



# **BUILDING OVER OR NEAR COUNCIL SEWER AND WATER MAINS**

*A Guide to Council Requirements for Approval to Build Over or Near  
Council Water and Sewer Mains*

# **JUNE 2014**

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THIS DOCUMENT IS THE GUIDE REFERED TO IN COUNCIL POLICY S0.01 – PROTECTION OF COUNCIL SEWER AND WATER MAINS. THIS GUIDE FORMS THE BASIS FOR IDENTIFYING DEVELOPMENT CONDITIONS REQUIRED TO PROTECT STRUCTURES PROPOSED OVER OR ADJACENT TO THE MAINS AND THE SEWER/WATER MAINS.

## **1. GENERAL INFORMATION**

*Gosford City Council provides water and sewer services to properties within the Water & Sewer service areas via the sewer and water reticulation systems. Generally, each parcel of land is provided with a connection point to the water and sewer system through a buried pipe or main. It should be noted that some properties outside the main urban areas may not have water and sewer services available.*

The following information explains why you may have sewer or water mains on or near your property, and how they may impact your development.

### **1. a Water mains**

*Gosford City Council's water supply system provides water from dams to reservoirs and on to properties via pressure mains which are generally located in footpaths or roadways. There are however some exceptions where the Council has water mains within private property. These mains are typically large trunk or distribution mains and are usually located in proximity to reservoirs. The mains are generally located within designated Council easements. Water mains may vary in size from 100mm (4 inches) to 900mm (3 feet) in diameter.*

*Note: Council will not allow any private structures to be constructed within or allow overhanging into an easement for water supply. Any proposed structures adjacent to an easement may be subject to Council conditions to protect the structure and the water pipeline. Upon application, Council will consider approval for passive improvements such as car parking and landscaping within water supply easements.*

### **1. b Sewer mains**

**Gosford City Council's sewer reticulation** system, in a majority of cases, removes sewerage from your property by gravity feed (the sewer in the pipes flow downhill to sewer pump stations). Sewer mains are generally located within properties and vary in size from 150mm (6 inches) to 300mm (12 inches) in diameter. In some instances sewer carrier mains are located on private property. These mains can be very large (up to 1200mm) and are normally contained within a sewer easement.

The slope of your property will generally determine whether the sewer main is at the front or back your land. If your property slopes to the street, then the sewer main is likely to be located toward the front of the land. If your property slopes away from the street, then the sewer main is likely to be located toward the back of the property, or in the adjoining rear property with a sewer branch connection to your property.

Some properties may have sewer mains along the side boundaries if it is the low point of the street. This is a connecting sewer between the mains to form the reticulation in a catchment area. Most sewers are not within easements. However, if the land is part of a recent subdivision, the sewer pipes may be laid within easements. Regardless of whether the main is within an easement or not, Council has a right to enter upon the land to maintain and operate the sewer system.

***Note: Council will allow structures to be built over or near sewer mains subject to approval and certain conditions.***

## **1. c Vacuum sewer mains (negative pressure mains)**

**Gosford City Council operates vacuum sewer systems at West Gosford, St Huberts Island and Davistown.** Vacuum systems differ from gravity systems in that the sewage is transported to the pump station by vacuum pressure generated by pumps at the station. Sewage flows by gravity from homes to a valve pit within the property. When sewage from the property fills the valve pit, the valve will open and the sewage is propelled through the vacuum main and into the collection tank at the vacuum station. The collected sewage is then pumped from the station into gravity mains and on to the sewer treatment plant. Most vacuum sewer mains are located within footpaths, however a small number of mains lie within private property. All properties connected to the vacuum sewer systems have a valve pit within the property which is connected by a branch line to the vacuum sewer collection mains

### **1. c.1 Low Pressure Sewer Main**

**Gosford City Council operates low pressure sewer systems within selected areas of Narara suburb and propose to operate in Mooney Mooney, Cheero Point and Little Wabby.** Low pressure main is similar to sewer rising main but smaller diameter and lower in pressure. Sewage is pumped from an internal grinder pump via low pressure main to a Gravity sewer main. This low pressure main may be located within nature strip or on private land.

*Note: Council require a minimum clearance of 1.0 metre between proposed structures and vacuum / low pressure sewer lines, but will allow limited development over or near valve pits. Consideration of lesser horizontal clearance may be given for LPSS pressure pipe where the pipe is 32mm / 40mm in size and servicing a single residential dwelling. In this instance a minimum corridor of 1.0 metre shall be provided over the pipe line for access purposes.*

## **1. d Sewer rising mains (pressure mains)**

Sewer rising mains differ to gravity or vacuum sewer mains. Rising or Pressure mains are used to transport sewage from sewer pumping stations under pressure.

Rising mains may be located within the street or on private property. Generally sewer rising mains located on private land are within easements. The easements are created to protect the pipeline and allow Council unrestricted access to maintain the pipeline as required.

Note: Council will not allow any structures within or overhanging into an easement for sewer rising main. Any proposed structures adjacent to an easement may be subject to Council conditions to protect the structure and the sewer pipeline. Upon application, Council will consider approval for passive improvements such as car parking and landscaping within sewer rising main easements.

## **1. e Sewer Tunnels**

Council has a number of sewer tunnels some of which are located under residential areas within the city. The tunnels transport sewage from reticulation areas to major sewer pumping stations, or to the sewer treatment facilities.

The tunnels vary in depth and most are protected by stratum easements (easements below the ground surface). In general, normal residential development may be permitted over deeper parts of the tunnels without special conditions. However, some structures over shallower parts of tunnels may be subject to conditions designed to protect the development, and Council's rights to access, operate and maintain the tunnels. Conditions may vary depending on each particular situation and will be assessed during the application assessment process.

## **1. f Sewer Manholes, Lampholes, Dead Ends and Vent Shaft**

Where a sewer main changes horizontal or vertical direction, you will find a **Manhole or Lamphole**. These are concrete structures about 1 metre in diameter and are essential for the operation and maintenance of the sewer, as they provide an access point for clearing any blockages which may occur.

A sewer main **Dead End** is the end of the sewer main. Council may require access to a dead end to clear or repair the sewer pipes. Conditions apply when constructing over or in close proximity to these structures.

*Note: Council will not allow manholes and lampholes to be built over as they must remain accessible at all times. Proposed structures in most cases will need to be at least 1.5 metres clear of manholes or lampholes, and at least 1 metre clear of dead ends.*

**Sewer Vent Shaft:** A structure provided to limit pressure fluctuation within the sewerage system, or for air to enter and escape from the system. For further information regarding clearance and access requirements,

## **1. g How can sewer and water mains affect my proposed development ?**

The location of sewer mains and in rare cases, water or sewer rising mains on or adjoining a property may affect a proposed development in regard to foundation requirements and / or Council required protection for the pipelines.

The effect of sewer and water mains on a proposed development will depend on -

- The size and type of pipeline
- The location of the pipe in regard to the proposed development
- The depth of the pipeline
- The slope of the land

For more details on how your development may be affected, refer the sections on Zone of Influence, Structure Requirements and Manhole or Lamphole clearances or consult a practising Structural Engineer.

## **1. h Can a sewer main be relocated to suit my proposed development?**

If a proposed development is severely affected by the position of a sewer main, it may be possible to deviate or relocate the sewer to another location on the property. This may be the case where a development proposes basement car parking, or manholes or lampholes may be under the proposed structure. Any relocation or deviation would be dependent on the slope of the land, the depth of the sewer and the ability to maintain a grade along the sewer main.

You will need to engage a suitably qualified Engineer / Surveyor to investigate and design any proposed sewer deviation or relocation, and plans should be submitted to Council's Water & Sewer Services for approval. It should be noted all costs involved would be borne by the applicant, who may engage a suitably qualified contractor to carry out the work. The applicant will also be responsible for fees, which apply to plan approval and inspection of construction etc.

## **2. FREQUENTLY ASKED QUESTIONS ABOUT BUILDING OVER OR NEAR SEWER AND WATER MAINS**

### **Can I build over a sewer main?**

Council may allow you to build structures over various types of sewer mains subject to certain conditions, which may include piers under the structure and concrete encasement of the sewer main.

### **Can I build over a sewer rising main?**

**No** - Council will not allow you to build over a sewer rising main, or within an easement containing a sewer rising main. Council may allow you to build adjacent to a sewer rising main or sewer rising main easement, subject to certain conditions, which may include piers under the structure.

### **Can I build over a water main?**

**No** - Council will not allow you to build over a water main, or within an easement containing a water main. Council may allow you to build next to a water main or water main easement, subject to certain conditions which may include piers under the structure.

### **Can I build over a sewer manhole or lamphole?**

**No** - Council will not allow you to build over a sewer manhole or lamphole as they must remain accessible at all times. Any structure must be at least 1.5 metres away. Some lightweight structures may be approved subject to conditions.

### **Can I build over a sewer main dead end?**

**No** - Council will not allow you to build over a sewer main dead end. Any structure must be at least 1.0 metre away.

### **Can I build over my sewer junction?**

**No** - If you wish to build over a section of sewer main that contains a sewer junction, you will need to arrange a new junction to be "cut-in" clear of the proposed building.

### **What is a Zone of Influence?**

A zone of influence is an area either side of a buried pipe where it is considered that a structure may impose a load through the ground on to the pipe, or where settlement or excavation of the sewer or water trench may cause damage to a structure

### **What does "self supporting " mean?**

If you are building over a sewer main, or in the zone of influence of a sewer or water main, Council requires that your plans have engineer's certification that *"the building is designed to be self supporting within the zone of influence"*. That is, the engineer has designed the foundations of the building or structure to protect it from damage if the ground around the main subsides, settles or moves or if Council need to replace the main using standard construction techniques. The self-supporting nature of the building also means that the load from the structure is transferred to the ground outside the zone of influence area, protecting the sewer or water main from any damage.

### **Can I put an above-ground swimming pool/water tank over a sewer main?**

In most instances, yes, although size and type of pipe will determine if it is acceptable. If approved Council shall require concrete encasement of the sewer main under the pool or water tank.

### **Can I put an in-ground swimming pool over a sewer main?**

In most instances, yes, providing the sewer pipe has sufficient depth to allow an in-ground pool to be constructed over it. You will be required to concrete encase the sewer pipe, and if the pool is of concrete construction, you may need to have concrete piercing under the base of the pool.

### **What can I build over a sewer main without concrete encasing the sewer?**

Council will allow some lightweight structures over various types of sewer mains without requiring sewer main or foundation protection. If you are building a carport, pergola, small garden type shed or a small retaining wall (less than 1 metre in height), in most cases foundation support or sewer main protection will not be required

***Note : Some requirements may apply such as concrete encasement of the sewer main where support post are located within 600mm of a sewer main.***

### **What is involved in concrete encasing a sewer main?**

Concrete encasement is basically surrounding a buried pipe with mass concrete. A trench is dug to uncover the buried pipe, and the soil is cleared away from the pipe. Concrete is then placed around the sewer main. The concrete is then covered with plastic and left to cure to achieve the required strength before the trench is backfilled. Council may specify steel reinforcement in the concrete encasement for particular situations.

### **How do I arrange to have a sewer main concrete encased?**

Council does not undertake this work. You will need to engage a suitably experienced contractor to carry out the encasement, which is subject to inspection by Council's Quality Inspector. The cost and difficulty of the work may vary greatly and will depend on the depth of the sewer, ground conditions and site access. You should seek advice from a structural engineer on this matter.

### **Can I have my concrete encasement work inspected by private certification?**

**No** - All concrete encasement work must be inspected by Council's Quality Inspector. Inspection fees will apply and must be paid prior to arranging an inspection.

### **How do I arrange to raise or lower a sewer manhole or lamphole?**

If you have landscaped your yard, and now find that a lamphole or manhole lid is buried or sits up above the new ground level, you should arrange to have the manhole or lamphole raised or lowered so it is still accessible by Council staff.

***Note: The applicant will be responsible for all costs involved in the work***

### **Can I construct a driveway or lay pavers over the sewer?**

In most instances, yes, Council generally allows residential driveways over the sewer without protection requirements. Any manhole or lamphole fittings in the driveway will need to be altered to suit the finished level of the driveway at the applicant's cost.

