STRUCTURAL ENGINEERS NEW ZELAND
CONSULTING STRUCTURAL ENGINEERS

RESIDENTIAL, COMMERCIAL, INDUSTRIAL
SEISMIC, TEMPORARY WORKS

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100-377-02

GENERIC DESIGN FOR STANDARD RIB RAFTS, DRIVEWAYS & PATIOS FOR AQUACOMB PODS

FOR WATER SMART NZ LTD

GENERIC - VARIOUS LOCATIONS WITHIN NEW ZEALAND
SENZ STRUCTURAL PS1
Aug 2026

STRUCTURAL ENGINEERS NZ PS1

BUILDING CODE CLAUSE(S): B1 **JOB NUMBER:** 100-377-02

ISSUED BY: STRUCTURAL ENGINEERS NZ LTD
(Engineering Design Firm)

TO: WATER SMART NZ LTD
(Owner/Developer)

TO BE SUPPLIED TO: All Territorial Authorities within New Zealand
(Building Consent Authority)

IN RESPECT OF: Structural Design Of Standard Rib Rafts, Driveways & Patios For Aquacomb Pods
(Description of Building Work)

AT: Generic - Various Locations Within New Zealand,
(Address, Town/City)

LEGAL DESCRIPTION: LOT: DP: N/A ☑

We have been engaged by the owner/developer referred to above to provide *(Extent of Engagement)* :
Structural Engineering Services As Per Attached Calculations
in respect of the requirements of the Clause(s) of the Building Code specified above for Part Only , as specified in the Schedule, of the proposed building work.

The design carried out by us has been prepared in accordance with:
- ☑ Compliance documents issued by the Ministry of Business, Innovation & Employment (Verification method/acceptable solution) B1-VM1/AS1, VM2 and/or;
- ☐ Alternative solution as per the attached Schedule.

The proposed building work covered by this producer statement is described on the drawings specified in the Schedule, together with the specification, and other documents set out in the Schedule.

On behalf of the Engineering Design Firm, and subject to:
- Site verification of the following design assumptions: Schedule to and inspection schedule appended
- All proprietary products meeting their performance specification requirements;

I believe on reasonable grounds that:
- the building, if constructed in accordance with the drawings, specifications, and other documents provided or listed in the Schedule, will comply with the relevant provisions of the Building Code and that;
- the persons who have undertaken the design have the necessary competency to do so.

I recommend the CM2 level of **construction monitoring**.

I, Sadeer Kattan , am:
(Name of Engineering Design Professional)
- CPEng number 1013983
- and hold the following qualifications: BE(Hons), CMEngNZ(Structural), CPEng

The Engineering Design Firm holds a current policy of Professional Indemnity Insurance no less than $200,000.
The Engineering Design Firm is not a member of ACE New Zealand.

SIGNED BY: Sadeer Kattan
(Name of Engineering Design Professional)

(Signature):



ON BEHALF OF: STRUCTURAL ENGINEERS NZ LTD DATE: 27/08/2026

Note: This statement has been prepared solely for the Building Consent Authority named above and shall not be relied upon by any other person or entity. Any liability in relation to this statement accrues to the Engineering Design Firm only. As a condition of reliance on this statement, the Building Consent Authority accepts that the total maximum amount of liability of any kind arising from this statement and all other statements provided to the Building Consent Authority in relation to this building work, whether in tort or otherwise, is limited to the sum of $200,000.

This form is to accompany **Form 2 of the Building (Forms) Regulations 2004** for the application of a Building Consent.

Job Number: 100-377-02 - Producer Statement PS1

GUIDANCE ON USE OF PRODUCER STATEMENTS

Information on the use of Producer Statements and Construction Monitoring Guidelines can be found on the Engineering New Zealand website https://www.engineeringnz.org/engineer-tools/engineering-documents/producer-statements/

Producer statements were first introduced with the Building Act 1991. The producer statements were developed by a combined task committee consisting of members of the New Zealand Institute of Architects (NZIA), Institution of Professional Engineers New Zealand (now Engineering New Zealand), Association of Consulting and Engineering New Zealand (ACE NZ) in consultation with the Building Officials Institute of New Zealand (BOINZ). The original suite of producer statements has been revised at the date of this form to ensure standard use within the industry.

The producer statement system is intended to provide Building Consent Authorities (BCAs) with part of the reasonable grounds necessary for the issue of a Building Consent or a Code Compliance Certificate, without necessarily having to duplicate review of design or construction monitoring undertaken by others.

PS1 DESIGN Intended for use by a suitably qualified independent engineering design professional in circumstances where the BCA accepts a producer statement for establishing reasonable grounds to issue a Building Consent;

PS2 DESIGN REVIEW Intended for use by a suitably qualified independent engineering design review professional where the BCA accepts an independent design professional's review as the basis for establishing reasonable grounds to issue a Building Consent;

PS3 CONSTRUCTION Forms commonly used as a certificate of completion of building work are Schedule 6 of NZS 3910:2013 or Schedules E1/E2 of NZIA's SCC 2011[2];

PS4 CONSTRUCTION REVIEW Intended for use by a suitably qualified independent engineering construction monitoring professional who either undertakes or supervises construction monitoring of the building works where the BCA requests a producer statement prior to issuing a Code Compliance Certificate.

This must be accompanied by a statement of completion of building work (Schedule 6).

The following guidelines are provided by ACE New Zealand and Engineering New Zealand to interpret the Producer Statement.

Competence of Engineering Professional

This statement is made by an engineering firm that has undertaken a contract of services for the services named, and is signed by a person authorised by that firm to verify the processes within the firm and competence of its personnel.

The person signing the Producer Statement on behalf of the engineering firm will have a professional qualification and proven current competence through registration on a national competence-based register such as a Chartered Professional Engineer (CPEng).

Membership of a professional body, such as Engineering New Zealand provides additional assurance of the designer's standing within the profession. If the engineering firm is a member of ACE New Zealand, this provides additional assurance about the standing of the firm.

Persons or firms meeting these criteria satisfy the term "suitably qualified independent engineering professional".

Professional Indemnity Insurance

As part of membership requirements, ACE New Zealand requires all member firms to hold Professional Indemnity Insurance to a minimum level.

The PI Insurance minimum stated on the front of this form reflects standard practice for the relationship between the BCA and the engineering firm.

Professional Services during Construction Phase

There are several levels of service that an engineering firm may provide during the construction phase of a project (CM1- CM5 for engineers[3]). The building Consent Authority is encouraged to require that the service to be provided by the engineering firm is appropriate for the project concerned.

Requirement to provide Producer Statement PS4

Building Consent Authorities should ensure that the applicant is aware of any requirement for producer statements for the construction phase of building work at the time the building consent is issued as no design professional should be expected to provide a producer statement unless such a requirement forms part of the Design Firm's engagement.

