) if the Undertaker fails to comply with arrangements under S.7.2 (unless prevented from so doing because of circumstances beyond its control) the Developer may cover in the Works

S.7.4.1 Without prejudice to S.7.1 - S.7.4 inclusive the Developer shall at any time if requested to do so by the Undertaker in writing, open up the Works for inspection

S.7.4.2 If the Developer fails to comply with such request within any time limit specified by the Undertaker, the Undertaker may open up the Works and then if any part of the Works are found not to comply with the terms of this Agreement the Developer shall repay to the Undertaker on demand all costs the Undertaker incurs in opening up and re-covering the Works but in any other case and provided due notice has been given the costs of opening up the Works shall be borne by the Undertaker

S.7.5 For the avoidance of doubt the provisions of S.10 (relating to access to the Works) are to be read in conjunction with this paragraph

Provisional and Final Certificates

S.8

S.8.1 When the Undertaker is of the opinion that the Works have been completed (including all outstanding remedial works) it shall issue a certificate to the Developer to that effect.

S.8.2 The Works shall be deemed completed when:

S.8.2.1 they have been constructed in accordance with this Agreement; and

S.8.2.2 a majority of the premises within the Green Land and intended to be served by the Works are occupied; and

S.8.2.3 all necessary connections or other things have been made or done whereby such occupied premises may be properly drained; and

S.8.2.4 the Developer has supplied to the Undertaker

(a) two full sets of 'as constructed' drawings and sections showing the completed Works and sewers by lines colours and symbols in accordance with Appendix VI of the Seventh Edition of 'Sewers for Adoption' and

(b) two sets (or more if requested) of operating instructions/maintenance manuals for any pumping station

S.8.3 If requested by the Developer the Undertaker may at its discretion issue one or more certificates in respect of any substantial part or parts of the Works that have been completed to its satisfaction

S.8.4 The Undertaker may issue a Provisional Certificate and/or a Final Certificate when it considers appropriate or if requested to do so by the Developer

S.8.5 The Undertaker may issue the Provisional Certificate subject to conditions which must be discharged before the Works are vested as public sewers

Maintenance Period

S.9 During the Maintenance Period the Developer shall at its own expense maintain repair and otherwise keep the Works in good working order and repair to the reasonable satisfaction of the Undertaker UNLESS the Undertaker shall declare that any required maintenance and/or repair is an emergency in which case the Developer shall carry out the said maintenance and/or repair immediately.

Access to the Works

S.10 The Developer shall arrange for the Undertaker to have access to the Works and the Site at all reasonable times and in particular shall, at its own cost, provide all relevant plant, equipment (including safety equipment) signing, guarding, lighting and personnel whilst the Undertaker is on the Site for the purpose of carrying out inspections under this Agreement

Undertaker's right to repair

S.11 If at any time before the Works are vested in the Undertaker the Developer shall fail to construct and maintain the Works in accordance with this Agreement the Undertaker shall (as agent of the Developer) be entitled at its entire discretion to construct complete make good and maintain such part or parts of the Works as may be necessary in the opinion of the Undertaker after first giving not less than 10 days notice in writing to the Developer (UNLESS the Undertaker declares that any required construction and/or maintenance is an emergency in which case the Undertaker may carry out the said construction and/or maintenance immediately) and the Surety of such intention and the Developer shall upon demand pay to the Undertaker the cost thereof including the necessary cost of the preparation and service of such notices and of necessary administration as certified by the Undertaker including professional fees and other expenses reasonably and properly incurred

Vesting Declaration

S.12

S.12.1 The Undertaker shall (subject to the Developer complying with the terms of this Agreement and to the terms of the proviso immediately below) vest the Works in the Undertaker and supply immediately to the Developer a Vesting Declaration in relation to vesting BUT the Undertaker shall not be required to vest the Works until the Developer has proved to the Undertaker that it owns or has sufficient rights in the Site to enable the making of a valid declaration and the Undertaker is satisfied that:

S.12.1.1 the Works have been constructed and completed in accordance with the Drawings and the Specification to its reasonable satisfaction and have been maintained by the Developer during the Maintenance Period and any defects arising or work required in connection with the Works during that period and prior to the date of the Vesting Declaration have been made good by the Developer to the reasonable satisfaction of the Undertaker AND THAT

S.12.1.2 (a) no building or structure save as permitted in S.6 of this Schedule has been erected within the Protected Strip or on or over land within 2.5 metres of any part of the Works not falling within the Protected Strip (or such other distance as may be reasonably specified by the Undertaker in respect thereof) measured horizontally from the centre line of any such Works without the written consent of the Undertaker and

(b) access to any part of the Works with or without vehicles plant or equipment is not obstructed AND THAT

S.12.1.3 where any part of the Works is shown in the Drawings discharging to an existing public sewer that part of the Works has been connected properly and directly and in the manner shown in the Drawings to a sewer having the status of a public sewer AND THAT

S.12.1.4 where any part of the Works is shown in the Drawings discharging to a Watercourse that part does discharge properly and directly to the Watercourse in the manner shown in the Drawings and in accordance with any necessary consents or approvals AND THAT

S.12.1.5 the Developer has complied with all requirements of the Undertaker in pursuance of clause 2 of the Agreement and S.3, S.19 and S.20 of this Schedule

S.12.2 The Undertaker shall not be obliged to issue a Vesting Declaration while:

S.12.2.1 any dispute exists between the Developer and any third party concerning the Works; or

S.12.2.2 any connection remains whereby surface water or groundwater may enter a foul water sewer or foul water or groundwater may enter a surface water sewer

S.12.3 In order that the Works may as soon as practicable be vested in the Undertaker:

S.12.3.1 the Developer shall no later than ten months after the issue of the Provisional Certificate supply to the Undertaker the relevant section (relating to drainage) of the CDM Health and Safety File

S.12.3.2 the Undertaker shall within fifteen days after any inspection of the Works made during the Maintenance Period advise the Developer in writing of any defects arising or work required in connection with the Works needing rectification or completion before the issue of the said Vesting Declaration provided however that:

S.12.3.2.1 if the said plans and sections or records provided by virtue of S.8.2.4 do not adequately and accurately show the Works to the reasonable satisfaction of the Undertaker it may require the Developer to provide at the Developer's own cost corrected plans and sections or records (as the case may be);

S.12.3.2.2 the Undertaker shall be under no duty to issue the Vesting Declaration until it is satisfied that the Developer has complied with S.12.3.1

S.12.4 Notwithstanding the provisions of this paragraph the Undertaker shall not be obliged to vest sewers in itself until all intervening private sewers which link the Works to the receiving public sewerage system are themselves public sewers

S.12.5 For the avoidance of doubt the provisions of this Schedule in relation to maintenance or repair of the Works whether by the Developer or otherwise shall apply until vesting in the same even though vesting may be delayed by the preceding sub-paragraph

No duty to Developer

S.13 Nothing in this Agreement shall imply any obligation on the part of the Undertaker to the Developer or to any other person to ensure that the Works or

any part or parts of the same are properly constructed

Indemnity to Undertaker by Developer

S.14 The Developer indemnifies the Undertaker against all actions costs claims and demands which may be made against them jointly or separately in connection with the construction and completion of the Works and those matters referred to in Clauses 2 and 9 and paragraph S.20.1.1 of the First Schedule of this Agreement provided that the said actions costs claims or demands shall have arisen not later than the vesting of the Works in the Undertaker unless those actions costs claims or demands relate to the ownership of the Site

Bankruptcy etc of Developer

S.15 If the Developer shall fail to perform any of the conditions contained in this Agreement to be performed or observed by the Developer or shall be adjudicated bankrupt or shall go into receivership liquidation voluntarily or otherwise or shall execute a deed of assignment or arrangement for the benefit of or otherwise compound with its creditors (except for the purpose of re-construction or amalgamation) the Undertaker may without prejudice to its other rights remedies and powers against the Developer for such non-performance or non-observance by notice in writing to the Developer and Surety terminate this Agreement and upon such notice being served this Agreement shall immediately terminate but without prejudice however to the obligations of the Surety to the Undertaker under S.16 of this Schedule and of the Developer to the Undertaker under S.19 and S.20 of this Schedule and of the rights of the Undertaker under S.11 of this Schedule

Obligation of Surety (where party to the Agreement)

S.16

S.16.1 In consideration of the Undertaker entering into this Agreement with the Developer the Surety as a principal indemnifies the Undertaker in respect of any expenditure which the Undertaker may incur in accordance with this Agreement by reason of the failure of the Developer to observe or perform in full its obligations according to this Agreement whether or not this Agreement has been terminated or disclaimed but the obligations of the Surety shall in no circumstances exceed the Financial Limit to which the Surety and its successors and assigns under this Agreement now bind themselves to the Undertaker

S.16.2 The amount of any such expenditure shall be that certified by the Undertaker whose decision shall be final