***Note: Council may specify sewer main protection or specific expansion jointing in certain circumstances i.e. concrete encasement may be required where driveway construction results in less than minimum cover over a sewer main. Any required work is at applicant's cost.***

### **Can I construct a driveway over a water main in the footpath?**

**Yes** - Council will generally allow residential driveways over water mains without protection requirements. Fittings on the water main such as hydrants and stop valves may also require alteration to their surface level. Any required work is at applicant's cost.

***Note: In cases where a water main has a shallow depth, Council may require the main to be concrete encased or lowered to provide sufficient cover. The applicant is responsible for the cost any required work.***

### **Can I increase or reduce the depth of the sewer by landscaping my yard?**

If your land is sloping you may want to cut or fill the land to form level areas. You must take care if you intend to cut in the vicinity of the sewer. Sewer pipes in backyards can be as shallow as 450mm, **so before you intend to reduce ground levels you must contact Council to determine the depth and location of the sewer main.** Placing fill over a sewer pipe can also cause potential problems by increasing the depth of the pipe. If you wish to place more than 1 metre of fill over a sewer main, you should contact Council for approval.

## **3. CONTACTS AND INFORMATION**

### **How do I find out about the location of Council sewer or water mains?**

Details on the location and depth of Council's sewer and water mains can be obtained in person from the Water and Sewer information counter in Council's Administration building. Information may also be obtained by telephone, fax and post.

***Note: A handling charge is levied for copies of information supplied.***

The relevant contacts are -

#### *In Person*

Customer Service Centre - Ground Floor, Administration Building 49 Mann St Gosford  
Office Hours - 9am to 5pm daily

#### *By Phone*

Water and Sewer Directorate - (02) 4325 8821, (02) 4325 8240  
Office Hours - 9am to 5pm daily

#### *By Post*

Water and Sewer Directorate - Gosford City Council PO Box 21 Gosford NSW 2250

#### *By Fax*

Water and Sewer Directorate - (02) 43232225

Note: All copies of information supplied are issued conditionally on the basis –

***“This plan is diagrammatic only. Distances scaled from this plan may not be accurate”***

It should be noted that Council accepts no liability for any errors or omissions on information supplied and it is the applicant's responsibility to verify the accuracy of sewer and water main details prior to utilising the information for building or dev development purposes.

### **Who do I contact for advice about building near sewer and water mains?**

For advice on building over or near sewer or water mains, enquire in person at sewer and water information counter at Council's Administration Building, or contact the Water and Sewer Engineering Assessment Officer on (02) 43258396 between 8.40am and 5pm daily.

## **Will Council locate the position of the sewer or water mains on my land?**

**Yes** - Council, for a fee will locate the position and depth of sewer mains by placing wooden stakes over the sewer / water main on your land. **A fee applies to this service** and requests should be made by contacting the Water / Sewer Area Coordinator at Council's Erina Works Depot - Pateman Road Erina, PO Box 21 Gosford NSW 2250. Phone (02) 43 Fax No. (02) 4304 4553.

## **How do I arrange inspection of concrete encasement work by Council's Quality Inspector?**

If your development requires concrete encasement of a sewer pipe, then you must contact Council's Quality Inspector at least 3 working days prior to starting work. The Quality Inspector can be contacted on 0419 412 725 or (02) 4325 8883. Please ensure that all applicable inspection fees have been paid prior to arranging inspections or the Quality Inspector may refuse the inspection.

## **How do I arrange to have a manhole or lamphole raised or lowered?**

You may engage Council, or a private contractor to do the work.

If you wish Council to undertake this work, you will need to submit a request in writing to Council who will inspect the site and forward you a written quote. Send your request addressed to:

The Water / Sewer Area Coordinator  
Gosford City Council  
PO Box 21  
Gosford NSW 2250

Alternatively, you may engage a contractor to carry out the work subject to inspection by Council's Quality Inspector and payment of applicable inspection fees.

***Note: The applicant will be responsible for all costs involved in the work***

***For further information contact the water / sewer area coordinator on 02 4304 4553***

## **Who do I contact to have a water main hydrant or stop valve fitting raised or lowered ?**

If you are laying a driveway crossing across the footpath, you may need to raise or lower a water main hydrant or stop valve. Council must carry out any required work on the water supply system. Raising or lowering or water main fittings may require alteration of the water main pipes as well.

You will need to submit a request in writing to Council, who will inspect the site and forward you a written quote. Send your request addressed to:

The Water / Sewer Area Coordinator  
Gosford City Council  
PO Box 21  
Gosford NSW 2250

***Note: The applicant will be responsible for all costs involved in the work***

***For further information contact the water / sewer area coordinator on 02 4304 4553.***

#### **4. THE IMPACT OF THE ZONE OF INFLUENCE**

##### **What is the Zone of Influence?**

The Zone of Influence is an area extending both horizontally and longitudinally along a sewer or water main. This area is considered as that part of the ground where -

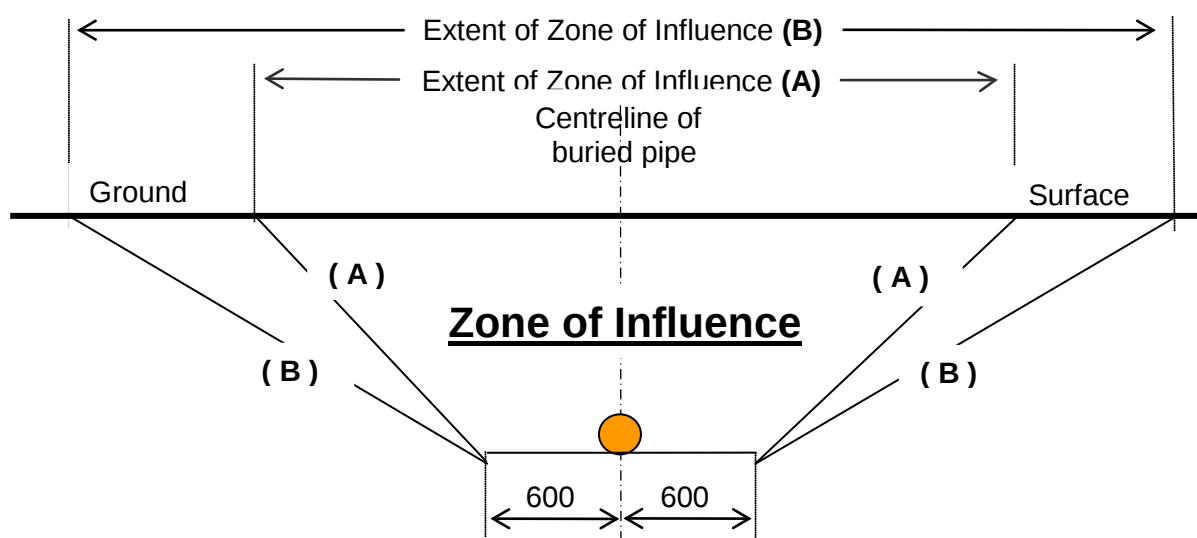
1. Settlement or disturbance of the ground surrounding the pipe may cause damage to buildings or structures on the surface above.
2. Loads from buildings or structures on the surface may have an impact on the buried pipe.

##### **What is Council's definition of the Zone of Influence?**

Gosford City Council adopts a zone of influence that extends from either side of the bottom of the pipe horizontally for 600 mm, and then slopes up at a grade determined by soil conditions until it meets the ground surface i.e.

- 1: 1 Zone of Influence for soil, clay etc.
- 2: 1 Zone of Influence for sand, loam or filled ground.

You should consult a suitably qualified engineer for advice on the correct Zone of Influence / soil type for your particular site.



**Figure 1**

##### **Council's defined Zone of Influence for sewer and water mains**

Notes:

(A) Zone of Influence 1:1 ( 45° ) for soil, clay etc.

(B) Zone of influence 2:1 ( 26° 30' ) for sand, loam or filled

The zone of influence in figure 1 is shown for level ground. If your land rises or falls away from a sewer or water main, the zone of influence may vary greatly as shown in Figure 2. The slope of your land should be considered when assessing the affects of the zone of the influence on what you propose to build.

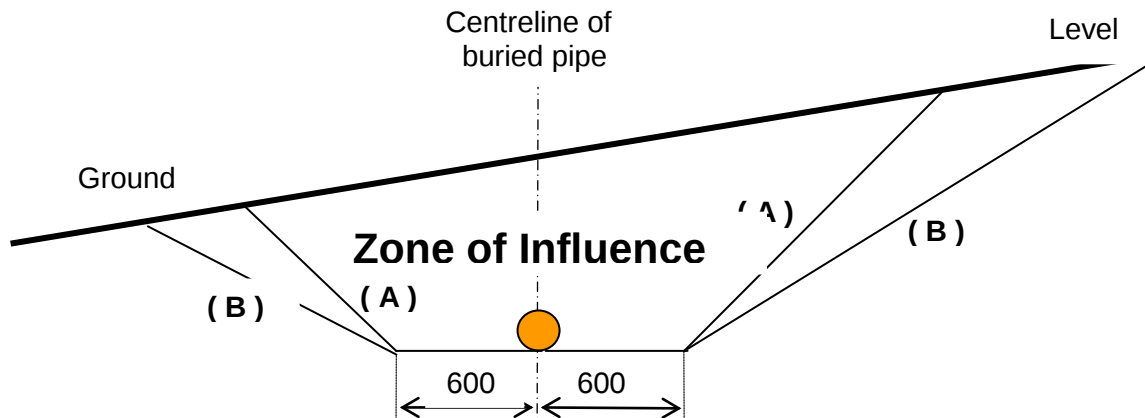
**Figure 2**

**How sloping ground affects the Zone of Influence for sewer and water mains**

Notes:

**( A )** Zone of Influence 1:1 (  $45^{\circ}$  ) for soil, clay etc.

**( B )** Zone of influence 2:1 (  $26^{\circ} 30'$  ) for sand, loam or filled ground



## **5. REQUIREMENTS FOR BUILDING OVER, OR NEAR SEWER MAINS**

If you propose to build over or near a sewer main, Council approval (if provided), will be subject to certain conditions. The assessment of plans will require the payment of the Water and Sewer Building Plans Assessment fee. Fees and Charges are located on Councils website. The conditions will depend on what type of structure you propose to build, and the structures proximity to a sewer main. Council may require piercing within the zone of influence, concrete encasement of the sewer main, or both. In some instances, building over a sewer main may not be permitted. It is the responsibility of the developer to confirm with Council prior to preparing design plans.

### **5. a What is required if my building is in the Zone of Influence?**

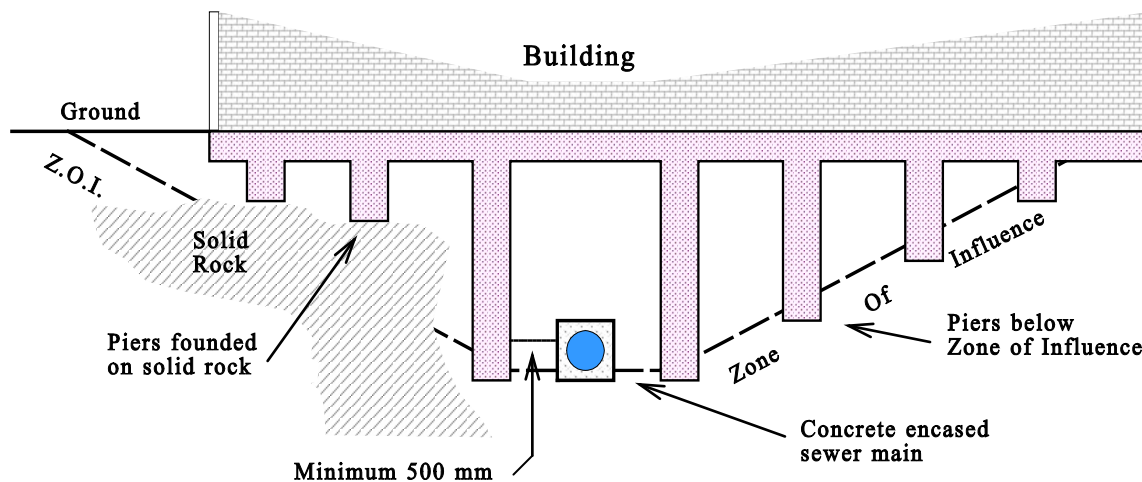
Council require most structures within the zone of influence of a buried pipe to be designed to be self-supporting within the zone. This is generally achieved by using foundation support such as piers or piles founded to a depth that is below the zone of influence. The engineering plans for the foundations must have written certification from the designing engineer that the structure is self-supporting within the zone of influence. Foundations supported on solid rock which is within the zone of influence are considered self-supporting.

