

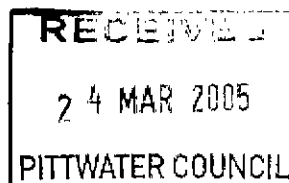
DAG
24/3/05

Sydney
WATER

21 March 2005

Mr Angus Gordon
General Manager
Pittwater Council
PO Box 882
MONA VALE NSW 1660

File Ref No: 2003/00246F-02



Attention: Joanne Marshall

Dear Mr Gordon

**RE: Development Application: R0007/04
Proposed Rezoning 2, 10, 18, 20, 22 & 28 Ingleside Road, Ingleside**

I refer to your letter dated 12 January 2005 for the rezoning and subdivision of the above mentioned land.

Sydney Water has previously provided advice to Pittwater Council regarding this proposal (see letter attached dated 24 November 2004). Sydney Water requests that Council take Sydney Water's comments, outlined in the attached letter, into consideration when determining the Development Application.

If you have any queries or require further information, please contact the Urban Growth Branch:

Nick Chapman (02) 9350 6648 or email nick.chapman@sydneywater.com.au or
Glenn Dawes (02) 9350 6207 or email glenn.dawes@sydneywater.com.au

Yours sincerely

A handwritten signature in black ink, appearing to be "TG" or similar initials.

 **Tom Gellibrand**
Manager, Urban Growth Branch

24 November 2004

Mr Angus Gordon
General Manger
Pittwater Council
PO Box 882
MONA VALE NSW 1660

File Ref No: 2003/00246F-02

Attention: Joanne Marshall

Dear Mr Gordon

**RE: Development Application: R0007/04
Proposed Rezoning 2, 10, 18, 20, 22 & 28 Ingleside Road, Ingleside**

I refer to your letter dated 11 November 2004 for the rezoning of 2, 10, 18, 20, 22 & 28 Ingleside Road, Ingleside from Non Urban 1(a) to allow for residential development. The residual lot will be rezoned to Environmental Protection 7(a). Sydney Water has reviewed the proposal and has no 'in-principal' objection to the proposal, subject to the following comments being considered by Council.

1.0 Section 73 Compliance Certificate

Sydney Water advises that once the rezoning occurs, the developers of the residential lots fronting Ingleside Road will be required to obtain a Section 73 Compliance Certificate from Sydney Water. Sydney Water recommends that Council stipulate that the developer secures a Section 73 Certificate from Sydney Water as a condition of consent. Issuing of the Certificate will confirm that the proponent has met Sydney Water's detailed requirements, which include:

- Correctly sized water and wastewater mains; extensions or amplifications to existing water and wastewater systems (if necessary);
- Building over/adjacent to Sydney Water's existing water, sewerage or stormwater infrastructure;
- Payment of Sydney Water charges; and
- The completion of any other requirements.

Adjustments to existing Sydney Water systems resulting from developer activity will be charged to the particular development. Developers are advised to engage the services of a Water Servicing Coordinator (WSC) to obtain a Section 73 Certificate and manage the servicing aspects of their projects. Details are available from any Sydney Water Customer Centre on 13 20 92 or Sydney Water's website at www.sydneywater.com.au.

2.0 Building Over/Adjacent to Sydney Water's Pipes and Structures

A Sydney Water 600mm water main, a 100mm water main and a 50mm sewer main are within and adjacent to the proposed area to be rezoned. These assets, which run through the southern, eastern and western boundaries, are shown on the attached plan. Any development on site, which may impact on these assets, will be required to comply with Sydney Water's *Guidelines on Precautions to be Taken when Building over or adjacent to Sydney Water's Assets* (which is enclosed for you information).

Council may be aware that Sydney Water owns land adjacent to the proposed development site. A water treatment works and the Ingleside Park water supply reservoirs presently occupy

this land. Developers will need to be aware that these facilities are operational 24 hours a day.

3.0 Water Conservation Measures - BASIX

Council will be aware that the State Government recently announced that all Sydney Metropolitan Council are subject to BASIX (The Building Sustainability Index) Water and Energy targets from 1 July 2004. Under BASIX, all residential developments are required to achieve a potential reduction of potable water consumption of 40%. This standard can be achieved in a combination of ways, such as:

1. Installation of AAA (or higher) rated water conservation devices such as dual flush toilets, showerhead fittings and tap fittings; and
2. Connection to an appropriate recycled water supply (if available) or installation of rainwater tanks or an equivalent communal system (with a minimum specified volume), to meet a range of appropriate water needs, such as toilet flushing, cold water supply to washing machines, and irrigation.

For further information on how to conserve water and Sydney Water's regulations regarding the installation of rainwater tanks, please refer to the Water Conservation and Recycling section of Sydney Water's website at www.sydneywater.com.au.

4.0 Landscaping

In relation to any proposed landscaping, Sydney Water emphasises the potential for tree roots to cause damage to water and sewer pipes. There are a number of tree species that are of concern to Sydney Water because they have significant biomass and/or invasive root systems, which can cause cracking or blockage of Sydney Water assets. Pipe damage in turn may increase the risk of sewer overflows under certain weather conditions, and significantly increases maintenance costs to the water and sewer system. Enclosed is a list of tree species of concern to Sydney Water.

If you have any queries or require further information, please contact the Urban Growth Branch:

Nick Chapman (02) 9350 6648 or email nick.chapman@sydneywater.com.au or
Glenn Dawes (02) 9350 6207 or email glenn.dawes@sydneywater.com.au

Yours sincerely


for **Tom Gellibrand**
Manager, Urban Growth Branch



THINKING OF BUILDING?

***WATCH OUT FOR SYDNEY WATER'S PIPES
AND STRUCTURES!***

***GUIDELINES ON PRECAUTIONS TO BE
TAKEN WHEN BUILDING OVER OR
ADJACENT TO SYDNEY WATER'S ASSETS***

Revised 2/3/04

Customer Handout

ARE YOU CONTEMPLATING BUILDING?

HERE ARE A FEW HELPFUL HINTS TO CONSIDER BEFORE YOU START

BUILDING PLANS

Prior to commencement of any work, your building plans must be presented to Sydney Water and to your local Council for approval.

All building plans must be submitted for approval and stamped by Sydney Water or by a Quick Check agent. You will need a copy of the architectural site plan for this check.

Sydney Water's Pipes Or Structures Not affected

If all is in order and no building over/adjacent precautions apply, then the plans are usually stamped 'Approved' over the counter.