S.16.3 The Surety shall be discharged or released from its obligations under this paragraph when the Provisional Certificate has been issued (except where the Works include the provision of a pumping station when the Financial Limit shall be reduced to 15% of the estimated construction cost of the pumping station and in this case the Surety shall be fully discharged or released from its obligations under this paragraph when the Works are vested in the Undertaker) and such parts of the Works in relation to which the Undertaker requires a transfer of land together with the rights referred to in S.20 of this Schedule shall have been transferred or granted to the Undertaker but the Surety shall not be discharged or released from such obligations by any determination or disclaimer of this Agreement or by any arrangement between the Developer and the Undertaker or by any alteration in the obligations of the Developer or by the execution of any amended extra or substituted works authorised by virtue of S.2 of this Schedule or by any forbearance whether as to payment performance time or otherwise whether made with or without the assent of the Surety

Arbitration

S.17 In the event of any dispute or difference arising from the construction of the Works or application of this Agreement (the distance or distances specified in S.6 and S.12.1.2 of this Schedule and the decision of the Undertaker in S.8.3 of this Schedule excepted) the same may be referred for determination to a person to be agreed between the parties hereto (or failing such agreement within 10 days to be appointed by the President for the time being of the Institution of Civil Engineers) the decision of the person so agreed or appointed to be binding on all the parties thereto

Notices

S.18 Any notice to be served on or Drawings to be supplied or submitted to the Undertaker shall be delivered or posted to the Undertaker's registered office or other address as may be notified from time to time and any notices to be served on the Developer may be delivered or posted by pre-paid letter to its last known address (or being a limited company to its registered office or to its last known registered or head office) or place of business and any notice to be served on the Surety may be delivered at or posted to its registered or head office for the time being

Fees

S.19

S.19.1 The Undertaker acknowledges receipt of the following sums:

S.19.1.1 the cost of the preparation and completion of this Agreement and appropriate copies thereof; and

S.19.1.2 the Inspection Fees being the fees incurred by the Undertaker for the technical examination and processing of the initial submission by the Developer of plans drawings and other design or working Drawings whereby the Works are proposed to be constructed and for inspection by the Undertaker of the execution of the Works (which may include a survey by closed circuit television (CCTV) and/or other internal survey methods)

S.19.2 The Developer shall on demand pay to the Undertaker :

S.19.2.1 any additional fees arising from CCTV or other internal re-surveys associated sewer cleansing and site visits essential to re-check sub-standard work

S.19.2.2 any additional inspection fees in respect of Lateral Drains that are proposed for adoption and which were not constructed at the same time as the sewers in the Green Land

S.19.2.3 any fees and disbursements pursuant to S.20 of this Schedule

S.19.2.4 VAT upon any payments referred to in this Agreement if the same is properly payable thereon

Transfer of Land, Maintenance Arrangements and VAT

S.20

S.20.1 The Developer shall before the Works are vested in the Undertaker at the request of the Undertaker execute or secure the execution (at no cost to the Undertaker whether by way of consideration costs or disbursements whether such costs or disbursements be incurred by the Undertaker or by any other party) of:

S.20.1.1 a Transfer to the Undertaker transferring to the Undertaker (if so required by the Undertaker) the title absolute free from any covenant easement exception reservation (other than a reservation of rights necessary for the Developer to maintain the Works until the issue of the Vesting Declaration) or other incumbrance of the land forming the sites of pumping stations outfall structures or of any balancing facilities (excluding above ground balancing facilities that do not form part of the Works) that form part of the Works together in each case with all rights necessary to gain access thereto with vehicles and the Transfer deed shall contain the following agreement and declaration together with the covenant and indemnity in the form shown below:

"It is hereby agreed and declared that this Transfer of the Property shall not vest in the Undertaker the Sewers until the same are subsequently vested in the Undertaker"

"The Transferor covenants with the Transferee that until such time as the Sewers are vested in Severn Trent Water Limited pursuant to Section 104 of the Water Industry Act 1991 it will indemnify the Transferee from and against all actions, costs, claims, demands, proceedings and expenses whatsoever in respect of the use and occupation of the Property or the presence of the Sewers"

NOTE: "the Sewers" to be defined as "any sewers pumping station or accessories thereto on over or under the Property"

S.20.1.2 adequate administrative arrangements agreed in writing by the Undertaker for the maintenance and permanence of any balancing facility which is not to be vested in the Undertaker

S.20.1.3 a Deed of Grant of easement for a discharge in the model form of agreement referred to in the Interim Code of Practice for Sustainable Drainage Systems published in July 2004 and available at http://www.ciria.org/suds/word/icop_suds_ma3.doc (where the Undertaker considers it necessary) in respect of any balancing facility which facility is not to be vested in the Undertaker

S.20.1.4 a Deed of Grant of easement incorporating the rights and covenants contained in the Fourth Schedule hereto in the event that the Undertaker considers it reasonably necessary and appropriate for the future protection of the Works and any discharges therefrom to any Watercourse

S.20.2 The Undertaker hereby agrees to pay to the Developer an amount equal to any Value Added Tax ("VAT") to which the Developer becomes properly accountable by virtue of those Works to be vested in the Undertaker (if and insofar as such vesting is a 'supply' for VAT purposes) PROVIDED HOWEVER that the Developer shall have submitted to the Undertaker a VAT only invoice in respect of the same and a copy of the Vesting Declaration issued to it by virtue of S.12

SECOND SCHEDULE
Provisions applying to diverted sewers or public lateral drains under Clause 7 of the Agreement: Optional clauses

Diverted sewers

1. The Developer shall construct the Diverted Sewers in accordance with the provisions of the First Schedule of this Agreement

2. Prior to the commencement of the construction of the Diverted Sewers the Developer shall provide a method statement for approval by the Engineer together with payment of the Cash Deposit which is calculated to be 100% of the estimated construction costs of the Diverted Sewers

3. Upon issue of the Provisional Certificate for the Diverted Sewers in accordance with S.8 of the First Schedule the Diverted Sewers shall in pursuance of the powers conferred on the Undertaker by the Act vest in the Undertaker as public sewers or Public Lateral Drains (as the case may be) PROVIDED THAT the diversion of flows from the existing public sewers or Public Lateral Drains into the Diverted Sewers shall not be permitted until the necessary and relevant provisions of this Agreement have been complied with and the decision of the Undertaker in this respect shall be final and conclusive. The Undertaker shall return eighty per cent of the Cash Deposit to the Developer when the Diverted Sewers are vested in the Undertaker.

4. Until the issue of the Final Certificate for the Diverted Sewers in accordance with S.8 of the First Schedule if the Developer fails to carry out the provisions of S.9 of the First Schedule then the Undertaker may deduct from the balance of the Cash Deposit such costs as are incurred by the Undertaker in carrying out those provisions in place of the Developer. In relation to the Diverted Sewers the definition of the Maintenance Period shall be the period between the issue of the Provisional and Final Certificates

5. S.8.2.2 and S.8.2.3 and the references to vesting in S.12 of the First Schedule shall not apply to the Diverted Sewers

6. The balance of the Cash Deposit shall be repaid to the Developer upon issue of the Final Certificate following the deduction of any amounts due to the Undertaker in accordance with the provisions of paragraph 4 above PROVIDED THAT if any part of the Diverted Sewers shall have been constructed in public highway then five per cent of the Cash Deposit shall be retained for a period of two years from the date of the issue of the Final Certificate and if the Developer fails to comply with the provisions of the New Roads and Street Works Act 1991 in relation to the Diverted Sewers then the Undertaker may deduct from the remainder of the Cash Deposit such costs as are incurred by the Undertaker in carrying out those provisions in place of the Developer. At the end of the said two-year period the remaining balance of the Cash Deposit shall be repaid to the Developer following the deduction of any amounts due to the Undertaker

7. Until the issue of the Final Certificate if by reason or in consequence of the construction or failure of the Diverted Sewers or any subsidence resulting from any of those Works any damage shall be caused to any land or property or there is any interruption in any service provided by the Undertaker the Developer shall repay the cost reasonably incurred by the Undertaker in making good such damage or restoring the service and shall:

   7.1 make reasonable compensation to the Undertaker for any loss sustained by it; and

   7.2 indemnify the Undertaker against all claims demands proceedings costs damages and expenses which may be made or taken against or recovered from or incurred by the Undertaker by reason or in consequence of any such damage or interruption

8. The use of the existing public Sewers and/or Public Lateral Drains that are being

replaced by the Diverted Sewers shall be abandoned in accordance with the method statement referred to in paragraph 2 hereof and discontinued and prohibited in accordance with Section 116 of the Act upon issue of the Provisional Certificate

THIRD SCHEDULE
Sewers For Adoption 7 – Undertaker Addendum in relation to the pumping station specification

Sewers for Adoption 7th Edition Pumping Station Addendum June 2014

PART D - PUMPING STATIONS

D3 GENERAL

D3.1 Severn Trent Water require documented evidence of calculations used to select a pumped solution in preference to a gravity system.