Figure 3 below shows a typical example of foundations which are designed to be “self supporting” within the Zone of Influence of a sewer main

**Figure 3**

### **An example of “Self Supporting Foundations” for a building within a 2:1 Zone of Influence of a sewer main**

*Note: If your proposed structure is over or within 600mm of a sewer main, Council will require concrete encasement of*



*the main. The encasement shall extend a minimum of 1 metre beyond the outside edge of the structure to the nearest pipe collar as shown in Figure 4 on the next page.*

*Note: If the sewer main is more than 225mm diameter, the horizontal clearance of 600mm will increase. Refer the WSA drawing SEW - 1250.S for trench width requirement.*

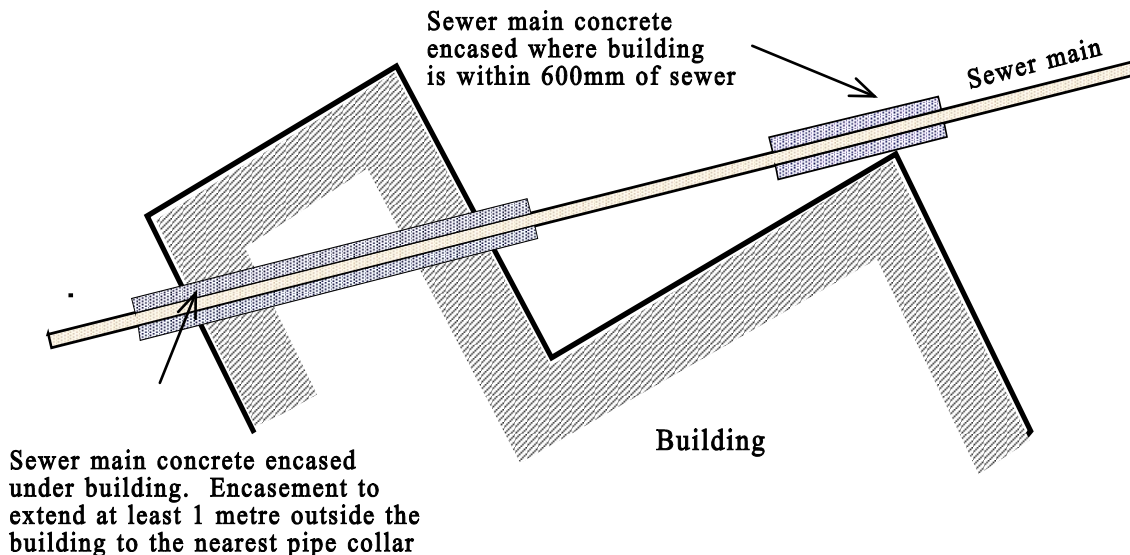


Figure 4

### Typical building situation requiring Concrete Encasement of a sewer main

**Note:** Where concrete encasement is required to extend beyond your land and into an adjoining property, it is the applicants responsibility to negotiate with the adjoining owner to gain permission to enter and carry out the required work

#### 5. b What is involved in concrete encasing a sewer main ?

Concrete encasement is basically surrounding a buried pipe with mass concrete. A trench is dug to uncover the buried pipe, and the soil is cleared away from the pipe. The main is supported with bricks or similar and concrete is then placed around the sewer main. The concrete is then covered with plastic and left to cure to achieve the required strength before the trench is backfilled. **Note:** Council may specify reinforced concrete encasement in particular circumstances such as minimum or excessive depth etc.

No filling or building work can be carried out in the vicinity of the sewer main until the encasement is completed and backfilled. You will need to engage a suitably experienced contractor to carry out the encasement, subject to the inspection by Council's Quality Inspector.

**Note:** All concrete encasement work undertaken must be inspected by Council's Quality Inspector; Fees are applicable in accordance with Council's Fees and Charges.

**Private certification of sewer main encasement work is not permitted.**

**For more information refer Drawing M84, M85 Concrete Encasement Details**

**Specification Notes for Drawing M84, M85**

#### 5. c What if I am only building a lightweight structure within the Zone of Influence?

Council considers carports, garden sheds and demountable timber pergolas as lightweight structures, and requirements for these items may differ. Council may allow these structures to be constructed over or near sewer mains without concrete encasement or foundation support. Actual requirements for each case will vary depending on sewer size, depth, site conditions etc.

## **6. WHAT SEWER MAIN PROTECTION IS REQUIRED WHEN I BUILD A...**

This section lists the general requirements for foundation and sewer main protection when building structures over or near a sewer main.

The requirements listed in the following pages are specified for "normal circumstances", which includes the majority of all development proposals lodged with Gosford City Council.

***Note: Council reserves the right to vary the standard requirements where individual developments present unique circumstances such as access, depth of the sewer etc..***

- Requirements for **Dwellings, Brick Garages, Commercial Buildings etc.**
- Requirements for a **Lightweight Garage or Shed / Workshop**
- Requirements for **Lightweight Demountable Structures**
- Requirements for **Swimming Pools, water tanks**
- Requirements for **Decks and Verandahs**
- Requirements for **Retaining Walls**
- Requirements for **Brick Fences**

***Note: Requirements for development proposals not listed here can be discussed with Council's Water and Sewer Engineering Assessment Officer on (02) 4325 8396.***

### **6. a What is required when I build a Brick Dwelling or Garage, a Residential Flat Building, Manufactured Home, Commercial or Industrial Building?**

Approval to build over or near a sewer main will be subject to the following requirements -

If your building is within the Zone of Influence of a sewer main -

- The building should be designed and certified to be self supporting within the zone of influence.
- The footings of the building should be founded below the zone of influence. Where solid rock is present within the zone of influence, footings may be based on the rock.
- Buildings over or within 600mm of a sewer main may be approved subject to concrete encasement of the sewer main in accordance with Council specifications. This may require encasement or relocation of any sewer branch lines serving adjoining properties.
- No foundation protection (piers) can be constructed closer than 500 mm to the wall of a sewer main or its concrete encasement.
- Buildings must have a minimum clearance of 1.5 metres to the centre of a sewer manhole or lamphole, and a minimum clearance of 1.0 metre from a dead end.

***Note: In some instances, building over a sewer main may not be permitted. It is the responsibility of the developer to confirm with Council prior to preparing design plans.***

***If the sewer junction serving your property is in the section of sewer main to be concrete encased, you will need to arrange a new junction to be "cut in" clear of the proposed development. Your contractor can do this when the concrete encasement is being carried out.***

***An inspection fee will apply to the encasement work and the junction "cut in".***

## 6. b What is required when I build a Lightweight Garage or Shed / Workshop?

For a structure to be assessed as a lightweight garage or shed / workshop it must have:

- \* a concrete slab floor
- \* a timber or metal frame
- \* a sheet metal roof
- \* timber, fibre cement or sheet metal cladding

If you propose to erect one of these structures, the approval conditions will vary according to the depth and proximity of the sewer main. You should determine the location and depth of the sewer to assess the impact of the sewer requirements on the proposed structure.

***Note: If the structure is over, or within 600mm of a sewer main, you must concrete encase the sewer main regardless of the depth of the sewer.***

Foundation protection requirements for the various sewer depth situations are -

- **If the sewer has a depth less than 1.5 metres**, and you are more than 600mm from the sewer, no foundation protection is required within the zone of influence of the sewer.
- **If the sewer depth is between 1.5 - 3.0 metres**, and you are more than 4 metres from the sewer; no foundation protection is required within the zone of influence of the sewer. **If you are closer than 4 metres to the sewer**, then the structure will require foundation protection to be self-supporting within the zone of influence.
- **If the sewer has a depth of more than 3.0 metres**, The structure must have foundation protection to be self-supporting within the zone of influence of the sewer. The sewer depth will determine the extent of the Zone of Influence.
- Buildings must have a minimum clearance of 1.5 metres to the centre of a sewer manhole or lamphole, and a minimum clearance of 1.0 metre from a dead end.

***Note: Upon application, Council may vary the above requirements for situations where deep sewer mains affect foundation requirements for lightweight structures which are to be erected clear of the sewer. For further information contact Council's water & sewer engineering assessment officer on (02) 4325 8396.***

## 6. c What is required when I build a Lightweight Demountable Structure?

**What are Lightweight Demountable Structures?**

Examples of lightweight demountable structures are Carports, Garden sheds, Aviaries, and Pergolas. If you wish to erect one of the above structures over or near a sewer main, then the following requirements apply.

### **Carport**

A lightweight demountable carport with a sheet metal roof is permitted over a sewer main **without sewer pipe or foundation protection** provided that:

**No carport support post is located -**

- Closer than 1.5 metres to the centre of a sewer manhole or lamphole.
- Closer than 600mm to a sewer main.

- Concrete slab is okay, if it is 600mm or 1 m away from sewer.

***Note: Council will require concrete encasement of the sewer if you wish to have a carport support post located closer than 600mm to the sewer.***

**Carports may be erected over sewer manholes or lampholes provided that -**

- The manhole or lamphole cover is raised or lowered to finished surface level at the property owners cost. Raising or lowering of manholes can be arranged by contacting Water and Sewer Operations at Council's Erina works depot.
- The manhole or lamphole is accessible at all times.
- There is at least 3 metres vertical clearance from the manhole or lamphole cover to the underside of the carport roof.

**Demountable timber pergola**

Council considers a demountable timber pergola to be one constructed in a manner which will allow easy removal of the structure should Council need to access the sewer main i.e. constructed with bolts and not nails or screws.

A demountable timber pergola is permitted over a sewer main **without sewer or foundation protection** provided that:

**No pergola support post is located -**

- Closer than 1.5 metres to the centre of a sewer manhole or lamphole.
- Closer than 600mm to a sewer main.

***Note: Council will require concrete encasement of the sewer if you wish to have a pergola support post located closer than 600 mm to the sewer.***

**Pergolas may be erected over sewer manholes or lampholes provided that -**

- The manhole or lamphole cover is raised or lowered to finished surface level at the property owners cost. Raising or lowering of manholes can be arranged by contacting Water and Sewer Operations at Council's Erina works depot.
- The manhole or lamphole is accessible at all times.
- There is at least 3 metres vertical clearance from the manhole or lamphole cover to the underside of the pergola roof structure.

**Garden shed or Aviary (not more than 10 square meters)**

Lightweight garden sheds (sheet metal construction) are permitted over or near sewer mains **without sewer or foundation protection** provided that:

- The shed is located no closer than 1.5 metres to the centre of a sewer manhole or lamphole.

## **6. d What is required when I build a Swimming Pool, Water Tank?**

Requirements for swimming pools will depend on which type of pool you propose and the pools proximity to the sewer main.

***NOTE: Council includes the coping around swimming pools as an integral part of the pool wall when assessing the distance from the pool to the sewer.***

The requirements for each pool type are:

### **Above ground Flexible Wall Pool or Water Tank**

If you propose to install an above ground pool or water tank over or near a Council sewer main, then note the following -

- If an above ground pool is erected over or within 600mm of the sewer, then you must concrete encase the sewer main.
- If an above ground pool is erected further than 600 mm from the sewer main, no foundation or sewer protection is required.
- No above ground pool shall be erected closer than 1.5 metres to the centre of a manhole, or lamphole or within 1.0 metre of a sewer main dead end.