Refer Also:

1. Conditions of Contract for Building & Civil Engineering Construction NZS 3910: 2013
2. NZIA Standard Conditions of Contract SCC 2011
3. Guideline on the Briefing & Engagement for Consulting Engineering Services (ACE New Zealand/Engineering New Zealand 2004)
4. PN01 Guidelines on Producer Statements

www.acenz.org.nz
www.engineeringnz.org

SCHEDULE TO PRODUCER STATEMENT - PS1 DESIGN

Alternative Solutions

SENZ Documentation

1) See attached schedule

Design assumptions, Proprietary products and Other exclusions:

1) Site verification of the following design assumptions:

   Good ground based on NZS3604:2011, with allownce for expansive clays as per sheet S-101 rev 2

   Inspections as per SENZ schedule and all SED elements including the provision for a corresponding PS4.

2) All proprietary products meeting their performance specification requirements; in particular this Producer Statement excludes:

3) Other exclusions; this producer statement excludes all aspects of:

   The standard drawings produced by SENZ shall be read in conjunction with the site specific foundation drawings prepared by the nominated structural engineering firm for the specific project.
   No allowance has been made for any slope stability or liquefaction related issues.
   No allowance has been made for vehicles over 2500 kgs over the driveway.
   Allowance has been made for two storey timber framed construction with lightweight cladding or brick veneers, with no specific point loads higher than 15 kN (ULS).

Schedule of Drawings:

DRAWING NUMBER	SHEETS	REVISION	DATE	DESCRIPTION
G-000	1	2	27/04/2023	Cover Page
G-001	1	1	27/04/2023	Structural Notes
S-100	1	2	27/04/2023	UNDER DRIVEWAY INSTALLATION DETAILS
S-101	1	2	27/04/2023	RESIDENTIAL IN SLAB INSTALLATION DETAILS
S-102	1	1	27/04/2023	UNDER PATIO TANK INSTRUCTION DETAILS
S-103	1	1	27/04/2023	UNDER LAWN TANK INSTRUCTION DETAILS
SENZ-100-377-02	1 to 91	C	6/09/2024	STANDARD AQUACOMB FOUNDATION DESIGN

The Producer Statements issued should not be relied on to establish compliance with the building code clauses E1, E2, E3.
Weathertightness and waterproofing design, materials, proprietary products, construction and/or inspections are specifically excluded from these producer statements.

Job Number: 100-377-02 - Producer Statement PS1

To the Building Official,

All Territorial Authorities within New Zealand

Structural Design Of Standard Rib Rafts, Driveways & Patios For Aquacomb Pods At Generic - Various Locations Within New Zealand

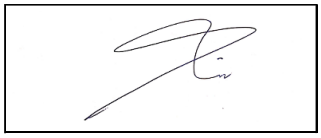
Compliance with the Building Code Clause B2 - Durability

The purpose of this letter is to demonstrate how compliance with Clause B2 (Durability) of the Building Code will be achieved for the above project. We can confirm that for specifically designed structural elements that are included within our design documentation:

Material	Means of Compliance	Details
Reinforced Concrete	B2/AS1	Concrete cover to reinforcing has been selected in accordance with NZS3101, Part 1, Section 3

Yours faithfully,

Sadeer Kattan *Managing Director, Lead Structural Engineer*



For and on behalf of

STRUCTURAL ENGINEERS NZ LTD

Structural Maintenance Schedule

Project: Structural Design Of Standard Rib Rafts, Driveways & Patios For Aquacomb Pods At Generic - Various Locations Within New Zealand,

This schedule of ongoing inspection and maintenance of structural elements shall be included with the Operations and Maintenance manuals and provided to the Owner/Body Corporate and building managers.

Inspection/maintenance timeframe and item	
Half-yearly	Wash down all exposed steelwork that is not in a fully interior environment including: • Veranda steelwork • Steel Carpark structure (beams, columns, braces etc) • Deck and balcony steelwork • Exposed façade steelwork, both primary and secondary structure • Plantrooms and plenums with fresh-air intakes • External structural components such as Buckling Restrained Braces, Viscous Dampers, Eccentrically Braced Frames and the like • Sub-ground floor mild-steel structures such as beams, isolation bearings etc.
(b) 5 yearly	Inspect and repair sealant that encloses structural mild-steel components and/or timber with mild-steel fixings
(c) 10 yearly	Check exposed timber fixings for corrosion, repair as required.
	Inspect/replace sealant that encloses structural mild-steel components and/or timber with mild-steel fixings. This will typically include sealants around the perimeter of precast panels. Note that 10 years is the expected useful life for many sealants
	Check exposed structural steel within plantrooms and plenums for corrosion. Repair protective coatings as required.
	Check all exposed steelwork that is not in a fully interior environment for signs of corrosion. Repair protective coatings as required.
	Audit of damage to exposed intumescent coatings. Repair as required.
(d) 25 yearly	Inspect samples of structural steel that is hidden from view but not enclosed within a vapour barrier, and repair protective coatings as necessary. A typical example is a veranda with built-in steelwork. (Such steelwork should typically have duplex protective coatings). Inspection may typically require removal of claddings and/or the drilling of holes for borescope access. Repair as required.
	Inspect all exposed, external timber. Repair as required.
	Inspect all exposed, external reinforced concrete for signs of spalling or cracking. Repair as required.
	Audit of damage to enclosed intumescent coatings. Repair as required.
Following fit-out or alterations	Audit of damage to intumescent coatings. Repair as required.
Following seismic shaking > SLS1 event	Inspections and repair as per b), c) and d) above

Construction Monitoring Schedule

Schedule of inspections for:

Address: Generic - Various Locations Within New Zealand,

The inspections required are also dependant on the conditions of the building consent as per local building authority requirements. We would advise checking with council when in doubt.

We confirm that SENZ have been engaged to undertake construction monitoring of the specific engineering design items to an Engineering New Zealand/ACENZ CM2 level and propose to undertake at least the following site inspections:

Inspections to be completed by:

Geotechnical Inspections		Geotech as engaged by the developer/owner	By SENZ
Site scrape	Inspection to confirm topsoil removal and subgrade/strength and/or sub/base compaction as per the geotechnical report.	☑	☐
Engineered fill or Gravel raft	Site geotextile and/or geogrid as required by design drawings and certify compaction as per design and geotechnical report.	☐	☐
Bridging parameters (if applicable)	Site geotextile and/or geogrid as required by design drawings and certify compaction as per design and geotechnical report.	☐	☐

No.	Item of inspection	Timeframe
1	Foundation Footings	Pre-pour but posts to be put in place

Notes:

a) The above items of inspection are the minimum required to enable STRUCTURAL ENGINEERS NZ LTD to issue a PS4 - Producer Statement Construction Review for the specific engineering design items.

b) The above items of inspection do not cover work constructed in accordance with NZS 3604:2011, for which inspections are to be undertaken by the Building Consent Authority.

c) The Contractor/Builder is to provide STRUCTURAL ENGINEERS NZ LTD at least 24 hours' notice of the requirement for an inspection. The above timeframes are indicative, the Engineer and Contractor are to agree the timing of inspection prior to work commencing on site.

d) A copy of this inspection schedule is to be held on site during the works, and the Contractor/Builder is to provide reasonable and safe access to enable works to be inspected according to the schedule.

e) The above schedule does not necessarily represent the actual number of inspections to be undertaken. The number of inspections will depend on the construction method, sequence of the works and whether or not unforeseen conditions or difficulties are encountered on site.