BEFORE PLANNING YOUR BUILDING

It will be necessary to determine the location of your proposed structure in relation to Sydney Water's pipes or structures. In many cases this will simply involve checking the location of the proposed building against Sydney Water's records. (Sydney Water's diagrams – plans are available at all Quick Check agents and Sydney Water Customer Centres)

One of the main items Sydney Water will look into when you submit your plans is the location of your proposed structure (eg. building, addition, garage, carport, swimming pool, retaining wall) in relation to our pipes and structures. Sydney Water does not permit building over every pipe! Generally speaking, the only pipes, which can be built over, are the smaller types made of vitrified clay, earthenware or plastic eg. 150mm, 225mm, 300mm that are usually denoted VCP, SGWP, UPVC or 'P' (pipe). Larger pipes/sewers may possibly be able to be built over, you will need to contact Sydney Water's Technical Services department for this situation.

IF SYDNEY WATER'S PIPES OR STRUCTURES APPEAR AFFECTED

If it appears that your building may come within a certain distance of a Sydney Water pipe or structure, we will require a Service Protection Report (pegout) to determine if there are any special requirements relating to Sydney Water's system.

In this case, you will need to decide between Sydney Water and an external accredited supplier to perform the Service Protection report. (For a list of Accredited Suppliers see Sydney Water's web site on www.sydneywater.com.au) If you choose Sydney Water you can lodge an application at a Quick Check agent or a Sydney Water Customer Centre.

The officer carrying out the Service Protection report cannot advise you on the exact building-over/adjacent to pipe or structure precautions that you will need to take. Assistance in this regard can be obtained from your architect/builder or by contacting Sydney Water's Contact Centre on 132092.

What Will Sydney Water Require

When you lodge your building plans for approval you will need to submit: -

- *Service Protection report*
- *Architectural plan, this plan must include a clear site plan*
- *Engineering plans and report*

Please Note:

In the event of approved plans being varied, the revised plans must be resubmitted to your Local Council and Sydney Water.

BUILDING OVER OR ADJACENT TO SYDNEY WATER'S PIPES OR STRUCTURES

Where it is determined that the proposed structure will be within the zone of influence (ZOI), Sydney Water will require that you take special precautions to safeguard both its systems and your building.

Once all has been checked, the plans will be approved, conditional on meeting certain requirements. The Technical Services Officer will advise you as to the inspector who will inspect these requirements. (Likely to involve foundation work, possible concrete encasement of the pipe and any other special precautions).

There is a fee required for this work, which covers office processing and field inspections. If concrete encasement is needed an extra inspection fee will be required.

PRECAUTIONS

The precautions you will need to take can only be definitely decided after Sydney Water has reviewed your plans. However, the more usual precautions to be taken when building over/adjacent to a pipe or structure include: -

Taking foundations piers etc below the 'zone of influence' of the pipe, or to solid rock.

The 'zone of influence' is the area around a pipe that is likely to be influenced by building loads and depends on the nature of the ground. It is required to take foundation piers etc below the 'zone of influence' (ZOI) of the pipe (see diagrams) or to solid rock.

This ensures that the weight of the structure is not transmitted to the pipe or structure (eg: sewer) and so eliminates, as far as practicable, the possibility of Sydney Water's pipe or structure being damaged by the proposed structure/building in the event of say a pipe failing, or excavation work being undertaken.

You will have to engage a suitably qualified engineer to design the foundations for you.

Concrete encasement of our pipes

This serves to strengthen Sydney Water's pipes and to make the need for further maintenance most unlikely. It also minimises the chances of leakages from the pipes. Usually 150mm of unreinforced concrete is required all around the pipe. Encasement to extend a min 0.6mtrs beyond the external walls of the structure.

All pipes requiring concrete encasement must be removed and replaced in situ with suitable material prior to encasing. (Unless, once excavated, our Civil Maintenance inspector verifies that the existing pipes are satisfactory to retain).

Please Note:

You must engage the services of a Sydney Water accredited constructor to carry out the concrete encasement of the pipes. The constructor must enter into an agreement with Sydney Water prior to works commencing by lodging an application at a Quick Check agent or at a Sydney Water Customer Centre.

AGENTS DETAILS FOR QUICK CHECK OUTLETS

The following three Franchises were successful in tendering to provide Quick Check through some of their outlets as at 04/12/03.

Agent	Site	Address	Phone	Fax	DX No.
Tradelink	Auburn	40 Percy Street	9647 4422	9647 1279	2656 W
Reece	Brookvale	25 Orchard Road	9938 6166	9938 6230	2661 W
Cooks	Castle Hill	2 Victoria Avenue	9899 7477	9899 4736	2665 W
Reece	Kings Park	4 Melissa Place	9621 3200	9621 3963	2658 W
Tradelink	Lidcombe	175 Airs Road	8737 5457	8737 5508	2654W
Tradelink	Leumeah	3/314 Hoxton Park Road	4628 3611	4625 6700	2651 W
Tradelink	Liverpool	Yarmouth Place	96089322	9608 9622	2667 W
Reece	Narrellan	10 Grex Ave	46476837	46474388	2527W
Reece	Minchinbury	50 Darley Road	9625 5688	9677 0737	2530W
Tradelink	Mona Vale	27 Loyalty Road	99973022	9997 8022	2668 W
Cooks	North Rocks	3 Coombes Drive	9630 5250	9683 1815	2664 W
Reece	Penrith	105 Bonds Road	4731 4688	4731 4975	2657 W
Reece	Punchbowl	37 Herbert Street	9534 2088	9533 4615	2663 W
Reece	St Leonards	3/43 Bay Road	9436 2366	9436 2343	2662 W
Tradelink	Taren Point	2-4 Lymore Avenue	9525 4333	9531 0666	2655W
Reece	Thornleigh	20 Danks Street	9484 2711	9484 6574	2659 W
Reece	Waterloo	3/1271 The Horsley Drive	9699 2699	9699 2059	2660 W
Reece	Wetherill Park	96 George Street	9756 0843	9756 0849	2653 W
Cooks	Windsor		4587 8100	4587 8055	2666 W

A list of accredited contractors is available on Sydney Water's web site (www.sydneywater.com.au) or by contacting Sydney Water's Contact Centre on 1322092.