### **In ground Fibreglass pool**

If you propose to install an in ground fibreglass pool over or near a Council sewer main, then note the following -

- If an in ground fibreglass pool is installed over or within 600mm of a sewer main, then you must concrete encase the sewer main.
- No foundation protection (i.e. piercing) is required for fibreglass pools.
- No fibreglass pool shall be located closer than 1.5 metres to a manhole or lamphole, or within 1.0 metre of a sewer main dead end.

### **In ground Concrete pool**

If you propose to install an in ground concrete pool over or near a Council sewer main, then note the following -

- If an in ground concrete pool is installed over or within 600mm of a sewer main, then you must concrete encase the sewer main.
- If the concrete pool is within the zone of influence of a sewer main, then the foundations of the pool shall be founded below the zone of influence i.e. the pool may require piers under the base of the pool.
- No concrete pool shall be located closer than 1.5 metres to the centre of a manhole or lamphole, or within 1.0 metres of a sewer main dead end.

## Certification of swimming pools within the zone of influence

If you install an in ground concrete pool within the zone of influence of a sewer main, the engineering drawings you submit with your application should include a signed certification from the Design Engineer situated on the face of the plan - An example of certification

"I,....., certify that when the pool is full of water the pool walls as designed are adequate to support and protect the pool from damage in the event that the sewer / water main is excavated, or disturbance or settlement occurs within the zone of influence of the sewer / water main."

Signed.....

***Note: This certification is not required for above ground and fibreglass pools within the Zone of Influence***

## 6. e What is required when I build a Pool Deck, Entertainment Deck or Verandah?

Decks or verandahs over or adjacent to sewer mains are not considered to be demountable structures unless specific arrangements have been made with Council regarding the nature of construction.

The following requirements apply if you propose to build a deck or verandah over or near the sewer

- If your verandah / deck is to be over or within 600mm of the sewer, then you must concrete encase the sewer main. The encasement is to extend at least 1 metre clear of the structure to the nearest pipe collar
- Decking / verandah support posts must be founded below the zone of influence of the sewer main.
- Decking / verandah support posts must not be placed closer than 500 mm from the side of a sewer pipe or the pipe's encasement.

***Note: Generally decks and verandahs are not permitted over sewer manholes or lampholes. However Council may consider applications where special arrangements can be made for immediate access to the sewer structures.***

Approval may be given upon application for cantilevered decks or verandahs to be constructed within 600mm or over a sewer main, manhole or lamphole without concrete encasement providing

- A vertical clearance of at least 3 metres from the manhole cover or ground surface to the underside of the deck or verandah.
- Deck or verandah support posts are located at least 600mm from the sewer.
- Approval will be based on site conditions and sewer main depth.

## 6. f What is required when I build a Retaining Wall?

***Note : The following information lists the standard conditions for retaining walls. However, variation in retaining wall materials and construction methods may necessitate individual assessment of particular circumstances.***

If your land is sloping you may want to cut or fill the land to form level areas. You must take care if you intend to cut in the vicinity of the sewer. Sewer mains in backyards may be as shallow as 450 mm, so before you intend to reduce ground levels you must contact Council to obtain details on the depth and location of the sewer main.

Placing fill over a sewer main can also cause potential problems by increasing the depth of the pipe. **If you wish to place more than 1 metre of fill over a sewer main, you should contact Council for approval.** Any proposed retaining wall over 1 metre in height requires a Development Application and a foundation design certified by a practising structural engineer.

The following conditions apply to retaining walls -

### Retaining walls less than 1 m high.

- No sewer main encasement required
- Where any timber retaining wall crosses a sewer main, support posts must be at least 500mm clear of the sewer main
- Any brick / masonry retaining wall crossing a sewer main must be supported over the sewer main with a reinforced concrete foundation designed to ensure no loads from the wall are transferred to the sewer main i.e. bridging slab foundation.

### Retaining walls greater than 1 m high.

- The retaining wall must be designed and certified by a practising engineer to be self-supporting if the wall is within the zone of influence of a sewer main.
- The footings of the retaining wall must be founded below the zone of influence. Where solid rock is present within the zone of influence, footings may be based on the rock.
- Retaining walls within 600mm or over a sewer main may be approved subject to concrete encasement of the sewer main in accordance with Council specifications. This may include encasement of any sewer branch lines serving adjoining properties.
- No foundation protection (piers) can be constructed closer than 500 mm to the wall of a sewer main or its concrete encasement.
- Retaining walls must have a **minimum clearance** of 1.5 metres to the centre of a sewer manhole or lamphole.

## 6. g What is required when I build a Brick or Masonry Fence?

If you wish to build a brick or masonry fence, over or near a sewer main the following conditions apply -

### Fences less than 1 m high

- No sewer main encasement required
- Any brick / masonry fence crossing a sewer main must be supported over the sewer main with a reinforced concrete foundation designed to ensure no loads are transferred to the sewer main i.e. bridging slab foundation. Any piers must be at least 500mm clear of the sewer main.

### Fences greater than 1 m high.

- The fence must be designed and certified to be self-supporting if it is within the zone of influence of a sewer main.
- The footings of the fence must be founded below the zone of influence. Where solid rock is present within the zone of influence, footings may be based on the rock.
- Fences within 600mm, or over a sewer main will be approved subject to concrete encasement of the sewer main in accordance with Council specifications. This may include encasement of any sewer branch lines serving adjoining properties.
- Foundation protection (piers) cannot be constructed closer than 500 mm to the wall of a sewer main or its concrete encasement.
- A fence must have a minimum clearance of 1.5 metres to the centre of a sewer manhole or lamphole.

***Note : Any proposed brick or masonry fence over 1 metre in height located over or near sewer main requires a Development Application and a foundation design certified by a practising structural engineer.***

## 6. h What is required when I build or lower a Drive Way?

If you wish to build or lower driveway, over a Council water or sewer main the following conditions apply -

- Locate the affected water/sewer main and confirm the depth of the main.
- Minimum 450mm cover to water main and minimum 600mm cover to sewer main is required.
- Protective slab shall be constructed and concrete encasement may be required, if the cover is not adequate. The concrete encasement and driveway slab shall be separated by 100mm thick compressible material.
- Alternatively, the affected mains may be relocated. The applicant is required to submit a design plan and undertake the full cost of relocation. Council can provide quotation for water main relocation, subject to availability of resources. All requests for quotation to relocate mains should be submitted in writing to the W&S New Development Officer, PO Box 21, GOSFORD NSW 2250.

## **7. BUILDING NEAR SEWER MANHOLES, LAMPHOLES DEAD ENDS AND VENT SHAFTS**

### **What are sewer Manholes, Lampholes and Dead Ends?**

Manholes and Lampholes are part of Council's sewer system and are located where sewer pipes change direction or grade (slope of the pipe). Their purpose is to allow Council to access the sewer pipes for maintenance, repair or renewal of the sewer network.

**Sewer Manholes** are concrete "barrel like" structures with a lid and surround of approximately 1 metre diameter on the ground surface. The depth of the manhole or lamphole will depend on the depth of the sewer and will generally vary between 1 to 5 metres. Manholes are large enough to allow access down to the sewer main level to clear and maintain the pipes. Manholes also act as a surcharge point or safety valve should a blockage occur in the sewer main.

**Sewer Lampholes** ( or access shafts ) are vertical shafts from the sewer pipe to the ground surface, are typically 150 mm ( 6 inches ) in diameter, and are used to clear blockages in sewer pipes. Generally lampholes are covered by a standard manhole lid and surround, but may also have a smaller metal or plastic cover at ground level.

***Note: It is important that manholes and lampholes remain accessible at all times as Council may need access to carry out maintenance or emergency work.***

**A sewer main Dead End** is the end of the sewer line extending from a downstream manhole or lamphole. It is an access point to the sewer and may be used to clear or repair the sewer when conventional access through a manhole or lamphole is unavailable.

### **How close can I build near a sewer Manhole or Lamphole?**

You are not permitted to build any closer than 1.5 metres to a centre of a manhole or lamphole. This set back increases to 2 metres if you wish to "box-in", or build around 2 or more sides of a manhole or lamphole. The fourth side must be open and accessible at all times.

***For more information refer Drawing M90***

### **Can I build over a sewer Manhole or Lamphole?**

Building structures over manholes or lampholes is generally not permitted, however some lightweight structures may be approved subject to conditions. Types of lightweight structures which may be permitted include Decks, Carports and Pergola's. Approval will be subject to -

- Vertical Clearance of at least 3 metres above a manhole or lamphole. Decks with less than 3 metres clearance may be considered for approval subject to suitable trapdoor access to the manhole or lamphole being available at all times.
- Suitable Ventilation for the escape of any gases. (Minimum 3 way Natural Ventilation).
- Council may consider a suitable Mechanical Ventilation.
- Unrestricted Access to the site with the manhole or lamphole available at all times. You may need to raise or lower the manhole or lamphole lid and surround if you are altering existing ground levels.

## **How close can I build near a sewer main Dead End or Junction?**

You are not permitted to build any closer than 1.0 metre to a sewer main dead end.

## **Can I build over a sewer main Dead End?**

No. Any proposed structures must be at least 1 metre clear of a sewer main dead end or sewer junction to allow Council to access the main. However some structures may be approved subject to conditions such as extending the sewer line clear of the structure so dead end access is available. The applicant is responsible for the cost any required work.

## **Access to sewer Manholes or Lampholes**

Council requires that all sewer manholes or lampholes be accessible at all times in case of maintenance or emergency situations.

Developments on properties with sewer manholes or lampholes must provide at least 0.9 metre wide clear access to the sewer structures i.e. along the boundary between fence and building. This is necessary to allow Council staff access with their "tools of trade" such as cleaning rods and lid lifting equipment.

Developments which locate sewer manholes or lampholes in security areas must make suitable arrangements for access by Council's sewer operations staff for maintenance or emergency work. This may be by the provision of a key for a side gate, or the use of double padlocked gates. This requirement will generally be assessed for individual cases.

## **How Close Can I Build Near a Sewer Vent Shaft?**

Council require existing sewer vent shaft to be retained. Proposed building or structures must not obstruct existing vent structure and must ensure sufficient height clearance (min 2 metre above roof level) between building and vent shaft to enable the sewer gases dispersed without impact on surrounding properties.

Sewer vent shaft are generally independent structures and require minimum 1.5m radial clearances. In addition, maintenance of sewer vent shaft requires a vehicular access from street front to vent shaft within site. Access way for a 2.4m wide and 3m high vehicle is required.

## 7.a Sample Response Letter

4325 8396

DA \*\*\*\*\*/\*\*  
IRN \*\*\*\*\*  
Staff Member  
Date



Applicant Details  
House Number Street  
SUBURB STATE POSTCODE

Dear Sir/ Madam

### **DRIVEN / SCREW / (OTHER) PILING NEAR COUNCIL'S SEWER MAIN**

Further to our discussion / submission of proposed piling and footing plan today (\*\*/\*\*/\*\*\*\*) you are advised the minimum horizontal clearance between concrete encasement of sewer and proposed pile shall be increased to 1 meters, as the depth of sewer is more than 3 meters and avoid possible obscured pile damage sewer main and sewer trench . You are also advised the following information and fees must be submitted to council 10 working days prior to commencement of piling.

1. The applicant is required to pay a fee for a "before and after" Closed Circuit Television Inspection (CCTV). The **fee (minimum \$700.00)** is non-refundable. The Council will carry out CCTV inspection of pre & post piling of the affected sewer main to ascertain any damage occurred due to the piling. Any evident of damage will be repaired at the applicant's cost using funds from the security deposit. Please note, a re-inspection fee of \$136.01 will be deducted from the security deposit in the unlikely event of applicant requested for CCTV inspection but unable to carry out inspection due to incomplete work or site restriction to CCTV inspection.
2. The applicant is required to provide a security bond in the form of an unconditional bank or cash guarantee. The security bond can vary from minimum value of **\$5,000.00 or an estimated cost of \$ --- to be paid to the Account 98118.926.506**. In the event of sewer main is damaged by the piling work, council will utilise the security bond to repair or relay the damage sewer and refund the balance of the security deposit. The security bond will not be refunded until Council is satisfied no damage has been done to the sewer main, which is after the post piling CCTV inspection and associated work has been completed.
3. The piles are to driven by an individual or company suitably versed in the correct pile driving procedures and holding the appropriate statutory licenses. The piling contractor shall submit documentary evidence to confirm current Public Liability Insurance of not less than **Twenty Million Dollars (\$20,000,000)** prior to commencement of work.
4. The pile driving contractor must agree in writing to accept Council's opinion regarding the cause and extent of any damage that may be evident after the pile driving.
5. The hammer used is to be the lightest possible to effectively drive the piles.

