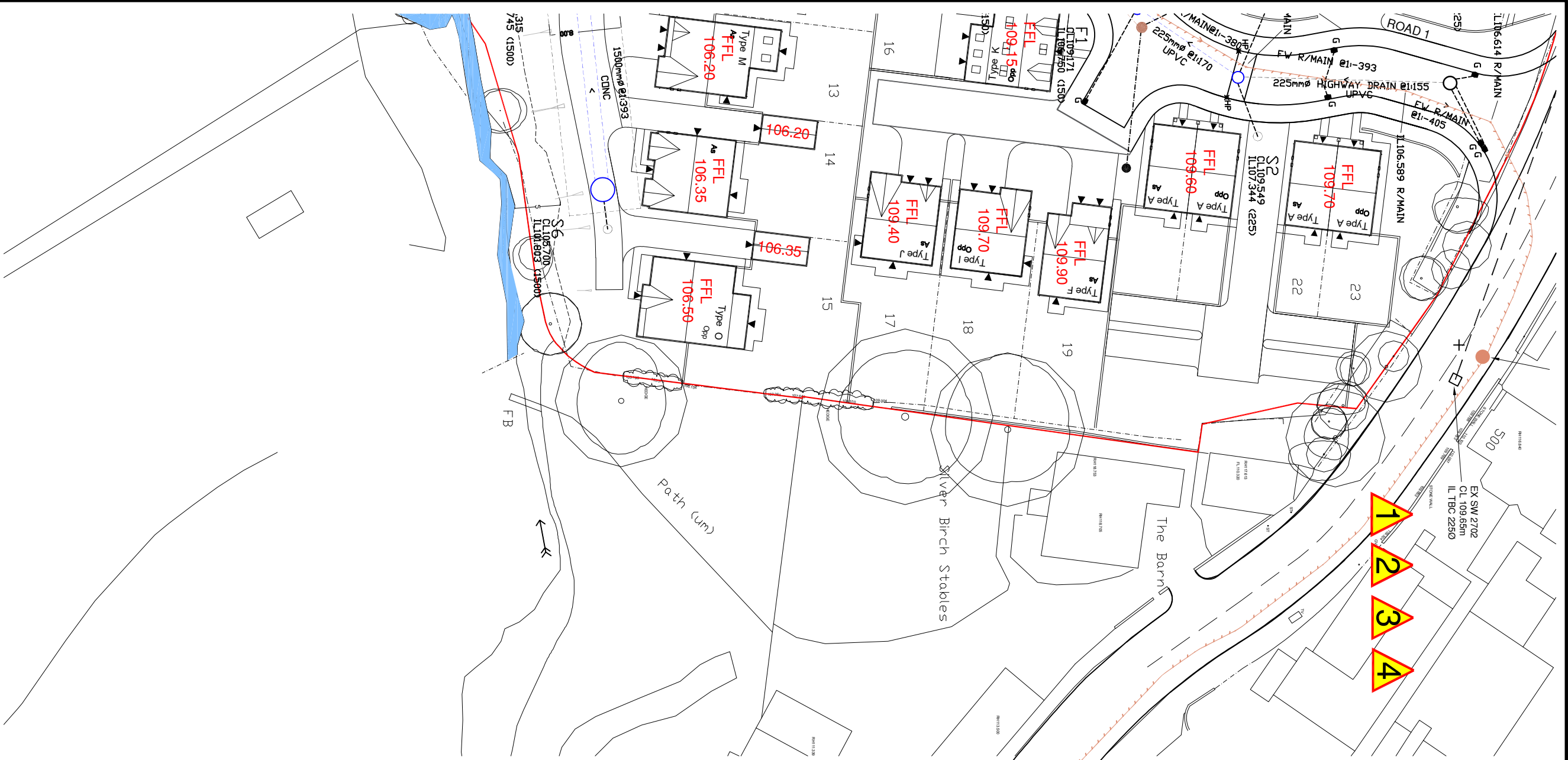




CIVILS DESIGN RISK MANAGEMENT

Adopted or unusual residual risks associated with the design outcomes shown on this drawing are:-

- EXISTING SERVICES
- WORKING ON EXISTING ROAD
- WORKING IN AREAS WHERE WORKERS OF THE PUBLIC HAVE ACCESS E.G. MAIN ROAD
- WORKING ADJACENT TO EXISTING WATER / COAST / AND ON LIVE FOUL / COMBINED (Wet's disease)
- WORKING IN AREAS WHERE WORKERS OF THE PUBLIC HAVE ACCESS E.G. MAIN ROAD