D3.2.a Land drainage must not directly or indirectly connect to the proposed adoptable surface water sewer network and be provided with sufficient flood protection to prevent it entering into it in an extreme event.

D3.3 Special consideration should be given to the design of terminal pumping stations delivering directly to a treatment works or where the discharge point is close enough to the works for there to be no attenuation in the gravity sewer upstream of the works. Developers are advised to open discussions with the Undertaker as early as possible.

D4 PROVISION OF PUMPING STATIONS

D4.1 Location

D4.1.2 Since the impact of any resultant flooding is greater, then for critical sites, the proposed adoptable gravity surface water sewers discharging to the station may have to be designed for the 1:5 year storm event.

D4.2 Site Access

D4.2.2a Access from public highway - To aid safe and reasonable vehicular access to pumping stations there are preferred layouts with minimum dimensions for the following situations.

- Pumping station off road with integral turning head – Layout A
- Pumping station compound off road – Layout B

Details are available from Severn Trent Water

D4.2.2b Access Roads - Where a new dedicated access road is being constructed then the preference is that the road is owned by Severn Trent Water. The access road shall conform to the necessary requirements of the Highway and Planning Authorities

D4.2.2c The minimum layout requirements for a site which will be served by large rigid and articulated vehicles are as follows:-

Road Width on straight single track roads is 4.0m internal radius of bends is 10.5 m

D4.2.2d Gradients and cross falls should be provided within the following ranges:-

Maximum road gradient is 1 in 15

Maximum cross fall is 1 in 30

Optimum cross fall is 1 in 40
Minimum cross fall is 1 in 50 (or 1 in 60 for concrete roads)
Maximum gradient within 15 m of highway is 1 in 30 (to be agreed with Highway Authority)

D4.2.2e Gates – should not open on to the highway. If the approach is straight then the gates should be 4.0 m wide minimum. For openings over 4.0m wide double gates must be provided

D4.2.2f Concrete roads – In all cases Grade PAV2 air entrained concrete shall be used to provide adequate frost resistance. It is essential that the concrete mix does NOT contain PFA.

D4.3 Layout of Pumping Stations

D4.3.1 Pumping Station layout - To accommodate rigid body 4,000 gallon tankers the preferred minimum size of the compound needed is 14m x 11.35m with 4m wide gates. Where the compound has an integral turning head then size needed is 29.5m x 17.5 m

D4.3.2 Fencing - Subject to local planning approval, Severn Trent Water standard requirement is for sites to be enclosed with 1.8 m high expanded metal panel fencing or alternatively an equivalent brick wall with gates secured by padlocked slide bolt or similar. Gates should provide the same degree of protection as the adjacent fencing. Where the above requirement cannot be met either in order to satisfy specific local planning approval or other environmental and amenity considerations selection of suitable perimeter fencing for the site will be based upon a risk assessment. Details are available from Severn Trent Water New Connections Team: new.connections@severntrent.co.uk Tel: 0800 707 6600

D4.3.6 SEVERN TRENT WATER shall be consulted to discuss the provision of safe parking

D4.4 Kiosk Positioning

D4.4.1.d) There shall be 1m clear space between the open kiosk doors and the wet well to ensure a safe walkway

D4.5 Storage

D4.5.1a The SPS shall be capable of pumping the entire storm and be provided with stand by pumps and control panels or be capable of storing the entire storm in the event of pump or plant failure.

D4.5.1b The system must not flood in the 1:30 year event. In exceptional circumstances provision of storage for the 1:100 year event may be considered for adoption. However this is not preferred by Severn Trent Water. The effectiveness of proposed flood routing must be demonstrated and approved by Severn Trent Water.

D4.5.1c Emergency overflows are not required on new foul water pumping stations.

D4.6 Hydraulic Design of Pumping Stations

D4.6.1 For large SPS with high discharge rates it may be necessary to prove performance of their proposed design by undertaking scaled hydraulic modelling of the SPS wet well and pump configuration by a specialist consultant in this work.

D4.7 Pumping Station Design

D4.7.1a Severn Trent Water will not adopt WIS 4-04-01 or WIS 4-04-02 designs. For Type 1 & Type 2 installations Severn Trent Water support the use of package pumping stations which satisfy the following criteria:

- MDPE wet well construction (GRP shall not be used)
- A separate valve chamber shall be provided – valves shall not be located in the wet well
- Pump stools (duckfoot) shall be fixed by captive studs which enable the stool to be removed/replaced from inside the well. These studs should be able to be replaced.

D6 DESIGN OF PUMPING STATIONS

D6.1 General

D6.1.1 Pumping stations must be fail safe in operation in the event of pump or plant failure. A generator connection shall be provided.

D6.1.6 In some instances provision of adequate raked coarse screens and grit separators may be needed.

D6.2 Hazardous Areas

D6.2.1 The hazardous (potentially explosive atmosphere) Zone classification of wet wells to pumping stations shall be determined by means of a non calculable approach used to better understand the likelihood of a Potentially Explosive Atmosphere forming from the entry into sewers of flammable substances stored and used within the catchment. It is known as Catchment Area Analysis (CAA) assessment. Buildings and kiosks containing electrical equipment shall be isolated from chambers falling into any Zone classification. The equipment in them should be designed to comply with their Zone classification. The CAA assessment should be undertaken prior to the design stage to determine whether explosive proof equipment is required. The CAA is used to determine if a catchment is Normal or Higher Risk.

Where no existing flow is routed through the new development and there will be no significant volumes of flammable substances stored in that development then the presumption is that the CAA will give a Normal Risk classification. In this instance the hazardous zone is designated as ST-Zone BZ. This is the name used to describe the minimum non statutory design standard applied to sewerage assets. The standard determines a minimum standard for equipment installed into areas that are exposed to a sewage derived atmosphere that has a likelihood of forming a PEA which is less than the statutory Zone 2.

If the existing sewage flow is to be diverted through the new development site then the developer must consult with Sewerage Asset Protection who will then undertake the CAA assessment in order to determine whether the catchment risk is Higher or Normal and thus designate the hazardous zone classification.

D6.3 Wet Well – General

D6.3.1 When designing the gravity foul sewer network the developer should note that the preferred maximum depth of the wet well, from ground cover level to the underside of the pumpset is 7 m. For depths exceeding this then an auxiliary suction pipe may be needed.

D6.3.2 A stainless steel baffle plate must be provided with a nylon rope, used to lift the baffle plate to clear any material trapped between the plate and inlet pipe, looped through the baffle plate and attached to a stainless steel parking bracket self anchored to the concrete edge of the clear opening.

D6.3.5 If a separate storage/inlet chamber is provided upstream of the wet well then it must be located in the compound and in an area where safe access for maintenance can be provided. The chamber shall be provided with a penstock and fixed tank emptying suction pipe of 100 mm diameter set 500 mm above the invert of the chamber and rising 900mm above ground level to the centre line of this suction pipe. It needs to terminate with a 90degree bend and a male Bauer coupling. The penstock must have an extension spindle capable of being operated at ground level If a larger wet well is used instead of an inlet chamber the penstock should be located in the wet well.

D6.3.6 A vertical stainless steel ladder shall be provided for man entry into the wet well. It is to be located, centrally, opposite the pump guide rails with the top of the ladder fixed to the concrete edge of the clear opening to the well. Retractable handposts are to be provided either side of the ladder, self anchor bolted to the concrete edge of the clear opening.

D6.4 Wet Well – Structural Design

D6.4.1 If a wet well constructed from MDPE is proposed, prior approval by Severn Trent Water is required. GRP wet wells should not be used.

D6.4.2 Flotation – The minimum factor of safety against flotation for empty structures subject to groundwater pressure is 1.1 as outlined in BS8007:1987. This should only be used where the maximum groundwater level can be assessed accurately or a design groundwater level at finished ground level is being used.

D6.4.4 In situ reinforced concrete – the minimum cover should not be less than 40 mm provided this meets the requirements of BS8500 -1:2006 and BRE SD1. All concrete water retaining/excluding structures shall be designed to satisfy cracking requirements for flexural and thermal loading. The standard concrete mix based upon BS8500 is C28/35 – general water retaining (and water excluding) structural applications. Reinforcement shall be designation H high yield steel with a design stress of 500 N/mm2.

D6.4.8 When using a MDPE wet well the foundation slab and backfill should be constructed in accordance with manufacturer's guidance. In locations with high water tables, all necessary measures should be taken to prevent flotation and to ensure the MDPE is of sufficient thickness to resist deformation.

D6.5 Valve Chamber

D6.5.3c The female Bauer coupling over pumping pipe to terminate with a 90 degree horizontal bend , 900 mm above the valve chamber cover to centre line of the over pumping

D6.5.4 Severn Trent Water preference is that the discharge from the drain is by a penstock. A flap valve in the well is not acceptable.