Clearance Requirements

- *Clearance requirements between the foundations of your proposed structure and Sydney Water's pipes or structures will need to be maintained.*
- *Clearance from the concrete encasement surrounding the pipe, both above and to the side may be specified.*

This is to enable Sydney Water to excavate down to its pipe, should the need arise, without affecting the structural integrity of your building.

Sydney Water would be prepared to consider other forms of practical access to its pipes and structures. Such access should be clearly indicated on your building/engineering plans.

MAINTENANCE STRUCTURES

Generally there is a prohibition on building over or near a Sydney Water structure if the proposed building/structure will restrict access to, or the ventilation of, the fixture.

Maintenance structures provide Sydney Water with access to the interiors of its pipes for maintenance work. Sydney Water needs 24hr unrestricted admission to its fixtures.

Minimum clearance distance permitted

Minimum one metre horizontal distance from the face of the structure/building to the outer edge of the working cover of all maintenance structures. (Maintenance Holes, Maintenance Shafts, Terminal Maintenance Shafts, and one metre working space for Vent Shafts etc)

INDEMNITY LETTER

Any property owner who proposes to build over/adjacent to a Sydney Water pipe or structure may be required to provide a letter of indemnity. This is to indemnify Sydney Water against any claims out of the presence/maintenance operations of a Sydney Water pipe or structure within the property.

IMPORTANT POINTS TO NOTE

No building operations should commence before Sydney Water has approved your plans. The Sydney Water Act has provided for the demolition of structures not approved by Sydney Water.

Costs

You will be responsible for meeting the cost of your building over/adjacent precautions. As these can add to the cost of your project you may be well served by taking time to reassess your project to see whether it can be located in a position, which does not span or encroach on the "zone of influence" of the pipe.

Remember

By protecting Sydney Water's pipes and structures when you build you will ensure, as much as possible, that your future enjoyment of your structure will not be disturbed at some future time by the failure of the pipe. You may also have difficulty when trying to sell a building that has not been built to comply with Sydney Water's requirements.

BUILDING OVER SEWERS A GUIDELINE AS TO CONDITIONS

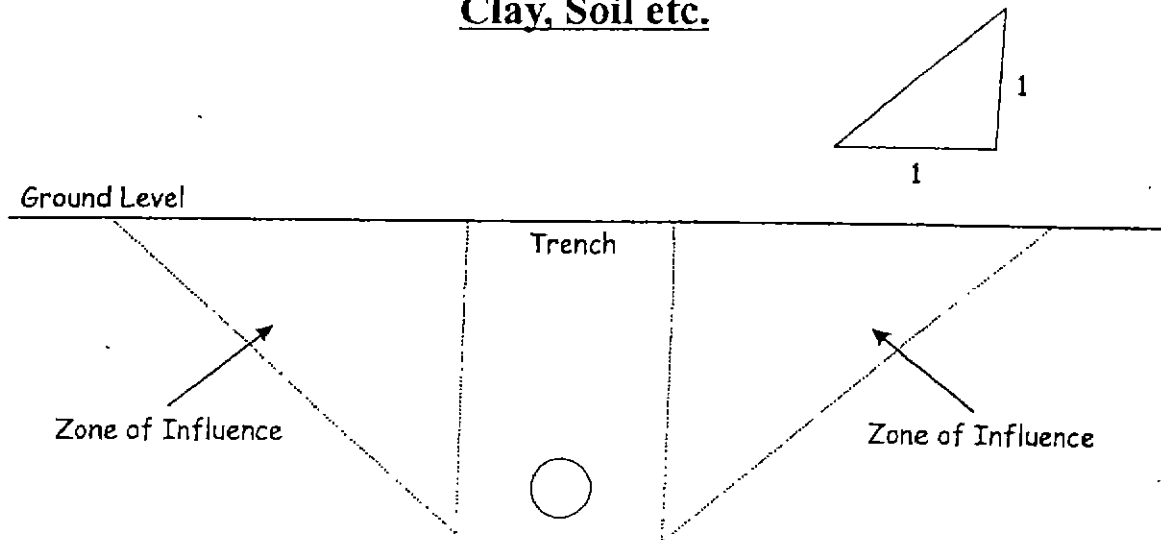
Structure Proposed Building	Maintenance Holes/shafts	Small VCP/PVC Sewer	Small CIP/DICL Sewer	Small RC Sewer	Large Sewer & Easement	Rising Main	Dead End Sewer
Free Standing Lightweight Carports/Garden Sheds	NO	YES Indemnity for Removal	YES Indemnity for Removal	YES Indemnity for Removal	YES Subject to Approval	NO	YES Indemnity for Removal
Retaining Walls Height > 1 metre	NO	Piers, Replace, Encasement	Piers, replace in VCP/PVC. Encasement	As CIP/DICL Sewer	NO	NO	NO
Garages	NO	Piers, Replace, Encasement	Piers, replace in VCP/PVC. Encasement	As CIP/DICL Sewer	NO	NO	YES (subject to approval) Terminal Maint Shaft
Residence/Additions	NO	Piers, Replace, Encasement	Piers,replace in VCP/PVC. Encasement	As CIP/DICL Sewer	NO	NO	NO Disuse
Home Units	Special conditions in garage	Piers, Replace, Encasement	Piers,replace in VCP/PVC. Encasement	As CIP/DICL Sewer	NO	NO	NO Disuse
Factories & Commercial With Open Floors	NO	Piers, Replace, Encasement Possible Amplification	Piers,replace in VCP/PVC. Encasement Possible Amplification	As CIP/DICL Sewer	NO	NO	Terminal Maint Shaft Maybe required
Above Ground Pool	NO	Indemnity for Removal	As VCP/PVC Sewer	As VCP/PVC Sewer	As VCP/PVC Sewer	Subject to Approval	As VCP/PVC Sewer
Concrete Pool	NO	Piers, Replace, Encasement	Piers,replace in VCP/PVC. Encasement	As CIP/DICL Sewer	NO	NO	NO Disuse
Fibreglass or PVC Pool	NO	Replace, Encasement. Indemnity for Removal	Replace in VCP/PVC. Encasement. Indemnity for Removal	As CIP/DICL Sewer	NO	NO	NO Disuse

All encasements require replacement of pipe prior to encasement. Unless on-site inspection shows that the pipe is suitable for encasement.

