

Water Industry Commission**Discussion Document****Proposed enhanced Information requirements for the
Strategic Asset Capacity and Development Plan****Table of Contents**

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1 Background

Scottish Water is required by the Scottish Ministers to produce an annual statement outlining the capacity of the network and setting out development plans and their impact on future network capacity. The format of this report is agreed with the Water Industry Commission.

To date, the primary purpose of the document (referred to as the 'Strategic Asset Capacity and Development Plan' or SACDP) has been to assist developers in their decision making. The annual SACDP is published on Scottish Water's website; it is a snapshot of the strategic capacity of the network at the time of publication. Enquirers seeking a current position on capacity at a specific site are directed to a "live" assessment via Scottish Water's internet site. This postcode based facility provides an up-to-date report of the strategic capacity of the network likely to be used to service the site.

The introduction of retail competition for water and waste-water services in Scotland, and in particular the emergence of licensed providers seeking new opportunities on the water and wastewater infrastructure has prompted a review of the extent of information provided by Scottish Water in their SACDP.

A particular requirement has been to ensure that applicants seeking opportunities under "Section 29E"¹ of the legislation introducing competition have sufficient information to make a judgement of the extent of opportunities available. A potential opportunity exists for Section 29E applicants where operating costs or capital expenditure by Scottish Water can be avoided or deferred. Identifying such opportunities, even in outline, typically requires knowledge of Scottish Water's network capacities, development plans and network costs. More information on the Section 29E framework and how it can be used by applicants is provided in the attached document.

The present SACDP does not allow a potential Section 29E applicant to fully explore these opportunities partly because it is limited to 'Part 4'² (i.e. strategic) above-ground asset information. The Water Industry Commission for Scotland (WICS) wrote to Scottish Water (SW) in April 2008 to outline the requirement for improvements to the Strategic Asset Capacity and Development Plan. The improvements requested are primarily associated with facilitating 'Section 29E' applications but also provides better information for developers.

¹ Section 29E of the Water Industry (Scotland) Act 2002 as modified by the Water Services etc. (Scotland) Act 2005

² See Section 4 below for a full explanation of 'Part 4' assets

The Commission proposes to develop the format of the SACDP over the next few months to allow the new format to be finalised in time for Scottish Water's April 2009 SACDP publication. Given the extent of the new information contained in the revised SACDP, and the limitations of Scottish Water's current information systems, it is possible that not all the required information will be available in time for the April 2009 publication. However, we propose to agree with Scottish Water a timetable setting out dates by which any missing information can be included.

2 Aim

The purpose of this discussion document is to present the Commission's current thinking on the extent of changes required to the SACDP and establish whether the format and content of the information suggested by WICS is sufficient for a high level assessment of S29E opportunities.

3 Objectives

This discussion document is intended to

- present the logic behind the suggested improvements to the SACDP;
- suggest a format for the information to be recorded by Scottish Water;
- set out a provisional development timetable; and
- invite comments on the format and content of the information requested.

This document and the associated information tables and definitions have been prepared by the WICS to help establish an expectation of the information believed to be relevant and proportional. However, discussions with stakeholders are critical to ensure that the information acquired meets applicants' needs. As such this document is the first stage in the development of the proposals which will culminate in revised submission in time for the next SACDP in April 2009.

The next section of the document introduces the logic behind the proposed improvements. It is followed by a section which identifies the information that the Commission currently considers is required to support the approach. The subsequent section illustrates how the information requirements can be visualised in terms of Scottish Water's water and wastewater network. The penultimate section presents a provisional timetable for taking this work forward. The document ends with a series of questions intended to test the approach and allow stakeholders to shape its development.

Accompanying this discussion document are initial drafts of the information tables and associated definitions which will capture the information requirements. The concept is that these tables would form an appendix to the SACDP, providing detailed information to applicants. Our current view is that this "raw" information should be made directly available to applicants to allow

detailed analysis of opportunities. It is for Scottish Water to consider how access to this information can be made more “user friendly” for applicants who are less familiar with the technical characteristics of the water and wastewater industry.

It is worth noting that similar information on network usage, capacity and development is routinely published by other utility providers to help inform potential market participants and developers to identify opportunities. For example, the electricity industry provides a “Seven Year Statement” detailing this information for transmission system assets while the local distribution companies provide Long Term Development Statements covering a range of network information. The information provided in these documents appears proportionate to the level of information being requested of Scottish Water.

