

# Ground Screw System.

## 1. GENERAL

### 1.1 GENERAL

This section relates to the supply and installation of the STOPDIGGING! ground screw system.

### 1.2 DOCUMENTS

This specification must be read in conjunction with:

› Product pass™

- STOPDIGGING! Ground Screw pass™
- STOPDIGGING! Ground Screw System Lightweight Structures pass™ for lightweight structures not requiring specific design.

See [www.thebuildingbusiness.co.nz/stopdigging/pass](http://www.thebuildingbusiness.co.nz/stopdigging/pass) for controlled versions.

› Technical Documents

- STOPDIGGING! Specification Guide
- STOPDIGGING! Design Guide
- Specific design in accordance with Cook Costello. [07/08/2020] STOPDIGGING! Ground Screw Specification Revision 2, where applicable.

See [www.stopdiggin.co.nz/stopdigging](http://www.stopdiggin.co.nz/stopdigging) for controlled versions.

### 1.3 GENERAL DESIGN CONSIDERATION

Check design.

**Confirm scope:**

Refer to the STOPDIGGING! ground screw system pass™ to ensure that the intended building project falls within the allowable scope and limitations.

The STOPDIGGING! ground screw system can be used for structures where a foundation system is required, as an alternative to traditional foundation piles and strip footings as defined in NZS 3604:2011, where floor loading is 2.0 kPa or less. Refer to the STOPDIGGING! design guide for lightweight structures.

Projects not within the scope of the STOPDIGGING! design guide for lightweight structures require an assessment of soil conditions and specific engineering design (although generally this will be in accordance with NZS 3604:2011). The assessment of the soil conditions must be in accordance with the STOPDIGGING! ground screw capacity test methodology contained in the Cook Costello Ground Screw Specification Revision 2 (07/08/2020).

**Confirm bracing:**

Ensure bracing demand has been calculated in accordance with the STOPDIGGING! design guide for lightweight structures or specifically designed.

**Confirm ground screw selections:**

Ground screws must be selected to meet bracing demand and all calculated loads.

## 2. PRODUCTS

### 2.1 PRODUCT DESCRIPTION

The STOPDIGGING! ground screw system is a proprietary foundation system to support tensile, lateral and compressive loads. The system is suitable for use in most locations, including expansive soil types and locations where frost heave could be an issue.

The ground screws are mechanically installed into soil to a depth at which the required resistance is achieved.

STOPDIGGING! ground screws are manufactured from ISO 630 FE360A compliant steel. The screws are coated in a hot-dipped galvanised coating of 125 µm. If soil conditions require coating greater than 125 µm, the coating cover is increased, an epoxy primer added, or a sacrificial anode fitted.

STOPDIGGING! ground screws are available in various screw diameters with extensions and adapters to accommodate all soil conditions. Four models are available:

- › adapter screw
- › pipe screw
- › post screw
- › beam screw.

### 2.2 ASSEMBLY AND ACCESSORY COMPONENTS

The following assembly components are required for a specifically designed, brace pile system:

- › minimum size 48.3 mm x 3.2 mm CHS Grade 250 tube
- › 6 kN pile fixing
- › M12 bolt
- › swivel clamp coupler coupler for SHS connection.

### 2.3 SUBSTITUTIONS

Substitutions are not permitted to any of the specified components and associated products listed in this section.

## 3. EXECUTION

### 3.1 QUALIFICATIONS

The installation of the STOPDIGGING! ground screw system must be carried out by a STOPDIGGING! authorised and trained installer. The work must be carried out in accordance with the relevant building consent, stated requirements and any approved shop drawings.

### 3.2 RESTRICTED BUILDING WORK

Where Restricted Building Work applies, the designer and installer shall be a Licensed Building Practitioner (LBP) or be supervised by an LBP with the relevant license class.



## 4. APPLICATION

### 4.1 GENERAL

#### General:

- › Installation of the system shall be in accordance with the plans and details for the specifically designed foundation system.
- › Before commencing testing and/or installation:
  - a service location survey is to be completed in the area encompassing the proposed foundation system to minimise the risk of incidental damage to services during the ground screw installation.
  - risks of damage to adjacent structures and utilities must be considered and any risks mitigated by the proposed installation method.