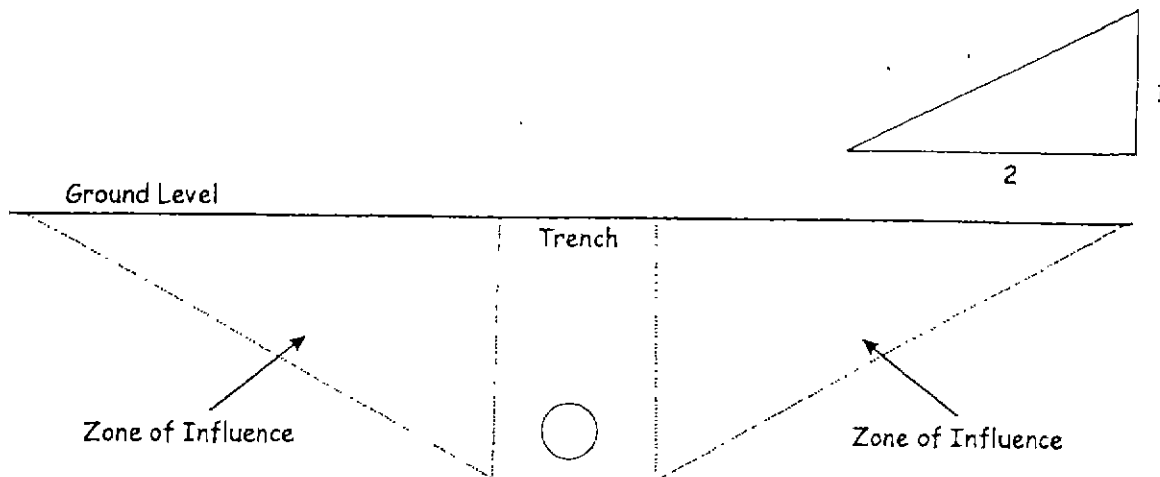
ZONE OF INFLUENCE

The Zone of Influence of a sewer is that area likely to be influenced by building loads, and depends on the nature of the ground on which the structure is to be located, or the "strata".

Zone of Influence Clay, Soil etc.



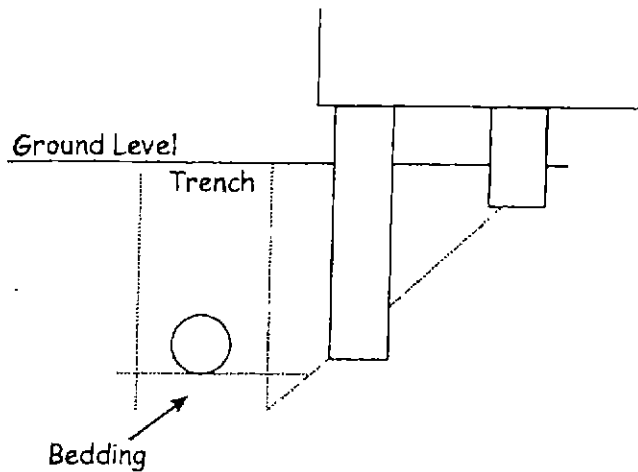
Zone of Influence Sand, Filled Ground, Loam etc.



NOTE: In water charged ground, the zone of influence may extend further from the sewer.

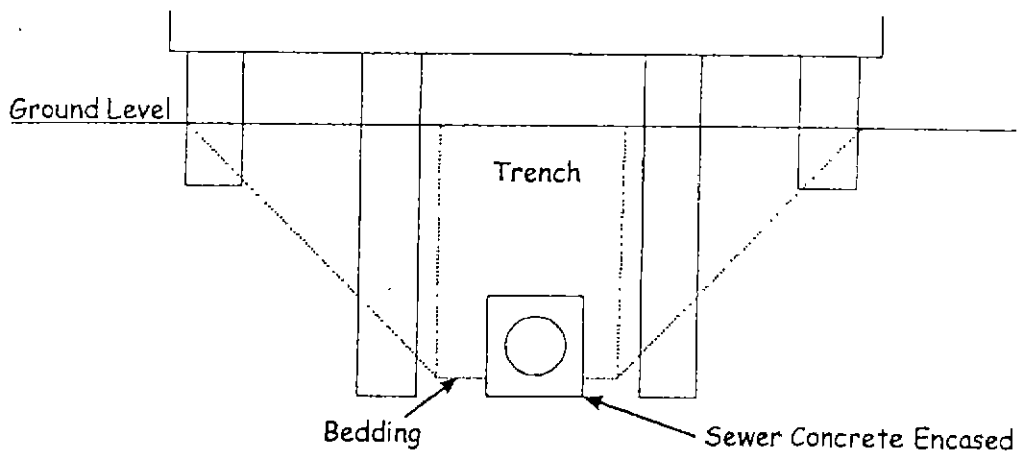
Foundations in "Zone of Influence"

Diagram A

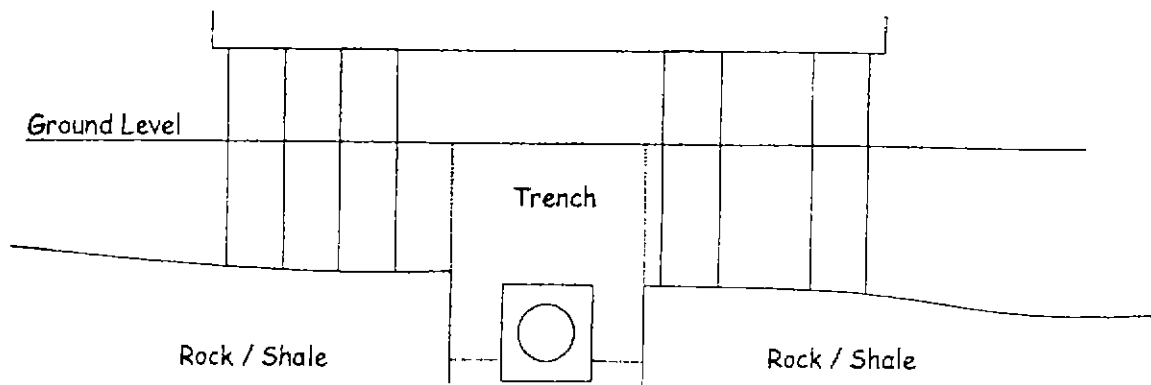


As can be see in **Diagram A**, where a building is to be constructed adjacent to a sewer, encasement of the sewer will not be required unless the building is closer than permitted horizontal clearances. **Diagram B** shows foundational requirements and sewer encasements where a sewer is to be built over.

Diagram B



Where the sewer is constructed through rock or hard shale, piers are only required to be taken to the level of the rock/shale.



