

NEV Water  
Technical Guidelines  
**Building Over and Adjacent to Pipe  
Assets**



Narara Ecovillage Co-Operative Ltd  
25 Research Road  
Narara NSW 2259

## Document Control

<b>Document Number:</b>	NEV103	<b>Current Version:</b>	1.3	<b>Document Approver:</b>	Head of NEV Water
<b>Document Owner:</b>	NEV Water	<b>Controlled Document:</b>	No	<b>Date Approved:</b>	20/9/2017

## History of Revisions

<b>Version</b>	<b>Date</b>	<b>Nature of Changes</b>
1	10/07/2017	First Draft
1.1	13/07/2017	Dave Parris minor edits; Reference Document section added; and review of FAQs attachment
1.2	09/08/2017	6.19 amended to discourage the exemption option and make the circumstances narrower but less specific. "Attachment A" - private certifier FAQ amended to allow and encourage the use of a private certifier.
1.3	20/9/2017	Formatted to comply with NEV document control policy

## **1.0 PURPOSE**

These Technical Guidelines are designed to outline NEV Water's requirements for building construction or working in proximity to sewer pipes.

## **2.0 OBJECTIVES**

The Technical Guidelines objectives are as follows:

- To protect NEV Water's sewer mains from loads imposed by vehicles or construction of other structures.
- To allow access to those sewer mains by various means for repairs, upgrade or inspection in particular recognising technological innovation in trenchless technology to achieve such access and objectives.
- To ensure the stability and protection of structures over or near the sewer mains.
- To not unreasonably impede or restrict development.

## **3.0 NEV SEWER INFRASTRUCTURE**

The sewer infrastructure for stage one of the Narara Ecovillage development was constructed in 2017 using polyethylene pipe. There may be some minor elements of the system which connect from the pre-existing Horticulture Research Station buildings that are clay pipes or other material historically used in sewer infrastructure.

The largest pipe size is 250 mm diameter. For this reason there are no manholes (or maintenance access pits) but at junctions and changes in direction or grade there are smaller inspection pits, sometimes referred to as sewer "lamp-holes", that can be used to inspect the sewer line with a light and a CCTV camera device. Clear access to these inspection points needs to be maintained.

The depth of the pipes will vary greatly throughout the sit. Generally the depth will be in the range of 1.0 metre to around 2.5 meters deep.

### **3.1 Retailing Walls and hard landscaping**

Because of the slope of some lots at NEV, the lot owner may seek to build retaining walls or to significantly change on the lot. Where sewer lines and other infrastructure adjoin lots or cross lots, adequate consideration will need to be given to protection the NEV infrastructure, both during construction and as in relation to ongoing loads that may be imposed on the underground services.

### **3.2 NEV Equivalent to "Dial Before You Dig"**

When building outside of the Ecovillage there is a service known as "dial-before-you-dig". As NEV is a private subdivision, details of our infrastructure are not available via the *dial-before-you-dig* service. Before undertaking excavation and building work (as an individual lot owner or on a NEV Coop or Community Association project) it is all member's responsibility to check the as-built drawings (supplied by Robson Civil Projects) held by the Ecovillage Site Manager.

## 4.0 DEFINITIONS

**NEV** means Narara Ecovillage

**NEV Water** means the person or body that represents Narara Ecovillage's water and wastewater utility provider, as licenced under the *Water Industry Completion Act 2006* (WICA)

**Applicant** means the party who is proposing to undertake development activities that involve working in proximity to sewer mains. This includes community title lot owners; leaseholders; and any NEV members or contractors undertaking work on behalf of the Community Association or the Narara Ecovillage Co-operative.

## 5.0 POLICY STATEMENT

5.1. This Policy covers all works in proximity to sewer mains within Narara Ecovillage whether they are undertaken by individual lot owners (or their contractors) or by the co-operative (or its contractors).

5.2. It is the personal responsibility of all NEV members and agents thereof to have knowledge of, and to ensure compliance with these Technical Guidelines.

5.3. Applicant responsibilities:

- The applicant must confirm the exact location of sewer mains, from the "relevant project "Works as executed" drawings; or where necessary by engagement of a land surveyor if location and / or depth are of a critical nature.
- The applicant shall provide full design details of any proposals that address the requirements of these Technical Guidelines to NEV Water or NEV Water's nominated representative for assessment and acceptance.