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

SECTION 104 & 38 NOTES

- All adoptable drainage works have been designed and are to be constructed in accordance with Design and Construction Guidance* & Local Practices
- All clay pipe work shall be Extra Strength Clayware to BS EN 2851:1991 Part 1
- All adopted drainage infrastructure shall be to the class stated on the drawings in accordance with BS EN 1916:2002
- All manholes and chambers shall be to BS EN 1917:2002
- All plastic pipes being offered for adoption under S104 must be structural wall and must comply with BS EN 13476-1 and BS EN 12620 TO BE 3.0m
- All levels relate to an Ordnance Datum.
- The drawing is to be read in conjunction with all other
- House drainage connections to sewers must be 150mm ϕ and unless otherwise stated laid to the dropout invert level shown.
- Levels given on drop out chambers are incoming pipe levels.
- House drainage runs to be kept within the curbside of the plot they serve wherever possible.
- The Contractor shall be responsible for ensuring that any existing underground services are not damaged by the proposed works.
- The Contractor should satisfy himself as to the position and depth of any existing Statutory Undertakers point which could effect the works before the works are commenced.
- Road gully connections are to be 150mm ϕ connecting either directly to manholes shown, or to sewer runs using pre-formed junctions.
- All connections to adoptable sewers shall be by manufactured junction pipes. Saddle connections will not be permitted.
- All sewers for adoption with greater than 1.20 metres cover in roads or 0.6m metres cover in fields shall have Class S granular bed and surround.
- Any sewer for adoption with less than 1.2 metres cover in roads or 0.6 metres cover in fields shall have a minimum of 150mm S14 concrete surround. Feasibility shall be maintained by the provision of Placecell or similar approved joint filler breaks in the concrete surround of each pipe joints
- Pumping Station to be designed and constructed in accordance with Design and Construction Guidance and United Utilities Pumping Station Adoption

All pipes to have class "C" bed and surround unless shown otherwise
All concrete pipes to be class 120 reinforced clay
All clay pipes to be extra strength vitrified clay
All pipes to comply with BS EN 1401-1 to comply with BS 4680:2000 & BS 4-32-01
All pipes to be designed / constructed to take into account the proximity and depth of adjacent sewers and drains in accordance with Design & Construction Guidance

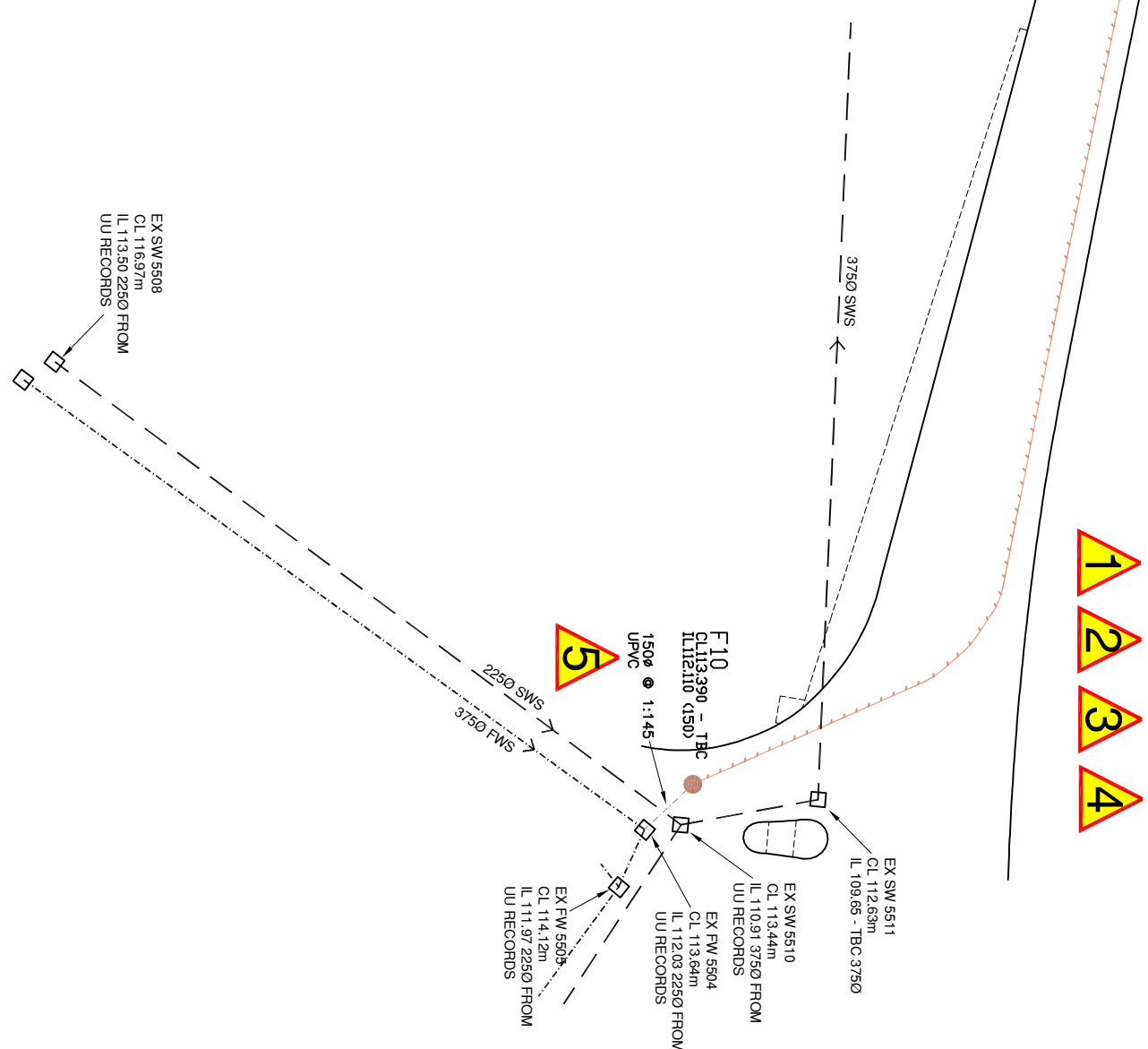
Contractor to be aware of and take appropriate action to ensure de-stabilisation of any existing structures, trees, embankments or other features which may be affected by any excavation works undertaken in accordance with the designs shown on this drawing

