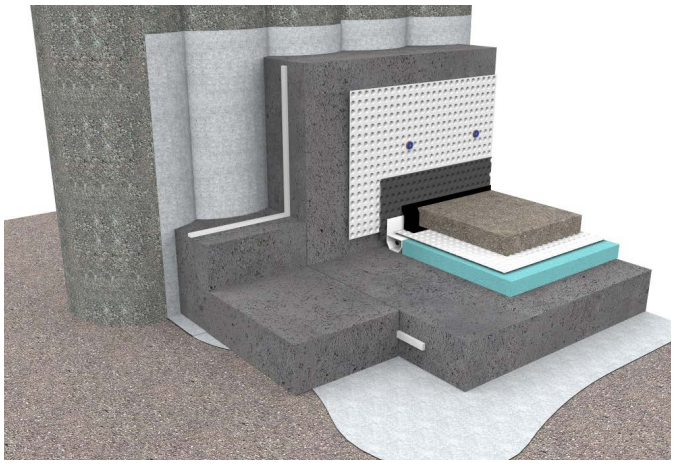
Type A, B & C Waterproofing
BAC-08 SPECIFICATION SHEET
Complete Waterproofing RC Basement within Secant Piles

Rev 3.0 - 02 February 2022



BUILD

WALL CONSTRUCTION:
Reinforced Concrete (RC)

FLOOR CONSTRUCTION:
RC Raft

NWI SCORE

0 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7 1.8 1.9 2.0 2.1 2.2 2.3 2.4 2.5 2.6 2.7 2.8 2.9 3.0 3.1 3.2 3.3 3.4 3.5 3.6 3.7 3.8 3.9 4.0

This specification employs 3 forms of waterproofing (Type A - Barrier Protection) and (Type B - Intergral Protection) to limit ground water ingressing behind the (Type C - Drained Protection) to ensure that the desired internal environment is achieved. The effectiveness of the waterproofing is dependent on the Type A & B systems being effective, especially at the construction joints.

SPECIFICATION

TYPE B ANCILLARIES

Install Newton HydroTank System to all construction joints and service penetrations providing integral protection.

TYPE A APPLIED EXTERNALLY

Waterproof the structure with Newton HydroBond System providing barrier protection.

TYPE C INSTALLED INTERNALLY

Waterproof internally with Newton CDM System providing drained protection.

NEWTON WATERPROOFING INDEX

The Newton Waterproofing Index (NWI) is a unique scoring system that accurately assesses the level of risk and potential success of specific waterproofing specifications. The NWI score is awarded by a panel of experienced waterproofing design specialists and reflects the chances of success of that specification. The scoring system works in conjunction with the British Standard for waterproofing, which defines the three types of internal environments as Grades 1, 2 and 3.

NOTES

To improve the NWI score please see Newton Specification Sheet JN-03.

The detailing of other building elements and termination details are available within the Newton Waterproofing specification library.

A-RATED INSURANCE

Tailor made insurance policies available depending on the specialist contractor and specification.