## 6.0 IMPLEMENTATION GUIDELINES

### 6.1 *NEV Water building in proximity to sewer strategy*

NEV Water's strategy for managing proposals that involve building in proximity to sewers is outlined below and described further in the following sections. It is the Applicant's responsibility to investigate and document the below options, in consultation with NEV Water.

1. Relocate proposed structure
2. Relocate NEV Water's affected sewer assets
3. Provide protection measures for both NEV Water's sewer assets and proposed structure, and build over/adjacent to asset.

The Applicant shall consider an integrated approach and demonstrate that all associated risks can be managed with marginal costs if building over or adjacent to a sewer is to be considered and accepted by NEV Water.

### 6.2 *Relocation of proposed building*

In all instances the first option considered should be the relocation of the proposed building away from the existing sewer assets.

If this is not feasible due the position of the sewer main on the property adversely restricting the use of the land, then building over the sewer main in accordance with these Technical Guidelines will be considered. In rare case, relocation of the sewer main may be an option for consideration.

### **6.3 Relocation of assets**

Where possible it is always preferable to relocate the proposed building/structure to avoid building over sewer mains. Generally relocating the sewer is not feasible though this may be a preferred option in rare cases. Any relocation works need to ensure all required design standards (cover, grade, position) are still met and that the capacity/functionality of the assets are not reduced. All costs associated with the relocation of NEV Water assets are to be funded by the Applicant.

### **6.4 Investigation and assessment of applications**

NEV Water reserves the right to require whatever investigation of the proposal is required to ensure the ongoing protection and operation of NEV Water sewer assets at the applicant's expense (e.g. in some cases a CCTV inspection of the subject sewer may be required).

### **6.5 Where the Technical Guidelines apply**

These Technical Guidelines apply to the following four structure types:

1. Heavy or Permanent Structures
2. Light Weight or Semi-Permanent Structures
3. Miscellaneous Structures (Rainwater Tanks, Driveways etc.)
4. High rise developments

which are built in the vicinity of sewerage assets.

### **6.6 Structures**

#### **Category 1 - Heavy or permanent structures**

These structures are typically constructed from masonry, brick, steel, timber and concrete and it is neither reasonable nor practical to remove or dismantle the structure for the purpose of carrying out sewer repairs or refurbishment.

Examples of structures in this category include:

- Houses
- Factories
- Warehouses
- Brick Garages / Workshops
- Structures that are permanently habitable or used as a work place.
- In-Ground Swimming Pools

If category 1 structures are to be built in the vicinity of sewers, the requirements for protection of and access to the existing sewerage network in the following sections must be followed.

## **Category 2 - Lightweight or semi-permanent structures**

These structures are typically of a type of construction that would make it reasonable to remove / dismantle and re-erect if access to the main, by excavation, was required.

Examples of structures in this category include:

- Pergolas
- Garden sheds
- Above ground pools (restrictions apply)
- Carports
- Timber / fibro / aluminium garages
- Glass houses / ferneries
- Barbecue facilities

These structures must be readily removable in the case of work required to take place on sewerage assets. Asset protection measures as outlined in **Section 6.8**, may still apply to certain structures within this category.

Any future costs arising from the requirement to remove and subsequently reassemble these structures, as directed by NEV Water, will be at the full cost of the owner.

## **Category 3 – Miscellaneous**

Structures in this category do not normally require protection of the sewer mains. This category includes:

- Fences
- Driveways (concrete, asphalt, pavers etc.)
- Tarmac areas

As long as minimum depth requirements for sewer main have been met, no special protection measures for the sewer main should be required. However, if uncertainty exists in cases of anticipated high loadings or where sewer mains are less than minimum depth advice shall be sought from NEV Water.

Any special conditions applied to Category 3 structures would be on a case-by-case basis and would include in part a stipulation that any removal and reinstatement of the structures (involved with NEV Water accessing the sewer main) would be at the cost of the owner.

Provisions required for access to the existing sewerage network still apply.

