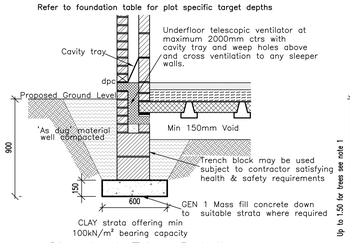
ALL PLOTS TO HAVE FULL RADON GAS PRECAUTIONS

Refer to foundation table for plot specific target depths



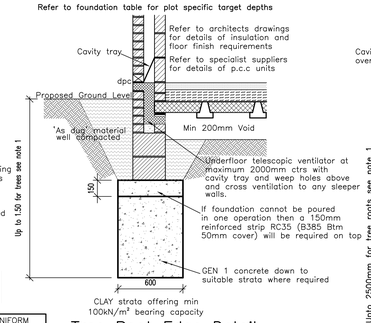
Standard Edge Detail

MULTI BLOCKS & APARTMENTS WILL REQUIRE WIDER FOUNDATIONS & REINFORCEMENT. REFER TO PLOT SPECIFIC DRAWINGS & DETAILS LAYOUTS

IF ROCK IS ENCOUNTERED DURING FOUNDATION EXCAVATION THEN WHOLE FOUNDATION TO BEAR ONTO ROCK

IF ENTIRE FOUNDATION BEARS ONTO UNIFORM STRATA THEN NO REINFORCEMENT WILL BE REQUIRED IN THE FOUNDATIONS.
IF FOUNDATIONS BEARS ONTO DIFFERENTIAL STRATAS THEN ONE LAYER B385 REINFORCEMENT WILL BE REQUIRED IN THE FOUNDATIONS

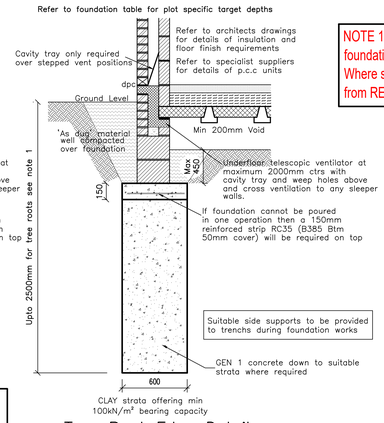
Refer to foundation table for plot specific target depths



Tree Root Edge Detail

Foundations deepened to comply with zone of influence contours, can be terminated once a suitable thickness of competent SAND/ROCK is encountered (NHBC standards chapter 4.2 D6(f). Foundations to be inspected prior to pouring of concrete. Foundations should be deepened to penetrate seasonally desiccated strata.

Refer to foundation table for plot specific target depths



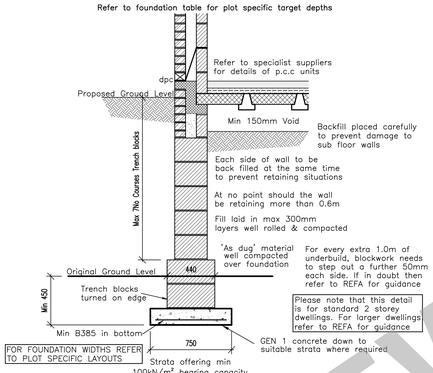
Suitable side supports to be provided to trenchs during foundation works

Tree Root Edge Detail Over 1.5m Deep

Scale 1:20

NOTE 1.Where site levels are to remain the same or raised then foundations depths for tree roots to be taken from ORIGINAL ground level. Where site levels are being reduced then tree root depths to be taken from REDUCED ground level.

Refer to foundation table for plot specific target depths



TrenchBlock Underbuild Detail Where Levels Lifted

Foundation step (NHBC Technical Guidance 4.3.8)



Foundation Step Detail

Scale 1:20



Mesh Arrangement In Footings

Scale 1:20

IF REQUIRED

IF GRANULAR STRATA IS ENCOUNTERED WHERE FOUNDATIONS ARE CLOSE TO TREES WHERE CLAY STRATA EXPECTED REFER TO REFA FOR GUIDANCE

STRUCTURAL DESIGN RISK MANAGEMENT

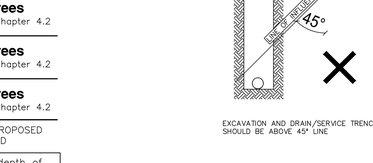
Abnormal or unusual residual risks associated with the design outcomes shown on this drawing are:–

1. Footing trenches over 1.75m deep due to tree roots from original ground level
2. Footings deeper for existing easement
3. Footing upto 2.0m in area of possible backfilled pond CS2 gas precautions may be required. TBC

REFA Ltd has followed its Design Risk Management process for Hazard Elimination and Risk reduction in developing the designs shown on this drawing.
Abnormal or unusual residual risks may be shown above where it is considered that such risk may not normally be expected by competent persons engaged on work of this nature or type