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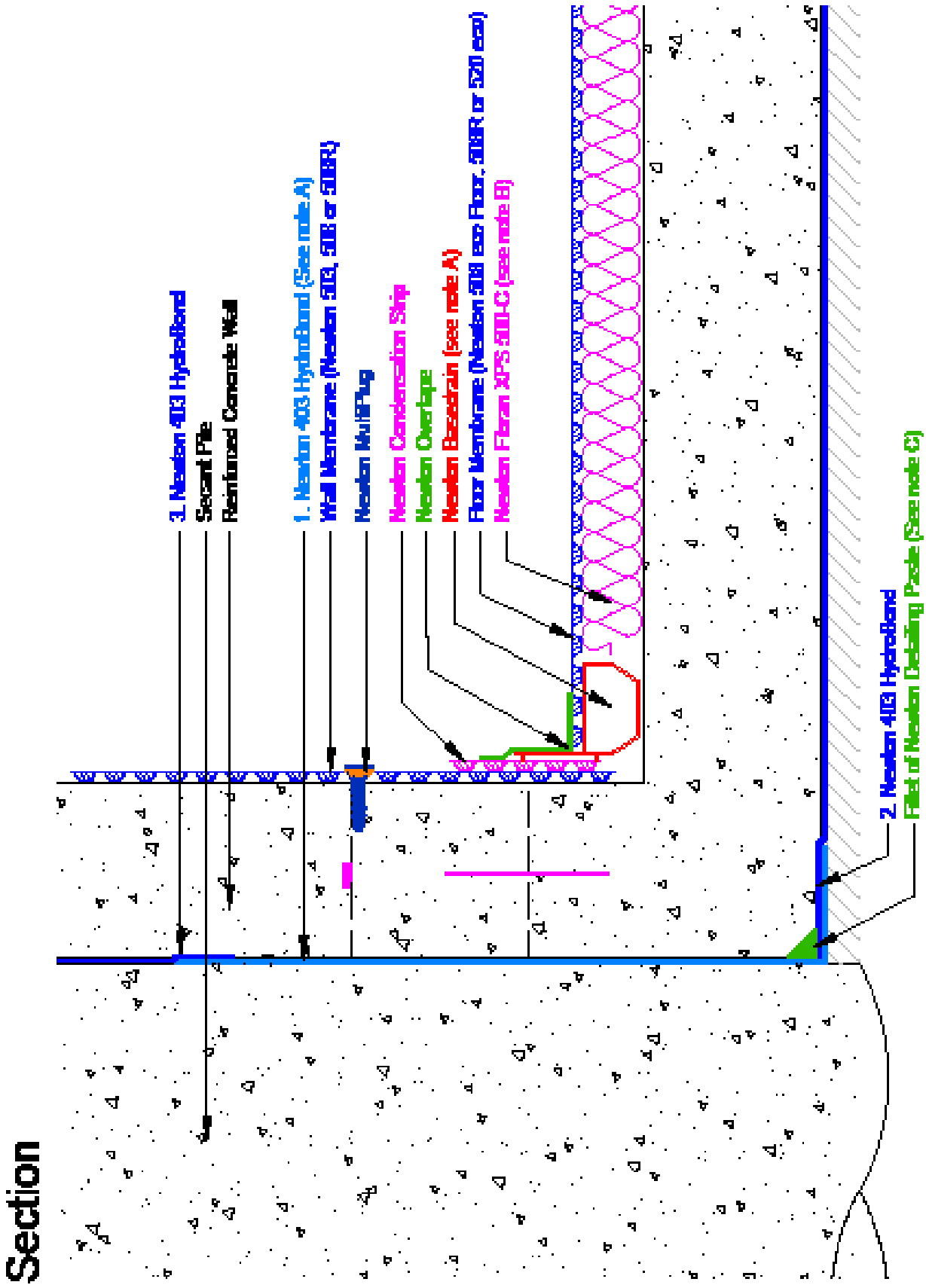