## **6.7 Construction not permitted**

Structures will not be permitted to be built over and/or in close proximity to the following:

- a. Sewer inspection-holes (lamp-holes), maintenance points and junctions where sufficient clearances cannot be achieved. (see **Section 6.12 Clearance from access structures**)
- b. No building within NEV easements.

## **6.8 Asset protection measures**

Where construction of any Category 1 or 2 structures will impose a load within an existing sewer assets zone of influence (see section 6.11), NEV Water may request the Applicant to carry out any combination of the following protection measures:

- Piering of foundations
- Concrete encasement

The protection measures may also be required due to other factors affecting the asset such as available cover.

### **6.9 Piering of foundations**

Piering of the proposed structures foundations may be requested to transfer loads outside an assets zone of influence. A certified design prepared by a suitably qualified and experienced Engineer will be required to accompany foundation designs. The plan shall show the design of all footings, beams and piers and clearly note required clearances, ground levels and nominated soil classifications,

The following requirements apply to foundation piering:

- a. The building and its foundations are to be designed in such a way that no building loads are transmitted to the sewer main and where possible, the pipe can be repaired or replaced at any time without affecting the stability of the building.
- b. Foundations within an assets zone of influence will require piering to a minimum depth of 150mm below the zone of influence of the affected asset or until solid rock is encountered.
- c. A minimum horizontal clearance of 1 metre is required between any piers and the face of a sewer main.

The use of displacement and screw pile construction methods will require approval by NEV Water and may require additional clearances to existing assets as directed.

### **6.10 Concrete encasement**

Concrete encasement of the sewer main may be requested for the protection of sewer mains due to additional loads imposed by the works. Concrete encasement may also be requested if minimum cover requirements cannot be met.

Concrete encasement will generally not be permitted where the encased pipe will be located below or within 1m of a Category 1 structure. Encasement may, however, be suitable where minimum cover requirements cannot be met, and/or where the encased pipe is not within 1m of any Category 1 structure.

Any concrete encasement is to comply with the WSAA Standard Drawing (SEW 1205) and the following specification:

- a. In trenches (of material other than rock) encasing is to extend 150mm under, on both sides and on top of the pipe barrel.
- b. The minimum length of the encasement will be the total length of the sewer that is affected plus a minimum of 1000mm on the each side (Subject to soil conditions and depth of sewer this length may increase).
- c. Backfilling of the trench with suitable material as per specification must not commence until at least 48 hours after placing the concrete.
- d. Concrete encasement shall not be poured integral with any other foundation or structure. Concrete should be minimum class N20 or N25 (20MPa or 25MPa of strength) where a reinforced concrete design is required.

- e. Where the encasing of sewers in adjoining properties is required, written approval from the adjoining owner to enter the property to carry out the works will be required prior to approval being granted for works to commence.

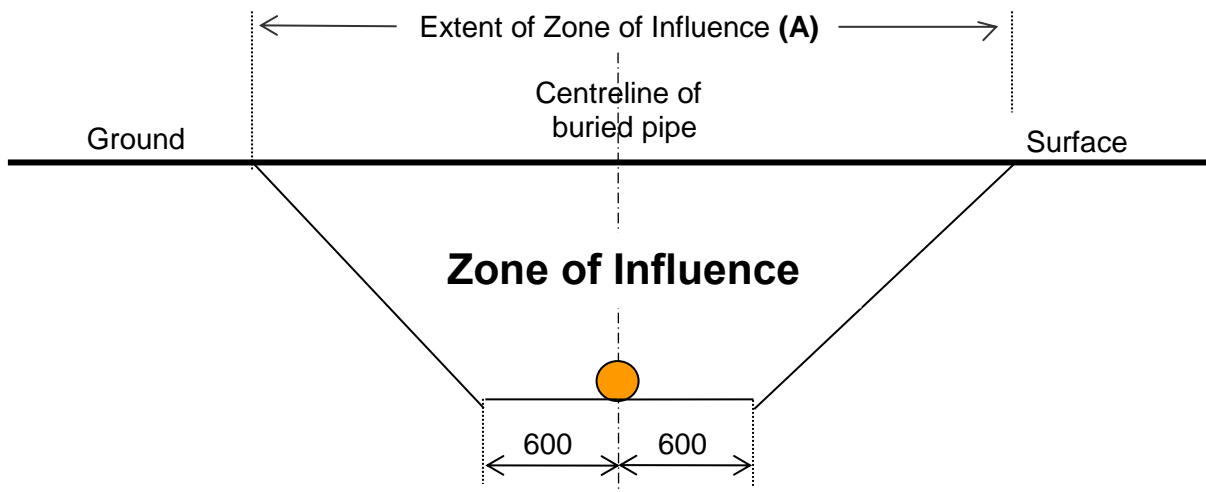
A NEV Water representative must be present when encasement work is being carried out.

