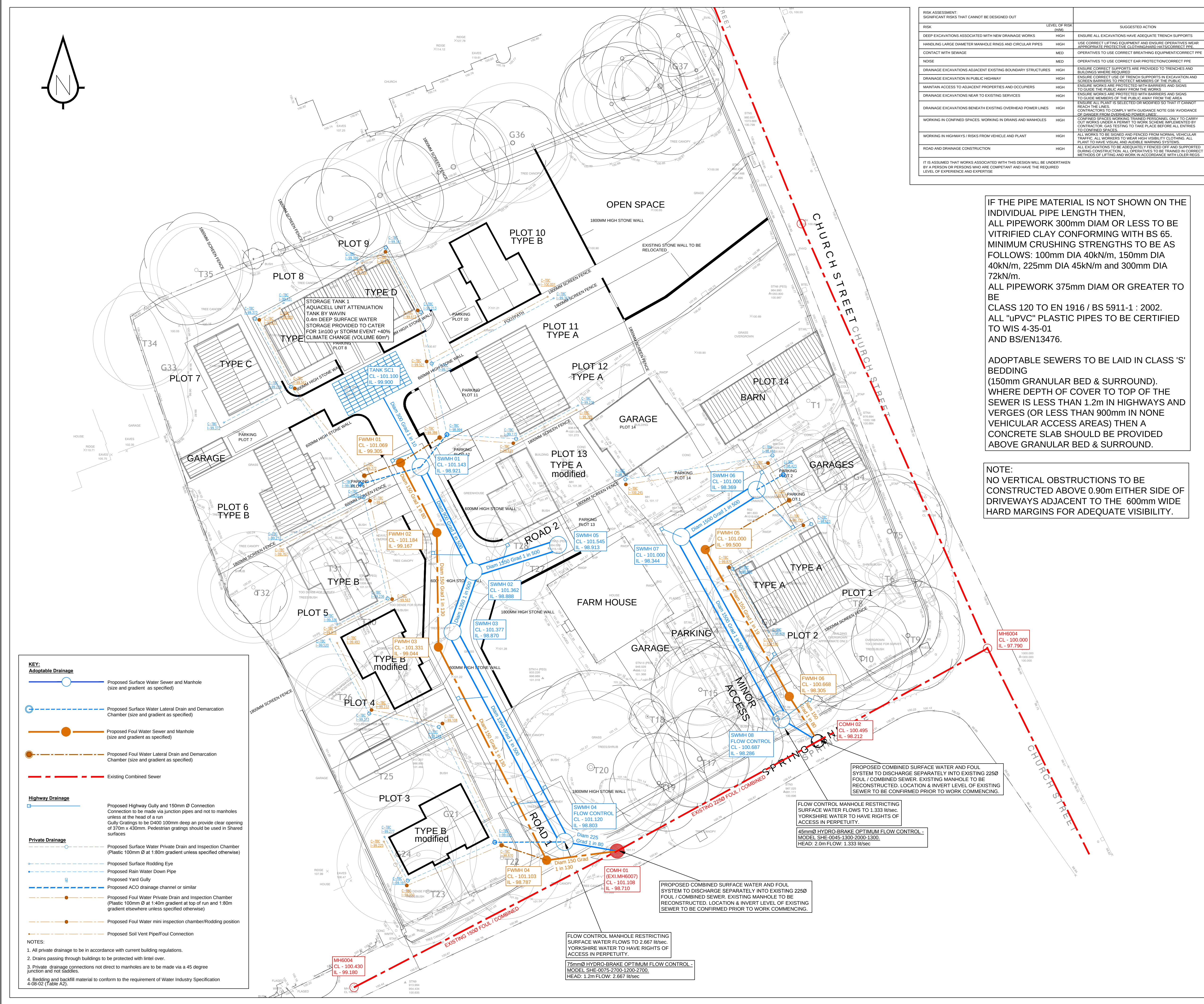




RISK ASSESSMENT: SIGNIFICANT RISKS THAT CANNOT BE DESIGNED OUT		
RISK	LEVEL OF RISK	SUGGESTED ACTION
DEEP EXCAVATIONS ASSOCIATED WITH NEW DRAINAGE WORKS	HIGH	ENSURE ALL EXCAVATIONS HAVE ADEQUATE TRENCH SUPPORTS
HANDLING LARGE DIAMETER MANHOLE RINGS AND CIRCULAR PIPES	HIGH	USE CORRECT LIFTING EQUIPMENT AND ENSURE OPERATIVES WEAR APPROPRIATE PROTECTIVE CLOTHING/HARD HATS/CORRECT PPE
CONTACT WITH SEWAGE	MED	OPERATIVES TO USE CORRECT BREATHING EQUIPMENT/CORRECT PPE
NOISE	MED	OPERATIVES TO USE CORRECT EAR PROTECTION/CORRECT PPE
DRAINAGE EXCAVATIONS ADJACENT EXISTING BOUNDARY STRUCTURES	HIGH	ENSURE CORRECT SUPPORTS ARE PROVIDED TO TRENCHES AND BUILDINGS WHERE REQUIRED
DRAINAGE EXCAVATION IN PUBLIC HIGHWAY	HIGH	ENSURE CORRECT USE OF TRENCH SUPPORTS IN EXCAVATION AND SCREEN BARRIERS TO PROTECT MEMBERS OF THE PUBLIC
MAINTAIN ACCESS TO ADJACENT PROPERTIES AND OCCUPIERS	HIGH	USE CORRECT LIFTING EQUIPMENT AND ENSURE OPERATIVES WEAR APPROPRIATE PROTECTIVE CLOTHING/HARD HATS/CORRECT PPE
DRAINAGE EXCAVATIONS NEAR TO EXISTING SERVICES	HIGH	ENSURE WORKS ARE PROTECTED WITH BARRIERS AND SIGNS TO GUIDE MEMBERS OF THE PUBLIC AWAY FROM THE AREA
DRAINAGE EXCAVATIONS BENEATH EXISTING OVERHEAD POWER LINES	HIGH	ENSURE ALL PLANT IS SELECTED OR MODIFIED SO THAT IT CANNOT REACH THE LINES
WORKING IN CONFINED SPACES, WORKING IN DRAINS AND MANHOLES	HIGH	CONFINED SPACES WORKING TRAINED PERSONNEL ONLY TO CARRY OUT WORKS UNDER A PERMIT TO WORK SCHEME IMPLEMENTED BY CONTRACTOR. GAS TESTING TO TAKE PLACE BEFORE ALL ENTRANCES TO CONFINED SPACES
WORKING IN HIGHWAYS / RISKS FROM VEHICLE AND PLANT	HIGH	ALL WORKS TO BE SIGNED AND FENCED FROM NORMAL VEHICULAR TRAFFIC. ALL WORKERS TO WEAR HIGH VISIBILITY CLOTHING. ALL PLANT TO HAVE VISUAL AND AUDIBLE WARNING SYSTEMS
ROAD AND DRAINAGE CONSTRUCTION	HIGH	ALL EXCAVATIONS TO BE ADEQUATELY FENCED OFF AND SUPPORTED DURING CONSTRUCTION. ALL OPERATIVES TO BE TRAINED IN CORRECT METHODS OF LIFTING AND WORK IN ACCORDANCE WITH LOUIS PRESS

IT IS ASSUMED THAT WORKS ASSOCIATED WITH THIS DESIGN WILL BE UNDERTAKEN BY A PERSON OR PERSONS WHO ARE COMPETANT AND HAVE THE REQUIRED LEVEL OF EXPERIENCE AND EXPERTISE

IF THE PIPE MATERIAL IS NOT SHOWN ON THE INDIVIDUAL PIPE LENGTH THEN, ALL PIPEWORK 300mm DIAM OR LESS TO BE VITRIFIED CLAY CONFORMING WITH BS 65. MINIMUM CRUSHING STRENGTHS TO BE AS FOLLOWS: 100mm DIA 40kN/m, 150mm DIA 40kN/m, 225mm DIA 45kN/m and 300mm DIA 72kN/m. ALL PIPEWORK 375mm DIAM OR GREATER TO BE CLASS 120 TO EN 1916 / BS 5911-1 : 2002. ALL "uPVC" PLASTIC PIPES TO BE CERTIFIED TO WIS 4-35-01 AND BS/EN13476.

ADOPTABLE SEWERS TO BE LAID IN CLASS 'S' BEDDING (150mm GRANULAR BED & SURROUND). WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONE VEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED & SURROUND.

