

SECTION 104 & 38 NOTES

- All adoptable drainage works have been designed and are to be constructed in accordance with current Design & Construction Guidance & local practices
- All clay pipe work shall be Extra Strength Clayware to B.S. EN 295:1991 Part 1
- All precast concrete pipework shall be to the class stated on the drawings in accordance with BE EN 1916:2002
- All manholes and chambers shall be to BS EN 1917:2002
- The Contractor may elect to use reinforced PVC pipes as covered by BS 4660:2000 & BS EN 1401-1 Structured wall upvc pipes to comply with wis 4-35-01 up to and including 300mm. (By prior agreement with adopting authority) MAX. PIPE LENGTH TO BE 3.0m
- All levels relate to an Ordnance Datum.
- This drawing is to be read in conjunction with all other relevant drawings.
- House drainage connections to sewers must be 150mm Ø and unless otherwise stated laid to the dragout invert level shown.
- Levels given on drag out chambers are incoming pipe levels.
- House drainage runs to be kept within the curtilage of the plot they serve wherever possible.
- The Contractor shall be responsible for ensuring that any existing invert levels indicated on drawings are correct before work commences.
- The Contractor should satisfy himself as to the position and depth of any existing Statutory Undertakers plant which could effect the works before the works are commenced.
- Road gully connections are to be 150mm Ø 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 0.9m 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 0.9 metres cover in fields shall have a minimum of 150mm ST4 concrete surround. Flexibility shall be maintained by the provision of Flexcell or similar approved joint filler breaks in the concrete surround at each pipe joints

ALL PIPES TO HAVE CLASS 'S' BED AND SURROUND UNLESS SHOWN OTHERWISE
 ALL CONCRETE PIPES TO BE CLASS 120
 ALL CLAY PIPES TO BE EXTRA STRENGTH WITRIFIED CLAY
 ALL UPVC PIPES TO COMPLY WITH BS 4660:2000 & BS EN 1401-1
 STRUCTURED WALL UPVC PIPES TO COMPLY WITH WIS 4-35-01
 MAX. PIPE LENGTH TO BE 3.0m

FOUNDATIONS TO BE DESIGNED / CONSTRUCTED TO TAKE INTO ACCOUNT THE PROXIMITY AND DEPTH OF ADJACENT SEWERS AND DRAINS IN ACCORDANCE WITH SFA 7TH EDITION PART B
 CONTRACTOR TO BE AWARE OF AND TAKE APPROPRIATE ACTION TO ENSURE DE-STABILISATION OF ANY EXISTING STRUCTURES, TREES, EMBANKMENTS OR OTHER FEATURES DOES NOT OCCUR AS A RESULT OF ANY EXCAVATIONS WORKS UNDERTAKEN IN ACCORDANCE WITH THE DESIGNS SHOWN ON THIS DRAWING
 IF CONTRACTOR IS UNSURE ABOUT ANY ASPECT OF THE ABOVE HE SHOULD SEEK ADVICE BEFORE COMMENCING EXCAVATION WORK.

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 IF CONTRACTOR IS UNSURE ABOUT ANY ASPECT OF THE ABOVE HE SHOULD SEEK ADVICE BEFORE COMMENCING EXCAVATION WORK.

THE OFF SITE SEWER CONNECTION(S) HAVE BEEN DESIGNED TO TIE IN WITH THE EXISTING SEWERS AND WHILST IT IS ANTICIPATED NO CLASHES WITH EXISTING SERVICES WILL OCCUR DUE TO THE INHERENT INACCURACIES IN DEPTHS OF EXISTING SERVICES THIS CANNOT BE GUARANTEED

