

Raising standards to protect homeowners

NHBC Requirements for Soil Capping Systems

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Who is NHBC?

- Leading Warranty and Building Control provider
- Raising standards in the new house building industry
- Provide consumer protection for new homebuyers



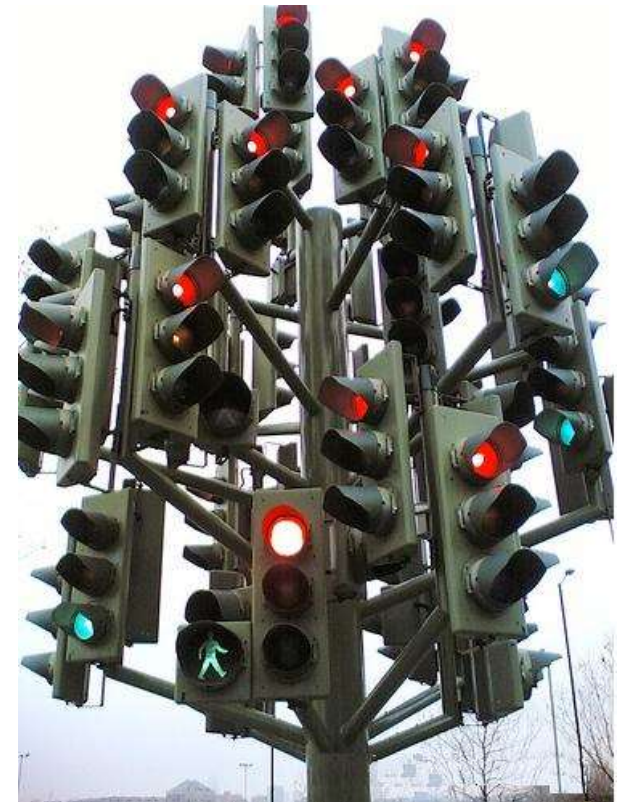
Who is NHBC? Buildmark Warranty

Contaminated Land Cover included under section 5 of warranty

- **Valid Claims** - *If substance/s within the site curtilage result, or could reasonably be expected to result in a Statutory Notice being served.*
- **Financial limits** - *The maximum claim relating to a Home under Section 5 is the Original **Purchase Price**, up to a maximum of:*
 - ***£1 million** for a newly built Home; or*
 - ***£500,000** for a converted Home*

NHBC Conditions

- The CML initiative (“Revised Finalling Procedures”)
- Red and Green conditions
- Red conditions = no warranty = no mortgage = no sale
- NHBC Standards Chapters 4.1 and 10.2 (Formerly 9.2)



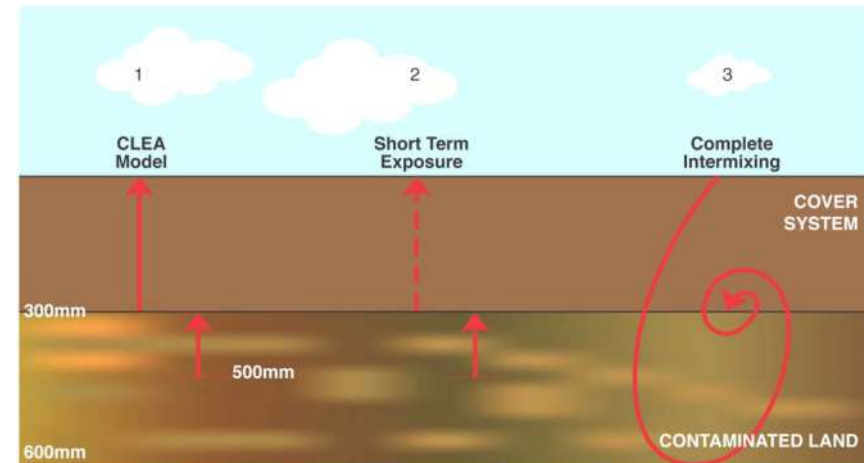
NHBC requirements – Cover systems

- Check that capping is appropriate
- Design it
- Install it
- Verify it



Cover systems -Is it appropriate?

- BRE 465
- Mitigate marginal contamination
- No hydrocarbons, volatiles etc
- Widely used (and accepted)
- Not suitable everywhere (shallow water table)
- Needs design and verification



Cover systems - Design it

- Think about final site levels – is there space for capping?
- BRE 465 design chart / spreadsheet
- It's not just 600mm
- Pick sensible “contamination of cover” values (are they achievable?)
- The shaded zone...

Cover systems -Install it

- The easy bit (?)
- Do what you said you'd do (or, what was agreed)
- But if plans change, let us (and LA) know, in advance.
- Look out for unsuitable materials, odours, colours etc...
would you want it in your garden?
- Remember, we'll be asking questions if we're not happy – make sure those doing the work do it right

Cover systems - Verify it

1. Soil quality (topsoil and subsoil)
2. Soil thickness
3. Chain of custody
4. Reporting



Verify it – 1. Soil quality testing requirements

- Need to ensure materials are suitable for use
- Chemical testing requirements depends on the source of the capping materials
 - Greenfield, agricultural land or forestry land
 - Other development sites
 - Commercial providers including manufactured soils
 - Unknown?

Verify it – 1. Soil quality testing requirements

- If sourced from a site or sites where no sources of contamination has been identified:
 - in desk study/walkover
 - site investigation
 - and appropriate documentation is available

Then NHBC would not normally require any additional testing above BS:3882:2015.

Verify it – 1. Soil quality testing requirements

- Examples of source sites where additional chemical testing may not be required include:
 - Agricultural land
 - forestry land
 - or manufactured soils from green wastes where good quality controls are in place.