D6.5.5 Extension spindles and hand wheels shall be fitted where appropriate to facilitate operation of the valves in the event of the valve chamber being flooded.

D6.5.7 Wherever possible the depth of the valve chamber from ground level to floor of the chamber should not exceed 1.5m. The minimum depth should not be less than 0.95m

D6.6 Flow Metering

D6.6.1 Severn Trent Water require a flowmeter to be provided on all Type 3 & 4 pumping stations. The flowmeter shall:

- Monitor discharge performance
- Alarm, and change pump duty in the event of no flow conditions (e.g. partial blockage)

D6.6.2 The chamber shall be a minimum of 1200 mm diameter, located near to the valve chamber. It shall include

- A flowmeter positioned in accordance with the manufacturer's recommendations
- A rising main isolation valve (T-key operated)
- A 100 mm diameter drain to the valve chamber

On secure compounds the cover to comprise bolted down open grid flooring.

D6.7 Access Into Wet Well, Valve Chambers & Flow Meter Chambers

D6.7.1 Severn Trent Water preference is that open mesh decking be utilised over the whole valve chamber. Maximum loading to be 500kg/m. Mesh decking to be provided with holes or slots to allow operation of valves from ground level. Standard details for mesh decking flooring are available from Severn Trent Water.

D6.7.2d Cover and frame to wet well, if subject to traffic loading from maintenance vehicles, be FACTA Class C loading

D6.7.2de The safety grid to be provided with a 225 mm dia slot to allow suction hose to pass through

D6.11 Kiosk Construction

D6.11.7 The Developer should seek advice from Severn Trent Water on expected vandalism levels and Electro Magnetic Conductivity (emc) levels.

D6.11.9 Kiosk Colour : Alternative colours shall be provided where required by the Planning Authority.

D6.11.12a A lockable storage kiosk for storing barriers, davit and winch equipment shall be provided. The door to the storage kiosk to have the same locking and hinge arrangements as the doors to the motor control panel kiosk.

D6.11.13 The generator cat flap shall be installed on the side walls of the kiosk not in the doors.

D6.11.14 The kiosk doors shall be fitted with a cylinder type locks.

PART F - M & E SPECIFICATION FOR PUMPING STATIONS

Severn Trent Water has a number of Framework Agreement purchasing arrangements for the supply of pump/motor sets and motor control panels.

Whilst there is no obligation upon Developers to use these Framework Suppliers, it may be advantageous to procure M&E equipment from these suppliers since the products are of an acceptable quality/specification for adoption.

The current list of relevant Framework Suppliers can be obtained from Severn Trent Water New Connections Team: new.connections@severntrent.co.uk Tel: 0800 707 6600

F1 GENERAL

F1.1 Hazardous area appliances

F1.1.1 For sewage pumping stations designated as ST –Zone BZ only low risk equipment shall be used. Examples are float switches, submersible pumps, ultrasonic level detectors and proximity switches. The equipment shall be non-sparking.

Equipment requirements for ST-Zone BZ are based upon the concept of low risk equipment in that:-

1. For electrical equipment, this shall only include equipment, which under normal operating conditions, does not increase its surface temperature, does not have opening or closing contacts or does not have exposed conductors with minimal risk of " sparking ".
2. Motors are not normally exposed to air or to gas atmospheres above the liquid or where they are they do not include opening/closing contacts.
3. For mechanical equipment, this shall only include equipment which under normal operating conditions does not :
   - increase its surface temperature appreciably
   - have opening and closing contacts
   - have impacting items or devices

   A non electrical assessment based on EN 15198 and EN13463 – 1:2001 for ignition sources in normal operation should be undertaken where applicable/possible.
4. All equipment must be earthed and earth bonded.
5. All equipment must have minimal capacity or capability for producing static.
6. Mechanical equipment such as bearings, seals and mechanical piece parts operating slowly and in a damp or wet environment is acceptable.

F1.1.3 The earthing, ducting and certification process for panels and electrical installations shall comply with Severn Trent Water standard ME37 and the various DSEAR associated electrical model approaches contained within the Severn Trent Water Design Manual.

DSEAR requirements – prior to commissioning and handover of the pumping station to Severn Trent Water the following DSEAR requirements must be complied with:-

Where hazardous zone is classified as ST-Zone BZ - a certificate of installation and the earth bonding certificate must be submitted to Asset Adoptions. Blank copies of these certificates for use by the developer/his contractor can be obtained from the Asset Adoptions offices.

For the other statutory hazardous zones please contact Severn Trent Water.

F1.2 Operation and maintenance documentation

F1.2.1 In addition to the specified information identified in Sewers for Adoption 7th Edition Severn Trent Water require 3 copies of the pumping station maintenance manual. These shall contain record drawings, wiring diagrams and pump details.

F2 PUMP SPECIFICATION

F2.1 Introduction

F2.1.1 The Sewage Pumping Station (SPS) may have to be provided with a pump which can accommodate low flows from light rainfall as well as pumps needed to cope with flows from the critical storm event.

F2.3.4.2 Auto Coupling System (ACS)

F2.3.4.2e The duck foot should be able to be removed/replaced from within the wet well. Captive bolts/studs should be able to be replaced.

F2.3.10 MOTORS

F.2.3.10.4 STARTING
F.2.3.10.4.1 To ensure air changes in the wet well and prevent retention under normal operating conditions there will be at least one pump start in a 24 hour period.

F2.3.10.5 ENCLOSURES & COOLING
F2.3.10.5.1 Severn Trent Water requirement is for no moisture to enter the motor housing during the life of the bearing

F.2.3.14 PUMP UNIT LIFTING ARRANGEMENTS
F.2.3.14.1 GENERAL

Lifting Operations (Davit Assembly)

For pumps up to 334kg gross weight a 500kg davit system must be supplied, this allows a safety factor of 50% to allow for lifting accessories / pump chains / breaking out forces / ragging, fat and grit deposition.

Davit sockets installed may be grouted / surface or wall mounted and should be of galvanised finish. 500kg davit installations must be able to support a standard 65mm pinned davit assembly and have the ability to incorporate a load cell as part of the lifting operation. All sockets shall be installed level and positioned to enable davit to be centred over the load whilst clearing any hand railing, guard railing or other obstruction.

Note :- For pump installations above the 334 kg Gross weight limit lifting options / practices must be done through consultation with Severn Trent Water at the design stage.

A lifting gantry will be required for lifting pumps heavier than 334 kg.
At design stage provision should be made to ensure there is sufficient clearance between the cover slab and the bottom of the pump when lifting the pump out using a load cell and chain block or electric winch.

F.2.3.14 Pump Unit Lifting Arrangements
F.2.3.14.1 General

Severn Trent Water's preferred method of lifting is via the Lifting Location System (LLS). The LLS is suitable where the well is ≤ 7.5m in depth and each pump weighs ≤ 500kg.

The LLS comprises of:-

- A stainless steel pvc coated wire guide rope terminated at both ends with a steel carbine hook with screw gate, secured with a crimped cooper ferrule.

Attached to:-

- Two stainless steel eye bolts fixed in an easily accessible position at the top of the wet well and spaced apart such that the wire rope forms a V shape with the load. When in use the guide rope is used to locate a specially designed hook directly onto the load

Where the wet well is >7.5 m in depth (total height of lift from block to pump handle must not be more than 9 m) or the load is > than 500 kg then fixed stainless steel lifting chains shall be supplied. Chains shall be short link welded and manufactured from Grade

50, AISI 316 Stainless Steel to BS EN 818 (DIN766). Chains shall be provided with a larger diameter oval master links positioned at each end and at 1000mm centres. This larger link should have a minimum internal diameter of 50 mm (500 kg chains) or 60mm (1000kg chains) and be able to accommodate two lifting hooks.

Shackles shall be manufactured from AISI 316 Grade Stainless Steel. The lifting shackle attached to the pump must incorporate an extended pin and nylock nut to prevent loosening as a result of vibration.

Chains and shackles installed shall meet all the necessary requirements so as to produce a minimum two yearly Written Scheme of Examination. All chains and shackles should be individually tagged with a unique Severn Trent Water asset ID along with SWL and manufacturer batch ID.

Each chain shall be supplied with a test certificate and CE marked including chain type.

Each shackle shall be supplied with a test certificate.

F3 ELECTRICAL SPECIFICATION

F3.1 Scope

F3.1.1d An electromagnetic flowmeter is required on all Type 3 and Type 4 pumping stations

F3.2 General

F3.2.1.5 Severn Trent Water will only accept registered contractors.

F3.2.1.9 A lockable TP&N isolator shall be installed between the DNO fuses and the control panel. This isolator enables the control panel to be electrically isolated without the supply fuses being withdrawn.