Job Number: 100-377-02 - Construction Monitoring Schedule

AQUACOMB POD INSTALLATION

AUCKLAND

Job No.:

100-377A **27.04.23**

Client:

Water Smart NZ Ltd

AQUACOMB POD

SHEET LIST		
Sheet Number	**Sheet Name**	**Revision**
G-000	COVER PAGE	2
G-001	STRUCTURAL NOTES	1
S-100	UNDER DRIVEWAY INSTALLATION DETAILS	2
S-101	RESIDENTIAL IN SLAB INSTALLATION DETAILS	2
S-102	UNDER PATIO TANK INSTRUCTION DETAILS	1
S-103	UNDER LAWN TANK INSTRUCTION DETAILS	1

SENZ
Structural Engineers New Zealand

watersmart

GENERAL NOTES

1. THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE STRUCTURAL ENGINEERS NZ DESIGN FEATURES REPORT, ARCHITECTURAL DRAWINGS, CIVIL ENGINEERING DRAWINGS, AND THE GEOTECNICAL REPORT FOR THE PROPERTY, COPIES OF ALL THE LISTED DOCUMENTS ARE TO BE KEPT ON SITE AT ALL TIMES.

2. ALL WORKS ARE TO COMPLY WITH THE MOST RECENT VERSIONS OF THE NEW ZEALAND BUILDING ACT AND THE BUILDING CODE.

3. DIMENSIONS ARE TO BE READ FROM DRAWINGS, NOT SCALED FROM THEM. ALL DIMENSONS ARE TO BE CHECKED ON-SITE PRIOR TO SETTING OUT.

4. ALL DIMENSIONS ARE IN MILLIMETRES (mm), ALL LEVEL ARE IN METRES (m), UNLESS OTHERWISE NOTED.

5. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO ESTABLISH LOCATION OF EXISTING SERVICES AT SITE. SERVICES SHOWN ON DRAWINGS ARE IN APPROXIMATE LOCATIONS ONLY, SERVICES OTHER THAN THOSE SHOWN MAY EXIST ON SITE. ONLY HAND EXCAVATION ALLOWED WITHIN ONE METRE OF SERVICES.

6. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN, INSTALLATION AND MAINTENANCE OF ALL NECESSARY TEMPORARY WORKS INCLUDING TEMPORARY STRUCTURAL SUPPORTS TO ENSURE STRENGTH AND STABILITY OF THE STRUCTURE AND ADEQUATE SUPPORT TO THE STRUCTURES WITHOUT ANY ADVERSE EFFECT TO THE STRUCTURES OR ADJACENT STRUCTURES.

7. THE CONTRACTOR SHALL ENSURE THAT ALL REGULATORY CONSENT DOCUMENTATIONS.

8. ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CURRENT CODES OF PRACTICE EXCEPT WHERE VARIED BY THE DESIGN FEATURES REPORT AND/OR DRAWINGS.

9. THE LOCATION, SIZE AND DETAILS OF ALL PENETRATIONS, RECESSES, SLEEVES HOLES ETC. IN STRUCTURAL MEMBERS MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION UNLESS SHOWN ON THE STRUCTURAL DRAWINGS. THESE ITEMS SHALL BE CAST-IN, FORMED, OR SHOP FABRICATED AND SHALL NOT BE CUT OR COVED ON SITE, UNLESS NOTED OTHERWISE OR APPROVED BY THE ENGINEER.

10. SUBSTITUTION FOR OR AMENDMENT OF SPECIFIED DETAILS OR MATERIALS SHALL NOT BE CARRIED OUT WITHOUT APPROVAL OF THE ENGINEER.

11. WHERE PROPRIETARY PRODUCTS ARE SPECIFIED IN THE DOCUMENTS THE CONTRACTOR MAY SUBMIT AN ALTERNATIVE PRODUCT FOR APPROVAL BY THE ENGINEER.

12. VERIFY ALL DIMENSIONS WITH ARCHITECTURAL, SERVICES, AND ALL OTHER PROJECT DRAWINGS PRIOR TO CONSTRUCTIONS COMMENCING. ANY DISCREPANCIES WITH THE ARCHITECTURAL DRAWINGS RELATING TO THE CONSTRUCTION WORKS SHOWN ON THESE DRAWINGS MUST BE REFERRED TO THE ENGINEER FOR CLARIFICATION.

13. ALL WORKS SPECIFIED IN THE FOLLOWING DRAWINGS ARE CLASSIFIED AS RESTRICTED BUILDING WORK.

14. THE ENGINEER AND THE LOCAL COUNCIL ARE TO BE NOTIFIED IMMEDIATELY UPON THE DISCOVERY OF ARCHAEOLOGICAL REMAINS ON SITE. ALL WORKS ON SITE MUST BE STOPPED UNTIL APPROVAL HAS BEEN GIVEN BY CCC AND THE ENGINEER.

SITE CLEARANCE AND DEMOLITION

15. ALL WORK SHOULD BE IN ACCORDANCE WITH THE HEALTH AND SAFETY IN EMPLOYMENT ACT 1992.

INSTALLATION OF COMPACTED HARDFILL

16. THE EXCAVATION SHOULD BE AS INDICATED ON DRAWINGS OR TO A LEVEL WHERE THE SOIL ACHIEVES A GEOTECHNICAL ULTIMATE BEARING CAPACITY OF 300kPa.

17. COMPACTED HARDFILL WHERE REQUIRED SHALL BE IN ACCORDANCE WITH NZS 4402:1998 WITH REGARDS TO MOISTURE CONTENT.

18. COMPACTION WHERE REQUIRED SHALL BE CARRIED OUT IN CONTROLLED LAYERS OF NOT MORE THAN 150mm COMPACTED DEPTH, USING A 4-7 TONNE VIBRO-ROLLER UNTIL THE SITE IS BROUGHT TO A LEVEL SUITABLE FOR CONSTRUCTION OF A CONCRETE SLAB ON GRADE. TARGET COMPACTION CIV OF 18 IS REQUIRED. A19 GEOTEXTILE SHALL BE PLACED ON THE SUBGRADE LEVEL PRIOR TO PLACEMENT OF HARDFILL.

CONCRETE

19. ALL CONCRETE WORK SHOULD BE IN ACCORDANCE WITH THE STANDARDS AND CODE OF PRACTICES SPECIFIED IN THE DESIGN FEATURES REPORT.

20. CONCRETE STRENGHTS ARE SPECIFIED 28 DAY COMPRESSIVE STRENTGH AS DEFINED IN NZS-3109:1987. WHERE NOT SPECIFIED, THE CONCRETE STRENGTH SHALL BE 25MPa, 100mm SLUMP MIX WITH EITHER 13mm OR 19mm NOMINAL AGGREGATE SIZE U.N.O.