Contractor is aware of any existing underground services and shall be responsible for ensuring that any existing underground services are not damaged by the proposed works

Contractor/Client should note the existence of existing buried point and/or overhead power cables. Contractor must undertake risk assessment and provide method statement for working in this area in accordance with HSE and power line regulations. A de-stabilisation of the principle designer to cater for any deviations in the as constructed road / footpath levels in relation to the design levels.

All existing services to be located and marked prior to start on site to ensure they are not damaged. To ensure that level cables are avoided and that interpolated level levels are correct. REFA will be responsible for providing REFA will be responsible for providing REFA will be responsible for providing

PLEASE NOTE THAT THIS DRAWING IS ISSUED FOR INFORMATION/TENDER PURPOSES ONLY UNTIL TECHNICAL APPROVAL HAS BEEN GRANTED. ANY WORK UNDERTAKEN PRIOR TO TECHNICAL APPROVAL BEING GRANTED IS AT THE CLIENT'S RISK.



- All adoptable sewers and associated works are to comply fully with Design and Construction Guidance*
- All Local Practices to be to appropriate standards and to comply fully with the Local Authority specification.
- All private drainage works are to comply fully with part H of the Building Regulations
- All existing invert levels to be checked by the Contractor at the start of works and any discrepancies must be reported to the Local Authority. All levels are based on topographical survey information provided by others.
- All materials to bear the relevant BS/EN/BSI and comply fully with the specifications.
- All concrete & concrete products must use investigation report proves that suitable attack from salts and groundwater will not occur.
- All opening notices etc. as required under highways acts etc. are to be obtained prior to commencement of works.
- All works are to be supervised by L.A. NRC or Relevant Water Authority as applicable.

In line with the above regulations we are obliged to inform the Client of their responsibilities under section CDN 15/1, and residual risks that may be encountered in the construction of these works. All design work has been carried out with Health and Safety as a primary consideration. Wherever possible risks have been eliminated from the design, however due to the very nature of this type of work it is not possible to remove all the risks from the design. We would also respectfully remind the Client of his obligations to undertake reasonable steps in ensuring that all competent Contractors who have a valid safety policy are employed. They should also provide satisfactory responses at tender stage as to the manner in which they will deal with the elements of risk involved in this type of work and in particular those highlighted by REFA below:

- Support / treatment for ALL excavation work.
- Guarding to edges of excavations to prevent falling of excavations outside working hours to prevent unauthorised access.
- Underpinning to adjacent roads or structures.
- Confirmed space operations.
- Dealing with existing services.
- Traffic management on existing highways.
- Procedure to be followed in event of accident or emergency.
- Method of working where contaminated ground is present on site.
- Confirmation will be required that all operatives are adequately trained, copies of relevant training certificates to be supplied.

The above list is by no means exhaustive but it does highlight the potential for a risk to contractors and the general public. For clarification on any item please contact REFA.

Rev	Revision details	Rev	Date
1	Issued	1	2006/23
2	Issued	2	2006/23
3	Issued	3	2006/23
4	Issued	4	2006/23
5	Issued	5	2006/23
6	Issued	6	2006/23
7	Issued	7	2006/23
8	Issued	8	2006/23
9	Issued	9	2006/23
10	Issued	10	2006/23

Drawn	Checked	Reviewed	Approved
1	1	1	1
2	2	2	2
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Drawn	Checked	Reviewed	Approved
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2	2	2	2
3	3	3	3
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9	9	9	9
10	10	10	10

HOLLINS HOMES LIMITED

Job title
LANGLEY LANE BIRCH

ROAD AND MAIN DRAINAGE LAYOUT 2

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THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
DRAWING NUMBER:- PL01
REVISION:- 25
CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES