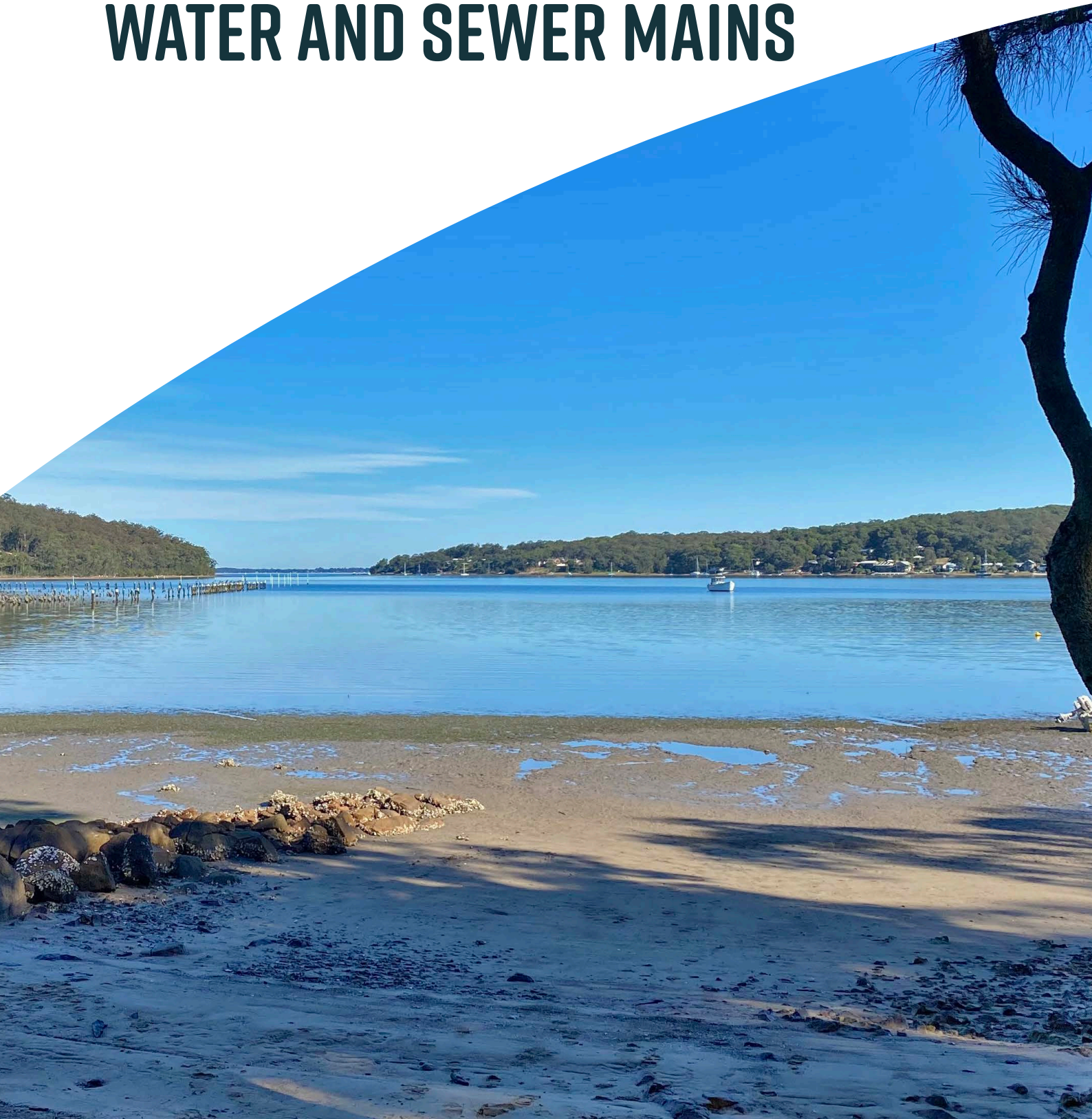
MIDCOAST
council

GUIDELINES FOR BUILDING OVER OR NEAR COUNCIL WATER AND SEWER MAINS



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1. Frequently asked questions

Can I build over a sewer main?

Yes. 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 access chambers/inspection opening shafts?

No. Council will not allow you to build over a sewer manhole or access chambers/inspection opening or maintenance shafts 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 metres 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 needs 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 piering 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 1.0 metres 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 posts 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. The type of pipe used will have an influence on what procedure is required. Basically 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 Plumbing and Infrastructure 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 Plumbing and Infrastructure 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 access chambers/inspection opening shafts?

If you have landscaped your yard and now find that access chambers/inspection or maintenance shafts or the manhole lid is buried or sits up above the new ground level, you should arrange to have the manhole or access chambers/inspection or maintenance shafts raised or lowered by MidCoast Council so it is still accessible to 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 the answer is yes. Council generally allows residential driveways over the sewer with suitable protection requirements. Any manhole or access chambers/inspection or maintenance shafts fittings in the driveway will need to be altered to suit the load requirements and 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 with 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.