4 Concept

This section sets out the basis for an improved Strategic Asset Capacity Development Plan in the context of what information may be required by an applicant seeking to exploit opportunities under Section 29E.

As part of establishing new connections to the water and wastewater networks, Developers carry responsibility for financing the elements of the network termed ‘Part 1’ and ‘Part 2’ which are the elements of the network required to be installed to provide capacity for the new connection. Developers also fund any required reinforcements to the local ‘Part 3’ existing network. Scottish Water is funded to provide any ‘Part 4’ improvements to the strategic network feeding the location. These network elements are illustrated in Figure 1 below.

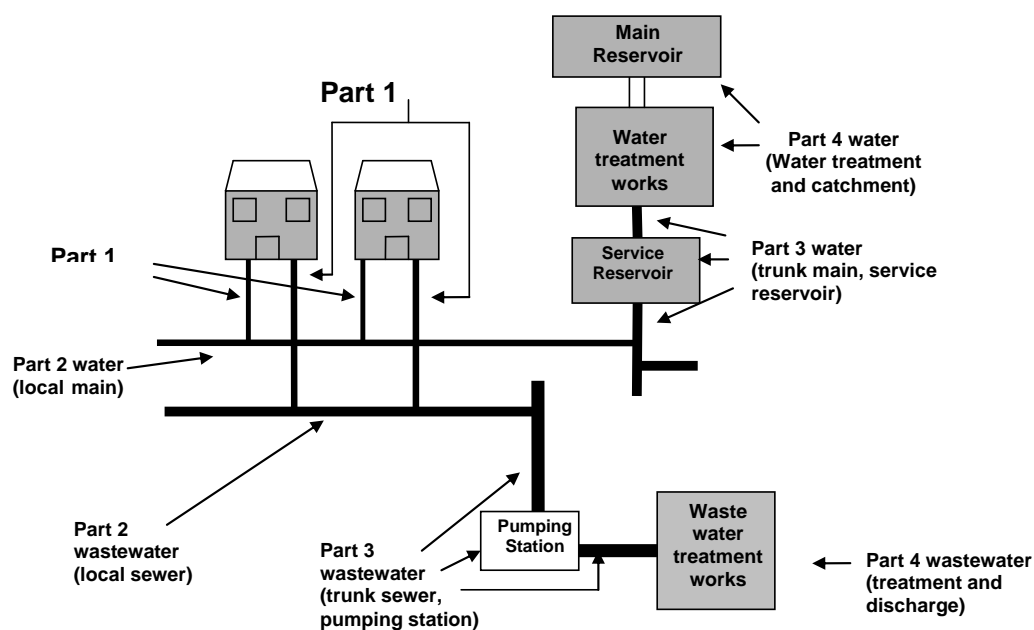


Figure 1 – Parts of the Infrastructure

Future Strategic Asset Capacity Development Plans shall capture sufficient information relating to 'Part 3' existing local assets as well as additional 'Part 4' information on the strategic network to reveal the available capacity and planned interventions for both these network elements and for above and below ground infrastructure.

Under Section 29E applications a potential applicant would wish to understand both the current and future operating characteristics of the network. In particular, the applicant will need capacity information to inform their evaluation of the options available. This may include (for example):

- requiring to understand the extent and nature of constraints on network capacity and the assumptions used in establishing capacity (and/or demand/load)
- assessing the scope for avoiding a constraint by connecting further downstream on a sewer network (i.e. over-pump) or limiting their demand to the available capacity e.g. changing their discharge/demand pattern or providing storage.
- Seeking opportunities throughout the network to reduce costs through deferring investment or reducing operational costs.

To allow a more informed evaluation of the options available to Section 29E applicants, additional information on asset attributes such as location, connectivity, planned investment, depreciation, operational expenditure, risk (in terms of condition and performance) and customer related information requires to be made available.

In establishing the scope of these requirements, the Commission has been mindful that there is a level of operational detail which can only be made available at asset specific level e.g. detailed information on operating regimes at individual treatment works. Also, a 'break-point' needs to be established in the network which defines the point at which information on network usage, capacity and connectivity becomes so localised (e.g. at property level) that it is no longer feasible or appropriate to provide the information at a global level in a document such as the SACDP.