F.3.2.2.3 For ST Zone BZ installations, labels nominal size 50 mm x 100mm with the text “ST Zone BZ“ (White, Black, White) shall be installed on :

The control panel door
The kiosk door

For labelling requirements for the other statutory zones please consult with Severn Trent Water

F3.3 The Electrical Assembly

F3.3.1 General

F3.3.1.2 Where Form 2 construction is utilised lockable isolators for each individual pump shall be provided on the panel door.

F3.3.5.3 Identification of Wiring

F3.3.5.3.4

The colours of wiring insulation shall conform to the current Severn Trent Water Engineering Specification ME1A. Copies can be obtained from Severn Trent Water.

F3.3.9 Telemetry Signals

Severn Trent Water operates a telemetry system to monitor and control remote sites, processes and equipment. The configuration, connection and commissioning of all signals used on this telemetry system shall conform to a standard arrangement to ensure consistency of application and response to issues.

A list of signals required by Severn Trent Water to effectively monitor a pumping station is detailed in Severn Trent Water ‘Telemetry Signal Provision Standard’. The signals are derived from Severn Trent Water Remote Asset Management Policies (RAMPs) and use is **mandatory** for all sites, processes and equipment connected to the Severn Trent Water telemetry system.

The latest version of the Telemetry Signal Provision Standard' should be obtained from Severn Trent Water New Connections Team:
new.connections@severntrent.co.uk Tel: 0800 707 6600

F3.3.10 Ultrasonic Level Controller (ULC) Specification
F3.3.10.1 Normal Operation
F3.3.10.1.2 The control of the scour cycle will allow for adjustment in frequency so that the scour frequency can be optimised.

F3.3.10.3 Functionality
F3.3.10.3.13 The ULC shall be capable of deriving a 'time to spill' signal

F3.3.10.3.14 The ULC shall be capable of initiating a remote reset

F3.4.5.4 Connection of Pump unit cables
F3.4.5.4.1 For secure sites each pumpset cable shall be connected to its associated control panel cable by means of an above ground, free standing junction box on lockable galvanised steel uprights, adjacent to the wet well at a nominal height of 1m, fitted with barriers for segregating cables with different operating voltages.

F3.4.5.4.2 For non secure sites then cabling shall be provided via ducts direct to the kiosk. The distance between the panel and the wet well is expected to be less than 5 metres.

F.3.3.8.2 Pump unit failure (initiated by hard wired pump unit protection systems)
F.3.3.8.2.8 Auto reset must only be applied when the pump is submerged and not exposed to a sewer derived atmosphere.

F.3.3.8.6 Low Flow Detection

Low flow detection is to be provided using an electro magnetic flowmeter. Low flow circuit shall operate when the flow in the rising main is below the pre-set low flow cut off value. With the pump running and after an adjustable time delay if the flow in the rising main has not developed to a pre-set adjustable value (nominally set at 10% of design flow per pump it shall generate a low flow trip which shall stop the pump and contribute to a pumped failed signal to telemetry. The second pump shall then be permitted to start under normal standby level control.

A low flow indicator light shall be provided on each starter door of the panel. The low flow signal shall be latched requiring attendance at site to reset via a common reset or automatically via the auto reset system.

Low flow trip shall be inhibited during the scouring cycle by means of the relevant timer settings confirmed during commissioning.

F3.3.10 Ultrasonic Level Controller (ULC) Specification
F3.3.10.1 The level control unit shall provide signals or control at the following:

Level DPH	Start Duty Pump
Level DPL	Stop Duty Pump
Level APH	Start Assist/standby pump
Level APL	Stop Assist/standby pump

None of the levels DPH, DPL, APH and APL shall be coincident.

F3.4.1.5 Junction Boxes
Junction boxes shall not be installed in wet wells irrespective of the DSEAR zone classification. If junction boxes are required they shall be mounted upon suitable up stands or in a below ground junction box chamber within a suitably IP rated enclosure.

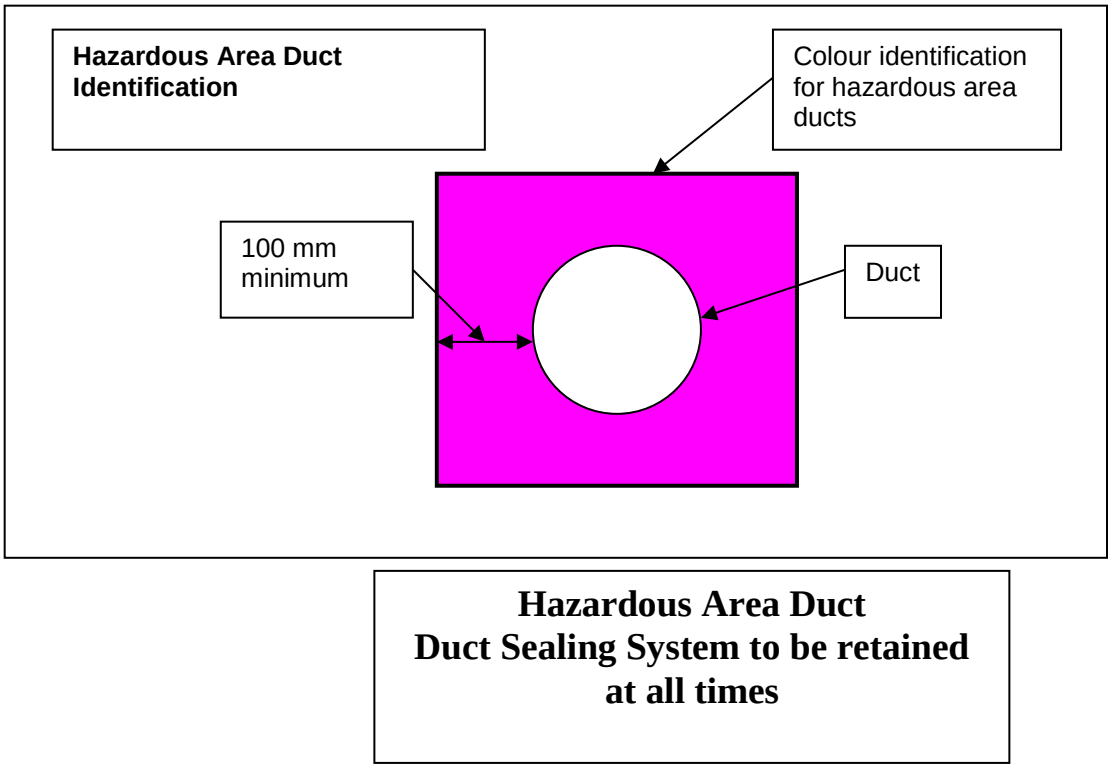
F3.4.4 Installation of Cables

F3.4.4.5c The pump set cables require two ducts to be provided, each 100 mm in diameter.

F3.4.4.5e The telemetry cable requires one duct to be provided, 100 mm in diameter

F3.4.4.6 All ducts to and from a hazardous area (including SEVERN TRENT WATER -Zone BZ) are to be clearly identified by use of pink paint (BS4800 02 C 37) and labelling at the ends of ducts. Paint to be applied in a square around the end of each duct as detailed below,

Labelling is required to be installed adjacent to the ducts and shall state the following:

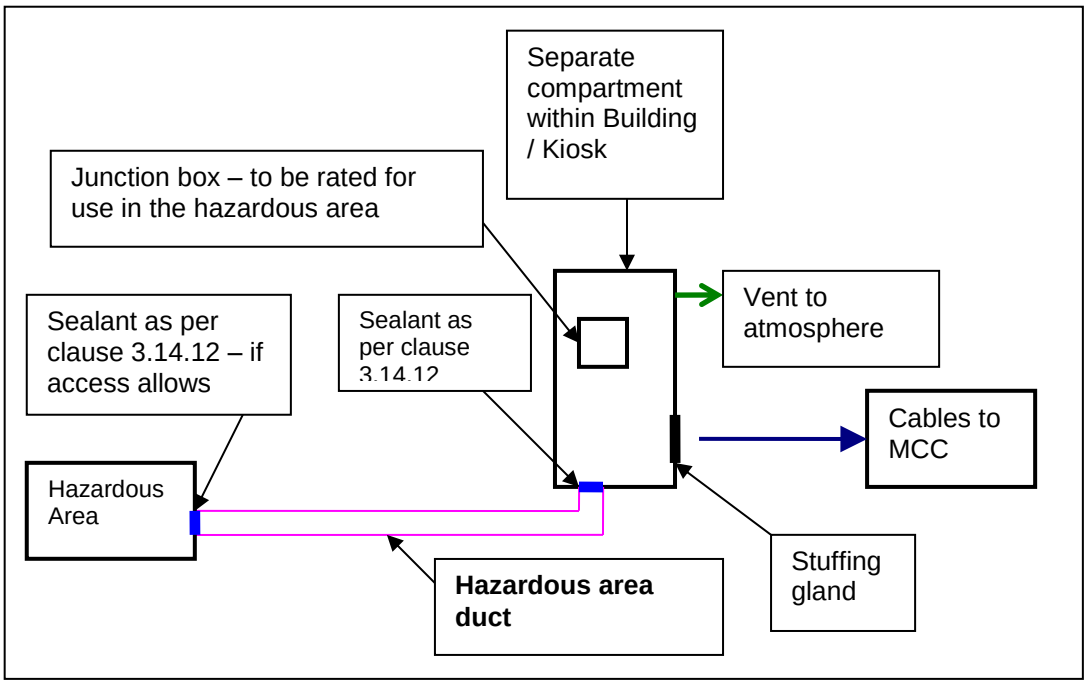


Hazardous Area Duct
Duct Sealing System to be retained at all times

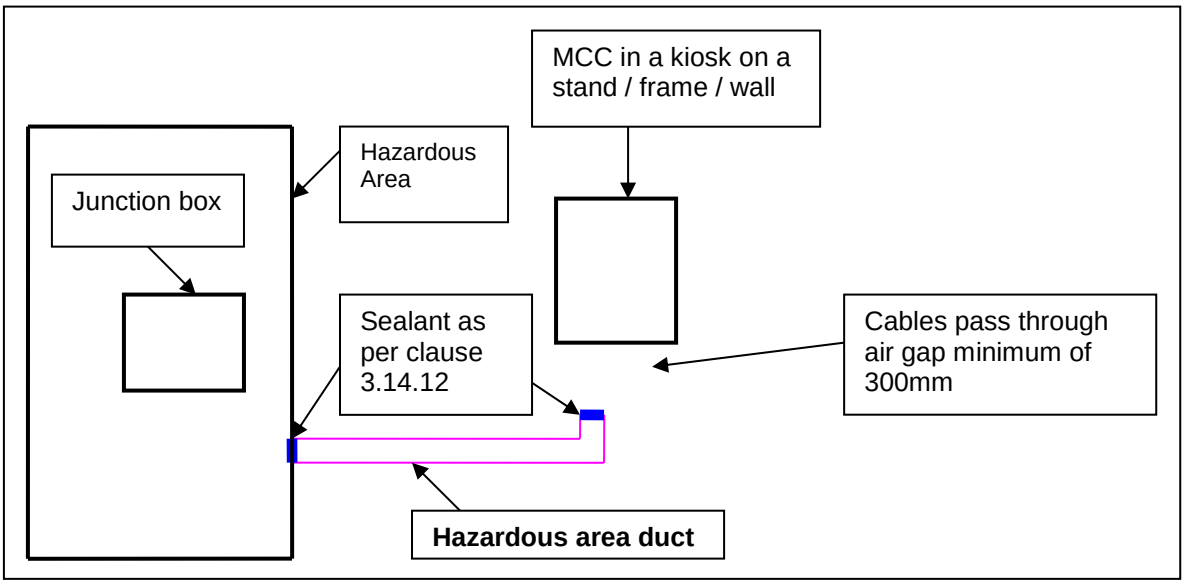
F.3.4.5.4 Connection of Pump unit Cables

Sealing of ducts - Duct connections into hazardous areas shall be provided with a means to ensure vapours, products, gases etc do not migrate into areas inappropriately. Severn Trent Water uses a methodology based upon “block and bleed” where the duct is provided with a block or inhibit to the flow of the possibly hazardous substance and a means by which any hazardous substance which bypasses the “block” is allowed to dissipate safely. See sketch and sealant detail below.

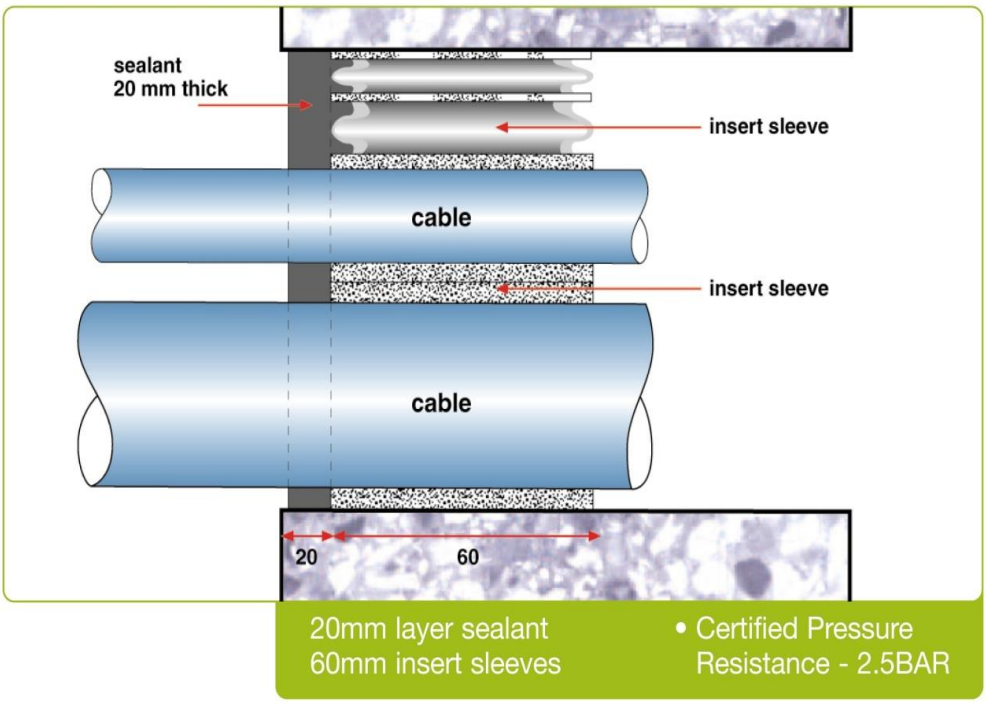
Ducts leaving a hazardous area or a Severn Trent Water Zone BZ and entering directly into a kiosk shall do so in a separate compartment which shall be sealed from the rest of the kiosk to IP55 rating and ventilated to atmosphere. The ducts shall be sealed at the entrance into the compartment.



Ducts leaving a hazardous area or a Severn Trent Water Zone BZ and delivering cables to a junction box or a kiosk on a stand shall be sealed as they exit the ground, cables are required to pass through a minimum unobstructed air gap of 300 mm before entering the enclosure.



A proprietary duct or cable transit sealing system which ensures Lloyds certified minimum 1 bar gastight and 2.5 bar watertight seal and age tested for 50 years shall be used. This system shall consist of thermoplastic 60 mm long tubular water resistant split sleeves and a silicone based fire rated, water and gastight sealant as shown below. The insert sleeves shall be used to ensure cable separation and to pack any free space in the penetration allowing for easy addition/removal of future cables. Sealant shall be applied to the face of the penetration ensuring a pressure tight seal is maintained, sealant to be applied to a minimum depth of 20 mm. The system shall be installed in accordance with the manufacturer's installation instructions.



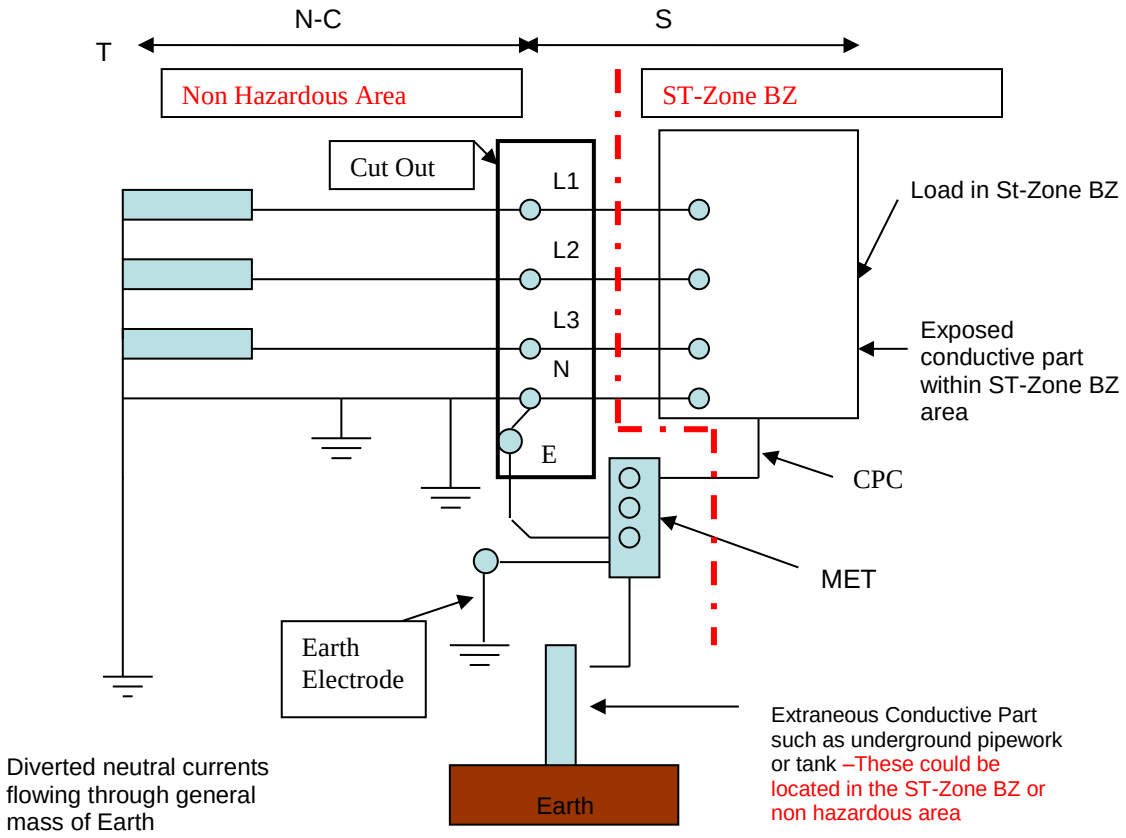
F.3.4.6 Earthing and Bonding
F.3.4.6.1 General

F.3.4.6.1.1 Testing - The earth leakage current for each completed installation shall be tested and recorded on the Earthing and Bonding Certificate. The current shall not be greater than 50mA.