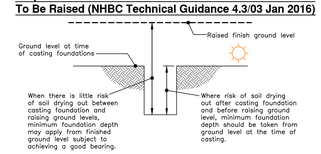
SITE SUMMARY BASED GROUNDSOLVE GEOTECHINCAL REPORT OCT 2021 - JOB NO 2585

Summary of ground conditions.	**Ground conditions encountered were topsoil over clays, sands**
Bearing capacity.	**Clay 100kN/m².**
Foundation solutions.	**Standard strip foundations. Trench fill in areas where tree roots effect. See foundation details and tables.**
Rock strata.	**If any foundation excavations encounter rock then whole plots needs to bear onto rock.**
Reinforcement in footings.	If footings are formed on one continuous strata then reinforcement is not required and gen1 concrete can be used. If not then RC35 is required with one layer B385 reinforcement.
Further investigations required.	**Backfilled pond - Done & not found rear plot 7**
Tree influences.	**Yes see site plan & tables for tree influences**
Clay plasticity.	**LOW Plasticity. Heave precautions - 200mm void**
Ground Gas/Radon protection measures.	**FULL Radon required**
Design sulphate class.	**DS-1.**
ACEC class.	**AC-1.**
Groundwater and excavation instability.	**Perched groundwater within the natural strata**
Contamination.	**None anticipated.**
Obstructions.	**None anticipated.**
Mining.	**Cleared in report**
Environmental constraints.	**Existing Trees.**



Granular and Frost Susceptible Soil

Strip & Trench Fill Foundations Where Ground Levels Are To Be Raised (NHBC Technical Guidance 4.3/03 Jan 2016)



Cohesive (clay) soil

EXCAVATIONS
EXCAVATIONS SHOULD BE TO A DEPTH THAT GIVES SUFFICIENT BEARING AND PROTECTION FROM FROST DAMAGE.
TO AVOID DAMAGE CAUSED BY FROST, THE DEPTH OF THE FOUNDATION(S) IN FROST SUSCEPTIBLE GROUND SHOULD BE AT A MINIMUM 450MM BELOW GROUND LEVEL.
IF THE FINISHED GROUND LEVEL WILL BE ABOVE THE EXISTING GROUND LEVEL THEN, IN COLD CONDITIONS WHEN FREEZING IS EXPECTED, THE FOUNDATION DEPTH SHOULD BE CALCULATED FROM THE EXISTING, NOT FINISHED GROUND LEVEL.
GROUND LEVELS NEED RAISING AS SOON AS POSSIBLE ONCE FOUNDATIONS HAVE BEEN CONCRETED, TO PREVENT WEATHERING.

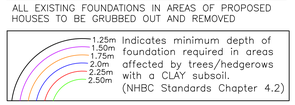
THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- PL1/WD500
REVISION:- P
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

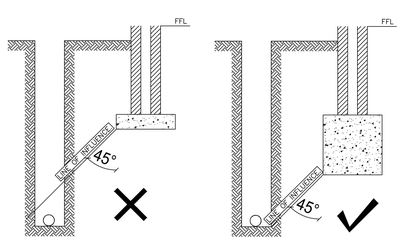
Site Layout

FOUNDATION DEPTH LEGEND-TREES

- **Standard Strip Foundations** Depths upto 1.5m
- **Footings 1.00m Deep For Trees** In accordance with NHBC handbook chapter 4.2
- **Footings 1.25m Deep For Trees** In accordance with NHBC handbook chapter 4.2
- **Footings 1.50m Deep For Trees** In accordance with NHBC handbook chapter 4.2
- **Footings 1.75m Deep For Trees** In accordance with NHBC handbook chapter 4.2
- **Footings 2.00m Deep For Trees** In accordance with NHBC handbook chapter 4.2
- **Footings 2.25m Deep For Trees** In accordance with NHBC handbook chapter 4.2
- **Footings 2.50m Deep For Trees** In accordance with NHBC handbook chapter 4.2

ALL EXISTING FOUNDATIONS IN AREAS OF PROPOSED HOUSES TO BE GRUBBED OUT AND REMOVED





C.D.M 2015

In line with the requirements placed upon designers by the above regulations we are required to consider during the design process, the health and safety of those who are going to construct, repair, maintain and use a structure, and even how it may be demolished.
All designs are therefore undertaken to avoid or minimize foreseeable risks wherever possible. Residual risks that cannot be fully eliminated from the design are highlighted as requiring special consideration by the client and contractors.

All design works are carried out to comply with the relevant Local Authority Specifications, Building Regulations, Sewers for Adoption 6th Edition, British Standards and Codes of Practice.

For this project our design works have been limited to :–
a)R.C foundation designs and details

In the design process we have assumed that :–

b)All contractors will be competent
c)Only competent contractors will be employed
d)Contractors will have addressed, to the satisfaction of the client/CDM Coordinator, the manner in which they will manage health and safety on site, including residual risks highlighted by the designers.
e)Only contractors with a valid health and safety policy and good health and safety record will be employed.

Having reviewed the designs undertaken, we consider there to be no residual risks involved in the construction and maintenance of the elements of design undertaken by ourselves on this project that a competent civil engineering contractor should not be aware of and be capable of dealing with in a manner which does not prejudice Health & Safety.