### 6.11 Zone of influence

The Zone of Influence is an area extending both horizontally and longitudinally along the alignment of an underground asset. 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.

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. For soil and clay etc. (as generally found at NEV) this is 45°.



**Figure 1**

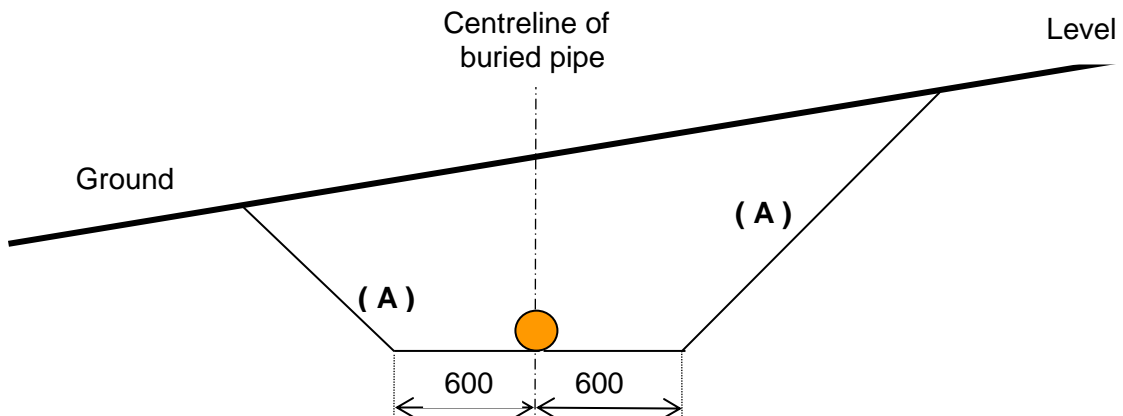
**Based on Gosford Council's defined Zone of Influence for sewer mains (in clay and soil)**

Note: Zone of Influence 1:1 ( 45° ) for soil, clay etc. typical at NEV  
(a wider angle may be required for sand or fill material)

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. (below). The slope of your land should be considered when assessing the effects 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**



Note: Zone of Influence 1:1 ( 45° ) for soil, clay etc. typical at NEV  
(a wider angle may be required for sand or fill material)

The zone of influence shall be determined by extending a line at an angle of 1 (Horizontal): 1 (Vertical) to the surface, starting from a point 150mm below the invert of the sewer main and half of the trench width measured horizontally from the pipes

Pipe Diameter	Trench Width (w) for ZOI Calculation
≤300mm	900mm

Note: The above trench width has made allowance for possible trench support requirements.

It is NEV Water discretion whether to consider a steeper angle of repose (max 1H:1V) for stiff soils (clays etc). Geotechnical investigations and a report from a suitably qualified and experienced Geotechnical Engineer need to be provided by the applicant to support such requests.

### **6.12 Clearances from access structures**

Any proposed structure shall not prevent future access to existing maintenance structures associated with sewerage assets. These include inspection-holes (lamp-holes)/maintenance shafts.

A minimum horizontal clearance of 1.5m is required around existing access structures as well as a minimum vertical clearance of 3m. The horizontal setback shall increase to 2m if two or more sides of an access structure are built around. The fourth side must be open and accessible at all times.

### **6.13 Access requirements**

NEV Water requires that all sewer access structures be accessible at all times in case of maintenance or emergency situations.

Developments on properties with sewer inspection-holes (lamp-holes) 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 maintenance access with "tools of trade" such as cleaning rods and lid lifting equipment.