2. General information

MidCoast Council provides water supply and sewerage services to properties within the reticulation areas of the MidCoast local government area. 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 an impact your development.

2.1 Water mains

MidCoast Council's water supply system provides water from various sources to reservoirs and on to properties via pressure mains which are generally located in footpaths or roadways. However, there are some exceptions where 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: In general, Council will not allow any private structures to be constructed within or allow any structures 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.

2.2 Sewer mains

MidCoast Council's sewer reticulation system, in a majority of cases, removes sewage 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 (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 MAY allow structures to be built over or near sewer mains subject to approval and certain conditions.

2.3 Vacuum sewer mains

MidCoast Council operates vacuum sewer systems at Harrington, Manning Point, and Tea Gardens. 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 sewage 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

2.4 Low pressure sewer mains (LPSS)

MidCoast Council operates low pressure sewer systems within selected properties in the MidCoast operational areas. 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 requires a minimum clearance of 1.0 metres 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 pipe where the pipe is 32mm/40mm in size and servicing a single residential dwelling. In this instance a minimum corridor of 1.0 metres shall be provided over the pipe line for access purposes.

2.5 Sewer rising mains

Sewer rising mains differ to gravity or vacuum sewer mains. Rising 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 mains. 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.

2.6 Sewer tunnels/structures

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

The tunnels/structures 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/structures without special conditions. However, some structures over shallower parts of tunnels/structures may be subject to conditions designed to protect the development and Council's rights to access, operate and maintain these tunnels/structures. Conditions may vary depending on each particular situation and will be assessed during the application assessment process.

2.7 Sewer manholes, access chambers, inspection /maintenance shafts, dead ends and vent shafts

Where a sewer main changes horizontal or vertical direction, you will find sewer manholes, access chambers, inspection/maintenance shafts. These are usually concrete structures in various diameters 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 sewer manholes and access chambers, inspection/maintenance shafts 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 access chambers and at least one metre clear of dead ends, inspection/maintenance shafts.

Sewer vent shaft: A structure provided to limit pressure fluctuation within the sewerage system, or for air to enter and escape from the sewer system. For further information regarding clearance and access requirements, contact MidCoast Council.

2.8 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 Council may require 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 to the sections on *zone of influence*, structure requirements and manhole or access chambers, inspection/maintenance shafts clearances or consult a certified structural engineer.

2.9 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 access chambers, inspection/maintenance shafts 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 must be submitted to Council 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.

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 by contacting MidCoast Council.

Note: All copies of information supplied are issued with the following disclaimer:

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

For advice on building over or near sewer or water mains contact MidCoast Council.

What are the costs involved for building over a gravity sewer main?

An application fee to potentially build over a gravity sewer main not within an easement (as per current fees and charges) will be applicable post the advice already provided.

Pending the result of the subsequent application the applicant may be liable for further costs associated with the asset renewal (based on sewer manhole to sewer manhole distance encompassing the requested and approved built over sewer gravity main section).

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

Yes. Council will locate the position and depth of sewer mains by marking out the sewer/water main on your land. A fee may apply to this service and requests should be made by contacting the MidCoast Council.

How do I arrange inspection of concrete encasement work by Council's Plumbing and Infrastructure Inspector?

If your development requires concrete encasement of a sewer pipe, then you must contact Council's Plumbing and Infrastructure Inspector at least three working days prior to starting work. The Inspector can be contacted through MidCoast Council. All applicable inspection fees must be paid prior to arranging inspections.

How do I arrange to have a manhole or access chambers, inspection/maintenance shafts raised or lowered?

You may engage Council, or a private certified contractor, to carry out the work. If you wish for Council to undertake this work, you will need to submit a request to Council who will inspect the site and provide you with a quote.

Who do I contact to have a water main hydrant or stop valve fittings 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 provide you with a quote.

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

4. Soil classification

Before you can build near Council structures you need to know what sort of foundation/footings/piers is needed, which is based on the 'soil classification'.

Geotechnical Investigation

A geotechnical investigation is required to provide a report stating the soil classification.

The investigation and the report must be in accordance with the following Australian Standards:

- Residential slabs and footings
- Geotechnical site investigations

Standard Classifications

The classification of the site is based on the expected movement of the foundation soils – generally related to the capacity of the soil to shrink or swell.

Your site should be in one of the following classifications:

- **Class A:** Mostly sand and rock sites, with little or no ground movement expected.
- **Class S:** Slightly reactive clay sites. Only slight ground movement from moisture changes expected.
- **Class M:** Moderately reactive Clay or Silt sites which can experience moderate ground movement from moisture changes
- **Class H:** Highly reactive clay sites. Can experience high ground movement from moisture changes.
- **Class E:** Extremely reactive sites. Can experience extreme ground movement from moisture changes.
- **Class P:** A problem site. This can includes soft soils, such as soft clay or silt, varying depths of fill, loose sands, landslips, mine subsistence, collapsing soils, soils subject to erosion, reactive sites subject to abnormal moisture conditions, or sites which cannot be classified otherwise.

Added category 'D'

Soil types M, H, and E may also have an added classification of 'D'. This indicates deep seasonal moisture variation which can mean significant expansion and contraction. For example, from a dry to a saturated state:

- Class M-D may move up to 40mm
- Class H-D 40mm to 70mm
- Class E-D can move more than 70mm, (up to 250mm has been found in some cases)

5. The *zone of influence*

What is the *zone of influence*?

The z*one 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 *zone of influence*?

MidCoast 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.:

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

***Zone of influence* for sewers and drains**

The *zone of influence* is located within the soils surrounding a pipe and is that part of the soils that will be affected by any damage occurring to the pipe or during excavation of a trench. For example, should a pipe break or a joint leak, subsidence may occur within the *zone of influence*. The depth of the pipeline, the type of soil and the slope of the site determine the size of the zone.

How the *zone of influence* is calculated:

a) The line depth and its position in relation to the proposed building site is found. (These details are taken from Council's records or by inspection of the site).

b) The depth of the trench containing the pipework is calculated by adding 300 mm to the pipe depth.

c) The width of the trench depends on the pipe diameter. As a guide, pipes up 225 mm diameter will have a trench width of 600 mm whilst pipes over 225 mm diameter will have a trench width of 1000 mm. In the case of large diameter pipes and/or deep trenches the trench width may be larger than the preceding values. In these cases an individual assessment will be made.

d) The zone is calculated using the depth of the trench and half the trench width. This calculation varies due to the type of soil present. Figures 1 and 2 indicate the Zone of Influence for clay soils and for sand, filled ground and loam respectively.

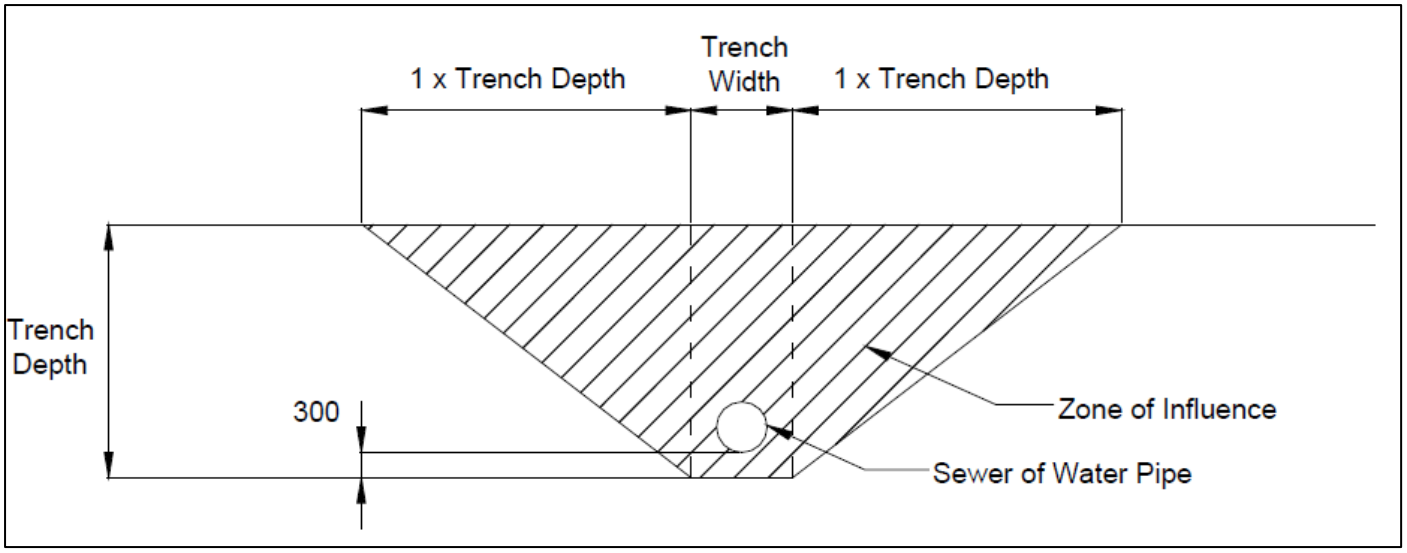

Figure 1: *zone of influence* for clay soils

As **Figure 1** indicates, the *zone of influence* extends out from the edge of the pipe trench the same distance as the depth of the trench (The ratio used is 1:1). For clay soils the zone will extend the same distance as the depth plus half the width of the trench. For example, for a pipeline of 150 mm diameter and a depth of 1500 mm, the trench depth is 1800 mm deep (i.e. 1500 + 300) therefore, the zone extends 2100 mm from the pipe centre line (i.e. 1800 + 300).

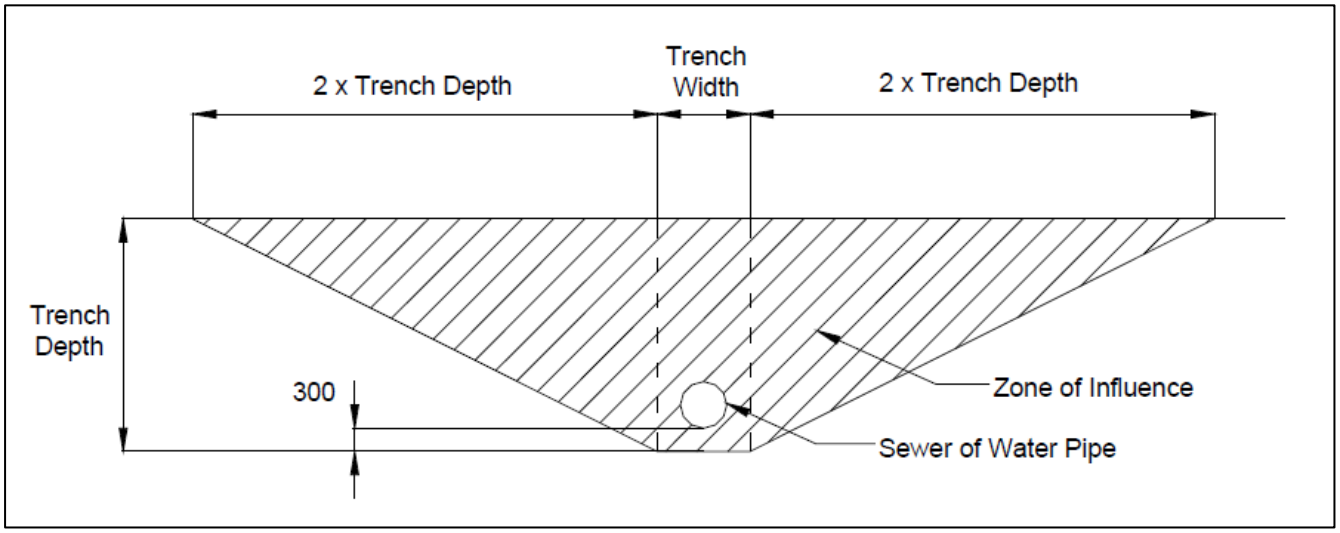

Figure 2: zone of influence for sand, filled ground and loam

The Zone of Influence extends out from the edge of the pipe trench twice the distance as the depth of the trench. (The ratio used is 2:1). For sand, filled ground (including controlled fill), loam, etc. the zone will extend **twice** the depth of the trench plus half the width of the trench. For example, for a pipe line of 375 mm diameter and a depth of 2500 mm, the trench depth is 2800 mm deep (i.e. 2500 + 300) therefore, the zone extends 6100 mm from the pipe centre line (i.e. (2800 x 2) + 500)).

Topography

The *zone of influence* may be affected by the topography of the site. If the proposed building is to be located on a slope above the pipe then the zone may be substantially extended. Alternatively, if the proposed building is to be located on a slope below the pipe then the zone may be substantially reduced. On steep blocks substantial footings may be required to overcome the effect of the *zone of influence*. Figures 3, 4 and 5 indicate the effect on the zone of influence in relation to topography.

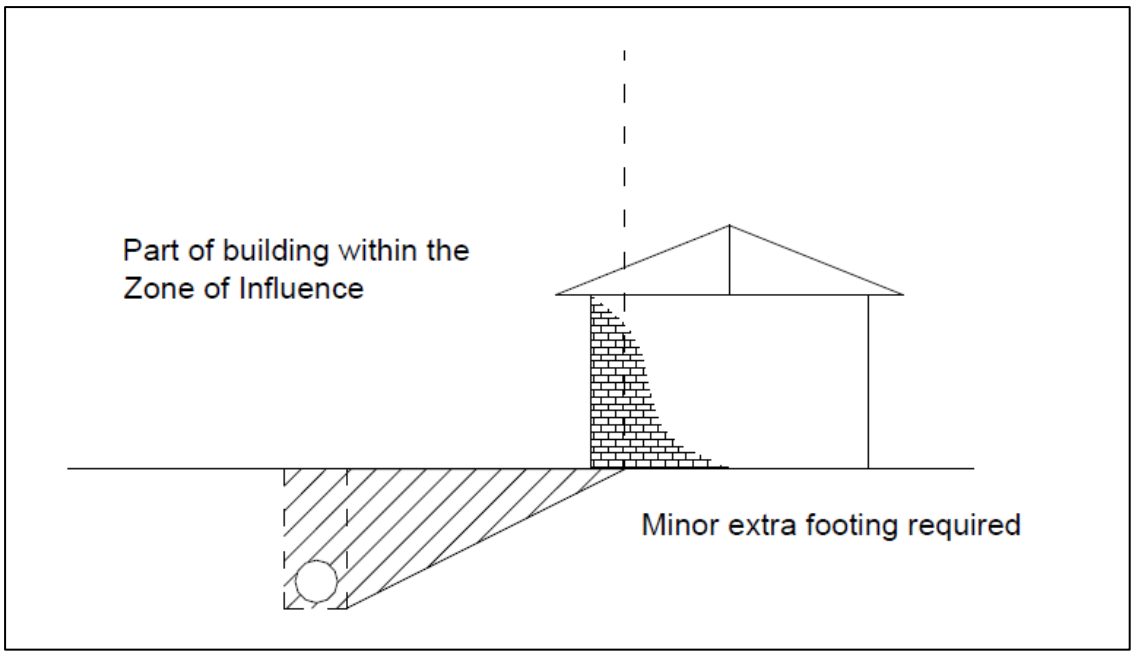

Figure 3: *zone of influence* on flat ground

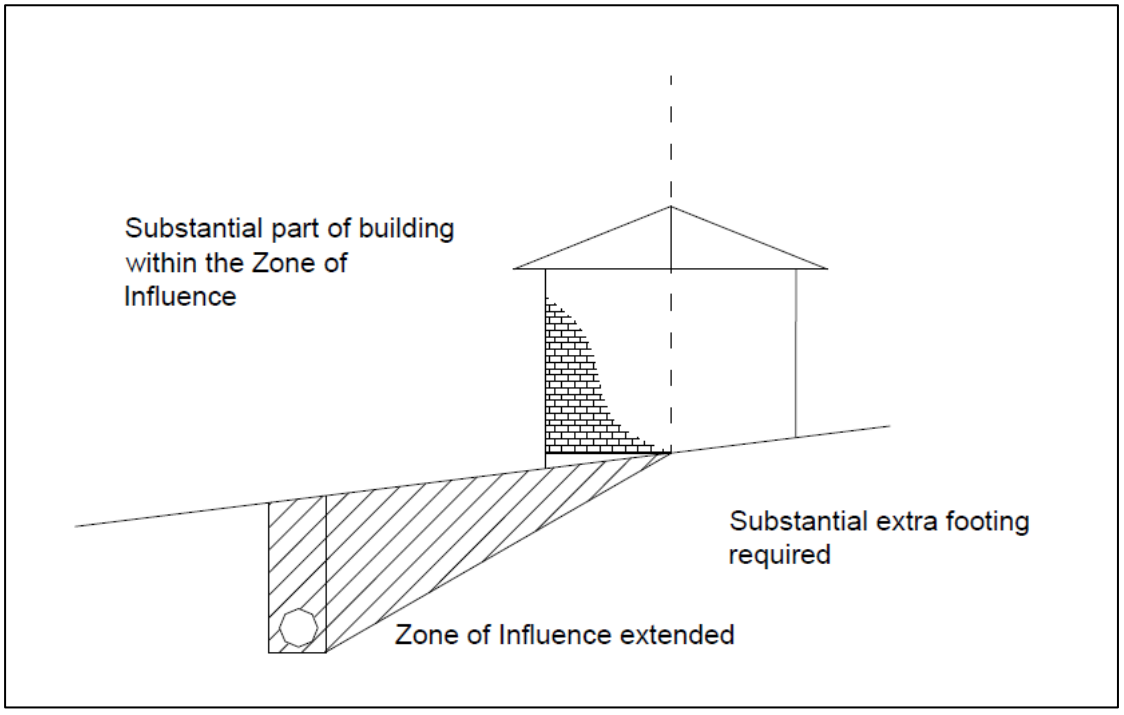

Figure 4: *zone of influence* where pipe is located downhill from building

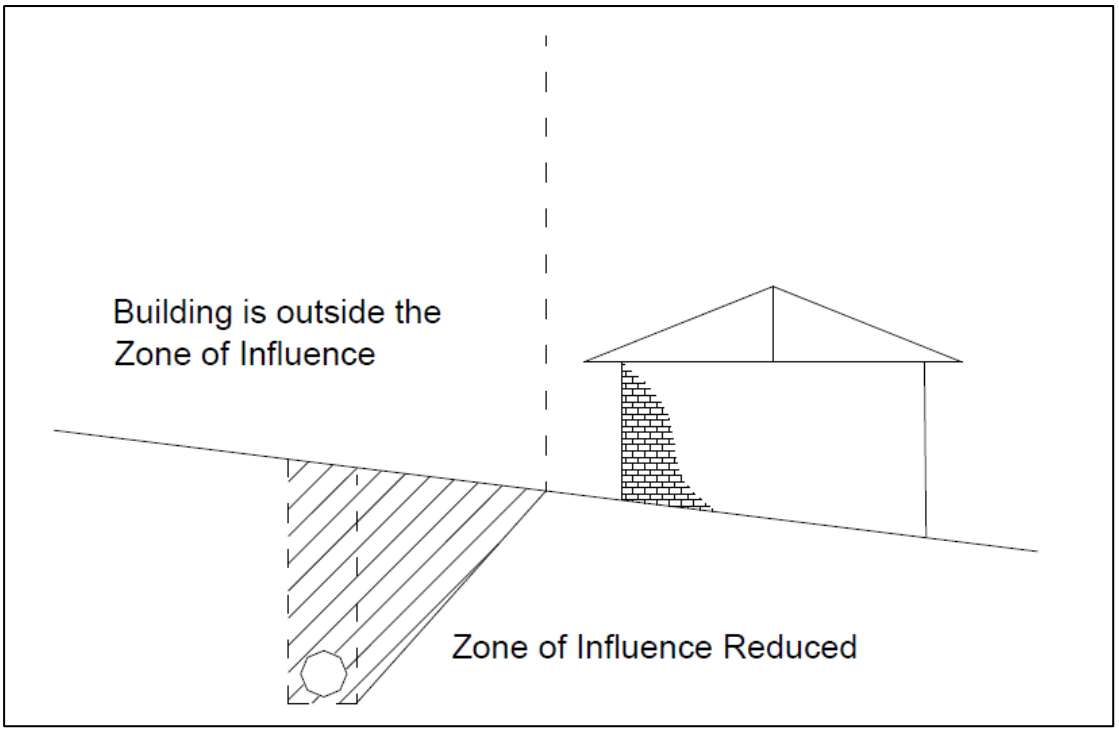

Figure 5: *zone of influence* where pipe is located uphill from building

6. Requirements for building over, or near sewer mains

If you propose to build over, or near, a gravity sewer main, Council approval (if granted), will be subject to certain conditions. The assessment of plans will require the payment of the applicable built over or near gravity sewer mains application fee. Amounts can be obtained through Council's annual Fees and Charges document available on the MidCoast Council website. The conditions will depend on what type of structure you propose to build, and the structure's proximity to a sewer main, the condition of the main etc. Council