Best practice: as designer 2

- Remember AO, AOS and AOS Eng do not know your project!
- Send only relevant calcs and drawings.
- Existing and proposed drawings incl site plan. Photographs.
- Site specific soil report (for basements), exploratory works.
- Show you have considered neighbouring property/ risk of damage and category of damage to BRE 251 if basement. CIRIA 580 etc.
- Offer to meet the AOS and AOS Engineer.

Temporary works and method statements essential
(no good later !)

- Put yourself in the shoes of the neighbour (For major schemes !).
- What reassurance would you expect to see?
Best Practice guidance

Royal Borough of Kensington and Chelsea Residential Basement Study Report
December 2012
S.Pole 2012 paper to IStructE and PWS

- Pointed out engineering complications for basements integral with party walls.
- Highlighted problems with party wall process and interpretation of the law.
- Suggested neighbouring interests not being looked after.
- Creating future redundancy in our building stock.
- Storing up criticisms and claims against Surveyors and engineers for future.
Summing Up

- Know the Act - in general terms
- Know the law of nuisance, loss and damage.
- Be proactive when PWS issues arise
- Put yourself in the neighbours’ shoes
- Think about the design and whether it might compromise the Adjoining Owner.
- Advise your client to protect your PI etc.
Special Foundations..a particular problem!

Definition “means foundation in which an assemblage of beams or rods is employed for the purpose of distributing any load....

The definition of a “SF” does not convey why they are a problem.

It is NOT the rebar that is the problem but the potential for unnecessary inconvenience, loss and damage.

NB it is not the position of the rebar on neighbouring land that requires neighbours consent but the entire Special Foundation containing rebar.
Special Foundations – The issues

- Is the design a Special Foundation requiring consent of AO or not.

- Does the Special Foundation compromise the rights of the AO or lead to “loss and damage”, hence compensation to the AO. (regardless of whether AO approves use or not).

- Is the engineering design at risk (to being declined or leading to a “loss” and risk of delays or PI claim etc.).

- What are the concerns for the Adjoining Owner.

NB Post Chaturachinda v Fairholme, the underpinning stem is a “wall” not a foundation BUT the reinforced concrete “base” is normally the foundation for “unpropped” cantilever conditions where mass concrete would normally be superfluous to the design.
Grillage Foundation 1920s / 30s steel frames
-
The original Special Foundation protruding onto neighbouring land
Special Foundations – Advantages...

Advantages mainly to the Building Owner:
- Space saving with thinner underpinning.
- Enhanced water tightness from monolithic construction.

Advantage to Adjoining Owner only if they intend similar basement:
- Maximises space upon subsequent excavation.

Disadvantage to Adjoining Owner:
- Complex construction removes independence of foundation.
- Could lead to differential subsidence issues.
- Could be difficult to further raise or lower wall.
Today’s Special Foundations
Today’s Special Foundations
post Chaturachinda v Fairholme 2015

Special Foundation

UNPROPPED

Mass concrete foundation

PROPPED
Special Foundation tips

- Always have an alternative design, avoiding Special Foundations.
- Obtain early consent for Special Foundations in writing.
- Provide good design risk assessment.
- Put yourself in the shoes of the neighbour.
- Advise your client of the risks, loss of space, potential delays and additional design fees if SF’s declined.
- As an Advising Engineer to the neighbour/ Surveyor; ensure you point out the risks, entitlements, pros and cons etc. Ask appropriate questions of the design engineer.
Chaturachinda v Fairholme Sept 2015

- Simon Pole Expert in legal case.
- Unusual case with basements next door.
- No lateral loads in 2 out of 3 zones considered in legal case.
- Problem area was Zone C in the rear garden.
  - Is the wall section PTO either; a) unpropped cantilever or b) horizontal waling beam?
- See next slide; Note location of main reinforcing rods and absence of couplers between underpins.
Chaturachinda v Fairholme Special Foundations

Zone C - Rear Garden

A.O. B.O.

Underpin "wall"

lacers:
10mm diameter

vertica1s:
25mm diameter

Mass concrete foundation
concentric with wall
(same width of existing foundation)

RC Slab

25mm diameter

16mm diameter

16mm diameter

25mm diameter
What we cannot do post Chaturachinda v Fairholme 2015 is...

Mass concrete under unpropped cantilever walls, since mass concrete not able to support overturning forces associated with lateral forces.

Real foundation to resist overturning loads a-b-c-d

Mass concrete "too narrow"

Mass concrete foundation serves no purpose
Construction sequence was:
1) Mass concrete bases only, cast first.
2) Wall stem and dry pack + lots of horizontal props.
3) Entire raft slab cast last.
4) Wall apparently spans as “horizontal waling beam” but drawings, method statements nor Expert Reports indicated how adjacent underpinnings transfer load horizontally and all “design” reinforcement appears as conventional vertical spanning rebar. See slide.

Question for the Court

“Was the mass concrete a genuine part of the DESIGN and construction or was it superfluous and a “Sham”, to avoid requirement for Special Foundation consent”?