The facility for non disconnection type testing shall be provided in the earth bonding installation to ensure that each equipotential bonding circuit can be tested. Each equipotential bond shall have a resistance of less than 1 Ohm.

F.3.4.6.1.2 TN-C-S in addition to the TN-C-S (PME) earthing system an isolating transformer shall be required. This installation shall include a local earth electrode.

This sketch provides an indication of intent from which the detail design may be developed.



F.3.4.6.2 Generator Connection facilities – an earth electrode system is required as part of the electrical installation. It shall be designed to be utilised for this purpose and for earthing of the hazardous area.

Earth Electrodes are to be selected and sized in accordance with BS7430 Table 4. Earth resistance should not exceed 20 Ohms. The earth resistance shall be measured and recorded on the Certificate of Earthing and Bonding.

F.3.4.6.3 Bonding

F.3.4.6.3.1 General

F.3.4.6.3.1.1 Installation Requirements – PVC coated copper tape or cable shall be used for all bonding applications and shall be unbroken at intermediate points (refer to IEE Earthing and Bonding Guidance Note 8 Section 5.2)

The size of earth conductors is required to be calculated in accordance with the requirements of BS 7671 and shall be the same size as the phase conductors as a minimum.

Each point of connection shall be protected using an anti corrosion and sealing product.

F.3.4.6.3.2.1 Equipotential Bonding System – All exposed and extraneous-conductive parts of the installation within the hazardous area shall be connected to the equipotential bonding system on a separate earth bar as detailed in the sketch below.

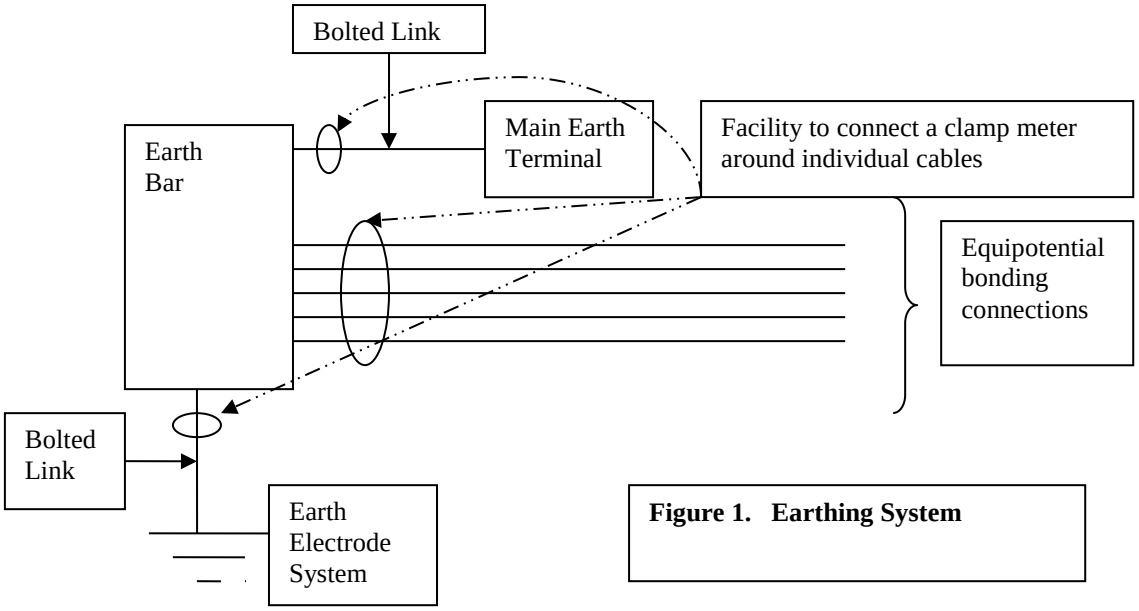
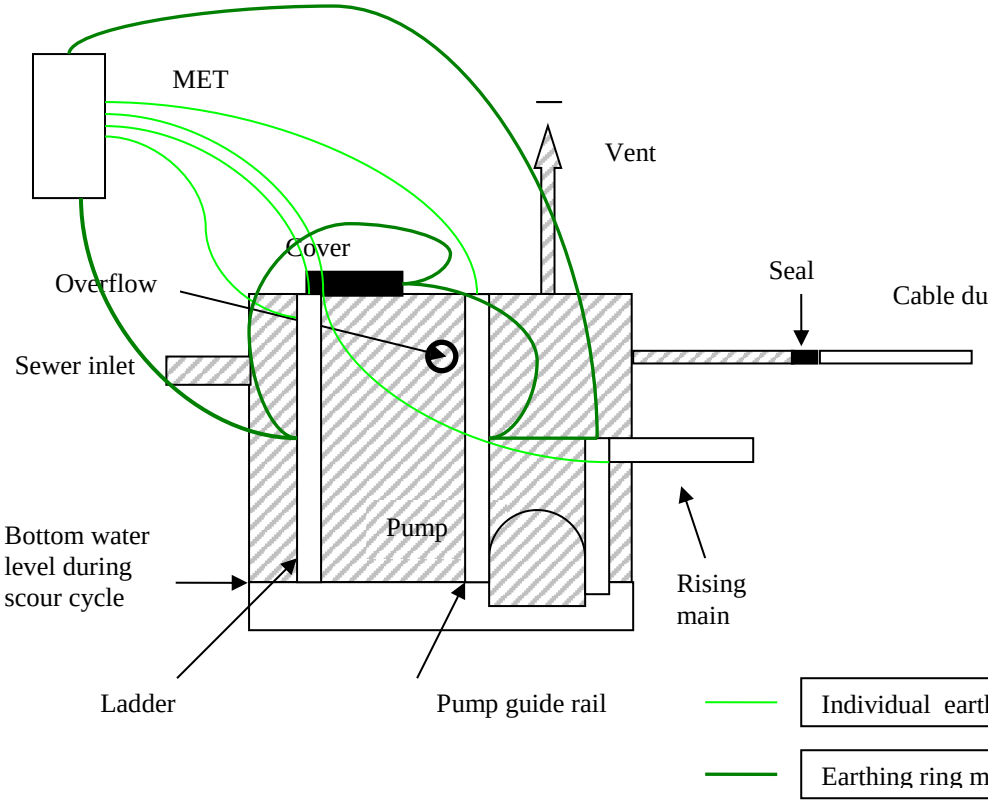


Figure 1. Earthing System

The earth bar shall be connected to the main earth terminal using a bolted link.

If the connection points are not readily accessible each item shall be connected separately to the earth bar twice, each connection point is required to be separate. Alternatively one individual connection and an earthing ring main may be installed. If a ring main is utilised Continuity of the main equipotential bonding conductor shall be maintained (refer to IEE Earthing and Bonding Guidance Note 8 Section 5.2)

This is required to ensure that a poor connection can be identified when tested. A typical example of this is shown in the sketch below.



F.3.4.6.3.3 Supplementary Equipotential Bonding

F.3.4.6.3.3.1 Supplementary Equipotential Bonding – This should be carried out as required to ensure compliance with BS 7671 and with reference to IEE Earthing and Bonding Guidance Note 8.

F3.5 Instrumentation

F3.5.1 Flowmeter Specification

F3.5.1 The flow transmitter connected to the flow sensor shall include the following features

a) Minimum 4 output relays
b) Programmed parameters stored in non volatile memory
c) Integral LCD display includes level, relay status and programming data with display being interactive in the programming mode
d) 110V ac input
e) 4-20 mA analogue signal output capability with a 750 ohms loading
f) Pulse output capability to give totalised flow output
g) Proven use within the waste water industry and suitable for out door installation rated at IP68

F3.5.1a Electromagnetic flowmeter shall be designed and installed in accordance with BS EN ISO 6817

F3.5.1b It shall be equipped with a flow sensor and a separate converter (transmitter) which shall be installed remotely from the flow sensor

F3.5.1c The flow sensor shall not incur a hydraulic head loss greater than 0.5 m when conveying maximum flow and shall not contain obstructions liable to restrict flow.