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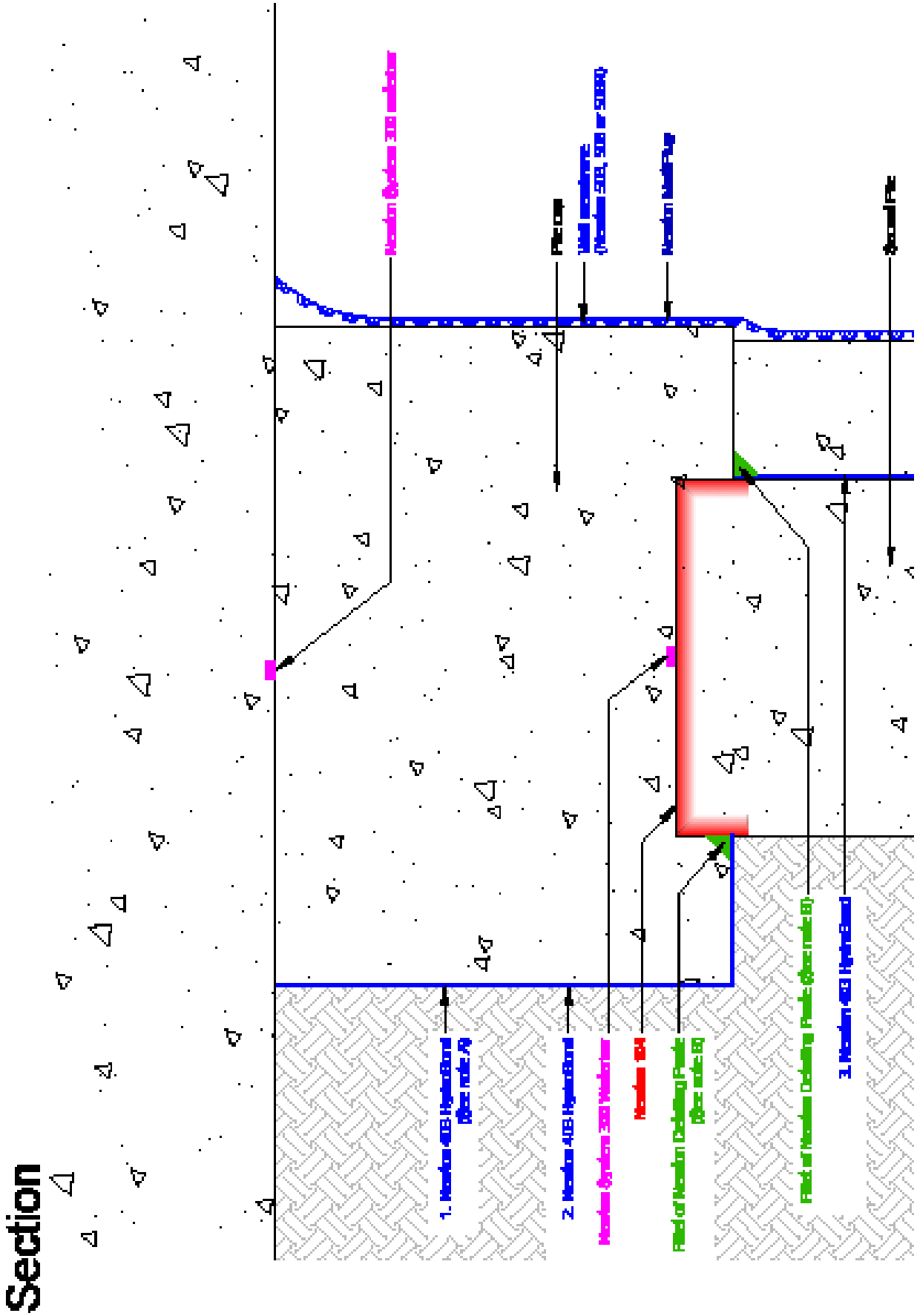