#### Ground testing

- › Where ground conditions are uncertain, carry out testing as specified in Cook Costello specification. (Refer documents).

#### Predrilling:

- › Pre-drill ground where ground screw is to be installed (to ensure installation to ground screw can be carried out in one drive).
- › Pre-drill in:
  - gravel soils using a masonry style drill bit
  - fine-grained soils such as silts and clays using an auger style drill bit.
- › Pre-drill to 100 mm above the final installation depth of the ground screw. Take care to avoid overdrilling, as this will likely decrease the compressive capacity of the installed ground screw.

#### Screw installation:

- › Install ground screw vertically and in one drive. Removing and re-driving screws will result in a reduced bond between the screw shaft and surrounding soil.
- › Use a laser level and fixed datum to ensure ground screws that are part of a foundation system are installed so the screw heads are level.

#### Bracing:

- › Where required, install bracing elements between STOPDIGGING! ground screws in accordance with the plans.



## 5. COMPLETION

### 5.1 QUALITY CHECK/ RECORD OF CONSTRUCTION

› Complete the STOPDIGGING! record of construction.

### 5.2 WARRANTIES

› A 25-year manufacturer's warranty is available.  
Refer to [www.stopdigging.co.nz](http://www.stopdigging.co.nz).

### 5.3 INFORMATION FOR OPERATION AND MAINTENANCE

› There are no maintenance requirements for the STOPDIGGING! ground screw system.



## 6 PROJECT SPECIFIC SELECTIONS

Project address

Lot/DP number

Date of plans

Purpose of plans

### DOCUMENTS SUPPLIED (CHECK WHICH APPLIES)

STOPDIGGING! Ground Screw System pass™.	<input type="checkbox"/>
STOPDIGGING! Ground Screw System Lightweight Structures pass™ f or lightweight structures not requiring specific design.	<input type="checkbox"/>
STOPDIGGING! Design Guide For Lightweight Structures.	<input type="checkbox"/>
Engineering calculations and specific design	<input type="checkbox"/>
STOPDIGGING! Installation Guide.	<input type="checkbox"/>
Cook Costello Ground Screw Specification Revision 2 (07/08/2020).	<input type="checkbox"/>

### DESIGNER CONFIRMS

#### Soil

Soil conditions are considered as "good ground" ULS 300 kPa	<input type="checkbox"/>
OR	
Soil conditions fall outside the scope of "good ground" and subject to specific design	<input type="checkbox"/>
Soil type has pH >4	<input type="checkbox"/>
Soil type has a resistivity >1000 ohms-cm	<input type="checkbox"/>
OR	
Soil to be tested in accordance with Cook Costello Ground Screw Specification Rev 2. Project no. 13759	<input type="checkbox"/>

#### Site and location

Screw pile used in exposure zone D, are protected in accordance with pass™	<input type="checkbox"/>
If ground sloping, maximum height of screw, above ground, does not exceed 900 mm.	<input type="checkbox"/>

#### Building

Building is a lightweight structure	<input type="checkbox"/>
OR	
Building is not a lightweight structure, specification subject to specific engineering.	<input type="checkbox"/>
Floor loading is less than 2.0kPa and snow loading is less than 1.0kPa	<input type="checkbox"/>
OR	
Floor loading is greater than 2.0kPa and/or snow loading is greater than 1.0kPa and is subject to specific design.	<input type="checkbox"/>

**Sub-floor**

Sub-floor design within the scope of NZS3604

OR

Sub-floor design outside the scope of NZS3604 and subject to specific design

Sub-floor connections in accordance with NZS3604

OR

Sub-floor connections specifically designed

STOPDIGGING! ground screw connected to sub-floor bearer with 12kN connection in accordance with NZS3604

**Bracing**

Screw piles meet calculated BU value for Earthquake

OR

Screw piles do not meet calculated BU values additional bracing required

Screw pile braces are less than 3.2 m long and between 10° & 45°

**SCREW SELECTION**

Pile selected based on calculated building load and BU requirements

Pile Type	Diameter (mm)	Length (mm)
SGU		
SGS		
SGC		
SGP		

This document is uncontrolled in printed form.  
See [www.stopdigging.co.nz](http://www.stopdigging.co.nz) for current version.

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