6. The applicant or contractor must notify **Council's Officer (Tel. 02 4325 8396) or Quality Inspector (mob. 0419 412 725)** at least Five working days prior to the commencement of work.

Council encourages contractors to pre drill holes for pile driving to sewer main depth, to help prevent any damage to the adjoining sewer. Council reserves the right to add additional conditions for the driving of piles in unique or difficult circumstances.

Further enquiries regarding this matter may be made by contacting Council officer on (02) 4325 8396.

Yours faithfully

**Engineering Assessment Officer**

## **8. REQUIREMENTS FOR PILING NEAR SEWER MAINS**

Piling for foundations near sewer mains can cause damage to the sewer pipes. The energy and vibrations created from high energy piling can travel through the adjoining soil and cause displacement of the sewer pipes. Council strictly regulates piling near sewers and any approval will attract conditions designed to prevent any damage to the pipes.

**Pile driving more than 10 metres away from a sewer main will be permitted without conditions.**

**If you wish to drive piles for foundations within 10 metres of the sewer, or any other piling within 1 metre of existing sewer, the following criteria is to be met:**

1. The applicants are liable for all costs of repairs to sewer mains which have been found to result from piling operations.
2. The applicant is required to provide a security bond in the form of an unconditional bank or cash guarantee. The cost of any damage that may occur to the sewer main will be deducted from the security bond. The value of the security bond (**Account 98118.926.506**) to be lodged will be assessed for each individual case, and is estimated as the cost to relay the affected area of sewer main, should it be damaged beyond repair.  
The security bond will not be refunded until the closed circuit television (CCTV) inspection following the piling has been completed, and Council is satisfied no damage has been done to the sewer main.
3. The applicant is required to pay a fee for a "before and after" CCTV. The fee (minimum \$700.00) is non-refundable. The Council will carry out CCTV inspection on the affected area of sewer main before piling, and after piling has been completed to ascertain if any damage has occurred. Any evident damage will be repaired at the applicant's cost using funds from the security deposit.
4. The piling contractor shall submit documentary evidence to confirm current Public Liability Insurance of not less than Twenty Million Dollars (\$20,000,000) prior to commencement of work.
5. The applicant or contractor must notify Council's Engineering Assessment Officer (Telephone 02 4325 8396) or Quality Inspector (Mobile 0419 412 725) at least Five working days prior to the commencement of any work.
6. The Piling contractor must agree in writing to accept Council's opinion regarding the cause and extent of any damage that may be evident after the completion of piling.
7. The piles are to be completed by an individual or company suitably versed in the correct piling procedures and holding the appropriate statutory licences.
8. The hammer used for driving piles is to be the lightest possible to effectively drive the piles.

***Note: Council encourages contractors to pre drill holes for pile driving to sewer main depth, to help prevent any damage to the adjoining sewer.***

***In the event of sewer main being damaged due to piling, the applicant shall rectify the sewer main. The applicant shall submit Design/WAEx drawing of the final sewer main. A fee of \$250 for the acceptance of the WAEx is applicable. The security deposit will be refunded upon acceptance of the WAEx.***

***Council reserves the right to add additional conditions for piling in unique or difficult circumstances.***

## **9. REQUIREMENTS FOR VACUUM SEWER / LOW- PRESSURE SEWER MAINS**

Council operates vacuum sewerage systems at West Gosford, St Huberts Island and Davistown. Council operates low-pressure sewer systems within selected area of Narara suburb and propose to operate in Mooney Mooney, Cheero Point and Little Wabby.

*Note: Council will not permit permanent structures to be erected over or within 1 metre of a vacuum sewer / low pressure sewer main, or within 1.5 metres of a valve pit.*

**Council will allow lightweight structures such as fences, driveways, carports and pergolas over vacuum sewer / low-pressure sewer mains and valve pits subject to the following requirements:**

### **Erection of fences over or near vacuum / low-pressure sewer main and pits -**

- A brick or masonry fence erected over or within 1 metre of a vacuum / low-pressure sewer must have pier and beam foundations to the depth of the sewer invert.
- Posts for timber or metal fences must be located no closer than 500 mm to a vacuum / low-pressure sewer main or valve pit.

### **Construction of driveways, carports and pergola's over vacuum /low-pressure valve pits –**

- Access to the valve pit must be available at all times.
- No carport or pergola support posts are permitted within 1.5 metres of the centre of a valve pit.
- There must be vertical clearance of at least 3 metres above the valve pit to the underside roof of a carport or pergola.
- Zone of Influence to start from 0.6m either side of Vacuum main.
- 1.5m offset from valve pit for any buildings.

## **10. REQUIREMENTS FOR BUILDING NEAR WATER MAINS AND SEWER RISING MAINS**

**Water and Sewer Rising mains are pressure or pumped mains.** Water mains carry water which is under pressure created by mechanical pumps, or by static head (the difference in height from the water reservoir to your property). Sewer rising mains carry sewage collected at sewer pumping stations, which is then mechanically pumped to treatment plants for processing.

Generally, water main and sewer rising mains on private property are located within easements, which protect the mains and permit Council continued access to the pipelines. However, Council has water main and sewer rising mains that are not within easements. **Applications to build adjacent to mains without easements will be assessed on an individual basis.**

If you wish to build near a water main or sewer rising main, Council approval will be subject to certain conditions which will depend on factors such as the size of the main, the existence of an easement, the depth of the main, site access, water flow path etc.

### **10. a Building near water mains**

The following conditions apply to development adjacent to a **water main within an easement** -

- **No structures are permitted within an easement for water supply.** Council must have unrestricted access to the easement to repair, maintain or renew the main as required.
- **No structures may overhang or project into an easement.** Work carried out on large water mains will often involve large earthmoving machinery, trucks and cranes.
- **No earthworks or improvements are permitted within an easement without approval from Council.** This includes cutting, filling landscaping, tree planting, retaining walls etc.
- **Unless known, the water main shall have an assumed depth of 1.5 metres.**
- Structures **erected adjacent to a water main must be “self supporting” within the zone of influence.** This is generally achieved by using foundation support such as piers or piles founded to a depth which is below the zone of influence. The plans for the foundations must have written certification from the designing engineer that the structure is self supporting within the zone of influence. Foundations supported on solid rock which is within the zone of influence are considered self supporting.
- **Council may impose additional approval conditions where a proposed development limits or restricts Council’s opportunity to operate and maintain a water main.**

The following conditions apply to development adjacent to a **water main which is not within an easement** –

- **Where Council has a water main which is not within an easement, a minimum of 3 metres horizontal clearance is required** between the water main and any proposed structure. The minimum horizontal clearance is 3 metres and may be increased where necessary to protect the water main.
- **No earthworks or improvements are permitted within 3 metres of a water main** without approval from Council. This includes cutting, filling, landscaping, tree planting, retaining walls etc. The minimum horizontal clearance is 3 metres and may be increased where necessary to protect the water main.
- **Unless known, the water main shall have an assumed depth of 1.5 metres.**

- Council may impose additional approval conditions **where a proposed development limits or restricts Council's opportunity to operate and maintain a water main.**
- Structures erected adjacent to a water mains must be "self supporting" within the zone of influence. **This is generally achieved by using foundation support such as piers or piles founded to a depth which is below the zone of influence. The plans for the foundations must have written certification from the designing engineer that the structure is self-supporting within the zone of influence. Foundations supported on solid rock which is within the zone of influence are considered self-supporting.**

## **10. b Water mains and the Zone of Influence**

A Zone of Influence exists adjacent to all Council water mains. Any structures within the zone of influence must be designed and certified to be self-supporting.

**However, Council reserves the right to individually assess requirements for the zone of influence in relation to water mains for each development.** Factors influencing the requirements may include the existence of an easement, location of a main within an easement, the size of a main, the depth of a main, access to the site, water flow paths etc.

**Generally, where Council has a water main within a designated easement,** the zone of influence is defined as extending from the easement boundary at an assumed depth of 1.5 metres, upwards to the ground surface at a slope appropriate for the soil type. The assumed depth of 1.5m is to be used only where the actual pipe depth is unknown.

**Generally, where Council has a water main which does not have a designated easement,** the zone of influence is defined as extending from a nominal offset distance from the water main (minimum 3 metres) at an assumed depth of 1.5 metres upwards to the ground surface at a slope appropriate for the soil type. The assumed depth of 1.5m is to be used only where the actual pipe depth is unknown.

### ***REFER DRAWING M111 FOR ZONE OF INFLUENCE ADJACENT TO WATER MAINS***

***Note: Requirements will be assessed and advised during the normal Development Application approval process.***

## **10. c Building near sewer rising mains**

The following conditions apply to development adjacent to a **sewer rising main within an easement -**

- **No structures are permitted within an easement for a sewer rising main.** Council must have unrestricted access to the easement to repair, maintain or renew the main as required.
- **No structures may overhang or project into an easement.** Work carried out on large sewer rising mains will often involve large earthmoving machinery, trucks and cranes.
- **No earthworks or improvements are permitted within an easement without approval from Council.** This includes cutting, filling landscaping, tree planting, retaining walls etc.
- Unless known, the sewer rising main shall have an assumed depth of 1.5 metres.
- Structures erected adjacent to a sewer rising main must be "self supporting" within the zone of influence. **This is generally achieved by using foundation support such as piers or piles founded to a depth which is below the zone of influence. The plans for the foundations must have written certification from the designing engineer that the structure is self-supporting within the zone of influence. Foundations supported on solid rock which is within the zone of influence are considered self-supporting.**

- Council may impose additional approval conditions where a proposed development limits or restricts Council's opportunity to operate and maintain a sewer rising main.

The following conditions apply to development adjacent to a **sewer rising main which is not within an easement** -

- **Where Council has a sewer rising main which is not within an easement, a minimum of 3 metres horizontal clearance is required** between the main and any proposed structure. The minimum horizontal clearance is 3 metres and may be increased where necessary to protect the sewer rising main
- **No earthworks or improvements are permitted within 3 metres of a sewer rising main** without approval from Council. This includes cutting, filling, landscaping, tree planting, retaining walls etc. The minimum horizontal clearance is 3 metres and may be increased where necessary to protect the sewer rising main
- Unless known, the sewer rising main shall have an assumed depth of 1.5 metres.
- **Council may impose additional approval conditions** where a proposed development limits or restricts Council's opportunity to operate and maintain a sewer rising main.
- Structures erected adjacent to a sewer rising mains must be "self supporting" within the zone of influence. **This is generally achieved by using foundation support such as piers or piles founded to a depth which is below the zone of influence. The plans for the foundations must have written certification from the designing engineer that the structure is self-supporting within the zone of influence. Foundations supported on solid rock which is within the zone of influence are considered self-supporting.**

#### **10. d Sewer Rising mains and the Zone of Influence**

A Zone of Influence exists adjacent to all Council sewer rising mains. Any structures within the zone of influence must be designed and certified to be self-supporting.

**However, Council reserves the right to individually assess requirements for the zone of influence in relation to sewer rising mains for each development.** Factors influencing the requirements may include the existence of an easement, location of a main within an easement, the size of a main, the depth of a main, access to the site, etc.

**Generally, where Council has a sewer rising main within a designated easement,** the zone of influence is defined as extending from the easement boundary at an assumed depth of 1.5 metres, upwards to the ground surface at a slope appropriate for the soil type. The assumed depth of 1.5m is to be used only where the actual depth of the main is unknown.

**Generally, where Council has a sewer rising main which does not have a designated easement,** the zone of influence is defined as extending from a nominal offset distance from the main (minimum 3 metres) at an assumed depth of 1.5 metres upwards to the ground surface at a slope appropriate for the soil type. The assumed depth of 1.5m is to be used only where the actual depth of the main is unknown.

***Note: Requirements will be assessed and advised during the normal Development Application approval process.***

***NOTE: REFER DRAWING M111 FOR ZONE OF INFLUENCE ADJACENT TO SEWER RISING MAINS***

## **11. WHAT ENGINEERING DETAILS ARE REQUIRED ON THE PLANS I LODGE WITH MY APPLICATION**

***NOTE: Council staff assess your development application on the information you provide. Failure to provide sufficient information may cause delays in processing time. This is particularly true with developments over or near sewer mains.***

Note: All copies of plan information supplied by Council are conditioned –

***"This plan is diagrammatic only. Distances scaled from this plan may not be accurate"***

Council accepts no liability for any errors or omissions on information supplied and it is the applicant's responsibility to verify the physical position of sewer and water mains and their location shown on any submitted plans.

**To avoid processing delays please ensure the information below is shown on the engineering plans lodged for your development**

1. If you propose to build within the zone of influence of a sewer or water main, then your engineering plans submitted with your Development Application should include the following information -

(i) A plan view of the land showing the:

- a. Location of the proposed building
- b. Centreline of the sewer / water main including offset distances to the proposed building
- c. Limits of the zone of influence
- d. Pier location and depths
- e. Extent of any concrete encasement required

(ii) Section across the zone of influence including piercing details and concrete encasement (where applicable)

(iii) Certification on the face of the plan by the applicants engineer as follows:

"I,....., certify that the footings of this building as designed are adequate to support and protect the building from damage in the event that the sewer / water main is excavated, or disturbance or settlement occurs within the zone of influence of the sewer / water main."

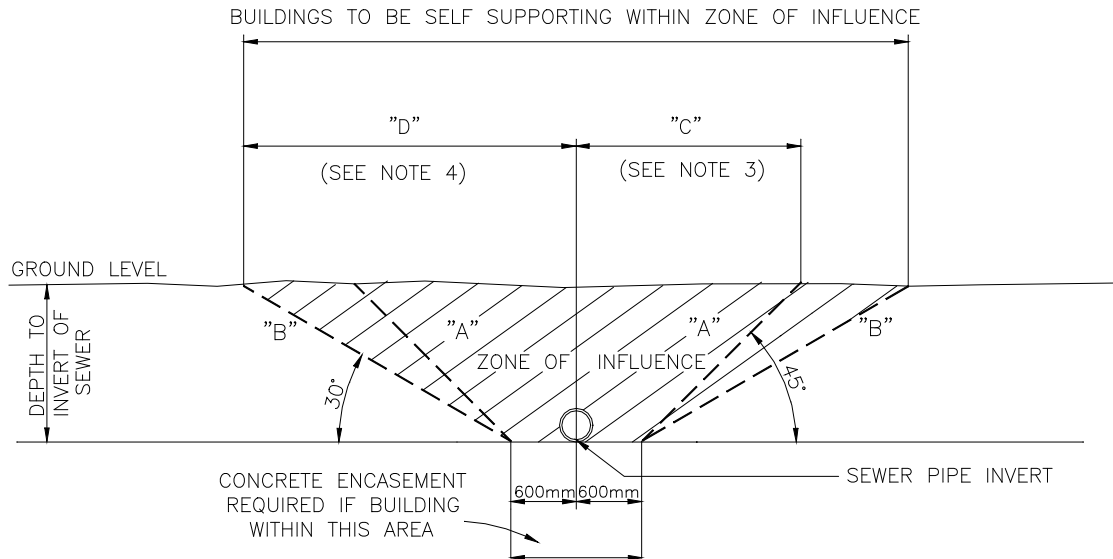
Signed.....

2. Applications for in ground pools should include certification on the face of the plan by the applicants engineer as follows:

"I,....., certify that when the pool is full of water the pool walls as designed are adequate to support and protect the pool from damage in the event that the sewer / water main is excavated, or disturbance or settlement occurs within the zone of influence of the sewer / water main."

Signed.....

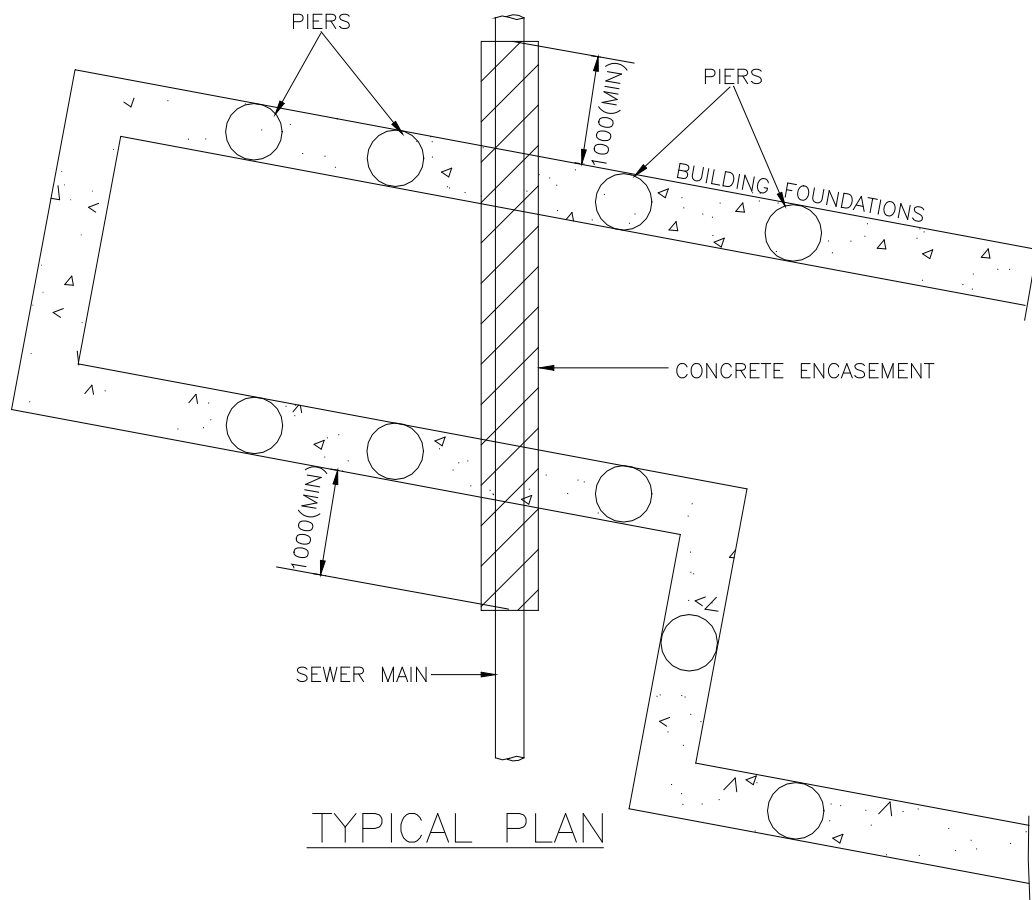
# 12. RELEVANT DRAWINGS AND NOTES



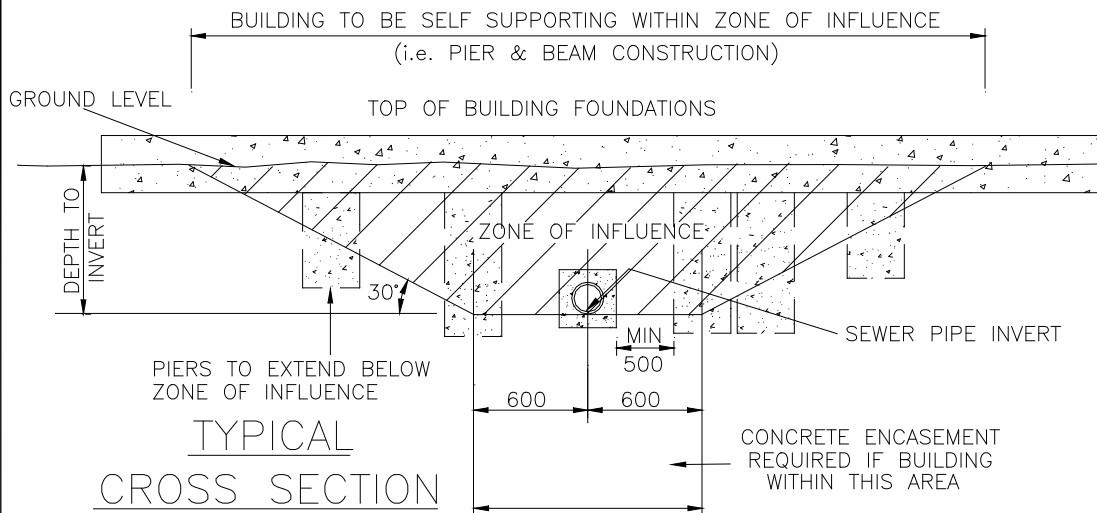
## NOTES:

1. LINE "A" = ZONE OF INFLUENCE AT 1:1 (45°) FOR SOIL, CLAY ETC.
2. LINE "B" = ZONE OF INFLUENCE AT 2:1 (30°) FOR SAND, LOAM OR FILLED GROUND.
3. DISTANCE "C" REPRESENTS THE ZONE OF INFLUENCE WIDTH FOR 1:1 ZONE..  
ie. 0.6 METRE + DEPTH TO INVERT. NOTE : FOR LEVEL GROUND ONLY.
4. DISTANCE "D" REPRESENTS THE ZONE OF INFLUENCE WIDTH 2:1 ZONE  
ie. 0.6 METRE + (2 x DEPTH TO INVERT). NOTE: FOR LEVEL GROUND ONLY.
5. ON SLOPING GROUND, DISTANCES "C" AND "D" WILL VARY FOR UPSLOPE/DOWNSLOPE EXTENT OF ZONE OF INFLUENCE.

|                          |  |                   |  |                                                  |  |
|--------------------------|--|-------------------|--|--------------------------------------------------|--|
| BASE SCALE<br>SCALE 1:50 |  | 0 0.5 1 1.5 2 2.5 |  | GOSFORD CITY COUNCIL                             |  |
| DATUM N.A.               |  |                   |  | BUILDING OVER / NEAR SEWERS<br>ZONE OF INFLUENCE |  |
| SURVEYED N.A.            |  |                   |  |                                                  |  |
| DRAWN                    |  |                   |  |                                                  |  |
| CHECKED                  |  | FILE N°. 961.05   |  | DRAWING N° M81 /A4                               |  |

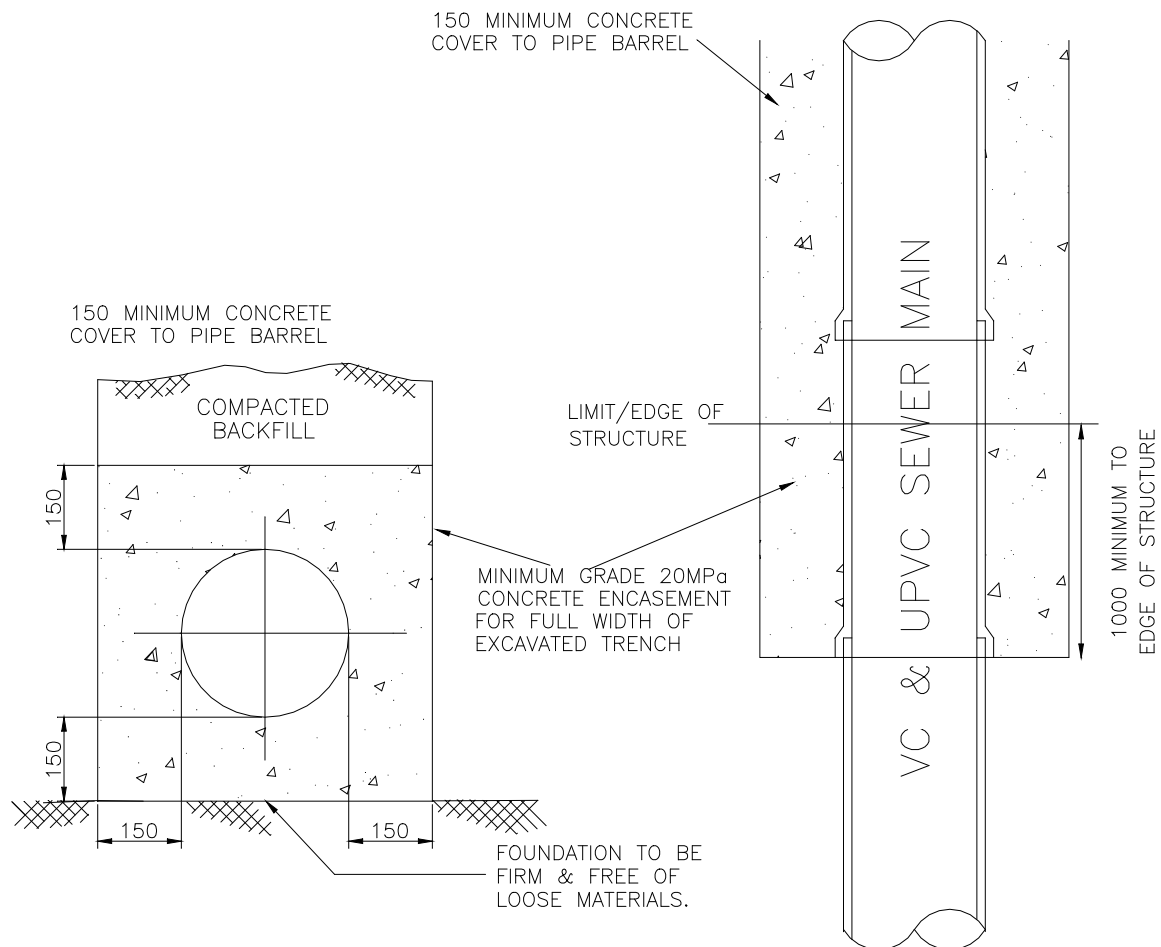


TYPICAL PLAN



TYPICAL  
CROSS SECTION

|            |        |                                                                          |                     |
|------------|--------|--------------------------------------------------------------------------|---------------------|
| BASE SCALE | N.T.S. | GOSFORD CITY COUNCIL                                                     |                     |
| DATUM      | N.A.   | TYPICAL DETAIL OF BUILDING OVER/NEAR<br>SEWERS FOR 2:1 ZONE OF INFLUENCE |                     |
| SURVEYED   | N.A.   |                                                                          |                     |
| DRAWN      |        |                                                                          |                     |
| CHECKED    |        | FILE N°. 961.05                                                          | DRAWING N° M82 / A4 |



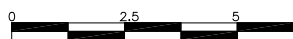
CROSS SECTION

PLAN

NOTES:

1. ENCASEMENT TO FINISH AT A PIPE COLLAR WHICH IS AT LEAST 1 METRE CLEAR OF THE STRUCTURE.
2. CONCRETE TO BE MINIMUM GRADE 20 mpa & PLACED USING MECHANICAL VIBRATION.
3. WHEN EXPOSING PIPES, PROVIDE TEMPORARY SUPPORT TO PIPE BARREL AT 1500mm CENTRES.
4. PRECAUTIONS SHALL BE TAKEN AGAINST FLOTATION/DEFORMATION OF THE PIPELINE DURING ENCASEMENT.

BASE SCALE  
SCALE 1:12.5



DATUM

SURVEYED

DRAWN

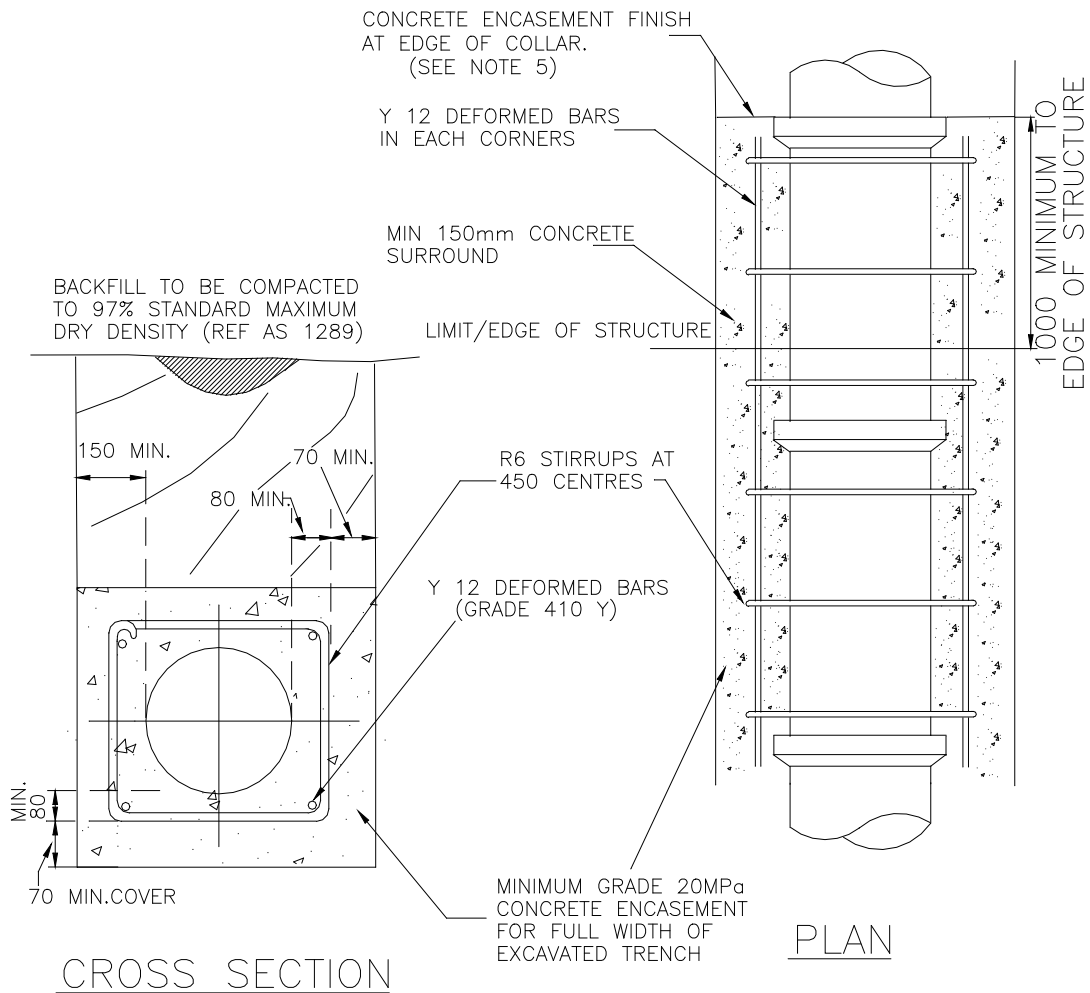
CHECKED

GOSFORD CITY COUNCIL

STANDARD CONCRETE ENCASEMENT  
PROTECTION FOR SEWER MAINS

FILE N °. 961.05

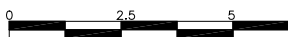
DRAWING N° 84 /A4



NOTES:

1. CONCRETE TO BE MINIMUM GRADE 20 MPA AND PLACED USING MECHANICAL VIBRATIONS.
2. MINIMUM REINFORCEMENT LAP LENGTH TO BE 450 mm.
3. MINIMUM CONCRETE COVER TO REINFORCEMENT TO BE 70 mm.
4. REINFORCEMENT TO BE SECURELY TIED WITH ANNEALED WIRE AT ALL CROSSINGS.
5. WHERE THE SEWER MAIN IS TO BE CONCRETE ENCASED, THE ENCASEMENT SHALL EXTEND TO A COLLAR LOCATED NOT LESS THAN 1000m BEYOND THE OUTSIDE EDGE OF THE STRUCTURE.

BASE SCALE  
SCALE 1:12.5



DATUM

SURVEYED

DRAWN

CHECKED

GOSFORD CITY COUNCIL

STANDARD REINFORCED CONCRETE  
ENCASEMENT PROTECTION FOR  
SEWER MAINS

FILE N °. 961.05

DRAWING N° 85 /A4

STANDARD SPECIFICATION FOR THE CONCRETE ENCASEMENT OF SEWER MAINS  
(NOTES TO DRAWING NO. M84 & M85)

**NOTE: Council reserves the right to vary the standard construction design for concrete encasement of sewer mains (Council DWG M84 & M85) in the following circumstances.**

- A. Concrete encasement of sewer mains which have a diameter of 225 mm or greater.**
- B. Adverse ground conditions i.e. water charged or unstable ground.**

## **1. CONSTRUCTION NOTES**

1.1 Before any concrete work is commenced, the sewer main is to be located and uncovered. Care shall be taken to avoid damage to the main and should any such damage occur, it will be repaired at the owner / applicant's cost.

1.2 The owner / applicant is responsible for obtaining written consent from any property owner affected by works associated with the sewer protection within adjoining land. Failure to do so will void Council approval.

1.3 The owner/applicant shall give Council's Quality Inspector at least two (2) working days notice prior to the placement of concrete.

1.4 No concrete is to be placed until Council's Quality Inspector has inspected and approved the prepared trench, and the support of the sewer main.

1.5 A final inspection of the work will be carried out by Council's Quality Inspector during placement of the concrete. No backfilling of the trench may be done until the final inspection is completed.

## **2. CONCRETE**

2.1 All concrete work shall comply with the requirements of Australian Standard AS 1480-1982 as amended. All concrete shall have a minimum F'c of 20 Mpa at twenty eight (28) days.

2.2 All concrete is to be placed in such a manner to ensure satisfactory compaction with the absence of segregation.

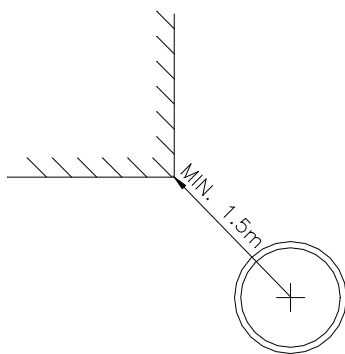
2.3 After completion of pouring the concrete shall, unless otherwise approved by Council's Quality Inspector, be covered with an approved impermeable membrane and kept in a moist condition for a minimum of three (3) days.

No filling or building work is permitted in the vicinity of the encased sewer main during this period.

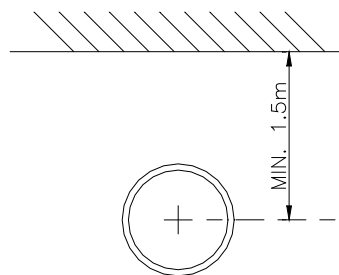
## **3. INSPECTIONS**

3.1 To arrange an inspection, Council's Quality Inspector can be contacted by telephone on 4325 8883 or 0419 412 725.

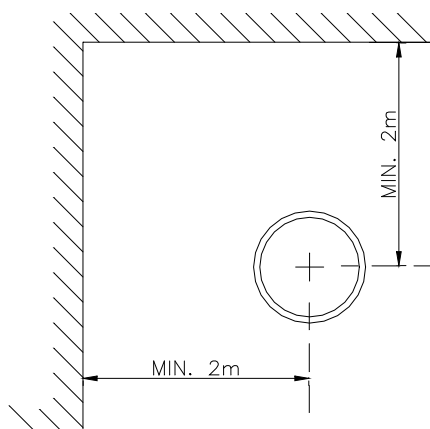
**3.2 Evidence that the owner / applicant has paid the necessary inspection fees ( i.e. a receipt ) must be provided to Council's Quality inspector on site or the inspection may be cancelled.**



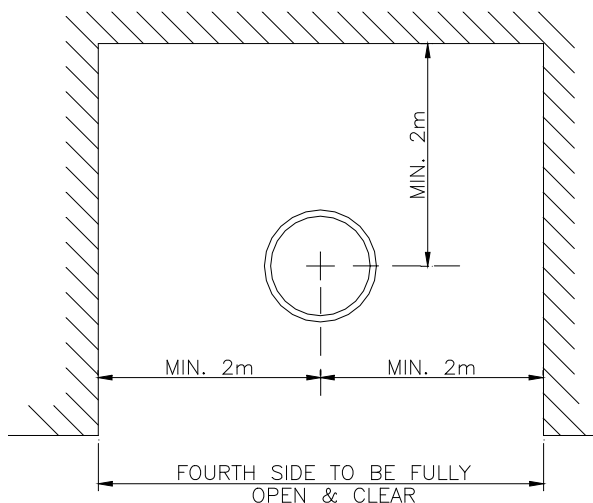
MANHOLE ADJACENT TO CORNER



MANHOLE ADJACENT TO SINGLE WALL



MANHOLE ADJACENT TO TWO WALLS



MANHOLE ADJACENT TO THREE WALLS

NOTES:

1. A MINIMUM CLEARANCE OF 3m SHALL BE ALLOWED ABOVE MANHOLE COVER TO UPPER SURFACE OF STRUCTURE.
2. SEE. SECTION 7 OF COUNCIL'S BUILDING OVER SEWER GUIDE.

