Tobermore

INSTALLATION GUIDELINES

Secura Lite

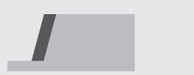
SECURA LITE

Gravity Wall

A gravity retaining wall relies solely on the weight and setback of the segmental concrete blocks to resist pressure and retain the soil behind it. Secura Lite can be constructed as a gravity wall to a maximum retained height of 880mm in situations where there is no crest or toe slope and no surcharge above the wall. The simplicity of the Secura Lite Gravity mortarless build technique makes it highly efficient for low walls in the housing sector.

Suitability

Max retained height
880mm



Level

Backfill Zone

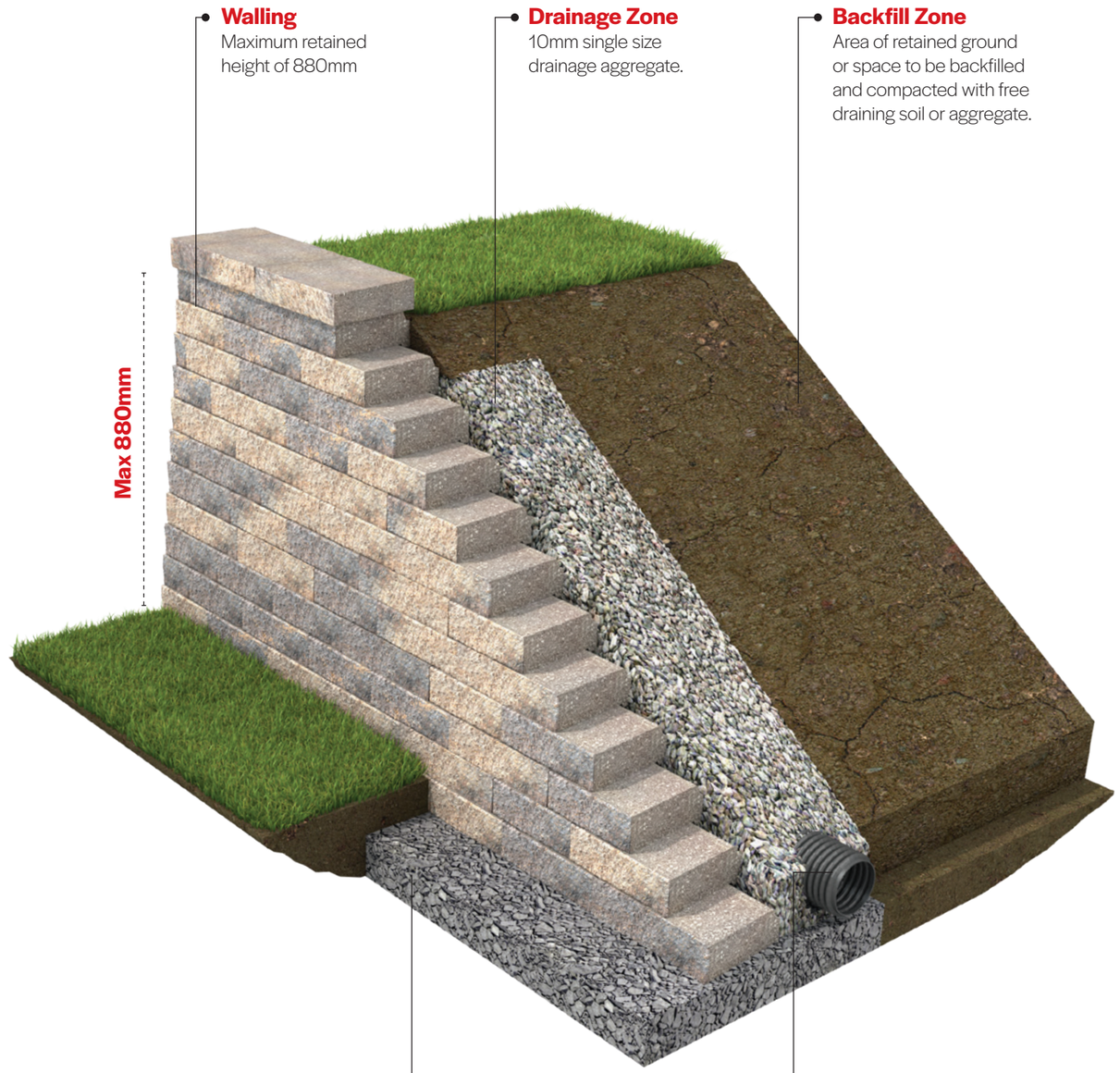
Free draining soil or aggregate.

Drainage Zone

10mm single size drainage aggregate.