It is also possible that different levels of detail are required for different types of information. The proposed revisions cover financial, asset related and investment related information. Scottish Water has indicated that the financial information requested can currently be provided at source, treatment works and water or drainage operational area. They have indicated that reporting financial information at a lower level, such as at District Metered Areas (DMAs) for water or trunk sewers for wastewater, would entail significant additional analysis and may not provide accurate information. However, it is likely that asset related and investment related information will be available at DMA or trunk sewer level.

The aim is to provide sufficient network information to allow developers and Section 29E applicants to carry out a high level assessment of opportunities. Detailed assessments on a site specific basis can then be pursued through contact with Scottish Water and the provision by Scottish Water of detailed information relating to local assets. The information request and provision protocols required to ensure the timely provision of appropriate detailed network information are not covered in this document. It will, however, be important to ensure these protocols are established and the Commission will consider further how best to ensure this.

It is envisaged that the information provided in the SACDP on the impact of future investment will be based on Scottish Water's current investment plans to meet the overall objectives set by Ministers. In some cases, such as projects to maintain the existing level of service provided by the network, information on investment proposals may only be available for one or more years ahead. Projects to provide environmental or drinking water quality improvements are typically planned further in advance and future plans in these areas covering at least four years ahead should typically form the basis of the SACDP.

It is envisaged that the completed information tables and the accompanying definitions would be appended to the SACDP for publication by Scottish Water. This will ensure that the detailed information is available for expert users such as agents acting on behalf of Section 29E applicants. However, it is recognised that there may be ways for Scottish Water to assemble this information in such a way that it allows greater accessibility for non-expert users. For example, the data collected in the tables could be presented in graphical form using a Geographical Information System. We would welcome views on how best the information could be presented, possibly in future versions of the SACDP.

5 Defining the Information Required

This section sets out the extent of the information requested under the proposed revised SACDP. In particular it shows the main building blocks used to assess asset capacity (the main method of articulating system capability).

In order to ensure that the extent of information provided is sufficient to meet applicants' needs but avoids becoming impractical, we have identified a group of primary assets for which information should be made available by Scottish Water. These primary assets are listed in Table 2. Secondary assets for which it is envisaged that information provision is not required are listed in a secondary asset group, also in Table 2; information relating to this secondary group would be made available on special request.

We recognise that there may be security related concerns which could limit the extent of information that can be provided in the public domain. We will work with Scottish Water to ascertain what specific information may be unsuitable for general release.

Primary Asset Groups	Secondary Asset Groups
<ul style="list-style-type: none"> – Water treatment works – Sewage treatment works – Infrastructure: including, on the water side, trunk mains, bulk transfer pipes, but not small water mains or service pipes. On the dirty water side this would capture trunk sewers and rising mains. – Storage (for example reservoirs and in-line/off-line storage tanks) – Pumping Stations (i.e. potable water booster stations and foul transfer stations) – Sludge treatment 	<ul style="list-style-type: none"> – Water resources (dams, impounding reservoirs, abstractions (river, ground)) – Sludge disposal – Management & General (i.e. IT and telemetry costs) – Customer ancillaries (CP's , laterals, connections) – Valves (including Pressure Sustaining Valves or Pressure Reduction Valves) – Revenue meters – System metering – Intermittent discharges & sewerage structures (i.e. CSO chambers)

Table 2 – Primary and Secondary Asset Groups

For the primary asset group, the information provided on system capacity would include both system capacity (the practical limit on demand) and asset

capacity (the theoretical limit on demand that can be met from an individual asset independently of other constraints in the system). The available practical capacity will, in simple terms, be derived from an understanding of the utilised capacity less that reserved for operational security. The assessment will also reveal the additional, theoretical capacity arising from planned investment.

This representation of asset capacity is illustrated in Figure 3. This illustration is used later on in the document to demonstrate the asset capacity assessment process for an example of a potable-water system.

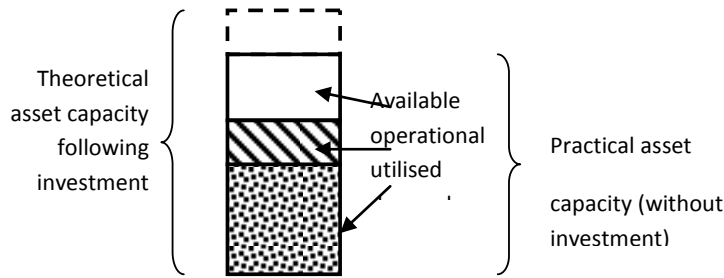


Figure 3 – Diagrammatic representation of Asset Capacity

The required asset capacity information for each primary asset is listed in Table 3 and is further expanded in the accompanying tables. A set of definitions provides information for each field entry.