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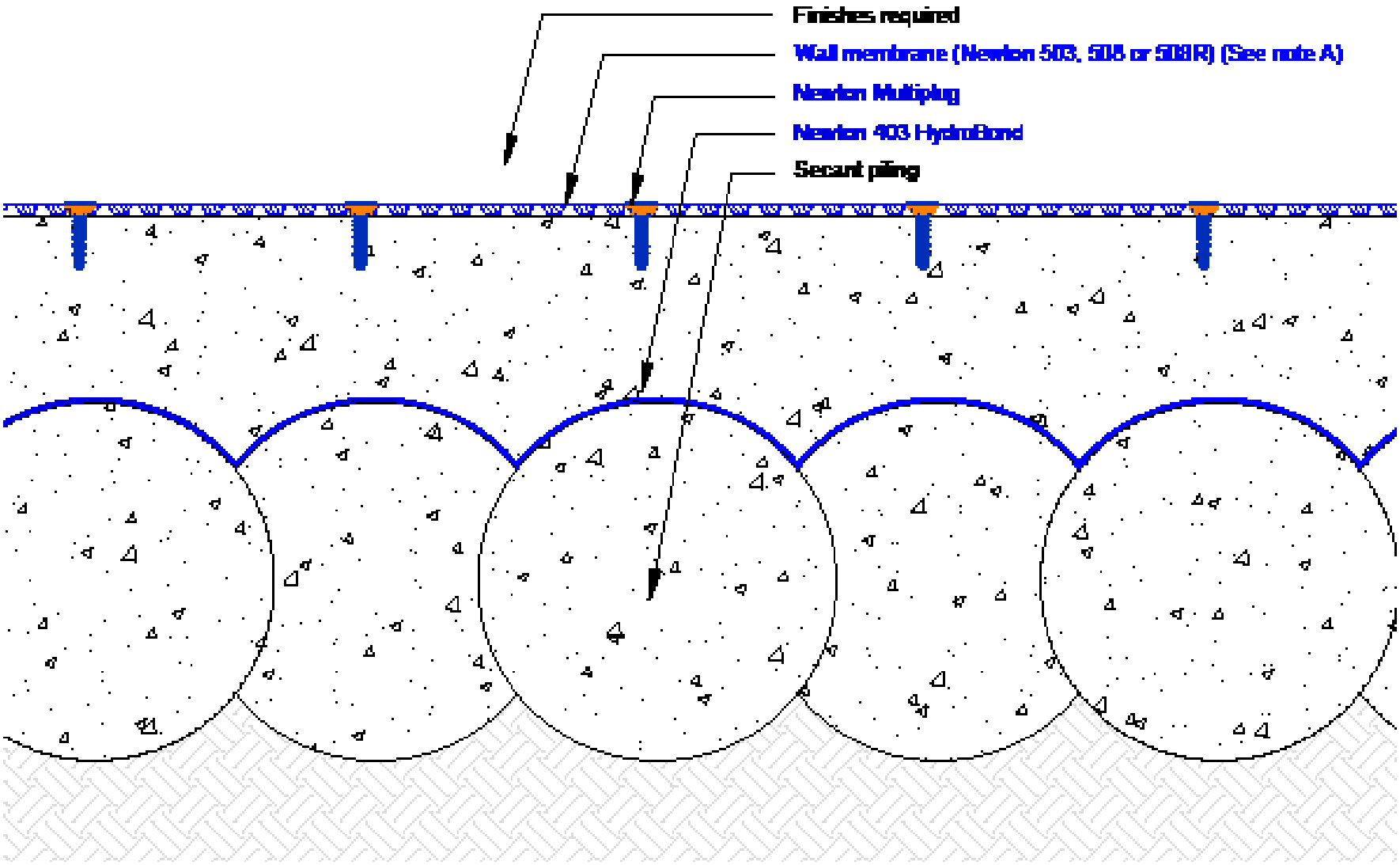
Plan