may require piering within the *zone of influence*, concrete encasement, or internal relining of the gravity sewer main (please note if sewer relining is deemed required the applicant will be required to pay from the related upstream sewer manhole to the downstream sewer manhole encompassing the approved built over section). In some instances, building over a sewer main may not be permitted.

6.1 What is required if my building is in the Zone of Influence?

Council requires 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 1 below shows a typical example of foundations which are designed to be "self-supporting" within the 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.

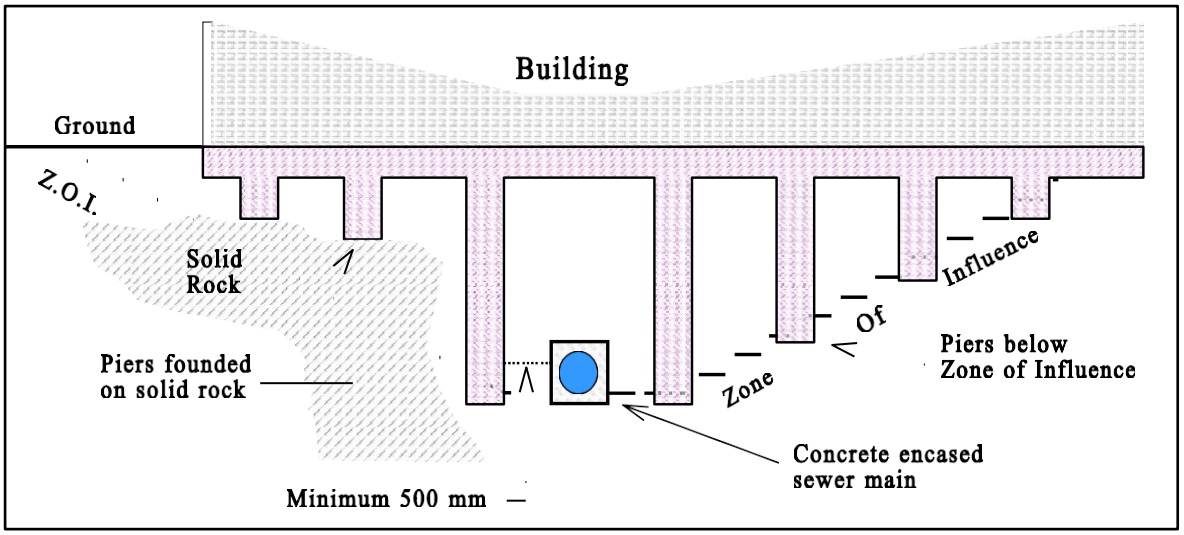

Figure 1: an example of "self-supporting foundations" for a building within a 2:1 *zone of influence* of a sewer main

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.

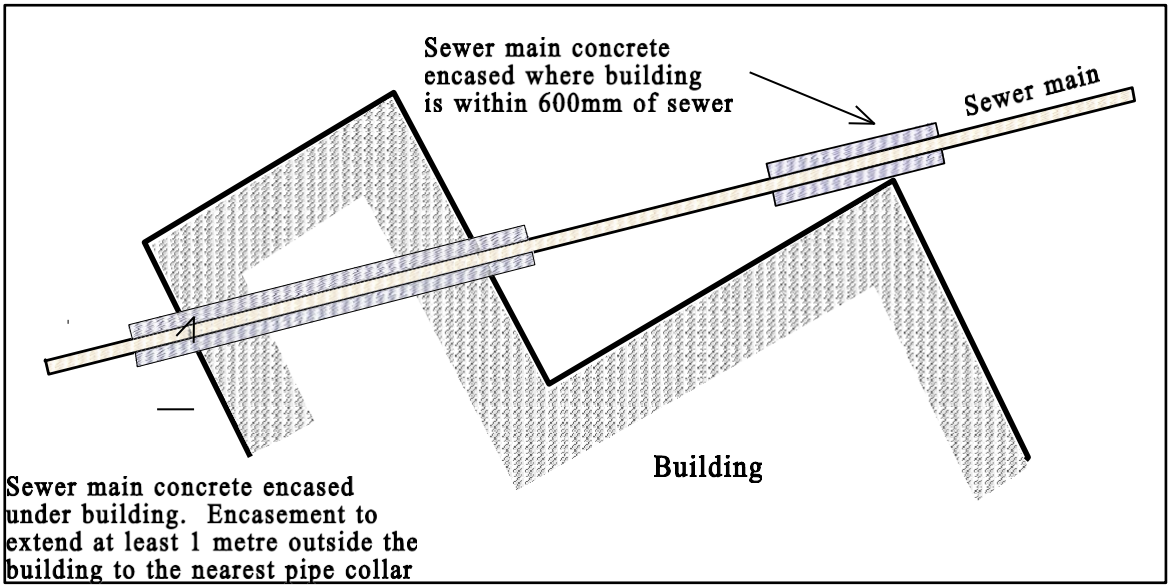

Figure 2: plan view
Typical building situation requiring concrete encasement of a sewer main

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

6.2 What is involved in concrete encasing a sewer main?

Concrete encasement is basically surrounding a buried pipe with mass concrete. What type of pipe will have an influence on what type of procedure is required. 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.

Sewer Junctions

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”.

Concrete encasement and grouting of plastics pipes

Two potential problems arise when encasing plastic pressure pipes in concrete: temperature and local strains. Designers and installers should be aware of these issues. Although they are generally covered by recommendations contained in AS 2032 and AS 2033.

Note: All concrete encasement work undertaken must be inspected by Council’s Plumbing and Infrastructure Inspector. Fees are applicable in accordance with Council’s annual Fees and Charges document, available on the MidCoast Council website.

Backfilling

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 licensed contractor to carry out the encasement, subject to the inspection by Council’s Plumbing and Infrastructure Inspector.

6.3 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.

7. What sewer main protection is required when I build a structure?

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 MidCoast Council.

- Requirements for subdivisions – **other infrastructure services**
- 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 MidCoast Council.

7.1 What is required when I build a brick dwelling or garage, a residential flat building, manufactured home, commercial or industrial building?

If your building is within the *zone of influence* of a sewer main, approval to build over or near a sewer main will be subject to the following requirements:

- 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 600 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 access chambers/inspection opening shafts, and a minimum clearance of 1.0 metres from a dead end.

7.2 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.

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 access chambers/inspection opening shafts, and a minimum clearance of 1.0 metres from a dead end.

7.3 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 access chambers/inspection opening shafts
- Closer than 600mm to a sewer main

- Concrete slab is okay if it is 600mm or 1 metre away from sewer

Carports may be erected over a sewer manhole or access chambers/inspection opening shafts provided that:

- The sewer manhole or access chambers/inspection opening shafts cover is raised or lowered to finished surface level at the property owner's cost. Raising or lowering of manholes can be arranged by contacting MidCoast Council.

- The sewer manhole or access chambers/inspection opening shafts is always accessible.

- There is at least 3.0 metres vertical clearance from the sewer manhole or access chambers/inspection opening shafts 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 center of a sewer access chambers/inspection/maintenance shafts

- 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 access chambers/inspection opening shafts provided that:

- The manhole or access chambers/inspection or maintenance shafts cover is raised or lowered to finished surface level at the property owners' cost. Raising or lowering of manholes can be arranged by contacting MidCoast Council.

- The manhole or access chambers/inspection or maintenance shafts is accessible at all times.

- There is at least 3.0 metres vertical clearance from the manhole or access chambers/inspection or maintenance shafts cover to the underside of the pergola roof structure**.**

Garden shed or aviary (not more than 10 square metres)

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 access chambers/inspection or maintenance shaft

7.4 What is required when I build a swimming pool or 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 600mm 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 center of a manhole, or access chambers/inspection or maintenance shafts or within 1.0 metres of a sewer main dead end.

Inground fibreglass pool

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

- If an in ground fiberglass pool is installed over or within 600mm of a sewer main, then you must concrete encase the sewer main.
- No foundation protection (i.e. piering) is required for fiberglass pools.
- No fiberglass pool shall be located closer than 1.5 metres to a manhole or access chamber/inspection or maintenance shaft, or within 1.0 metres of a sewer main dead end.

Inground concrete pool

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

- If an inground 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 center of a manhole or access chambers/inspection opening shafts, or within 1.0 metres of a sewer main dead end.

Certification of swimming pools within the zone of influence

If you install an inground concrete pool within the *zone of influence* of a sewer main, the engineering drawings you submit with your application must 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*

7.5 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 1.0 metres 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 500mm from the side of a sewer pipe or the pipe's encasement.

Note: Generally decks and verandahs are not permitted over sewer manholes or access chambers/inspection opening shafts. 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 access chambers/inspection or maintenance shafts without concrete encasement providing:

- A vertical clearance of at least 3.0 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.

7.6 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 450mm, 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 1.0 metres of fill over a sewer main, you must contact Council for approval**. Any proposed retaining wall over 1.0 metres in height requires a Development Application and a foundation design certified by a licensed structural engineer.

The following conditions apply to retaining walls:-

Retaining walls less than 1.0 metres 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 1.0 metres high:

- The retaining wall must be designed and certified by a practicing 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 500mm 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 access chamber/inspection or maintenance shaft.

7.7 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 1.0 metres 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 1.0 metres 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 of, 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 500mm 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 access chamber/inspection or maintenance shaft.

Note: Any proposed brick or masonry fence over 1.0 metres in height located over, or near, a sewer main requires a Development Application and a foundation design certified by a licensed structural engineer.

7.8 What is required when I build or lower a driveway?

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 MidCoast Council.

8. Building near sewer manholes, access chambers, i.o shafts, dead ends and vent shafts

What are sewer manholes, access chambers/I.O shafts and dead ends?

Sewer manholes and access chambers/I.O (inspection opening) shafts 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 meters diameter on the ground surface. The depth of the manhole or Access Chambers/Inspection or Maintenance Shafts will depend on the depth of the sewer and will generally vary between 1 to 5 meters. 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 access Inspection Opening (I.O) shafts are vertical shafts from the sewer pipe to the ground surface, are typically 150mm (6 inches) in diameter, and are used to clear blockages in sewer pipes. Generally access chambers/I.O shafts 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 access chambers/I.O shafts 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 access chamber/inspection or maintenance shaft. 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 access chambers/inspection or maintenance shaft is unavailable.

How close can I build near a sewer manhole or access chambers/I.O shaft?

You are **not** permitted to build any closer than 1.5 metres to a centre of an access chamber/inspection or maintenance shaft This set back increases to 2.0 metres if you wish to "box-in", or build around two or more sides of an access chamber/inspection or maintenance shaft. The fourth side must be open and accessible at all times.

Can I build over a sewer manhole or access chamber/I.O Shaft?

Building structures over manholes or access chambers/I.O shafts 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 pergolas. Approval will be subject to:

- Vertical clearance of at least 3.0 metres above an access chambers/inspection or maintenance shafts. Decks with less than 3.0 metres clearance may be considered for approval subject to suitable trapdoor access to the manhole or access chambers/inspection or maintenance shaft being available at all times.

- Suitable ventilation for the escape of any gases (minimum three way natural ventilation).

- Council may consider a suitable mechanical ventilation device.

- Unrestricted access to the site with the manhole or access chambers/inspection or maintenance shafts available at all times. You may need to raise or lower the manhole or access chambers/inspection or maintenance shaft 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 metres to a sewer main dead end.

Can I build over a sewer main dead end?

No. Any proposed structures must be at least 1.0 metres 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 that access to the dead end is available. The applicant is responsible for the cost of any required work.

Access to sewer manholes or access chambers/I.O Shafts

Council requires that all sewer manholes or access chambers/I.O shafts be accessible at all times in case of maintenance or emergency situations.

Developments on properties with sewer manholes or access chambers/I.O shafts must provide at least 0.9 metres 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 access chambers/I.O shafts 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 requires existing sewer vent shafts to be retained. Proposed building or structures must not obstruct existing vent structure and must ensure sufficient height clearance (min 2.0 metres above roof level) between building and vent shaft to enable the sewer gases dispersed without impact on surrounding properties.

Sewer vent shafts are generally independent structures and require minimum 1.5 metres radial clearances. In addition, maintenance of sewer vent shafts requires a vehicular access from street front to vent shaft within site. Access way for a 2.4 metres wide and 3.0 metres high vehicle is required.

9. 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 meters of the sewer, or any other piling within 1.0 metre of existing sewer, the following criteria is to be met:

1. The applicant is 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 to be lodged with MidCoast Council and 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 (by quotation) 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 policy prior to commencement of work.

5. The applicant or contractor must notify Council at least five (5) 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 licenses.

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

10. Requirements for vacuum sewer/low pressure sewer mains

Council operates numerous vacuum sewerage systems and low pressure sewer systems within the MidCoast region. For more detailed locations of these systems contact Council.

Note: Council will not permit permanent structures to be erected over, or within, 1.0 metres 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:

<u>Erection of fences over or near vacuum/low pressure sewer main and pits:</u>

- A brick or masonry fence erected over, or within, 1.0 metres of a vacuum/low pressure sewer main 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 500mm to a vacuum/low pressure sewer main or valve pit.

Construction of driveways, carports and pergolas 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 3.0 metres above the valve pit to the underside roof of a carport or pergola.
- *Zone of influence* to start from 0.6 metres either side of a vacuum main.
- 1.5 metres offset from valve pit for any buildings.

11. What engineering details are required on the plans I lodge with my application

NOTE: Council staff will 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.

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. Centerline 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 piering 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.....