Line item	Practical	Theoretical	Explanation
System Capacity	(1)		Practical available operational capacity
Asset capacity	(2)		Theoretical capacity of the asset
Load/ Demand – peak	(3)		Peak throughput under normal operating conditions used for design (for existing customer base)
Load / Demand - average	(4)		The average throughput under normal operating conditions (for existing customer base)
Available/Accounted for	(5)	(1) minus (3) or (4)	Headroom / capacity for operational needs and future demand (growth)
Operational constraints	(6)		Exclude growth and uncertainty
Available/Free	(7)	(5) minus (6)	Anticipated headroom
Impact of investment on asset capacity	(8)	(1) post investment	Theoretical capacity of the asset after investment

Table 3 – Deriving Asset Capacity

Impact of key assumptions

The network capacity information provided by Scottish Water will clearly be impacted by a number of key assumptions regarding the operation of the asset. In order that applicants can identify these key assumptions, which they may wish to influence, it is proposed that applicants may request further details from Scottish Water regarding the assumptions made in determining capacity at specific assets. In particular, assumptions should be clearly identified as to whether they apply to Scottish Water's area as a whole, area or to specific assets. Relevant key assumptions may include:

Water treatment works	Seasonal variations, demand profiles, raw water quality, PCC, leakage, losses, growth assumptions
Sewage treatment works	Seasonal variations, discharge profiles, strengths, loads and volumes, infiltration, growth assumptions

Infrastructure	Hydraulic model input/output data and key assumptions, demand profiles etc. Hydraulic gradient or velocity limit, size, age, condition, material, surface, valves & fittings frequency, crossings. Growth assumptions.
Storage	Design standards (days storage), type of construction, configuration (compartments, inlet/outlet etc), growth assumptions
Sludge treatment	Flow sequence (thicken/dewater/digest etc), growth assumptions

Broader Information Requirements

In addition to the assessment of asset capacity it is envisaged that additional information on asset attributes, depreciation, operational expenditure, risk and about the number of customers served would allow Section 29E enquirers to establish the potential opportunity to avoid or defer operating costs or capital expenditure. These headings form the structure of the accompanying information tables. Table 4 shows an abridged version to indicate the full scale of the information which it is proposed will be collected across all the Primary Asset Groups.

As discussed above, Scottish Water has indicated that providing financial information on operating costs and depreciation would be difficult below the level of water and drainage operational areas due to limitations of the current information systems. Currently, we have included cost information in the attached tables for all asset types but it is for consideration whether there is benefit to potential section 29E applicants of operating cost and depreciation information for infrastructure below operational area level. We would particularly welcome feedback in this area.

Asset Information	Asset Types → Asset Sub-Information	WTW	STW	Infrastructure		Storage		Pump stations		Sludge centres	
				Mains	Sewers	W	S	W	S		
				(1)	(2)	(3)	(4)	(5)	(6)		(7)
Location	Identifier										
Physical	Asset classification										
	Source node	n/a									
	Discharge node		n/a								n/a
Capacity	System capacity										
	System constraint										
	Asset capacity										
	Peak throughput		n/a		n/a						
	Average throughput										
	Calculated headroom	C	C	C	C	C	C	C	C	C	C
	Headroom adjustment										
	Anticipated Headroom	C	C	C	C	C	C	C	C	C	C
Investment	Planned Investment (£m)										
	Project refs										
	Impact of investment on asset capacity										
Depreciation (£m)	Gross Book Value										
	Net Book value			n/a	n/a						
	Annual charge										
Opex (£m)	Operating Expenditure										
Risk	Condition grade										
	Performance grade										
Customers	Household DI / p.e.			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Household (nrs)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Non- Household DI / p.e.			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Non- Household (nrs)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

I= Input field
 C= Calculated field
 n/a = not applicable
 W= Water (potable)
 S = Sewage

Table 4 – Full Scale of Information Required under the extended SACDP

6 Visualising the SACDP Information

At a conceptual level (and using water treatment and delivery as an example) a unique set of assets links a customer back from the supply point to a water treatment works. The real (and potentially more complex) network can be relatively well represented by a relatively small number of ‘virtual’ pipes and structures. Sufficient information will be collected in the SACDP to allow a simple representation of the system, as illustrated in Figure 3a, in a skeletal form.