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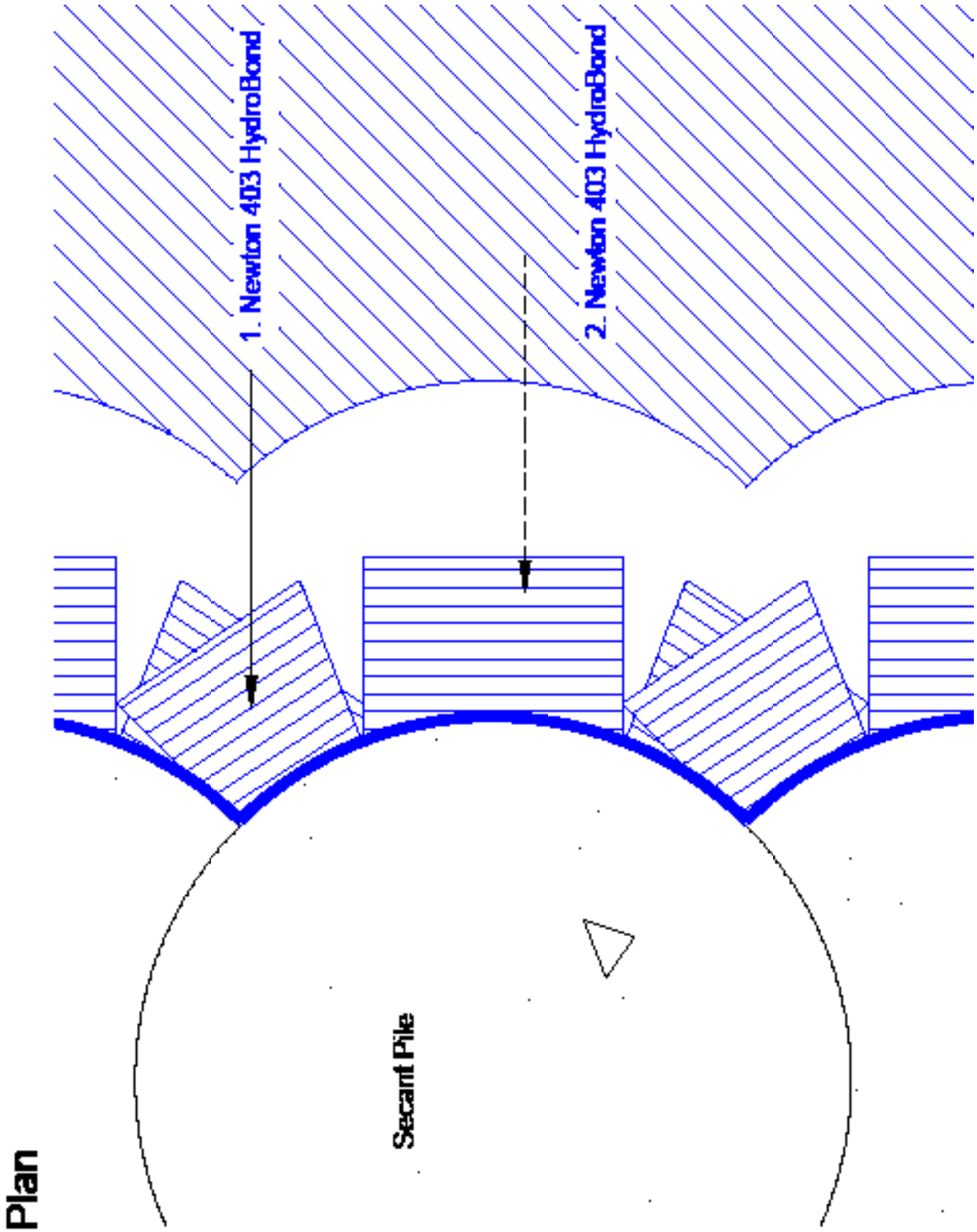

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Type A, B & C Waterproofing
BAC-08 SPECIFICATION OUTLINE
Complete Waterproofing RC Basement within Secant Piles

The following specification provides 3 forms of waterproofing

Specification	BAC-08
Description	Combined waterproofing to RC structure. No gas protection.
Build	Reinforced concrete structure in front of Secant piles
NEWTON HYDROTANK SYSTEM	All construction joints (day joints, shrinkage joints, movement joints etc) should be waterproofed with Newton System 300 waterbars to limit water ingress thorough joints in the structure.
Newton 315 Polymer-Waterbar	A high grade, hydrophilic waterbar with high elasticity and high tensile strength, made from a polymer which swells when in contact with moisture.
Preparation	See E40/230 NBS Clause for Newton 315 Polymer-Waterbar
	Fix waterbars at the centre dimension of joints
Place slab	Place RC slab ensuring that the concrete is fully compacted, paying attention to compaction below the reinforcement steel and waterbar.
	Pay particular attention not to damage the 315 Polymer-Waterbar during vibration of the concrete.
NEWTON HYDROBOND SOLUTION	The Newton HydroBond System provides a complete and continuous water-proof barrier to the external surface of any below ground structure
Newton 403 HydroBond®	Newton 403 HydroBond is a mechanically bonded and self-healing membrane that is pre-applied ready for the placement of the concrete raft to a suitable smooth sound substrate such as a concrete blinding, closed cell insulation, void former system or drainage membrane such as Newton 410 GeoDrain.
Preparation	See J40/112 NBS Clause for Newton 403 HydroBond
Application	Install the membrane as described in the product Installation Manual Lap the vertical membrane down onto the suitable substrate, ready for the horizontal application
Base of Piles Page 3 of 15	1. First run of vertical Newton 403 HydroBond applied 900mm up from blinding level. Working from top down fix with Newton fasteners as necessary to allow close contouring of piles cut and splayed at base to form lap.
	2. Newton 403 HydroBond (under slab) loose laid onto suitable oversite lapped over the 'cut and splayed lap from vertical application.
	3. Newton 403 HydroBond is lapped 70mm to the first run of Newton 403 HydroBond.
Pile cap Page 4 of 15	1. Newton 403 HydroBond terminated at ground level. Continuity to DPC level as per Newton instructions.
	2. Newton 403 HydroBond peel adhered to capping beam (applied to inside of formwork prior to pouring) cut to tightly abut the profile of the secant piled wall. Sealed with a fillet of Newton Detailing Paste.
	3. Newton 403 HydroBond mechanically fixed (shotfired) to profile of concrete piles. Neatly abut underside of capping beam, and seal with fillet of Newton Detailing Paste.
HydroBond Plan view Page 6 of 15	1. At base of piles, vertical Newton 403 HydroBond extended horizontally onto blinding (min 100mm), cut and splayed as necessary to allow to lay flat.
	2. Newton 403 HydroBond (under slab) loose laid onto suitable oversite lapped over the 'cut and splayed lap from vertical application.
Newton System 300	Fix waterbars at the centre dimension of joints
Place slab	Place RC slab ensuring that the concrete is fully compacted, paying attention to compaction below the reinforcement steel and waterbar.