F3.5.1d Flow sensors shall be protected to BS EN 60529 – IP 68 (5 m depth of submergence). Signal convertors shall be protected to BS EN 60529 – IP 65

F3.5.1e All equipment shall be suitable for operation in ambient temperature -10C to +55C. In addition, signal convertors installed outdoors shall be protected from the effects of wind-chill and direct sunlight.

F3.5.1f The overall accuracy, as defined by WIS 7-03-01 shall be 1%. The flow sensor shall be suitably rated for the range of pressures within the installation. In addition it shall be capable of withstanding a pressure equal to twice the normal operating pressure for a period of one minute without affecting the overall accuracy on return to normal rated pressure

F3.5.1g Flowmeter flanges shall be to BS EN 1092 part 2

F3.5.1h The input voltage to the flowmeter shall be 110V a.c. Local rate of flow indication shall be provided by a digital LCD indicator which, together with a totaliser, shall be mounted integral with, or adjacent to, the signal convertor. In addition, a pulsed output signal and an isolated analogue signal shall be provided. The 4-20 mA analogue signal shall be linearly proportional to the flow rate. The signal convertor shall be connected to the flow sensor by a suitably unjointed length of cable

F3.5.1i The flowmeter shall be installed in accordance with the manufacturer's recommendations and the certification requirements. The flow sensor shall be installed with all necessary earthing electrodes, gaskets and earthing straps and be bonded to earth. Upon completion of the installation of the flow sensor, any spare cabling shall be left neatly coiled and clipped.

F3.5.1j The Developer shall supply a calibration certificate with the flowmeter that shall be issued by a NAMAS calibration laboratory. In addition details of the methods to be used for carrying out in-situ validation checks shall be provided.

The full SEVERN TRENT WATER M & E specification for electromagnetic flowmeters can be obtained from Severn Trent Water.

F3.6 Telemetry Outstation

F3.6.1 Severn Trent Water can offer to install and commission the telemetry system. There is a standard charge for this service. The Developer should contact Severn Trent Water New Connections Team for further details:
new.connections@severntrent.co.uk Tel: 0800 707 6600

FOURTH SCHEDULE
Rights and Covenants to be incorporated in a Deed of Grant of Easement pursuant to S.20.1.4 of the First Schedule

In this Schedule "the Grantor" shall mean the owner of the Protected Strip affected by the Works but not being within the Green Land (defined below) or an estate road or public highway

The following shall be incorporated into a Deed of Grant made between the Grantor and the Owner of the Green Land in addition to any rights granted to the Owner by this Deed

1. Definitions

"the Undertaker"	means Severn Trent Water Limited and its successors in title
"the Apparatus"	means the foul and/or surface water sewers lateral drains and any accessories thereto as defined by Section 219 of the Water Industry Act 1991 as are within the Protected Strip defined below
"the Green Land"	The land situate at [ ] and shown edged green on the attached plan

“the Protected Strip”	means that strip of land shown on the attached plan and thereon coloured **[ ]** and being **[ ]** metres wide and unless the contrary shall be stipulated or be clear from the drawings the Protected Strip shall lie one half to each side of the centreline of the Apparatus
"the Dominant Tenement"	means the undertaking of the Undertaker within its area as particularised in the Undertaker’s "Instrument of Appointment” as a sewerage undertaker and taking effect under the Water Act 1989 and the properties and rights forming part thereof

2. Rights

Subject to the Undertaker making good so far as is reasonably practicable or paying proper compensation for any damage not made good and to the Undertaker indemnifying the Grantor from and against all rates taxes impositions and outgoings of an annual or recurring nature claims demands proceedings damages losses costs charges and expenses arising out of the exercise of the Rights the Grantor hereby grants with full title guarantee the following perpetual rights ("the Rights") to the Undertaker for the benefit of the Dominant Tenement and each and every part thereof:

(a) The right of having retaining using inspecting the condition of reconstructing replacing relaying altering enlarging maintaining cleansing repairing conducting and managing the Apparatus in through under over or upon the Protected Strip (being the servient tenement) together with the right of having and enjoying the free flow and passage of water with or without other matter of any kind whatsoever through and by means of the Apparatus as existing from time to time in through under over or upon the Protected Strip and to discharge from the Apparatus into any canal pond lake or watercourse (as defined in section 219(1) of the Water Industry Act 1991) within or adjacent to the Protected Strip in compliance with the terms of any statutory consent granted in relation thereto and to increase or decrease such discharge and for such discharge to flow along and within the said canal pond lake or watercourse and the right at any time to take samples of such discharge

(b) For the purposes hereof and in particular for the purposes mentioned in paragraph (a) of this Schedule (and for similar purposes in relation to any connected length of pipes or works incidental thereto) the right at any time and at all times in the day or night time with or without vehicles plant machinery servants contractors and others and all necessary materials to enter upon and pass and re-pass along the Protected Strip by a route within the same or by such (if any) other convenient route from a public highway as the Undertaker shall with the approval of the Grantor (which shall not be unreasonably withheld or delayed) from time to time require doing and occasioning no unreasonable damage thereto or to the Grantor's adjoining land

(c) The right of erecting on or near the Protected Strip and maintaining any necessary markers indicating the Protected Strip or the position of the Apparatus Provided the same are not erected in such a position as to unreasonably affect the beneficial use of the Grantor's adjoining land

(d) The right in exercising the Rights to make all necessary excavations and to tip soil on land immediately adjoining such excavations as shall be necessary or desirable in relation thereto

(e) The right of fencing or severing off such part of the Protected Strip from the adjoining and adjacent land of the Grantor as shall be necessary and for so

long as may be necessary during the exercise of the Rights

(f) The right of support for the Apparatus from the subjacent and adjacent land and soil including minerals of the Grantor

(g) The right to remove all or any trees and shrubs growing in the Protected Strip and any walls hedges and fences thereon

3. Covenants

The Grantor to the intent that the burden of this covenant may run with the Protected Strip and so as to bind (so far as practicable) the same into whosesoever hands the same may come and every part thereof and to benefit and protect the apparatus and the Dominant Tenement and each and every part thereof capable of being so benefited or protected but not so as to render the Grantor personally liable for any breach of covenant committed after the Grantor has parted with all interest in the land in respect of which such breach shall occur hereby covenants with the Undertaker to observe and perform the following covenants:

1. Not to use or permit or knowingly suffer to be used the Protected Strip or any adjoining or adjacent land of the Grantor for any purpose that may:

   1.1 endanger injure or damage the Apparatus or render access thereto more difficult or expensive

   1.2 adversely affect the quality of water or other matter therein or the free flow and passage thereof or means of communication along or through the same

2. Without prejudice to the generality of the foregoing:

   2.1 not to erect construct or place any building wall or other structure or erection or any work of any kind whether permanent or temporary PROVIDED ALWAYS that this covenant shall not be deemed to prevent the erection of boundary or other fences which are of an easily removable character

   2.2 not to withdraw support from the Apparatus or from the Protected Strip

   2.3 not to undertake or cause or permit to be undertaken any piling or percussive Works within the Protected Strip

   2.4 not to alter the ground levels within the Protected Strip

   2.5 not to plant or cause or permit to be planted any trees or shrubs in the Protected Strip

   2.6 not to construct or lay or cause or permit construction or laying of any street road pipe duct or cable across the Apparatus at an angle of less than forty five degrees formed by the Apparatus and the street road pipe duct or cable PROVIDED that this prohibition shall not apply to an existing street road pipe duct or cable.

3. To advise any tenant for the time being of the Protected Strip of the existence of the Apparatus and of this deed and its contents insofar as the same relate to the tenant's occupancy and enjoyment of the Protected Strip

4. The Undertaker shall have the benefit of the right to enforce these Rights and Covenants pursuant to The Contracts (Rights of Third Parties) Act

1999.

5. Notwithstanding the earlier exercise of the Rights or the earlier enforcement of the Covenants, the Apparatus shall not vest in the Undertaker until it has issued a vesting declaration vesting the Apparatus in itself pursuant to Section 102 of the Water Industry Act 1991.

SIGNED .....

Print Name:
being duly authorised to sign this Agreement on behalf of the Developer

SIGNED .....

Print Name:
being duly authorised to sign this Agreement on behalf of the Owner

SIGNED .....

Print Name:
being duly authorised to sign this Agreement on behalf of the Adjoining Owner(s)

SIGNED .....

Print Name:
being duly authorised to sign this Agreement on behalf of the Surety

SIGNED .....

Print Name:
being duly authorised to sign this Agreement on behalf of the Undertaker