Building over Sydney Water's Sewer/Pipes

Typical details for S.G.W., V.C. & Plastic Pipes

All foundation design must be in accordance with local council's requirements.

The maximum length for encasement under a residence is normally 40m.

Concrete Encasement to extend 600mm beyond building line.

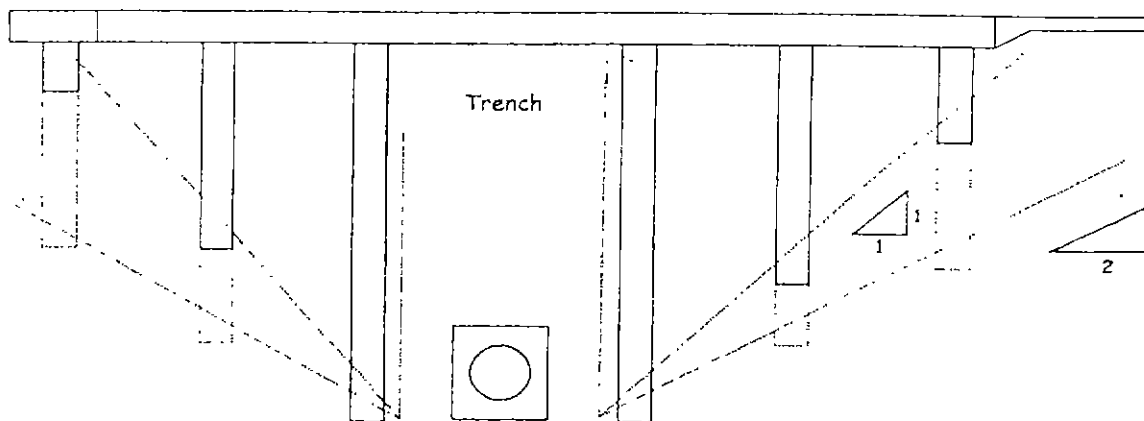
Sydney Water's Sewer

Bored or excavated piers to engineers design.

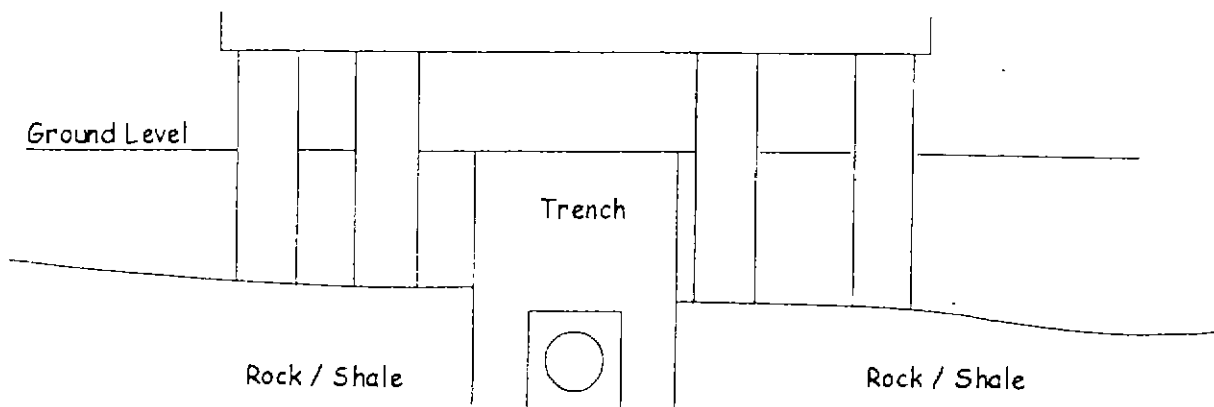
* Min 600mm for 150mm and 225mm dia. pipes. To be increased for larger pipes

Zone of Influence

*For pipes over 2.5m deep or stormwater channels, this dimension is to be increased depending on size and depth of pipe.



Where the sewer is constructed through rock or hard shale, piers are only required to be taken to the level of the rock/shale.



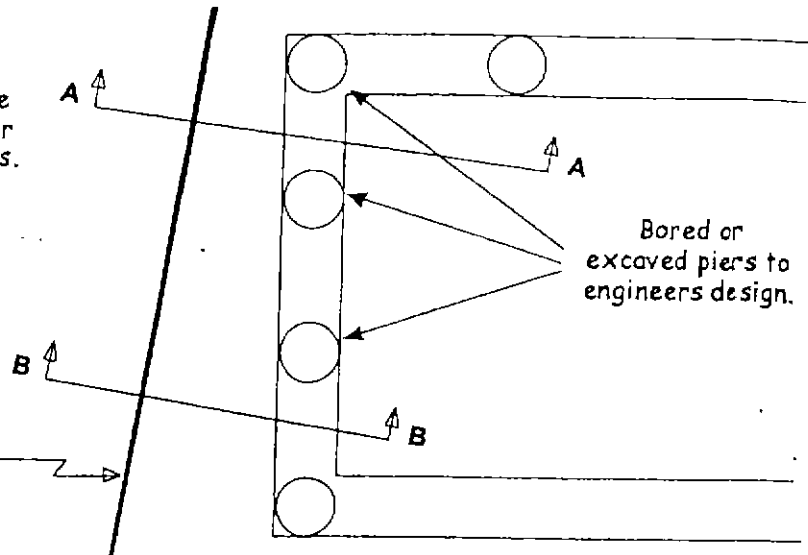
Piering of foundations adjacent to Sydney Water's Sewer/Pipes

Typical details for S.G.W., V.C. & Plastic Pipes

Where a building is to be constructed adjacent to a sewer, encasement of the sewer will not be required unless the building is closer than permitted horizontal clearances.

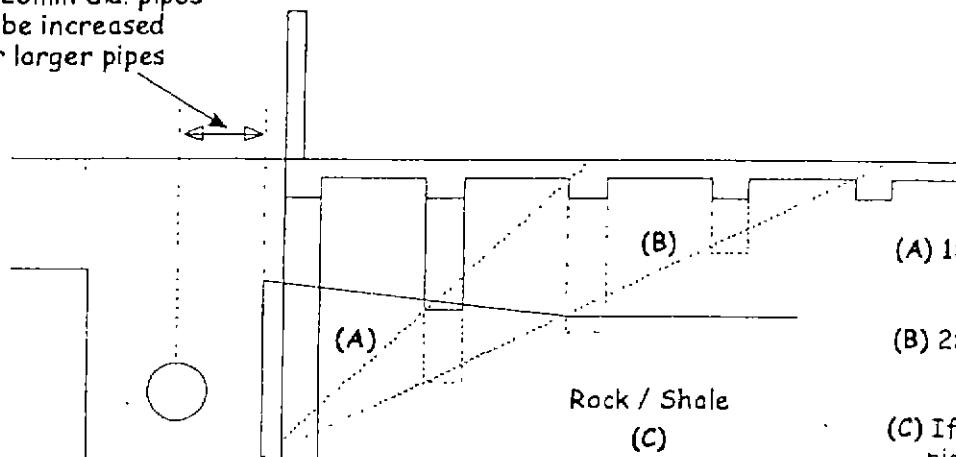
All foundation design must be in accordance with local council requirements.

Sydney Water's Sewer



Section A - A

*Min 600mm for 150mm and 225mm dia. pipes to be increased for larger pipes



Section B - B

(A) 1:1 zone of influence, sewer in clay soil etc.

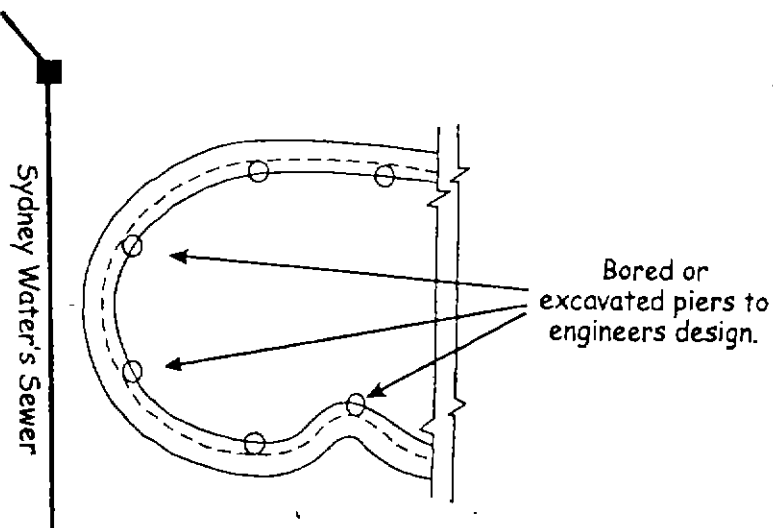
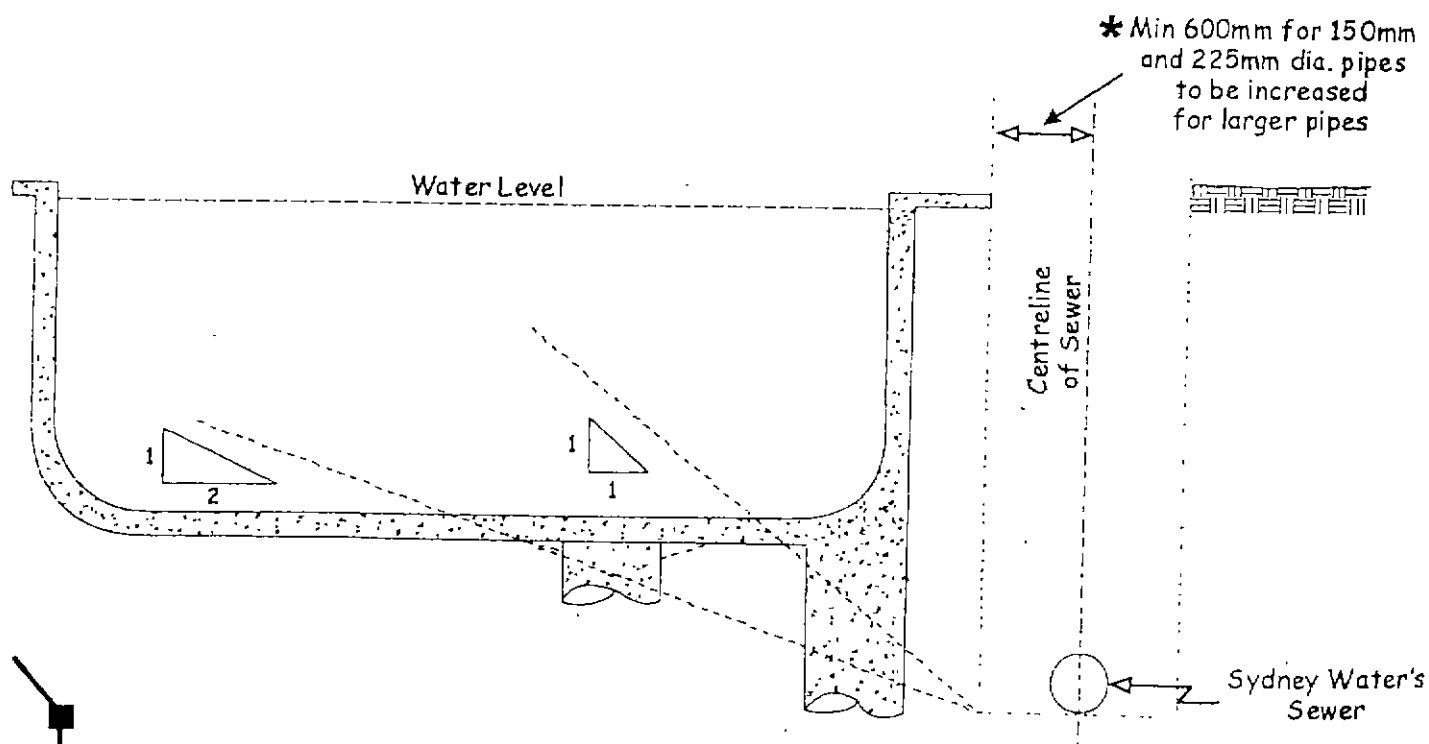
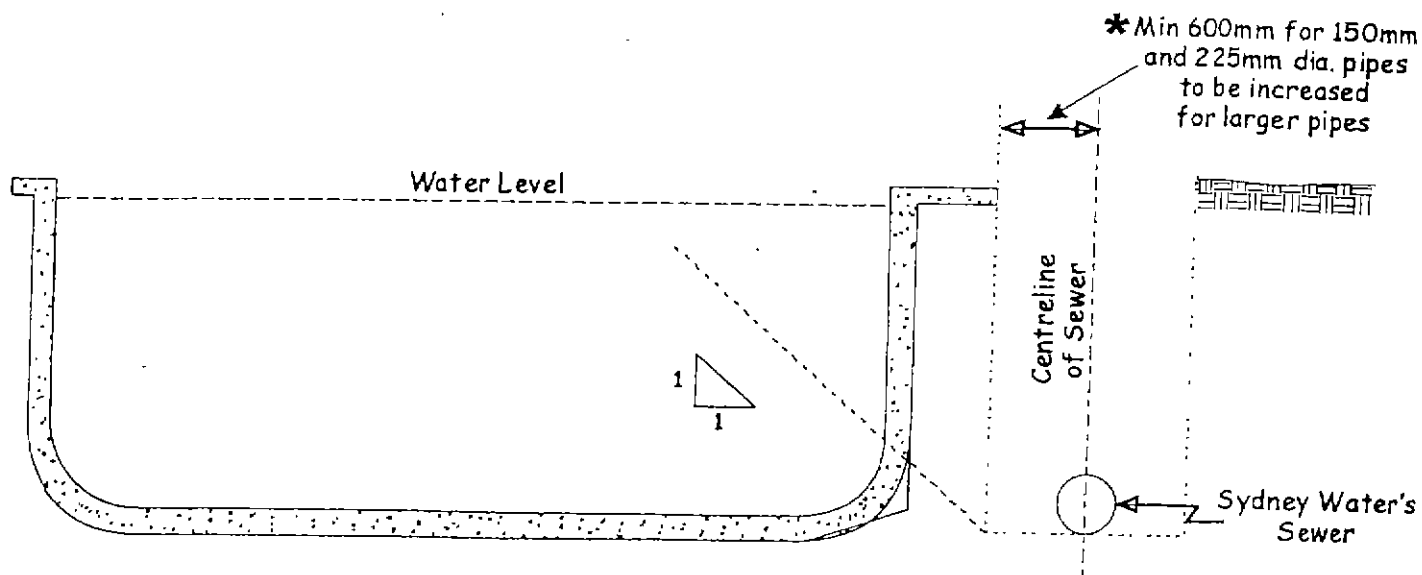
(B) 2:1 zone of influence sewer in sand, filled, loam.

(C) If rock or hard shale, pier only to rock or shale.

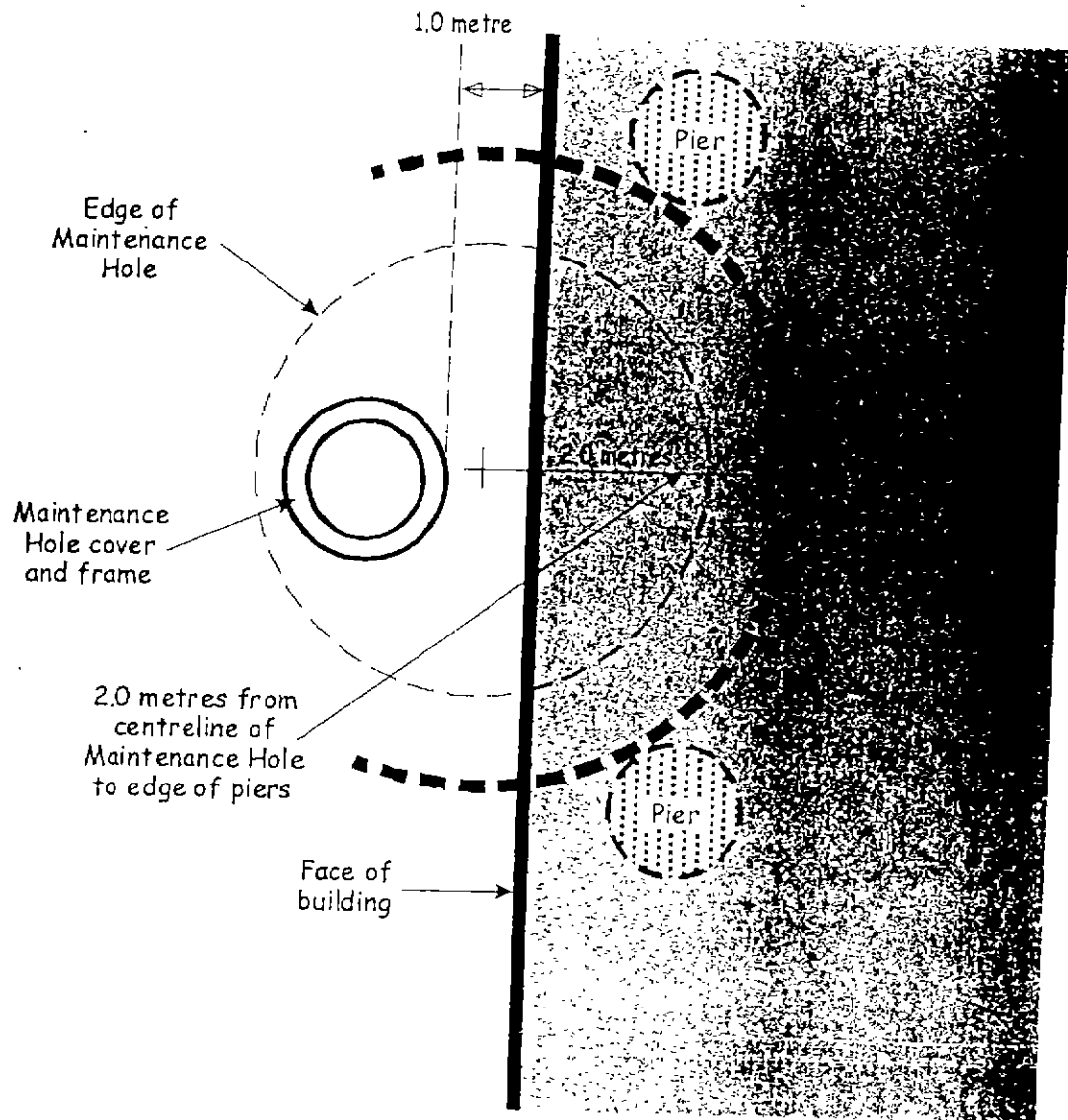
*For pipes over 2.5m deep or stormwater channels, this dimension is to be increased depending on size and depth of pipe.

Other special situations where the above examples do not satisfy the Sydney Water requirements, special designs are required.