It is assumed that the generic risks associated with this type of work and as detailed below will be managed in accordance with accepted procedures and HSE Guidelines :–

1. Adequate support / treatment to ALL excavations
2. Guarding of ALL excavations both during and outside normal working hours.
3. Undermining of existing structures / highways
4. Confined space operations
5. Dealing with and protection of existing mains /services
6. Traffic management
7. Safe handling / lifting of heavy materials
8. Working where contaminated ground is notified by client

This information should be forwarded to prospective contractors at tender stage to enable them to take account of the risks involved in this project

NOTES

This drawing is to be read in conjunction with the following:–

a) Groundsolve Phase 2 Site investigation report October 2021.

b) All relevant REFA drainage and external works drawings.

c) The latest architects planning layout:–

d) Tree Solutions Tree Survey Report:– October 2021

The foundation types indicated are based upon the facts established from observations and field tests during the trial pit and borehole investigations. It should be recognized that natural strata may vary considerably from point to point and the ground water regime may be influenced by seasonal or other factors. The foundation types indicated are therefore for 'GUIDANCE PURPOSES ONLY' and should be constantly reviewed in the light of the actual conditions on site during the construction work.

Where necessary foundations should be stepped in accordance with current NHBC recommendations.

Where slab levels differ between adjacent plots by 600mm or greater the provision of retaining walls between the plots is anticipated. To avoid imposing unnecessary loading on the wall, the foundation for the dwelling on the retained side may have to be deepened. This drawing does NOT take into consideration the potential influence on the foundation level of the anticipated retaining walls. Once retaining wall positions have been finalized the information may have to be reviewed and foundation depths amended to ensure that no footings are not subject to any additional loadings.

All foundations to be formed upon strata offering a bearing capacity of at least 100kN/m² to the approval of the Building Inspector and Engineer.

Internal foundations to extend to levels similar to adjacent external foundations

Depths indicated are to be considered to be minimum and where ground conditions require foundations may need to extend to a deeper formation level.

All foundation excavations must be inspected and approved by the Building Inspector prior to the placing of concrete.

Concrete grade Gen1 but where reinforcement is required RC 35 to be used.

Shrinkage potential for the soils present at this site is LOW based upon the modified plasticity index of the soils calculated in accordance with NHBC handbook chapter 4.2

Site personnel must NOT enter any excavation made upon this site deeper than 1.0m unless suitably designed side supports have been provided or the sides of the excavation are suitably battered.

Depths indicated are to be considered to be minimum and where ground conditions require foundations may need to extend to a deeper formation level.

All concrete is to be well compacted using a vibrating poker to ensure optimum density.

Concrete to be suitably covered and cured for at least 48hrs before commencing building of masonry. Concrete should not be placed in temperatures less than 5° on a falling thermometer and antifreeze agents must not be used without the agreement of the Engineer.

Foundation blockwork in 2 storey properties to be min 3.5N/mm² in class (iii) mortar.

All service excavations deeper than 600mm to be located in positions such that they do not interfere with the 45° load spread of the foundation.

Depth of excavation and bearing levels shown indicative only. Actual depths to formation level are to be determined on site and to be inspected and agreed with REFA

Trees or hedgerows which are to be planted must be considered. No allowance has been made for them on this drawing as it is assumed that any proposed trees or hedgerows will be sited to avoid affecting any possible dwelling foundation.

Site personnel must NOT enter any excavation made upon this site deeper than 1.0m unless suitably designed side supports have been provided or the sides of the excavation are suitably battered.

ALL RELEVENT DIMENSIONS TO BE CONFIRMED ON SITE PRIOR TO THE COMMENCEMENT OF ANY WORKS.

Rev	Revision details	Date
C	Updated to planning PL1/WD500/P (rs)	05.04.22
B	Updated to planning PL1/WD500/J (wmj)	28.01.22
A	Updated to latest layout Rev H (rs)	10.12.21

Drawing Stage		Drawing Status	
●	Draft	Comments	Tender
	Issued	Information	Construction
●	Preliminary	Approval	As Built

This drawing is not authorised unless signed as checked & approved

smas worksafe designer www.smasltd.com SSIP SAFETY SCHEMES IN PROCUREMENT

Client
SG ESTATES

Job title
Llay New Road Rhosrobin, Wrexham

Drawing title
Preliminary Foundation Key Plan

REFA
45 Bridgeman Terrace Wigan Lancs WN1 1TT
Tel:-(01942) 826020 Fax:-(01942) 230816
CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Chkd	Appvd	date	scale	drawn
		24.11.21	1:250 @ A0	MM

DRAWING No **21148/200** rev **C**

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Any discrepancies to this drawing observed on site should be reported to REFA immediately. If in doubt ASK!

PRELIMINARY- SUBJECT TO EXTERNAL WORKS & PRIVATE DRINAGE LAYOUTS

PRELIMINARY FOR REVIEW/COMMENTS