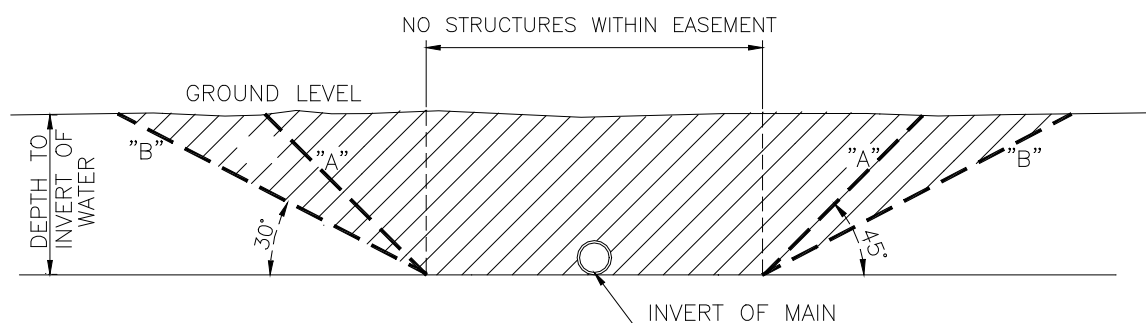
|            |  |
|------------|--|
| BASE SCALE |  |
| SCALE 1:50 |  |
| DATUM      |  |
| SURVEYED   |  |
| DRAWN      |  |
| CHECKED    |  |

**GOSFORD CITY COUNCIL**

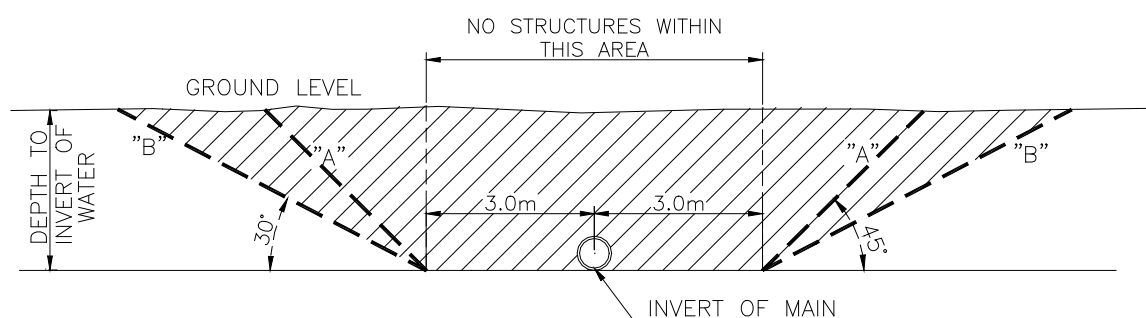
STANDARD CLEARANCES WHEN  
BUILDING ADJACENT TO COUNCIL'S  
SEWER MANHOLES

FILE N °. 961.05

DRAWING N° M90 / A4



ZONE OF INFLUENCE FOR WATER & SEWER RISING MAINS IN EASEMENTS



ZONE OF INFLUENCE FOR WATER & SEWER RISING MAINS NOT IN EASEMENTS

NOTES:

1. WHERE WATER MAIN DEPTH IS UNKNOWN , ASSUME 1.5 METRES.
2. MINIMUM CLEARANCE IS 3.0 METRES. COUNCIL MAY VARY THIS REQUIREMENT ACCORDING TO SITE FACTORS.
3. LINE "A" = ZONE OF INFLUENCE AT 1:1 (45°) FOR SOIL, CLAY ETC.
4. LINE "B" = ZONE OF INFLUENCE AT 2:1 (30°) FOR SAND, LOAM OR FILLED GROUND.
5. NO WORK IS TO BE UNTAKEN WITHIN AN EASEMENT OR WITHIN 3 METRES OF A WATERMAIN WITHOUT PRIOR APPROVAL FROM COUNCILS WATER & SEWER SERVICES.
6. THE HORIZONTAL OFFSET DISTANCE FROM WATER MAIN IS 2.5m OR THE EDGE OF FRONT BOUNDARY FOR WATER RETICULATION MAINS WITHIN ROAD RESERVE.

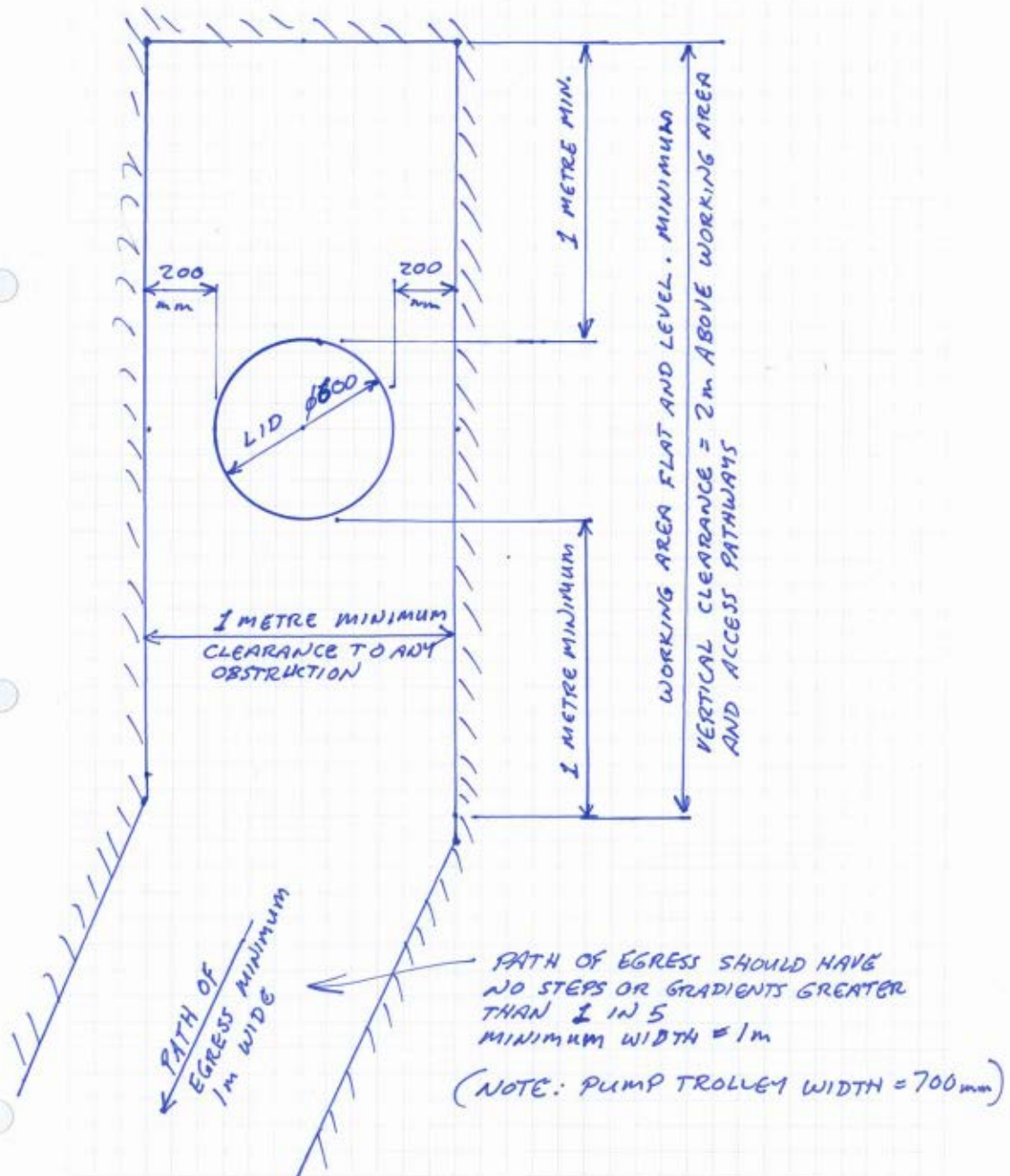
|                          |  |                   |  |                                                                 |  |
|--------------------------|--|-------------------|--|-----------------------------------------------------------------|--|
| BASE SCALE<br>SCALE 1:50 |  | 0 0.5 1 1.5 2 2.5 |  | GOSFORD CITY COUNCIL                                            |  |
| DATUM N.A.               |  |                   |  | BUILDING NEAR WATER & SEWER RISING<br>MAINS – ZONE OF INFLUENCE |  |
| SURVEYED N.A.            |  |                   |  |                                                                 |  |
| DRAWN                    |  |                   |  |                                                                 |  |
| CHECKED                  |  | FILE N°. 961.05   |  | DRAWING N° M 111/A4                                             |  |

- \* 2 a. Minimum 2.5m horizontal clearance for reticulation mains  
 b. Absolute minimum 1m for DN100; and 2m wide corridor on other side of the main is required

# Engineering Worksheet



PROJECT: MINIMUM WORKING CLEARANCES  
 DESCRIPTION: REQUIRED AROUND LOW PRESSURE PUMP  
 ENGINEER: \_\_\_\_\_ CHECKED: CHAMBERS  
 SHEET: \_\_\_\_\_ OF \_\_\_\_\_ JOB NO. \_\_\_\_\_ DATE: \_\_\_\_\_



### 13. EXEMPTIONS

GCC may consider a development exempt from a number of conditions specified within this guideline where **all** of the following situations exist concurrently:

- The development is an addition to an existing dwelling.
- The existing dwelling was constructed prior to construction of the sewer main and is located within the ZOI without compliance with current BOS requirements.
- The area of the proposed addition located within the ZOI represents less than 25% of the combined area of existing and proposed development within the ZOI.
- The development is in excess of 2.0 metres horizontally from the sewer main.
- The sewer main is less than or equal to 300mm in diameter.
- The owner requests in writing that the requirement for piercing of the additions for the sole purpose of complying with Councils building over sewer guidelines be removed and if accepted by Council, the owner acknowledges in writing that the owner accepts responsibility for any future issues which may arise as a consequence of the additions and the sewer main." A sample letter by owner to indemnify council is below

To:  
Gosford City Council  
P.O. Box 21  
Gosford NSW 2250

RE: **DAxxxx Lxx DPxxxxx**

Dear Sir,

Re: Building over or near sewer line and Zone of Influence as applied to the Sewer Easement along the boundary of No x and No. y \_\_\_\_\_ Rd. \_\_\_\_\_.

In respect to the \_\_\_\_\_ extension planned at \_\_\_\_\_,  
I hereby relieve Gosford Council of liability for any damage which may be caused by future sewer excavations or failure of the sewer or associated infrastructure within the accepted 'Zone of Influence' to said planned extensions being as outlined in above DA plans.

In the above statement no undertaking has been given in respect to the existing structure nor has any inference been given to suggest the inclusion of the existing structure.

Regards,

\_\_\_\_\_