Reinforced Concrete Pools Adjacent to Sydney Water's Sewer/Pipes



Maintenance Hole (Minimum Clearances)



TECHNICAL SERVICES CONTACT NUMBERS

Office	Phone	Fax
Liverpool	9828 8376 9828 8358 9828 8311 9828 8300 9828 8562 9828 8383	9828 8647

LGA's: Auburn, Baulkham Hills, Blacktown, Blue Mountains, Botany, Canterbury, Hawkesbury, Holroyd, Leichhardt, Parramatta, Penrith, Randwick, Strathfield, Sutherland, Sydney

Liverpool	9828 8412 9828 8481 9828 8308 9828 8687 9828 8577	9828 8629
------------------	--	------------------

LGA's: Ashfield, Bankstown, Camden, Campbelltown, Canada Bay, Fairfield, Hornsby, Kiama, Liverpool, Shellharbour, Wollondilly, Wollongong

Head Office	9350 5574 9350 4475 9350 4476 9350 4245 9350 4247	9350 4228
--------------------	--	------------------

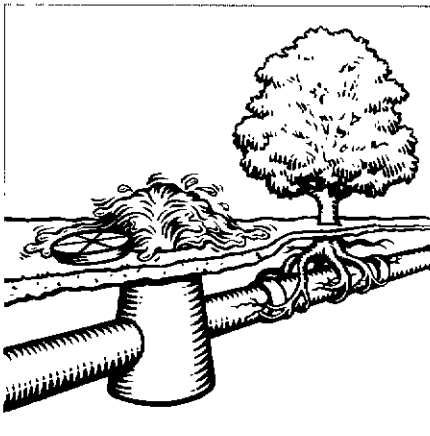
LGA's: Burwood, Hunters Hill, Hurstville, Kogarah, Ku-Ring-Gai, Lane Cove, Manly, Marrackville, Mosman, North Sydney, Pittwater, Rockdale, Ryde, Warringah, Waverley, Willoughby, Woollahra

Some problem species

Botanical name	Common Name	Damage rating
<i>Cinnamomum camphora</i>	Camphor Laurel	Extreme
<i>Ficus</i> species	Fig Trees & Rubber Plants	Extreme
<i>Populus</i> species	Poplars	Extreme
<i>Salix</i> species	Willows	Extreme
<i>Erythrina</i> species	Coral Trees	Very High
<i>Eucalyptus</i> species	Large Gum Trees	Very High
<i>Jacaranda mimosifolia</i>	Jacaranda	Very High
<i>Liquidambar styraciflua</i>	Liquidambar	Very High
<i>Araucaria</i> species	Norfolk Island & Bunya Pines	Very High
<i>Brachychiton acerifolium</i>	Illawarra Flame Tree	Very High
<i>Casuarina</i> species	Casuarinas	Very High
<i>Melia azedarach</i>	Australian White Cedar	Very High
<i>Pinus</i> species	Pine Trees	Very High
<i>Platanus acerifolia</i>	Plane Tree	Very High
<i>Schinus molle</i>	Pepper Tree	Very High
<i>Ulmus</i> species	Elms	Very High
<i>Bougainvillea</i> species	Bougainvilleas	High
<i>Cortaderia selloana</i>	Pampas Grass	High
<i>Grevillea robusta</i>	Silky Oak	High
<i>Ilex</i> species	Hollies	High
<i>Lagunaria patersonii</i>	Norfolk Island Hibiscus	High
<i>Ligustrum</i> species	Privets	High
<i>Magnolia</i> species	Magnolias	High
<i>Nerium oleander</i>	Oleander	High
<i>Phoenix canariensis</i>	Canary Island Date Palm	High
<i>Phyllostachus</i> species	Bamboos	High
<i>Toxicodendron</i> species	Rhus Trees	High
<i>Lophostemon confertus</i>	Brush Box, Tristania	High
<i>Wisteria</i> species	Wisteria	High

Remember: If your pipes are old and cracked, the roots of almost any tree or shrub will find their way in. Where possible, do not plant trees or shrubs anywhere near your sewer pipes.

A plant's roots supply it with the food and water it needs to survive. However, problems will occur if a plant discovers its next meal is hidden in your or Sydney Water's sewer pipes!



70 – 80% of sewage overflows are caused by tree roots.

Roots can damage sewer pipes, obstruct the flow and eventually cause blockage. Root damage can also let stormwater into pipes. During heavy rain this extra water can overload the sewerage system causing it to overflow into waterways and the environment.

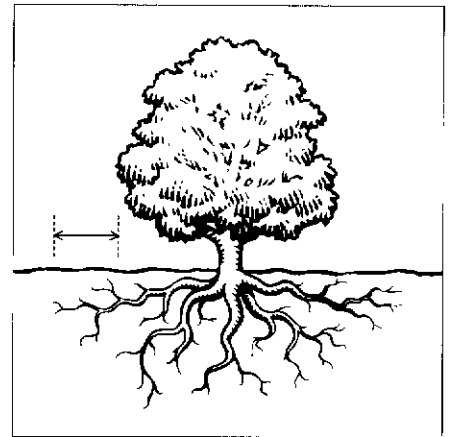
If the problem occurs in your private sewer pipes, it is your responsibility to have it fixed.

Some problem species are listed on the back of this fact sheet. You should avoid planting these.

Avoiding damage to the sewer

Root damage can be reduced by avoiding plant species that are likely to cause problems, and planting trees far away from pipes. Before planting a tree, you should first find out where the sewer pipes are located so that you can stay clear of them. Many home owners have a plan of their property which shows the location of sewer pipes and other plumbing. If you don't, you can get one from Sydney Water or one of our agents.

Next, you should consult a nursery or gardening guide to find out how far the plant's roots will travel. They will usually extend about one and a half times the distance of the adult plant's branches.



Plant roots extend about one and a half times the distance of the branches.

Fixing the damage

If roots have blocked your private sewer pipes you will need to get a licensed plumber to clear them. As well as removing the roots you should consider fixing the damage in a way that will minimise future problems. If you stop roots re-entering your pipes you will save yourself the expense of having to keep clearing them. You will also protect the environment by keeping stormwater out of the sewer. To fix the problem, you should ask the plumber to estimate where the blockage is located. Your plumber can then dig to remove the roots and repair the pipe to stop them entering again. In extreme cases it may be necessary to replace or relocate the pipe. Your plumber can recommend the best solution for your particular problem.