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	Pay particular attention not to damage the 403 HydroBond membrane or the 315 Polymer-Waterbar during vibration of the concrete.
Protection	
Newton 403 HydroBond	The membrane is protected by the RC box.
NEWTON CDM SYSTEM	Maintainable basement waterproofing solution ideal for new-build basements and refurbishment projects. Comprises four components: Cavity Drain Membranes, Drainage, Pumps and Control Systems. Complies with the British Standard for Waterproofing.
Substrate Preparation	
Walls	See J40/310 NBS Clause for Newton System 500.
Floor	Horizontal concrete surfaces should have a surface finish to should have a surface finish to at least Class of finish U3 and preferably to class U4 or U5 as documented in 'General Specification for Civil Engineering Works' section 14: 'Formwork and Finishes to Concrete', namely a 'Uniform, dense and smooth surface'. Floor to be no more than +/- 5mm over 2m in any direction and no more than 25mm over any dimension. Floor to be flood tested and and depressions over 10mm or over to be filled with appropriate repair product such as Newton 908 LiquaBond mortar. Floor slab to be treated with Newton 906 Lime Inhibitor as per the product data sheet
Floor preparation:	
Surface cracks (dead)	Fill with fine filler or 901-P mixed with sand and/or scrim with plasterers scrim
Surface Cracks (live)	Treat as movement joint - see below
Small holes or slight surface damage	Repair with appropriate filler
Joints	
Movement Joints and Isolation Joints	**IMPORTANT:** Movement and isolation joints should be avoided if possible as they are very difficult to waterproof. If they need to be included, please speak to the Newton Technical Department who will confirm an exact specification for the joint.
Sump	If water collected by the system is to be removed by pumping, provision for the sump must be included at the time the slab is placed. Methods for forming of the sump chamber are included within the Titan-Pro pumping system Installation Manual. The Titan-Pro sump chamber must be surrounded by compacted concrete or placed within a concrete box and then concrete in place.
Installation	As per the Newton CDM Installation manual. Installation should be by Newton NSBC waterproofing contractors who are trained in the installation of the system. It is a requirement of the BBA Certificate that the system is installed by Newton NSBC waterproofing contractors.
Wall Membrane	Install with as many fixings are required to place the membrane to the wall. Add further fixings as required for wall mounted ancillaries such as dry-lining brackets, insulation ties or brick/block ties.
Drainage System	Place above the slab within a spacer of Newton XPS 500-C. Place Newton Basedrain drainage channel to the perimeter and to any internal walls that are supported from the own strip foundations. Place Newton Floordrain above construction joints, door thresholds or where cross drains are required. The drainage system to terminate at the pumping system. Make connections to the Titan-Pro sump with Newton Basedrain Connectors.
Floor Membrane	Place the membrane to the floor, above the Fibran-XPS insulated drainage spacer. Seal the floor membrane to the permitter Basedrain drainage channel with Newton Overtape, sealed to the up-stand of the Basedrain.