#### **6.14 Retaining walls**

The construction of retaining walls is subject to the following requirements:

- Where the footings of a wall would encroach on the zone of influence the wall is to be designed in accordance with **Section 6.11 (Zone of influence)**.
- Generally walls over 1.0m in height would not be permitted within 1.0m of the main.
- Minimum cover over the main is to be maintained or an Engineer's assessment is required for protection of the main.
- The wall is to be set back at a minimum of 1.5 m from the centre of a sewer maintenance structures.
- A retaining wall less than 1.0m in height will be permitted over or within the zone of influence without the requirement for an Engineer's design provided that:
  - the wall is at least 3.0m from an adjoining property or building/structure;
  - The wall would not be subject to vehicle loadings.
- Any retaining wall crossing a sewer main must be supported over the main with a reinforced concrete foundation designed in accordance with **Section 6.11 (Zone of influence)** and **Section 6.12 (Clearance from access structures)** to ensure no loads from the wall are transferred to the sewer main i.e. bridging slab foundation.

#### **6.14 Filling over sewer mains**

The allowable depth of fill that can be placed over sewerage mains depends on the material type and stiffness class of the existing pipe. Site filling that increases the depth to the main above 2.5m will require NEV Water approval. Documentation to be provided to NEV Water in support of filling over a sewer must include certification from a suitably experienced qualified civil, structural or geotechnical engineer that

- The loading imposed will not adversely affect the underlying sewer, or
- The remediation work proposed will prevent any adverse loading on the underlying sewer

The placing of fill to excessive depths over NEV Water's main is not permitted (5m is a maximum depth for practical access) regardless of the structural capacity of the pipe. No fill is to be placed over sewer manholes. Manholes are to be raised in conjunction with any site filling. Finished lid levels of maintenance structures, relative to finished surface level, will be advised by NEV Water based on the land use and prevalence of flooding.

#### **6.15 Excavations over and adjacent to mains**

Generally excavations over or adjacent to a sewer main are not to reduce the earth cover over the main to less than the minimum limits as detailed in NEV Water's adopted Code of Practice for the design and construction of Sewerage Networks.

Any interference or damage to sewer infrastructure caused by such excavations must be restored and repaired at the cost of the lot owner to the satisfaction of NEV Water.

Any proposal to reduce cover over a sewer to less than the limits imposed in the code of practice will require specific NEV Water approval. Documentation to be provided to NEV

Water in support of reducing cover over a sewer main must include, amongst other things, certification from a suitably experienced qualified civil, structural or geotechnical engineer certifying that

- The reduced cover is sufficient for potential surface loading to not adversely affect the underlying sewer loading imposed will not adversely affect the underlying sewer, or
- The remediation work (if any) proposed will prevent any expected loading over the sewer from having and adverse impact on the sewer

### **6.16 Earth embankments**

On sloping sites there is potential that earthworks down slope of an existing sewer main could present a risk for land slip or erosion of soil providing cover and/or side support to an existing sewer main.

Any proposed regrading of land immediately down slope of an existing sewer main should be designed with a slope no steeper than 3 (horizontal) to 1 (vertical) to ensure future erosion and/or land slip does not reduce cover and/or support to the existing sewer main. Steeper embankments would be permitted where the embankment is certified by a suitably experienced qualified civil, structural or geotechnical engineer and approved by NEV Water based on the certification.

Retaining walls may be required to provide support down slope of existing sewer mains if substantial regrading is proposed.

### **6.17 Protection**

Should there be the likelihood of a vehicle, machine or implement impact to a sewer main, the main is to have adequate protection against such an impact. The proposed protection type, treatment, strength, etc. shall be subject to approval by NEV Water. Should NEV Water consider that the proposed sewer location presents a high likelihood of being impacted; the sewer main may be required to be relocated elsewhere at full cost to the Applicant.

### **6.18 Private sewer line construction**

Internal (not NEV Water) sewers within lots shall be in accordance with AS/NZS 3500 and the BCA as appropriate.