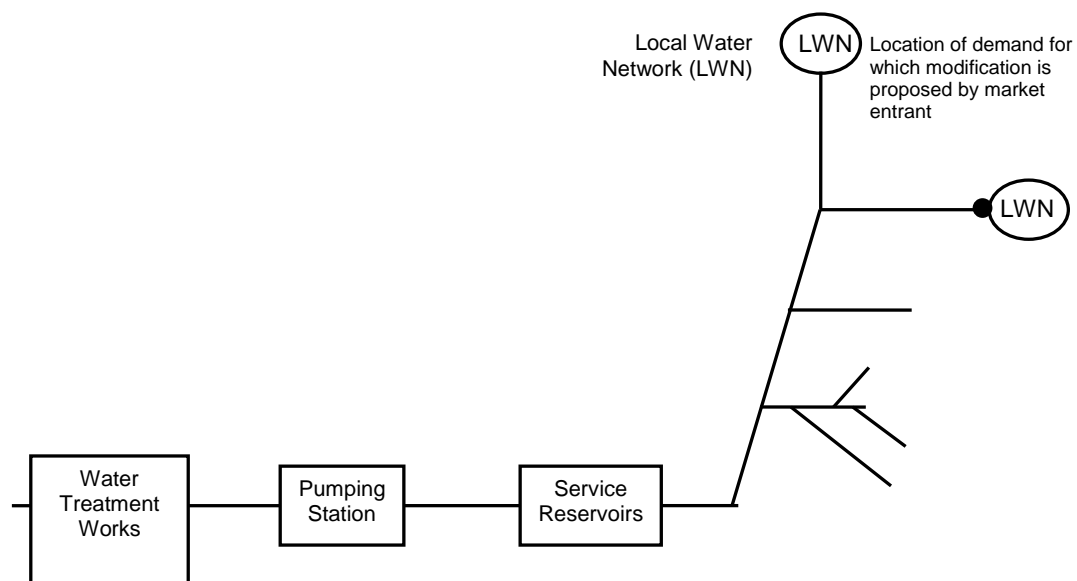


Figure 4a– Existing Water Supply System (skeletal form)

The diagram illustrates that it is envisaged that information provision on the water network through the SACDP will extend as far as the input point to the local network. In many cases this could be up to the “District Metered Areas” or DMAs. The local networks are typically groups of 100 to 1000 properties which comprise a complex network of pipes fed from a point source with water input metered at this source.

It is anticipated that this level of information provision on the water network (i.e. up to the metered local network) is sufficient for an applicant to assess general opportunities for development and/or accessing Section 29E opportunities. Within this local network the added network complexity may add a level of detail that is unsuitable for global information provision and requires specific information requests to be made. This break-point has not yet been definitively established but is expected to capture pressurised pipes of 300mm in diameter or greater for water infrastructure. We are seeking

feedback from Scottish Water and potential applicants to confirm whether more, or less, information should be provided on a global basis through the SACDP i.e. whether this threshold is appropriate.

A similar approach can mimic the waste-water collection and treatment system, Figure 3b refers.

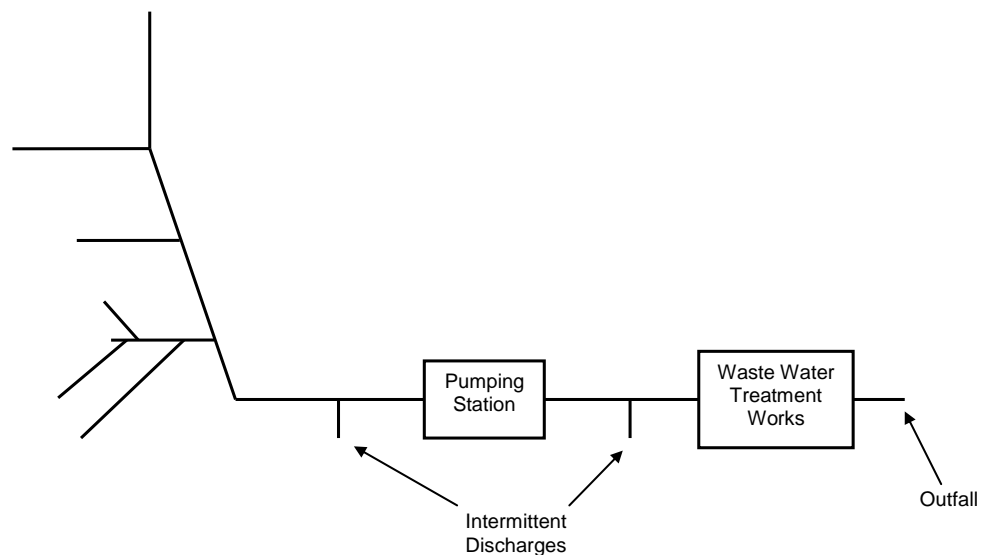


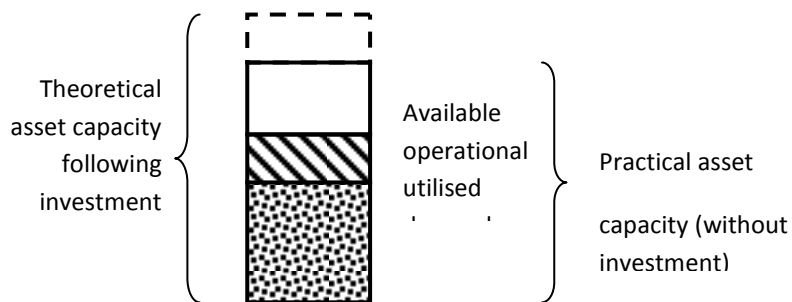
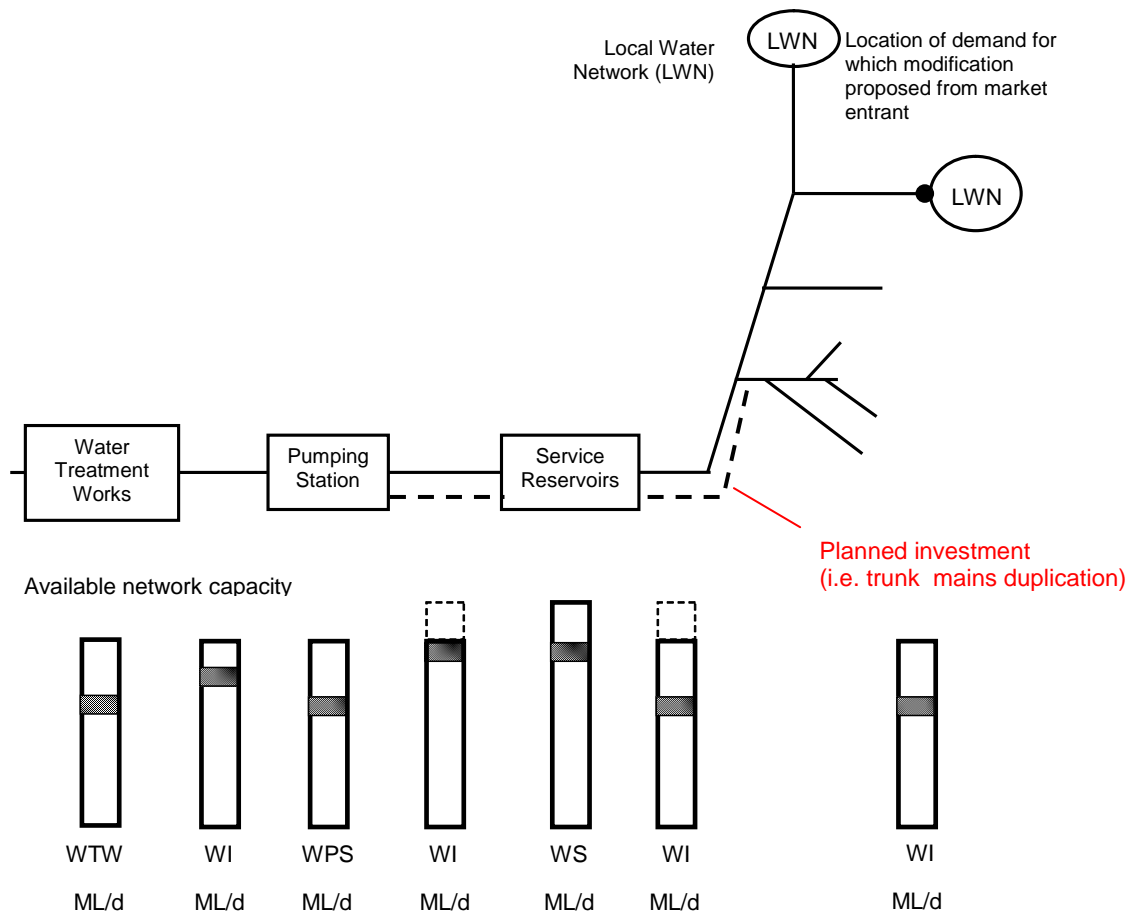
Figure 4b– Existing Waste Water System (skeletal form)

On the wastewater system it is currently envisaged that the break point for global information provision through the SACDP will be the trunk sewers. Typically, these would be pipes of diameter greater than 900mm. Information will be provided on these trunk sewers and the downstream network elements such as pumping stations and waste water treatment works.

Taking the example of a water network as shown in Figure 4a above, and using the information collected in the Tables, it should be possible to assess the asset capacity/constraints that exist across the water supply system. Figure 5 attempts to illustrate the assessment that a Section 29E applicant may undertake. It shows the available capacity (diagrammatically) for each component of the network, including the additional capacity expected from forthcoming capital investment. This, along with the other information contained in the Tables on network costs, should allow an applicant to identify and cost, at least in outline, the range of opportunities available.

It is also hoped that the broad description contained in the tables of how a point in the system is served will allow licensed providers or large users to pinpoint those assets or key assumptions which they are able to influence under a Section 29E proposal. This may be assisted by geographical information provided by Scottish Water, within the constraints allowed by considerations of physical network security.

Figure 5– Water System showing component capacity



Development Timetable

A provisional timetable for the development of the new format SACDP is presented below. It sets out the critical milestones in the refinement of the approach to the implementation of the new SACDP in April 2009.

Date	Activity
By Friday 14th November	Proposal issued to relevant parties (This document)
By Monday 8th December	Proposal responses in
By Wednesday 17th December	WIC issues final information requirement
By Tuesday 16th February 2009	Scottish Water submits first draft SACDP in new format to WICS
By Friday 6th March 2009	WIC responds to first draft SACDP submission
By Wednesday 1 April 2009	Scottish Water publishes first SACDP in new format

The Commission recognises the urgency placed on improved information provision by those seeking Section 29E opportunities and the timetable is accordingly relatively short. The timetable does, however, recognise that the preparation of information required to complete the new format SACDP will necessitate significant effort by Scottish Water at a time when Scottish Water's resources are heavily committed to the preparation of Business Plans for the 2010-14 Strategic Review of Charges.

During the discussion process, we will be continuing our dialogue with Scottish Water to establish availability and quality of the information requested in the new format. Where information is not available, or of poor quality, we propose to seek a timetable for provision of improved information from Scottish Water. Whilst we will ensure that this work is given sufficient priority by Scottish Water, the timetable for this improved provision may extend beyond the 1 April 2009.

7 Stakeholder Questions

The primary aim of this discussion document is to establish whether the information proposed for the new format SACDP is sufficient for a high level assessment of Section 29E opportunities to be carried out. In line with this, we invite Scottish Water, potential Section 29E applicants, licensed retail providers and developers to comment on the following:

1. Does this proposal catch the minimum information necessary to identify opportunities under Section 29E and, if not, whether there is additional information, which users might reasonably require on a global network basis?

2. Whether the information 'break-point' (threshold) proposed is correct?

3. Whether the new format SACDP includes information that users consider they are unlikely to use? In particular, for operating cost and depreciation information, is there benefit in including information below water and drainage operational area level?

4. To allow for information which is currently not available or of poor quality, what are the priorities for improved information for Section 29E applicants? For example, is information on treatment capacity a higher priority than on trunk mains? Or, is information related to assets where major investment is planned a higher priority?

5. How frequently the information provided should be updated?

6. The presentation and accessibility of the information?

7. The importance of, and arrangements for ensuring, accessibility of detailed information not covered in the SACDP?

Responses should be returned to Dr David Tyler, Senior Engineer at the Water Industry Commission for Scotland by Monday 8th December 2008. The postal address is Ochil House, Springkerse Business Park, Stirling, FK7 7XE.

The email address is david.tyler@watercommission.co.uk