21. SURFACE FINISHES ARE F4 AND U2.

22. MINIMUM CONCRETE COVERS ARE NOT LESS THAN 60mm U.N.O.

23. NO SAW CUTS OR CONSTRUCTIONS JOINTS ARE TO BE FORMED IN THE SLAB UNLESS NOTED OR SHOWN ON THE DRAWINGS.

24. POLYSTYRENE UNDER SLAB FOUNDATIONS SHALL BE EXPANDED POLYSTYRENE DOW STYROFOAM RTM- X OR APPROVED EQUIVALENT.

REINFORCEMENT

25. STAGGER LAPS WHERE POSSIBLE. WHERE LAPS ARE NOT STAGGERED INCREASE LAP LENGTH BY 30%. WHERE GAPS BETWEEN LAP BARS EXIST, THE LAP LENGTH SHALL BE EXTENDED BY 1.5xGAP.

26. MINIMUM LAP FOR FABRIC SHALL BE ONE MESH BAR SPACING PLUS 50mm.

27. PLACING AND SPACING OF REINFORCEMENT - GENERAL

a) SPLICING OF REINFORCEMENT, WHETHER BY LAPPING, WELDING OR MECHANICAL SPLICE SHALL ONLY BE CARRIED OUT AS SHOWN ON THE DRAWINGS OR AS SPECIFICALLY APPROVED BY THE ENGINEER.
- WELDED WIRE MESH SHALL BE SPLICED AS REQUIRED, BUT NOT THROUGH SLAB JOINTS.

b) ALL HOOKS ON STIRRUP AND TIES MUST FIT CLOSELY AROUND MAIN BARS U.N.O. FIRST STIRRUP TO BE PLACED NOT FURTHER THAN THE LESSER OF 1/2 STIRRUP SPACING OR 50mm FROM SUPPORT FACE.

28. LAP SPLICES IN REINFORCEMENT

a) LAP LENGTHS FOR DEFORMED BARS SHALL BE AS SHOWN IN THE FOLLOWING TABLES U.N.O.
b) NOTE RE USE OF THE FOLLOWING TABLE

-TOP BAR FACTOR IS 1.3 FOR ALL HORIZONTAL BARS WITH MORE THAN 300mm OF FRESH CONCRETE CAST BENEATH THE BAR (TYPICALLY BEAM TOP BARS AND HORIZONTAL WALL BARS)

	25 MPa CONCRETE	GRADE 300 DEFORED	GRADE 500 DEFORMED
12mm Bar	1.0 FACTOR	400	600
12mm Bar	1.3 FACTOR	500	800
16mm Bar	1.0 FACTOR	500	800
16mm Bar	1.3 FACTOR	650	1050
20mm Bar	1.0 FACTOR	650	1000
20mm Bar	1.3 FACTOR	800	1300

29. BARS ARE TO BE TO AS/NZS 4671 - GRADE 500E DEFORMED, OTHER THAN FOR TIES, STIRRUPS AND SPIRALS, THAT COULD BE MICRO ALLOY GRADE 300E UNLESS NOTED OR SHOWN OTHERWISE ON THE DRAWINGS.

30. ALL MASONRY REINFORCEMENT LAP LENGTH = 70 BAR DIAMETERS U.N.O.

31. ALL CELLS OF MASONRY WALLS SHALL BE FILLED WITH 17.5 MPa GROUT WELDING OF HIGH STRENGTH REINFORCEMENT IN THE PERMITTED.

STRUCTURAL STEEL

33. STEEL MEMBERS SHALL BE THE FOLLOWING GRADES U.N.O.

MOVE	GRADE
CHS, SHS, RHS	350
UB's, UC's, PFC's, TFC's, & ANGLES (125x125 OR LARGER)	300
ANGLES (100x100 OR SMALLER)	250

34. FABRICATION SHALL COMPLY WITH NZS 3404:2009.

a) STRAIGHTNESS OF MEMBERS AFTER FABRICATION AND BEFORE ERECTION U.N.O. SHALL NOT DEVIATE MORE THAN:
STRUTS, COLUMN = L/1000
OTHER MEMBERS = L/600

b) LENGTH SHALL NOT DEVIATE FROM THE TRUE LENGTH BY:
STRUTS WITH END BEARING = x1mm
OTHER MEMBERS UP TO L=9.0 = +0mm, - 3mm
OTHER MEMBERS OVER L=9.0 = +0mm, -5mm

35. BOLTING

a) ALL HOLES SHALL BE DRILLED AND SHALL BE 2mm LARGER THAN THE BOLT DIAMETER UNLESS NOTED OTHERWISE. HOLES IN BASE PLATES MAY BE 4mm LARGER THAN THE BOLT DIAMETER FOR CAST IN BOLTS ONLY.

b) ALL BOLTS SHALL BE GRADE 4.6/s U.N.O.

36. WELDING

a) ALL WELDS SHALL BE 6mm CONTINUOUS FILLET U.N.O.

b) ALL WELDS TO BE CLASS SP TO A554 U.N.O.

c) WELDING ELECTRODES SHALL BE E48XX TO AS 1583 U.N.O.

d) ALL WELDS SHALL BE CARRIED OUT, OR SUPERVISED BY QUALIFIED WELDERS TO NZS4711 FOR THE POSITION USED.

37. STEEL WORK TO BE SUPPLIED FULLY HOT DIP GALVANIZED.

38. PLUMBNESS OF STRUTS/COLUMNS SHALL BE WITHIN L/1000 OF TRUE VERTICAL.

39. ALL GUSSET PLATES, CLEATS AND STIFFENERS SHALL BE GRADE 250 STEEL TO AS 3678 OR EQUIVALENT.

ABBREVIATIONS

BGL	=	BELOW GROUND LEVEL
C/C	=	CENTRE TO CENTRE
E.W	=	EACH WAY
F.F	=	FAR FACE
F.F.L.	=	FINISHED FLOOR LEVEL
F.G.L.	=	FINISHED GROUND LEVEL
F.W.	=	FILLET WELD
F.W.A.R.	=	FILLET WELD ALL ROUND
G.W.L.	=	GROUND WATER LEVEL
HORIZ.	=	HORIZONTAL
L.A.R.	=	LAP AT RANDOM
N.F.	=	NEAR FACE
STRP.	=	STIRRUPS
T & B	=	TOP AND BOTTOM
T.O.C.	=	TOP OF CONCRETE
T.O.S.	=	TOP OF STEEL
VERT.	=	VERTICAL
CHS	=	CIRCULAR HOLLOW SECTION
EA	=	EQUAL ANGLE
PFC	=	PARALLEL FLANGE CHANNEL
RHS	=	RECTANGULAR HOLLOW SECTION
SHS	=	SQUARE HOLLOW SECTION
TFB	=	TAPER FLANGE BEAM
UA	=	UNEQUAL ANGLE
UB	=	UNIVERSAL BEAM
UC	=	UNIVERSAL COLUMN
C.O.S.	=	CONFIRM ON SITE
UBC	=	ULTIMATE BEARING CAPACITY
U/S	=	UNDERSIDE

Rev.	Issue	Drawn	Chk	Date
1	FOR BUILDING CONSENT	MW	SK	27-04-23

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SENZ Structural Engineers New Zealand

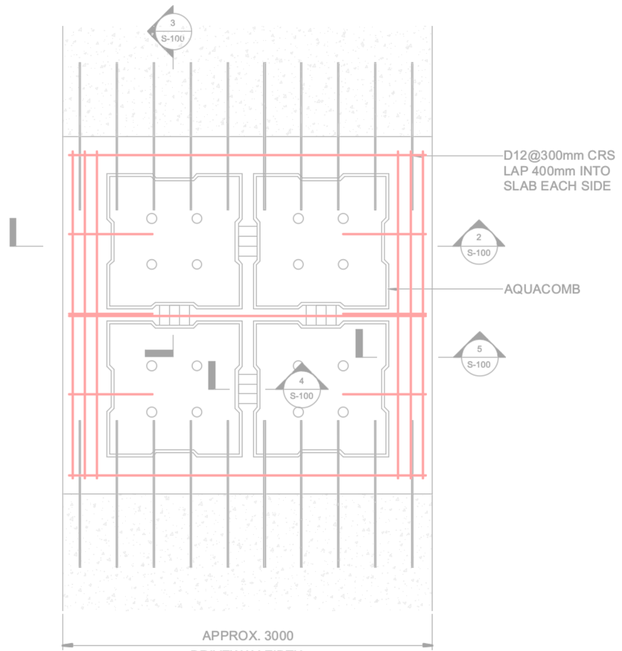
Client : watersmart

Project: AQUACOMB POD INSTALLATION
Auckland

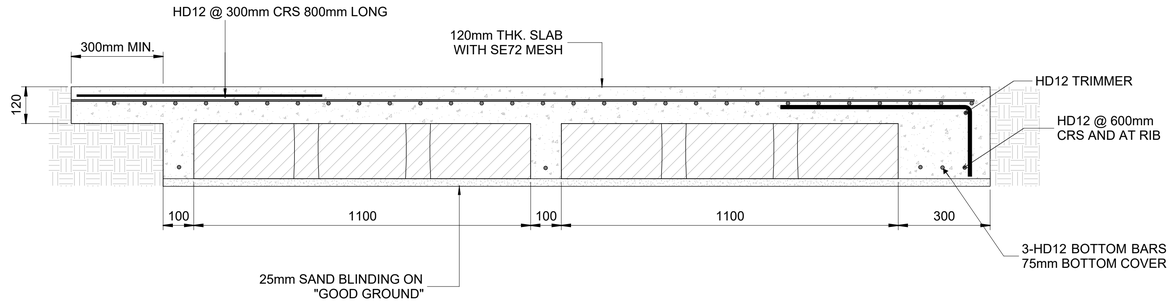
CONSTRUCTION

Sheet Title: STRUCTURAL NOTES

Drawing No. 100-377 | Sheet No. G-001 | Revision 1



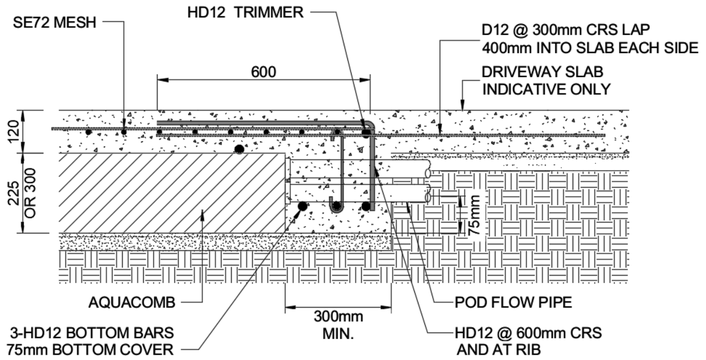
1 PLAN
S-100 — 1 : 25 @ A1 100% @ A3 50%



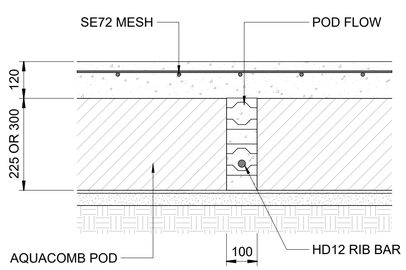
2 UNDER DRIVEWAY INSTALLATION
S-100 — 1 : 10 @ A1 100% @ A3 50%

NOTES:

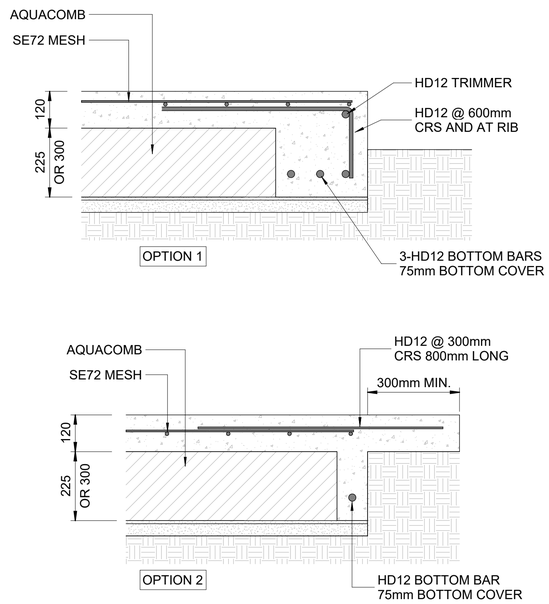
1. DESIGN IS BASED ON " GOOD GROUND" SOIL CONDITIONS AS PER NZS3604. THIS SHALL BE VERIFIED BY A CHARTERED GEOTECHNICAL ENGINEER.
2. DESIGN ONLY ALLOWS FOR LIGHT VEHICLES UP TO 2500 KGS.
3. 25MPa CONCRETE.



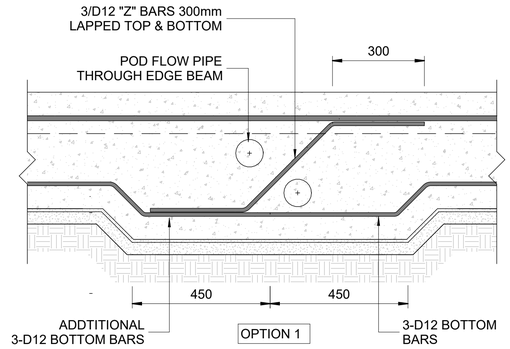
3 EDGE BEAM DETAIL 2 (WITH FLOW PIPE)
S-100 — 1 : 10 @ A1 100% @ A3 50%