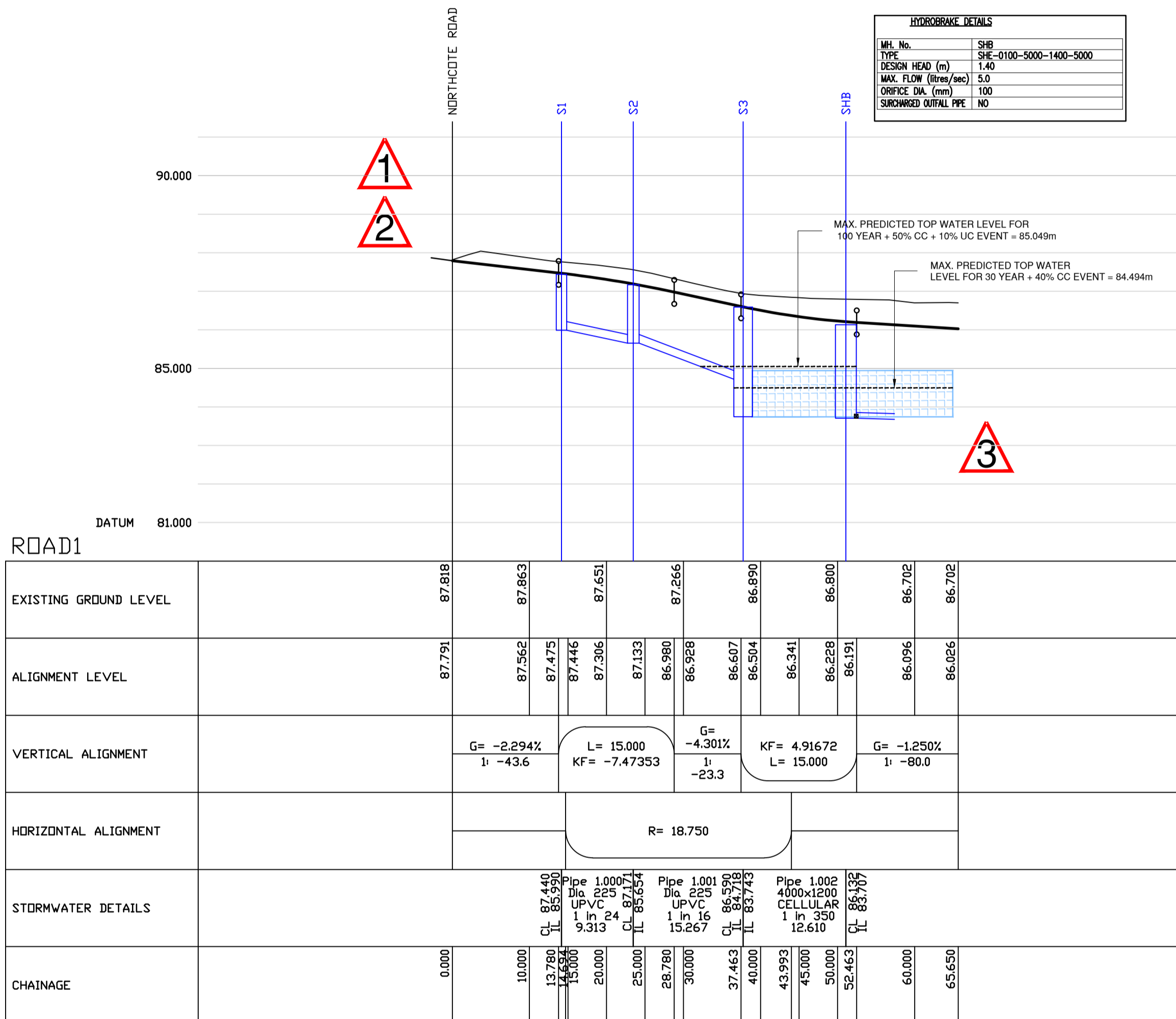
REFA WOULD ADVISE THE CLIENT TO EMPLOY A SUITABLY EXPERIENCED COMPANY TO UNDERTAKE A SURVEY ALONG THE ROUTE OF THE CONNECTIONS TO ASCERTAIN THE EXISTENCE AND PROXIMITY OF ANY SERVICES AND ADVISE REFA OF ANY POTENTIAL CLASHES TO ASCERTAIN IF DESIGN CHANGES NEED BE MADE.

DUE TO THE NEED FOR OFF SITE SEWER WORKS IT IS STRONGLY ADVISED THAT THESE INVESTIGATIONS ARE UNDERTAKEN PRIOR TO ANY CONSTRUCTION ON SITE TO ALLOW DESIGN CHANGES TO BE MADE.

REFA WILL NOT BE HELD RESPONSIBLE FOR ANY ABORTIVE WORKS IF THIS PROCEDURE IS NOT FOLLOWED

ALL EXISTING MANHOLE INVERT LEVELS ARE TO LOCATED AND SURVEYED PRIOR TO START ON SITE TO ENSURE THAT THEY ARE CORRECT AND ALSO TO ENSURE THAT LEVEL CLASHES ARE AVOIDED AND THAT INTERPOLATED INVERT LEVELS ARE CORRECT. ANY DISCREPANCY TO BE REPORTED TO REFA PRIOR TO START TO ENABLE ANY CHANGES TO BE MADE TO DESIGN THAT PROVE NECESSARY

OUTSIDE OF NEW SEWERS TO BE LOCATED 1.0m MINIMUM FROM KERBLINES OUTSIDE OF MANHOLE CHAMBERS TO BE LOCATED 0.5m MINIMUM FROM KERBLINES
 ALL STORAGE MANHOLES ON THE TANK SEWER WILL NEED TO BE CONCRETE SURROUNDED AS THEY ARE WATER RETAINING.
 CONTRACTOR/CLIENT SHOULD NOTE THE EXISTENCE OF EXISTING BURIED PLANT AND/OR OVERHEAD POWER CABLE(S) BEFORE WORK COMMENCES CONTRACTOR MUST UNDERTAKE RISK ASSESSMENT AND PROVIDE METHOD STATEMENT FOR WORKING IN THIS AREA IN ACCORDANCE WITH HSE AND POWER SUPPLIERS GUIDELINES TO SATISFACTION OF THE PRINCIPLE DESIGNER
 TO CATER FOR ANY DEVIATIONS IN THE AS CONSTRUCTED ROAD / FOOTPATH LEVELS IN RELATION TO THE DESIGN LEVELS. THE PROPOSED FLOOR LEVELS SHOWN MUST BE CHECKED ON SITE BY THE SITE AGENT OR ENGINEER IN RELATION TO ROAD LEVELS TO ENSURE COMPLIANCE WITH PART M OF THE BUILDING REGULATIONS
 ALL EXISTING SERVICES TO BE LOCATED AT COMMENCEMENT IN ACCORDANCE WITH UNDERTAKERS REQUIREMENTS AND PROTECTED ACCORDINGLY DURING THE WORKS