### **6.19 Exemptions to these Technical Guidelines**

Avoiding building over sewer lines and designing to avoiding a zone of influence that could impact on the sewer line (with piercing if required) is the approach strongly preferred by NEV Water. However NEV Water may consider an exemption from the piercing requirement in these Technical Guidelines in some limited situations. This may include light structures that could be moved if required. The owner would need to request in writing that the requirement for piercing of the structure in accordance with these Technical Guidelines be removed and, if accepted by NEV Water, 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. NEV Water may require an engineer's report in support of a request for exemption from these Technical Guidelines.

### **6.20 Costs**

The Applicant will be responsible for all costs associated with

- All investigation and design and obtaining NEV Water acceptance of any proposal.
- If approval is granted then any construction costs
- Repairing any damage to a sewer main or associated sewer infrastructure caused by construction over or near an existing sewer.

If NEV Water decides to upsize a sewer main subject to relocation by an Applicant, then a cost sharing arrangement may be agreed to between both parties that reflects the extra costs associated with installing a larger diameter main at the time of relocation by the Applicant. Note this may not apply where the upsizing of the pipe is required due to the additional capacity required for the subject development.

The Applicant will have no claim on NEV Water for any costs incurred in the event that approval is not granted.

## **7.0 REFERENCE DOCUMENTS**

Central Coast Council – Wyong: Sewer Mains

<https://www.wyong.nsw.gov.au/building-and-development/sewer-mains>

Central Coast Council – Gosford: building-over-or-near-council-sewer-and-water-mains-guidelines

Sydney Water – Technical Guidelines – Building over and adjacent to pipe assets

[http://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdc2/~edisp/dd\\_076198.pdf](http://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdc2/~edisp/dd_076198.pdf)

WSA 02-2014 (Water Services Association of Australia) – Gravity sewerage Code of Australia WSA. Code Contents Extract (Third edition version 3.1).

[https://www.wsa.asn.au/sites/default/files/products/extracts/WSA02%20Version%203\\_1\\_Code%20Contents%20Extract.pdf](https://www.wsa.asn.au/sites/default/files/products/extracts/WSA02%20Version%203_1_Code%20Contents%20Extract.pdf)

NB: A full copy of the WSA code costs \$640

## **ATTACHEMENT A: FREQUENTLY ASKED QUESTIONS -**

**about building over or near sewer mains** (based of Gosford Council Guidelines)

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

NEV Water may allow you to build structures over 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 inspection pits (or lamp-hole)?**

**No** – NEV Water will not allow you to build over a sewer lamp-hole 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 my sewer junction?**

**No** - If you wish to build over a section of sewer main that contains a sewer junction (where my private sewer line joins the NEV Water owned main), 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 main, NEV Water 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 NEV Water 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 a water tank (or an above-ground swimming pool) over a sewer main?**

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

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

NEV Water 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. NEV Water may specify steel reinforcement in the concrete encasement for particular situations.

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

NEV Water 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 NEV Water to ensure that it complies with these guidelines and any engineering specifications for the work. 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?

**Yes** – As NEV Water does not have the resources and expertise to certify concrete encasement work, a private certifier will be required to approve must be inspected by NEV Water. Fees for a private certifier or for an engineer's report will be at the lot owners expense.

### How do I arrange to raise or lower a sewer inspection pits (or lamp-hole)?

If you have landscaped your yard, and now find that an inspection pit lid is buried or sits up above the new ground level, you should arrange to have the inspection pit raised or lowered so it is still accessible by NEV Water.

**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, NEV Water generally allows residential driveways over the sewer without protection requirements. Any inspection pit 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** – NEV Water 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 NEV Water 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 NEV Water for approval.

## **ATTACHEMENT B: Concrete Encasement detail**

### **Special Embedments Concrete, Geotextile and Cement Stabilised Systems (Water Supply code WSA-03)**

- Note 1: It may be possible to reduce these requirements based on the increased strength of polyethylene pipe (used in all new sewer lines at NEV). This detail will be updated if a more specific polyethylene concrete encasement detail becomes available. Alternatively, a lot owner may also chose to engage a structural engineer to provide a concrete encasement detail specific to their proposal.
- Note 2: Where piercing is required (in order to transfer the zone of influence to below the sewer line), the design will need to take into consideration the load of the structure proposed and hence will require the lot owner to engage a structural engineer.