4 RIB DETAIL
S-100 — 1 : 10 @ A1 100% @ A3 50%



5 EDGE BEAM DETAIL OPTIONS
S-100 — 1 : 10 @ A1 100% @ A3 50%



6 FLOW PIPE THROUGH EDGE BEAM OPTIONS
1 : 10 @ A1 100% @ A3 50%

Rev.	Issue	Drawn	Chk	Date
2	FOR BUILDING CONSENT	MW	SK	27-04-23

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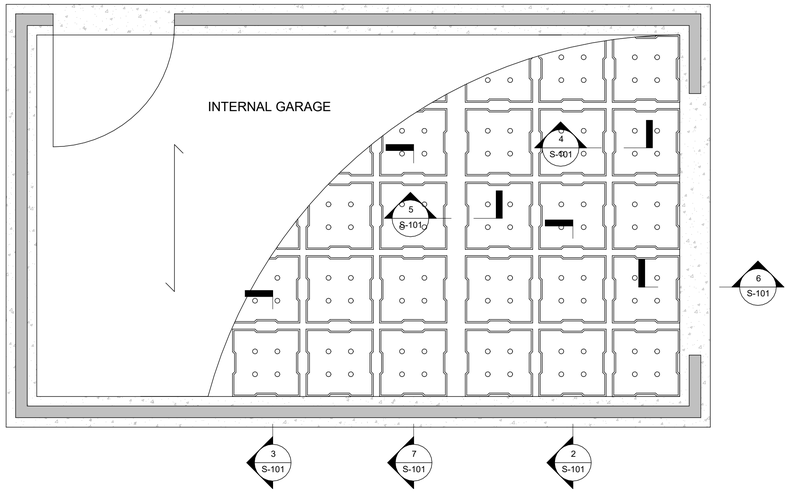
Client : watersmart

Project: **AQUACOMB POD INSTALLATION**
Auckland

Sheet Title: **UNDER DRIVEWAY INSTALLATION DETAILS**

CONSTRUCTION

Drawing No.	Sheet No.	Revision
100-377	S-100	2



INDICATIVE LAYOUT, REFER TO SITE SPECIFIC LAYOUT/PLAN AND LOADINGS.

1 RESIDENTIAL IN SLAB

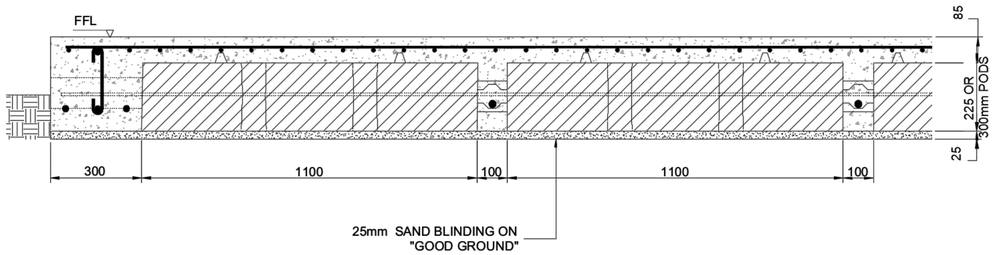
S-101 — 1 : 50 @ A1 100% @ A3 50%

NOTES:

1. DESIGN IS BASED ON "GOOD GROUND" SOIL CONDITIONS AS PER NZS3604. THIS SHALL BE VERIFIED BY A CHARTERED GEOTECHNICAL ENGINEER.
2. DESIGN ONLY ALLOWS FOR UP TO TWO STOREY CONSTRUCTION WITH LIGHTWEIGHT OR BRICK VENEER CLADDING.
3. DESIGN ONLY ALLOWS FOR CONCENTRATED LOADS NO HIGHER THAN 15kN (ULS)
4. 25MPa CONCRETE.
5. FOR EXPANSIVE FOUNDATION DESIGNS, THE FOLLOWING SHALL APPLY:
   - MAXIMUM LENGTH OF SLAB SHALL BE LIMITED TO 30.0 m
   - MAXIMUM OF TWO STOREY CONSTRUCTION WITH NO SUSPENDED CONCRETE FLOOR
   - DESIGN DOES NOT COVER WING WALLS OR MASONRY ARCHES
   - THE SLAB MESH SIZE SHALL FOLLOW THE TABLE ON THIS SHEET
6. THE STANDARD DRAWINGS PRODUCED BY SENZ SHALL BE READ IN CONJUNCTION WITH THE SITE SPECIFIC FOUNDATION DRAWINGS PREPARED BY THE NOMINATED STRUCTURAL ENGINEERING FIRM FOR THE SPECIFIC PROJECT.

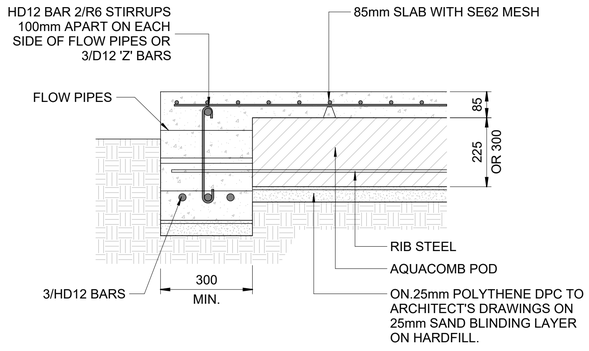
Site class	Type of construction	Slab mesh Slab length, m	
		<20	≥20 and <30
M	Clad frame	SL72	SL82
	Masonry veneer	SL72	SL82
M-D	Clad frame	SL72	SL92
H1	Clad frame	SL82	SL92