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Protrusions	Seal the membrane as tightly as possible to the protrusion. A range of preformed sealing collars, sleeves, cloaks and linings are available.
Protection	Always required
To Wall membrane	Please the Newton CDM installation manual
To Floor membrane	Please the Newton CDM installation manual

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Type A, B & C Waterproofing
BAC-08 NBS CLAUSE
Complete Waterproofing RC Basement within Secant Piles

The following document is to be read alongside the relevant Newton Waterproofing datasheets.

NEWTON J40 - NEWTON HYDROBOND SYSTEM

J40 Flexible sheet waterproofing/ damp proofing

297A WATERPROOFING MEMBRANE

Newton 403 HydroBond

A high performance, self-healing membrane with a locking fleece on the inner surface and a hydrophilic polymer coating externally. The membrane is BDA approved, NHBC accepted as Type A waterproofing, and the gas barrier variant provides resistance to radon, carbon dioxide and hydrocarbons.

Newton 403 HydroBond provides a complete waterproof envelope to the structure to achieve Type A (barrier) waterproofing suitable for Grades 1, 2 and 3 as defined by BS 8102:2009, are suitable for all below ground and earth-retained structures from domestic basements to the largest civil engineering projects, and can be used as part of the HydroBond® System with Newton 108 HydroBond-LM which is sprayed to the exposed walls of the basement after the temporary formwork is removed. Where space is tight, Newton 109-LM can be applied by roller or brush or small airless spray machine.

Newton 403 HydroBond can be used in conjunction with other Newton products to provide a co-ordinated and combined approach to the waterproofing of the whole structure that includes protection against water ingress to the deck, through construction joints, through and around service entries and to movement joints.

Correctly protected, the Newton HydroBond System will provide, under normal service conditions, a durable waterproof barrier for the life of the building to which it is installed; the expected lifetime of the building itself should be at least 60 years. The Newton HydroBond System is supported by BDA Agrément Certificate BAB 16-031/03/A and is accepted by the NHBC as a suitable waterproofing system for Type A Waterproofing to Grades 1, 2 & 3 – BS 8102:2009System Manufacturer:

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Please click here to download the full Newton 403 HydroBond NBS Clause

NEWTON E40 - NEWTON HYDROTANK SYSTEM

E40 Designed joints in in situ concrete

120 CONSTRUCTION/ MOVEMENT JOINTS GENERALLY

Newton 315 Polymer-Waterbar

A high grade, hydrophilic waterbar with high elasticity and high tensile strength, made from a polymer which swells when in contact with moisture. Ideal for sealing structures against water leaks to both cast-in-place concrete and precast construction joints.

The swelling is achieved through hydrophilic acrylate polymers, which are inseparably embedded within the butylene carrier material. This results in high elasticity and exceptional tensile strength, even when fully expanded within the joint.

Due to its high resistance to acids, alkalis and organic solutions, Newton 315 Polymer-Waterbar can be used to seal joints where aggressive water is expected such as within sewage treatment plants, biogas plants and liquid waste holding tanks.

Newton 315 Polymer-Waterbar swells up to 9 times its original size when in contact with water, sealing the joint fully and reliably. Newton 315 Polymer-Waterbar is particularly suited to sealing non-compressed joints such as at the junction between slab and wall.

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NEWTON J40 - NEWTON CDM SYSTEM

J40 Flexible sheet waterproofing/damp proofing

290A HIGH DENSITY POLYETHYLENE STUDDED CAVITY DRAIN MEMBRANE

Newton CDM System

The Newton Cavity Drain Membrane (CDM) System is a maintainable basement waterproofing solution ideal for new-build basements and refurbishment projects. Comprising of four components: Cavity Drain Membranes, Drainage, Pumps and Control Systems, the Newton CDM System complies with the British Standard for Waterproofing and provides a Grade 3 habitable internal environment.

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