HYDROPAVE DETAILS	
MH No.	SHB
TYPE	SHE-0100-5000-1400-5000
DESIGN HEAD (m)	1.40
MAX. FLOW (l/s)	5.0
ORIFICE DIA. (mm)	100
SURROUNDED DUTIAL PIPE	NO

PRIVATE SW PUMP STATION
 CLASS 120
 INCOMING 150mm Ø UPVC
 PUMP L. TEL BY PUMP STATION DESIGNER
 SURFACE WATER PUMP STATION AND RISING MAIN TO BE DESIGNED BY SPECIALIST DESIGNER/SUPPLIER
 PUMP STATION TYPE, SIZE, LOCATION & PROXIMITY TO PROPERTIES TO BE CONFIRMED BY PUMP STATION SUPPLIER & REGULATORY AUTHORITIES.

THE PUMP STATION AND RISING MAIN DETAILS ARE PRELIMINARY AND ARE SUBJECT TO DETAILED SPECIALIST DESIGN BY PUMPING STATION SUPPLIER

SPUMP TO OUTFALL

GROUND LEVEL	PROPOSED LEVEL	STORMWATER DETAILS	COMBINEDWATER DETAILS
86.453	86.314		
86.436	86.075	CL 85.999 TL 85.676	CL 86.180 TL 85.127
86.404	86.264		Dia 150 UPVC 1 in 15 14.452
86.322	86.342		CL 86.557 TL 85.949 (TIE)

EXISTING INVERT LEVEL ASSIGNED FROM HIS SEWER RECORDS - 85.540m (150mm) TO BE CHANGED BY CONTRACTOR BEFORE ANY WORKS CAN BE UNDERTAKEN ON EXISTING SEWERS OR MANHOLES
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- GENERAL**
- All adoptable sewers and associated works are to comply fully with 'Design and Construction Guidance' & Local Practices
 - All highway works to be to adoptable 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 notified to REFA. All levels are based on topographical survey information provided by others.
 - All materials to bear the relevant B.S. Kitemark and comply fully with the specifications. All concrete & concrete products must use Sulphate resistant cement (unless the site investigation report proves that sulphate attack from soils and groundwater will not occur)
 - All opening notices etc. as required prior to commencement of works. All works are to be inspected by LA, NHCC or Relevant Water Authority as applicable.

C.D.M. REGULATIONS 2015
 In line with the above regulations we are obliged to inform the Client of their responsibilities under section CDM 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 aspects given full 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 take all reasonable steps in ensuring that only 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 people, materials and vehicles falling into excavation.
- Guarding of excavations outside working hours to prevent unauthorised access.
- Undermining to adjacent roads or structures. Confined 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 operations that present a risk to contractors and the general public. For clarification on any item please contact REFA.

CIVILS DESIGN RISK MANAGEMENT

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

- EXISTING SERVICES
- WORKING ON EXISTING HIGHWAY AND IN AREAS WHERE MEMBERS OF PUBLIC MAY HAVE ACCESS
- DANGER OF COLLAPSE TO ALL EXCAVATIONS - RISK TO BE ASSESSED AND MANAGED BY CONTRACTOR IN ACCORDANCE WITH HSE GUIDANCE
- WORKING ADJACENT TO EXISTING CULVERTED WATERCOURSE, WATERCOURSE OR LIVE FOUL SEWER (WEIL'S DISEASE)

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

THIS DRAWING IS BASED ON PLANNING LAYOUT PROVIDED BY CLIENT
 DRAWING NUMBER:- 2203-PL-03
 REVISION:- G
 CLIENT TO ENSURE THE ABOVE LAYOUT IS CURRENT BEFORE USING THIS DRAWING FOR CONSTRUCTION PURPOSES

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 CLIENTS RISK.

rev	Revision details	RevBy	Date

Drawing Stage	Drawing Status	
<input type="radio"/> Draft	<input type="radio"/> Comments	<input type="radio"/> Tender
<input checked="" type="radio"/> Issued	<input type="radio"/> Information	<input type="radio"/> Construction
	<input type="radio"/> Approval	<input type="radio"/> As Built

Client
OAK TREE DEVELOPMENTS

Job title
NORTHCOTE ROAD LANGHO

Drawing title
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CONSULTING ENGINEERS
CIVIL • STRUCTURAL
GEOTECHNICAL • ENVIRONMENTAL

Date	Scale	Drawn
17.04.23	1:250	RW

DRAWING No	22009/102/2	Rev

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