NOTE: SLAB MESH SIZE FOR VARIOUS CONSTRUCTION TYPES AND SOIL CLASS



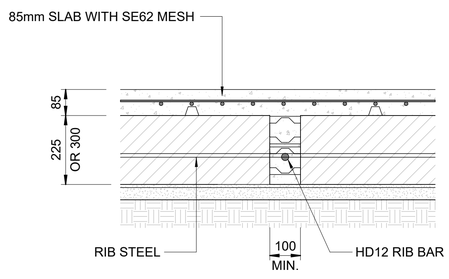
2 RESIDENTIAL IN SLAB INSTALLATION

S-101 — 1 : 10 @ A1 100% @ A3 50%



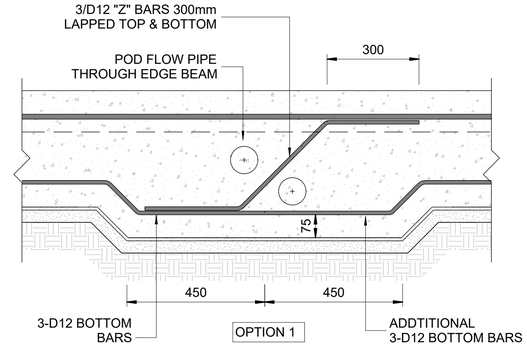
3 EDGE BEAM DETAIL

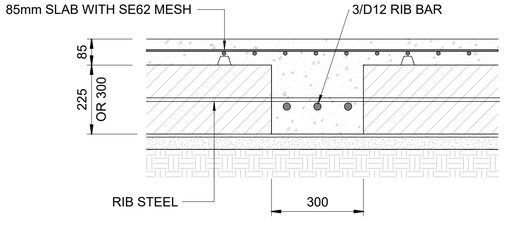
S-101 — 1 : 10 @ A1 100% @ A3 50%



4 INTERNAL RIBS

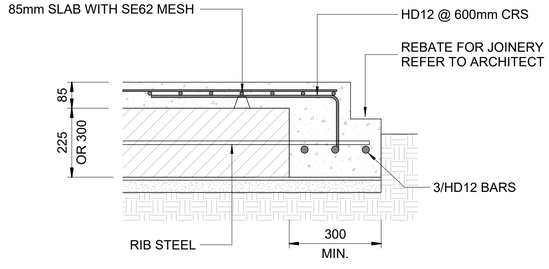
S-101 — 1 : 10 @ A1 100% @ A3 50%





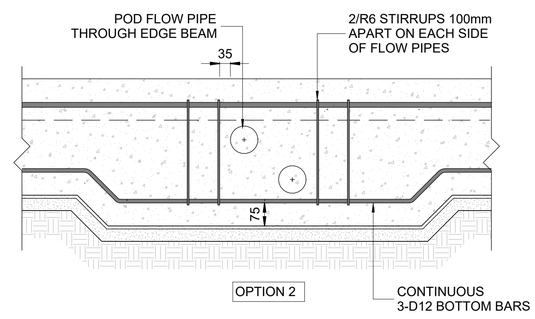
5 INTERNAL FOUNDATION DETAIL

S-101 — 1 : 10 @ A1 100% @ A3 50%



6 EDGE RIB WITH REBATE

S-101 — 1 : 10 @ A1 100% @ A3 50%



7 FLOW PIPE THROUGHT EDGE BEAM - OPTIONS

S-101 — 1 : 10 @ A1 100% @ A3 50%

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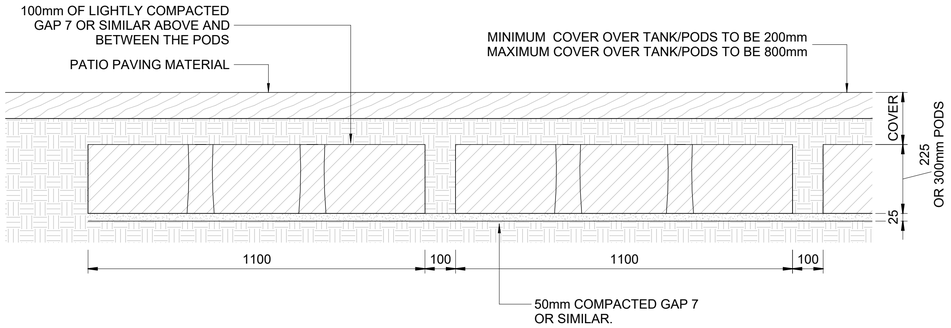
Client : watersmart

Project: **AQUACOMB POD INSTALLATION**
Auckland

CONSTRUCTION

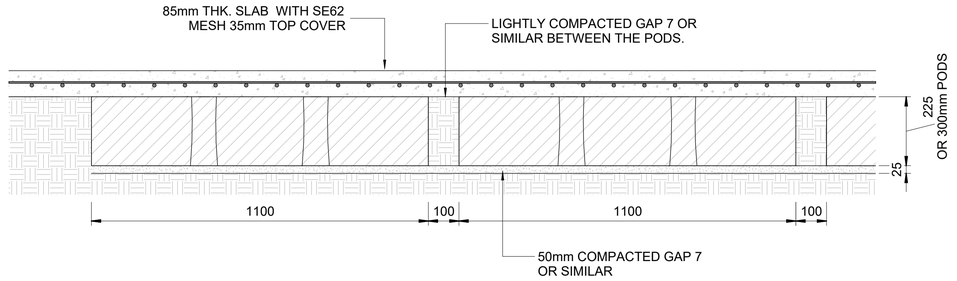
Sheet Title: **RESIDENTIAL IN SLAB INSTALLATION DETAILS**

Drawing No. **100-377** | Sheet No. **S-101** | Revision **2**



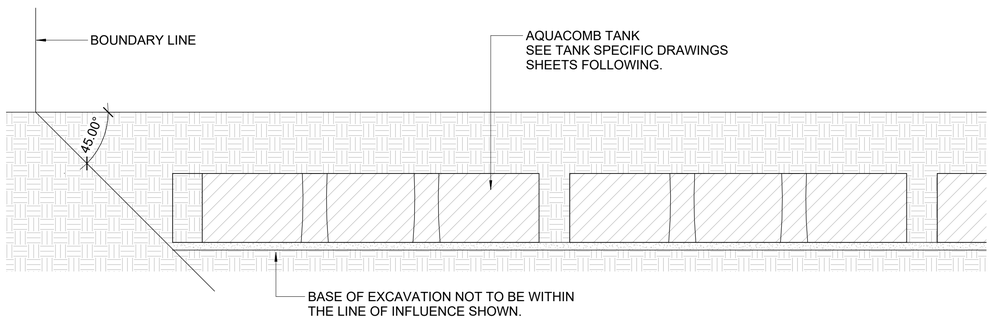
1 UNDER PATIO/WALKWAY INSTALLATION - PAVING OPTION

1 : 10 @ A1 100% @ A3 50%



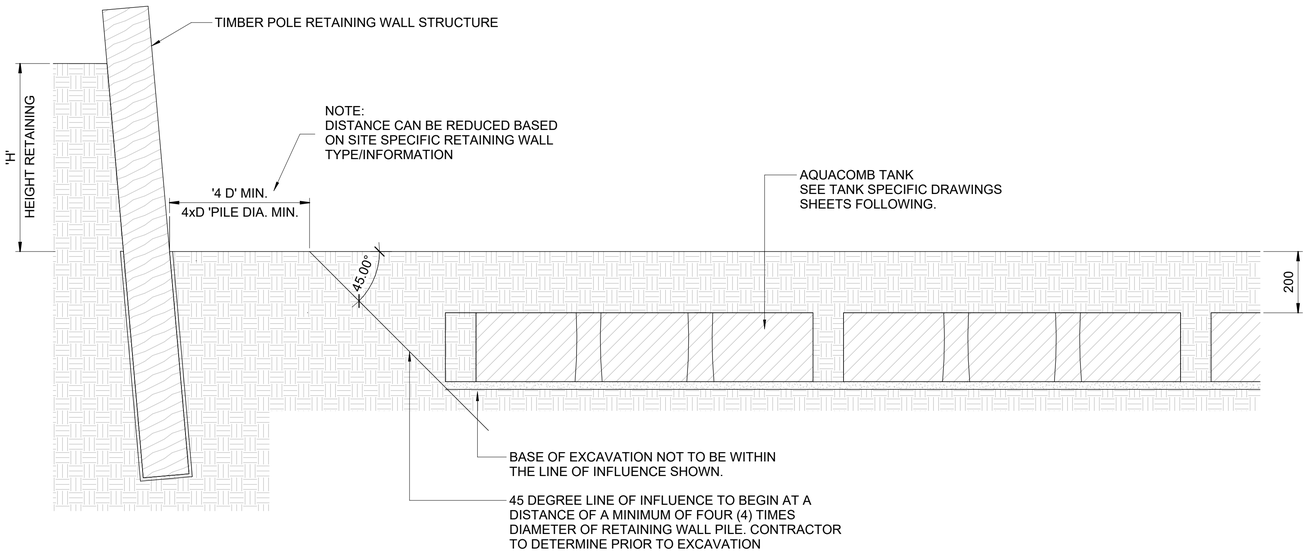
2 UNDER PATIO/WALKWAY INSTALLATION - CONCRETE OPTION

1 : 10 @ A1 100% @ A3 50%



3 TANK POSITION BOUNDARY - PATIO

1 : 10 @ A1 100% @ A3 50%



4 TANK POSITION NEAR RETAINING WALL - PATIO

1 : 10 @ A1 100% @ A3 50%

NOTES:

1. DESIGN IS BASED ON "GOOD GROUND" SOIL CONDITIONS AS PER NZS3604. THIS SHALL BE VERIFIED BY A CHARTERED GEOTECHNICAL ENGINEER.

2. 25MPa CONCRETE.

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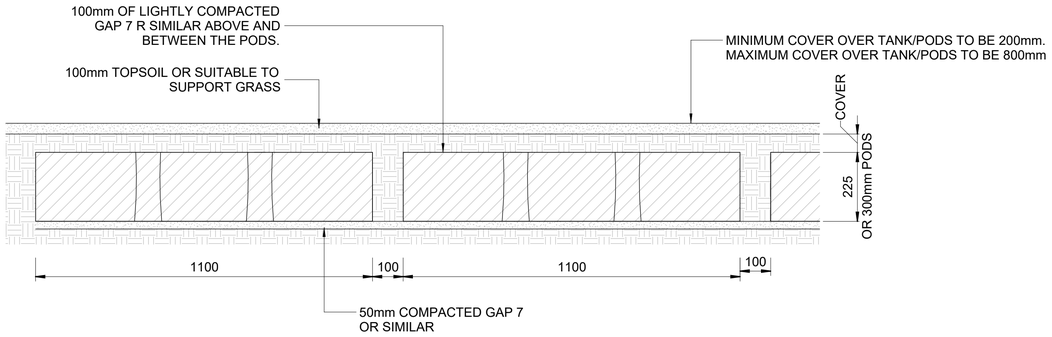
Client : watersmart

Project: AQUACOMB POD INSTALLATION
Auckland

Sheet Title: UNDER PATIO TANK INSTRUCTION DETAILS

CONSTRUCTION

Drawing No.	Sheet No.	Revision
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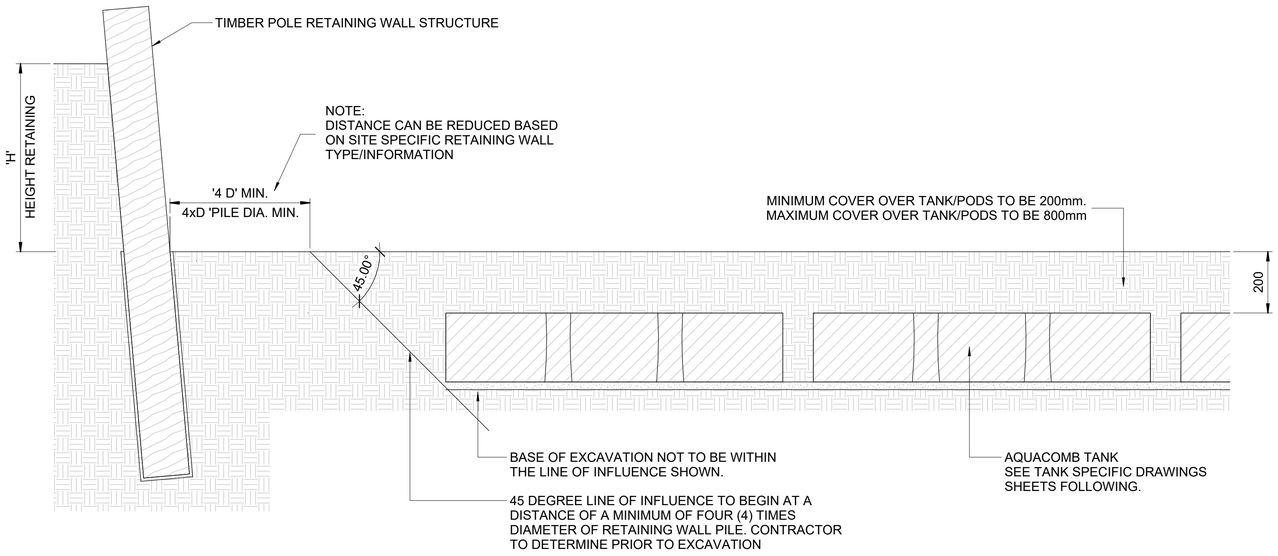


1 UNDER LAWN INSTALLATION

1 : 10 @ A1 100% @ A3 50%

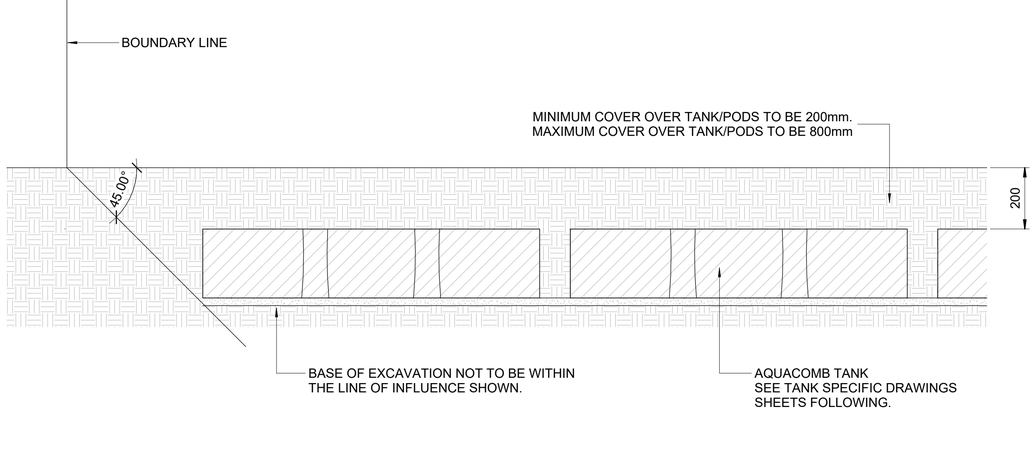
NOTES:

1. DESIGN IS BASED ON "GOOD GROUND" SOIL CONDITIONS AS PER NZS3604. THIS SHALL BE VERIFIED BY A CHARTERED GEOTECHNICAL ENGINEER.
2. 25MPa CONCRETE.



3 TANK POSITION NEAR RETAINING WALL

1 : 10 @ A1 100% @ A3 50%



3 TANK POSITION NEAR BOUNDARY

1 : 10 @ A1 100% @ A3 50%

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Sheet Title: UNDER LAWN TANK INSTRUCTION DETAILS

Drawing No.	Sheet No.	Revision
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