Verify it – 1. Soil quality testing requirements

Agricultural, Greenfield or Forestry

- A minimum of a desk study and a site walkover is required to confirm that no historical or visible evidence of contamination.
- If no potential source of contamination is identified then no additional testing above BS:3882:2015 is required.
- Where a potential source of contamination is identified then chemical testing required.

Verify it – 1. Soil quality testing requirements

Commercial Providers (inc manufactured soils)

- Copy of suppliers chemical test certificate required.
- Certificate should be current and representative of the material actually being used on site.
- The frequency of testing should be linked to the former use of the source site/ potential for contamination
- Where good controls are in place then additional testing may not be required.

Verify it – 1. Soil quality

Unknown source or contamination suspected

- If the source is unknown or from a site where contamination is suspected then sufficient testing required to confirm suitable for use.
- The sampling frequency will depend on a number of factors including the number of plots being constructed and the source of the capping materials

Verify it – 1. Soil quality

- NHBC consider good practice would be for the following suggested sampling frequency of each material:

No of Plots	Nominal sampling frequency	Suggested min No of tests per site of each capping material
1-5	1 test per plot	3
5-10	1 test per 2 plots	5
10-20	1 test per 2 plots	5
20-30	1 test per 3 plots	7
30-40	1 test per 4 plots	10
Over 40 plots	1 test per 4 plots	10

Verify it – 1. Soil quality testing requirements

- Not just BS3882:2015, human health contaminants (inc organics) should be considered, with testing suite depending on source.
- No simple answer – it depends on the source and the available documentation.
- Chemical testing requirements should be discussed with a suitably qualified person and agreed with NHBC (and regulators)

Verify it – 2. Soil thickness

- The Inspection regime for capping thickness will depend on the number of plots being built

No of Plots	Depth Inspection
< 5	Each plot
5 to 20	1 in 2
20-30	1 in 3
>30	1 in 4

Verify it – 3. Chain of custody

- Important if materials verified off-site in advance
- Haulage delivery notes may be acceptable, but the more info the better (A selection would be acceptable)
- Can you confirm the certificate relates to the material imported to site?
- A visual inspection of soil on delivery essential (does soil visually compare with that described on suppliers test report?)

Verify it – 4. Reporting

- To include:
 - Plot numbers
 - Confirmation of depth
 - Details of plots actually proven
 - Photos of depth check holes
 - Chemical test data
 - Chain of custody
 - Site plan showing sample and depth check locations
 - Report



Verify it – 4. Reporting

- What causes problems
 - Sampling ratio
 - Wrong analysis
 - Testing out of date??
 - Poor photos
 - Exceeding agreed concentration
 - Wrong depths, missing members
 - Getting info to us late in the day

15/08/2017

Chemtest
THE NEW ZEALAND SOIL TESTING COMPANY

Client Ref: [Redacted]
Sample No: [Redacted]
Date Recd: [Redacted]
For: [Redacted]

Completed From Test Report: [Redacted]
Sample Depth: [Redacted]

Client: [Redacted]

Parameter	Units	Multi-purpose Range		Result	Compliant with Multi-purpose Range? (Y/N)	Compliant with Specific Purpose Range? (Y/N)			
		Min	Max			Agri	Env	Dom	
Texture									
Clay Content	%	0-20	0-20	12	Yes				
Silt Content	%	0-55	0-55	38	Yes				
Sand Content	%	30-80	30-80	50	Yes				
Soil Texture Class				Sandy Loam					
Soil Organic Matter Content									
Organic Matter @ 0-100mm	%	0.20%	0.20%	0.4	Yes				
Moisture Content									
0-20mm	%	0-20	0-20	26	Yes				
0-20mm	%	0-10	0-10	9	Yes				
0-20mm	%	0	0	9	Yes				
Soil pH value		5.5-6.5	5.5-6.5	5.8	Yes	Yes	Yes	Yes	Yes
Carbonate	%			<0.5	Yes	Yes	Yes	Yes	Yes
Electrical Conductivity	µS/cm	0-2000	0-2000	280	Yes				
Available Nutrient Content									
Nitrogen (ppm)	ppm	40-150	40-150	9.52	Yes	Yes	Yes	Yes	Yes
Phosphorus (ppm)	ppm	10-100	10-100	32	Yes	Yes	Yes	Yes	Yes
Potassium (ppm)	ppm	100-300	100-300	148	Yes	Yes	Yes	Yes	Yes
Magnesium (ppm)	ppm	10-100	10-100	80	Yes	Yes	Yes	Yes	Yes
Calcium (ppm)	ppm	>200	>200	1877	Yes				
Exchangeable Sodium									
Calcium (ppm)	ppm	>10	>10	0.44	Yes				
Sodium (ppm)	ppm			4390	Yes	Yes	Yes	Yes	Yes
Physiologic Concentrations									
Clor (ppm Acid Extract)	ppm	0-200	0-200	82	Yes				
Copper (ppm Acid Extract)	ppm	<100	<100	32	Yes				
Soluble Phos Acid Extract	ppm	<60	<60	110	Yes				
Water Concentrations									
0-20mm	%	>10.5	>10.5	9	Yes				
0-20mm	%	>10.5	>10.5	9	Yes				
Non-saline Status	Yes			Yes	Yes				

Full interpretation and recommendations for use apply to the agreement of NHC and is available upon request.

Some typical verification photos



Further information

- NHBC Standards Technical Extra Issue 08 November 2012 www.nhbc.co.uk/Builders/ProductsandServices/TechnicalExtra/
- BS 3882: 2015 – Topsoil – Specification for Topsoil.
- BS 8601: 2013 – Specification for subsoil and requirements for use.
- Or call us –0344 633 1000, ask for “Technical Services”

Thank you

Questions?

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