Mortarless Installation

When installed with an aggregate foundation, the Secura Lite gravity wall remains completely mortarless.



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Secura Lite Gravity Installation

Preliminary actions

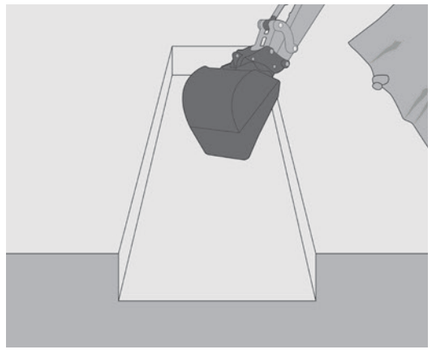
STRUCTURAL DESIGN
Important: The design of any retaining wall requires the input of an engineer to assess the unique conditions of every site in respect of loads in conjunction with site and soil conditions. The advice and typical wall designs in this guide are for information only to assist estimating and initial planning but should not be used for construction.

FILL MATERIALS
Please ensure that the specified fill materials (see page 8) are available on site before commencement.

GROUND CONDITIONS & MAXIMUM HEIGHT
Important: Secura Lite is designed for use only in locations where the wall will be finished with a flat crest, has a flat toe slope and where no surcharge exists behind the wall. Secura Lite must not be built to a retained height greater than 880mm. The 880mm maximum height is achieved with 12 courses of Secura Lite blocks including the base course below ground. If the location has a crest slope, toe slope or surcharge present then you must use the Secura Grand block and opt for either the geogrid reinforcement or concrete backfilled method of construction. Refer to page 66 of our Secura brochure.

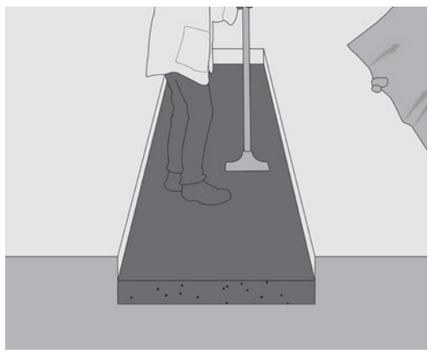
Step 1
Setting out & trench excavation

- Mark out the location of the wall by checking the design drawings or by agreement with the project engineer, architect or client.
- Please refer to the table below for typical foundation details or If there is an engineers' site specific design this should be followed at all times. (Please refer to the table for dimensions and recommended block courses below ground).
- Excavate the trench to a minimum 180mm depth and 600mm width.
- Remove any unsuitable material and replace it with compacted granular material. See specification for material on page 8. Ensure it is fully compacted using a hand pummel or mechanical plate compactor.



Step 2
Laying the foundation

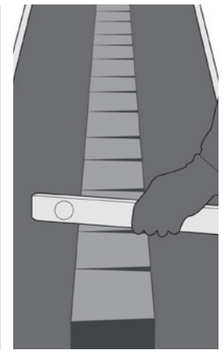
- Lay a level foundation across the full width of the trench using fully compact granular material as specified. Use a hand pummel or plate compactor to ensure a level base. The typical depth of the foundation should be 100mm after compaction.
- The top of the compacted foundation must be at least 80mm below finished ground level.
- Please refer to the table for typical foundation details. An engineer's site specific design should be followed at all times. (Please refer to the table below for dimensions and recommended block courses below ground).
- **Important:** If the wall is on a slope the foundation will need to be stepped.

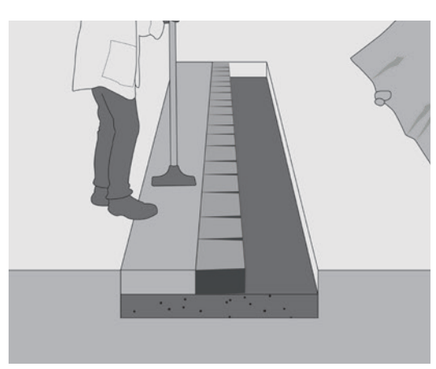


Product	Max. Gravity wall height	Min. internal radius	Max. external radius	Typical trench width (mm)	Typical trench depth (mm)	Foundation material	Typical foundation depth (mm)	Block courses below ground
Secura Lite	880mm retained height	1.3m to the back of the block	1.7m to the back of the block	600 mm	180mm	Well-graded compactable material	100mm after compaction	1

Step 3
Installing the base course

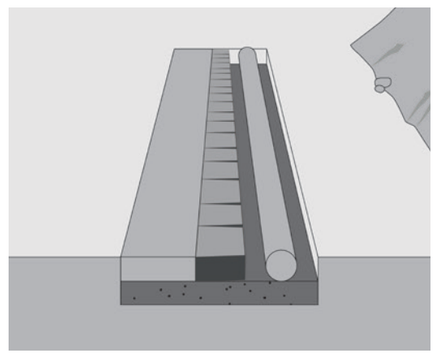
- **Important:** The top of the base course when installed must be below finished ground level.
- **Block selection**
  Secura Lite is supplied in packs which include three block sizes. Ensure you randomly select all three sizes and mix the blocks from a minimum of three packs to achieve the desired colour blend. This should be done on the base course and all other courses.
- **Block preparation**
  To ensure a level base course, remove the nib from the base of the blocks to be used on the base course using a bolster and club hammer.
- **Block Placement**
  Place the blocks onto the foundation and use a string line along the back of the blocks to check for alignment.
  Use a spirit level to ensure the blocks are level along their length and from front to back as the aesthetics of the finished wall depend on the base course being level. Due to Secura's mortarless construction, the use of shims may be required occasionally to maintain level in the block course.
  Leave a gap of 2mm between the blocks to allow for any movement of the ground.
- **Front fill**
  Fill the gap in front of the base course with on-site soil and fully compact, level with the base course.





Step 4
Laying drainage pipe

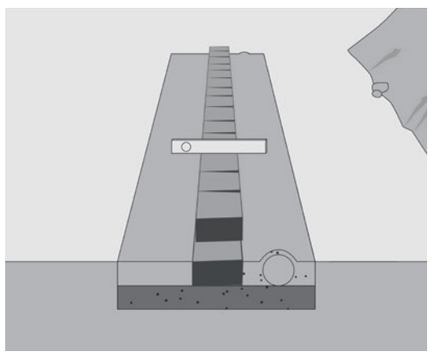
- Most small walls will not require a drainage pipe. However, if extra drainage is required lay a perforated drainage pipe at the back of the base course and cover with 10mm single size drainage aggregate. The pipe should connect to a suitable outlet/soakaway.



Secura Lite Gravity Installation

Step 5
Laying the blocks on the second and subsequent courses

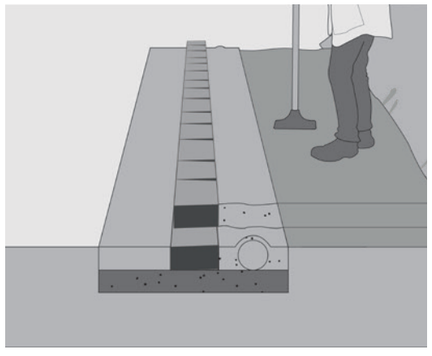
- Before laying subsequent layers, brush the top surface of the blocks to remove any debris which may affect the wall level.
- Place the blocks on top of the base course ensuring the joints are staggered with the blocks on the base course. Vertical joints should not directly line up between courses. Push the blocks forward until the nib at the base of the block tightly locates against the blocks beneath. Use a spirit level to ensure the blocks are level as you build each course.
- **Wall Length**
  Blocks may have to be cut to achieve the desired finished wall length.
  Measure the length required for the partial block and cut with a masonry saw or split with a bolster and club hammer. Always use gloves and safety goggles when cutting blocks.



Step 6
Backfilling

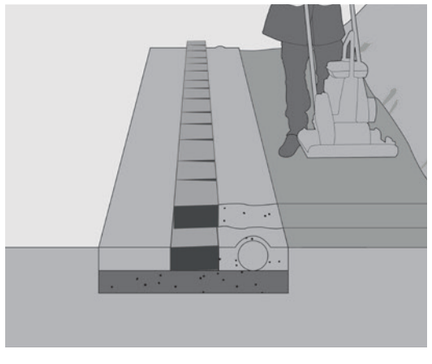
If using a hand pummel to compact:

- **Backfill**
  When using a pummel, backfilling and compacting should be carried out every 2 courses (160mm). After the second course has been placed backfill the blocks with 10mm single size aggregate. It should be placed in a 125mm – 150mm wide column behind the wall and should extend up to a level two courses from the top of the finished wall.
  Fill the remaining space behind the drainage aggregate with soil. Fully compact the material using a pummel.
  Important: Do not compact the drainage aggregate. Continue building repeating the process of backfilling and compacting every two courses to reach the required height (maximum retained height 880mm).
  Cover the top of the drainage column with soil.

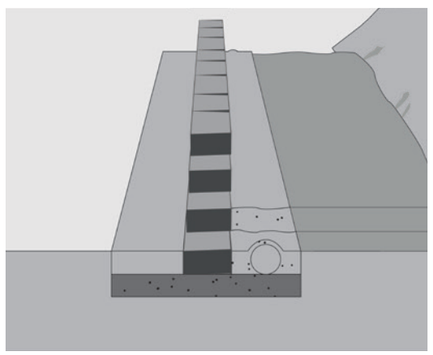


Or if using a plate compactor:

- Install the second, third and fourth courses. Place the blocks on top of the previous course ensuring the joints are staggered with the blocks below. Vertical joints should not directly line up between courses. Push the blocks forward until the nib on the bottom of the block tightly locates against the blocks beneath. Use a spirit level to ensure the blocks are level as you build each course.
- **Backfill**
  After the fourth course has been placed backfill the blocks with 10mm single size aggregate. Backfilling should be done every 4 courses (360mm). It should be placed in a 125mm -150mm wide column behind the wall and should finish two courses from the top of the finished wall.



- **Important:** Do not build any higher than four courses before backfilling to avoid undue deformation of the wall. Fill the remaining space behind the drainage aggregate with soil. Fully compact the material using a plate compactor.
- **Important:** Do not compact the drainage aggregate. Continue building repeating the process of backfilling and compacting until you reach the required height (maximum retained height 880mm).
  Cover the top of the drainage column with soil.



Step 7
Installing the copings

- To install the copings use a concrete exterior grade construction adhesive applied with a cartridge gun. Ensure the adhesive is generously applied to the block to the front and rear. For extra stability the last two courses of blocks can be bonded together as well as the coping blocks.
- Secura Lite copings are tapered therefore on a straight wall the copings should be installed alternatively.

Material Specifications

FOUNDATIONS

A minimum 100mm deep bed of well graded compactable granular material.

Recommended Specification – Type 1

- MOT Type 1 also known as DOT Type 1 named after the Department of Transport (DOT) specification for granular sub-base material.
- Must comply with the Department of Transport Specification for Highway Works, clause 803 (SHW 803). MOT Type 1 can be made from granite, limestone or clean crushed concrete.

Type 1 aggregate / 40mm is crushed to 40mm down to dust creating an aggregate containing a range of particle sizes that is easy to compact with excellent load bearing qualities.

DRAINAGE AGGREGATE

- 10mm single sized drainage aggregate.
- Do not compact, to ensure a free draining path to drainage pipe at base of wall.

BACKFILL

A well graded granular compactable material or a free draining soil.

DRAINAGE PIPES

A 150mm perforated drainage pipe should be wrapped in geotextile to prevent blockages.

Post depths are determined based on the individual project conditions.

COPING ADHESIVE

Secura Copings to be secured with a generous application of exterior grade construction adhesive to the top of the Secura blocks.

CUTTING BLOCKS

The use of a water suppressed masonry saw is recommended to reduce the risk of staining. Please observe regulations with regards to the use of PPE.

Instructions & Warnings

As referred to in Tobermore's Conditions of Sale

CORE TERMS (PAVING & WALLING)

Product

All products should be carefully inspected for defects or damage upon delivery and prior to being laid or fitted.

Product Information

Within Tobermore, design and development of products is a continuing process, and product information is subject to change without notice. Accordingly, please check with Tobermore to ensure that the product information you have represents the most up-to-date product information.

Prior to installation

Prior to opening the packs check that all the batch code labels match. The batch code labels can be found on the outer packaging. For example, 04D22N. It is good practice to sort products to ensure consistency of colour, texture and dimensional tolerance.

Installation

All products should be installed in accordance with the latest British Standard.

Colour & Texture

Tobermore produces paving and walling products with excellent density and durability. All products are manufactured in batches using naturally extracted raw materials including aggregates, pigments and cement etc. Products such Braemar, Sienna, Fusion, Mayfair Flags, Manhattan, City Pave and Fusion Kerbs are manufactured using premium naturally occurring granite aggregates. To achieve their final appearance some products undergo secondary processes, this involves shot blasting or grinding the surface of the product.

Whilst we have several factory procedures in place to help control shade, colour and texture within and between batches we cannot guarantee consistency. This is due to the natural materials and secondary processes. Therefore, slight variations in the finished products is normal between and within batches. These variations actually enhance the character and natural beauty of the products.

To achieve the best possible finish we recommend the following advice is followed to evenly distribute any slight variations in shade, colour and texture over a large area.

When the circumstances allow complete one area of paving, one retaining wall or one house / building by using products taken from the same batch. This is achieved by checking the batch code label displayed on the packs.

Always, thoroughly mix products from a minimum of three packs.

Where products are supplied in packs with vertical slices always take them "vertically slice by slice" this ensures that colours are distributed evenly.

When the circumstances do not allow the use of products from the same batch then it is extremely important to minimise possible colour banding / shading by always, thoroughly mixing products from a minimum of three packs concurrently with some overlap between deliveries / batches.

Where products from different batches are being installed in the same area of paving, wall or building it is the installers responsibility to carry out a colour match check by comparing colours from each batch. If a noticeable variance in colour / shade or texture is visible, do not proceed with the installation and contact your supplier for further guidance.

Mixing thoroughly from a minimum of three packs is of particular importance when installing single colours such as Golden, Buff, Natural, Charcoal, Graphite, Silver, Mid-Grey, Sandstone, Alto Silver, Aaron Stone, Jura Grey and Innis Black.

During installation the installer must make regular visual checks to ensure the blending of colours is consistent.

We would always recommend that when purchasing products, especially in larger quantities, that they are all ordered at the same time.

Please note that the colour of new products will inevitably vary compared to those that have been installed for a period of time as weathering does take place.

All colour illustrations are as accurate as the printing process will allow. For a more accurate colour match please refer to actual product samples, which can be provided.

Colours and textures illustrated are representations and therefore should not be expected to be an exact match.

The overall visual appearance of a completed installation should only be assessed from the normal viewing distance. Variations in colour/shade and texture are technically harmless, do not affect the products performance and are not deemed to be a product defect.

We will not be held liable for any discolouration or staining caused to product which has been stored incorrectly.

Note: Whilst we strive to ensure consistency, complimentary products such as Kerb Specials, Step Flags, Facing Brick Specials, Historic Circles etc. may not be an exact colour / texture or shade match to the standard version of the product as they will have been manufactured at varying times using different processes.

Staining

Some chemicals that are commonly used in gardens such as lawn feed containing Ferrous Sulphate can stain concrete products. Any chemicals that are spilt must be removed immediately by rinsing away with clean water. Please check the information on the instruction label of the container holding the chemical.

Moisture

Occasionally, after installation, some units may show variations in shade and have a patchy appearance. This is due to the varying amounts of moisture within the concrete and the ground. The drying out process of concrete continues in-situ after installation. Some units may also retain more moisture than neighbouring units and take longer to dry out. This is caused by the variations in density of the naturally extracted aggregates used in the manufacturing process. Given time and natural weathering, the capillaries within the surface of the concrete will gradually close and any patches or moisture retention will dissipate as the product matures. This does not affect long-term performance.

Efflorescence

Efflorescence is a crystalline deposit that occurs naturally on the surface of concrete materials. It usually appears as a white deposit but can also be brown or yellow in appearance. Tobermore use market-leading technology to significantly suppress the occurrence of efflorescence, however, if it occurs, it may mask the colour of the product for a period of time, but tends to be washed away gradually by rain. Tobermore do not replace products with efflorescence. Packs of products which have had packaging removed should always be re-covered with appropriate packaging to prevent the occurrence of secondary efflorescence.

Surface Scratches

Minor scuffs or bruises may occur during delivery, movement onsite, and installation (for example, during any plate vibrating process). In Tobermore's experience, these marks usually weather off through time. (EasyClean products are protected with a glue dot)

To reduce the risk of surface scratches we strongly recommend the use of a vibrating plate with a rubber protective mat.

Ordering

Please ensure that your contractor accurately measures the area on site before ordering products. In Tobermore's experience, dimensions taken from a project plan can vary significantly from the final layout. Depending on the layout of the project, we recommend ordering an additional 2 - 5% of material to allow for cutting, detailing and wastage.

Manufacturing & Quality Systems

Tobermore is a BS EN ISO 9001, BS EN ISO 14001 and BES 6001 registered company. Tobermore uses an integrated management system to manage all health & safety and environmental issues.

Product Maintenance

Routine cleaning and maintenance is required to keep the overall appearance of products in pristine condition.

All concrete products can develop algae, lichen, and moss growths due to environmental conditions and may require cleaning. Areas adjacent to plant borders and trees may discolour from transfer of plant-life. Tobermore cannot accept responsibility for any of these conditions.

Laying multi-blend coloured paving blocks, flags and walling products

To achieve an even blend of colour when laying multi-blend paving blocks, flags and walling products, it is desirable to mix from 3 or 4 different pallets.

Queries & Complaints

Please contact one of Tobermore's Paving & Walling Centres or offices (contact details at www.tobermore.co.uk) with any queries or complaints. Any complaints must be notified to Tobermore without delay.

FOR SECURA PRODUCTS

Installation - Secura

All Secura products should be installed in accordance with British Standard BS8002. When constructing a retaining wall, ensure that you follow the design provided by the scheme engineer.