NOTE: NO VERTICAL OBSTRUCTIONS TO BE CONSTRUCTED ABOVE 0.90m EITHER SIDE OF DRIVEWAYS ADJACENT TO THE 600mm WIDE HARD MARGINS FOR ADEQUATE VISIBILITY.

Yorksire Water General Notes

- All adoptable sewer works and material to be in accordance with "Sewers for Adoption" 6th Edition, the relevant British/European and Yorksire Water's Standards/Requirements/Addendum to the Mechanical and Electrical Specification and be Kitemarked.
- Manhole covers shall/must have a clear opening of 600mm and shall be Class D400 to BS EN 124 with 150mm deep frames in highways.
- Where a B125 cover and frame has been approved, this **must not** be coated in plastic and must have lifting eyes suitably sized to accommodate standard lifting keys. Screw down covers are not acceptable.
- Filled ground must be filled and consolidated under the supervision, and to the satisfaction, of Yorksire Water before any sewer works are carried out.
- Yorksire Water is **not** obliged to accept filter drain/land drainage run-off into the public sewer network or adoptable drainage system (**directly or in-directly**). An alternative method of disposal of the land drainage run-off will therefore be required and you will have to liaise with the Local Authority, Land Drainage Section with regard to the disposal of the filter drain/land drainage run-off.
- Cover slabs must carry the BSI Kitemark or will be rejected by the Yorksire Water inspector. Where the clear opening of the Kitemarked product is different to that of the cover and frame, a loading bearing slab should be fitted above the cover slab to bring the size down to 600x600mm for the Yorksire Water specified cover size. Please refer to the Concrete Pipe Systems Association (CPSA), 'Technical Bulletin' issued autumn 2004 for kitemarked cover slab opening sizes.
- Sulphate resistant cement (**C20-DC2**) and precast concrete products must be used or a laboratory report provided proving that such precautions are not necessary.
- The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerb faces and service margins.
- Sewers must have 5 metres clearance from trees and hedges, (please also refer to Figure 2.3 on page 33 in "Sewers for Adoption" 6th Edition for restrictions on tree planting adjacent to Sewers).
- Sewers to be laid in Class "S" bedding (150mm granular bed and surround). Where depth of cover to top of the sewer is less than 1.2m in highways and verges (or less than 900mm in none vehicular access areas) then a concrete slab should be provided above the granular bed and surround.
- Adoptable plastic sewer pipes to be BSI Kitemarked (Certified to WIS 4-35-01 and BS/EN13476). Adoptable sewer pipes to be laid in maximum 3 metre lengths unless there is a specific operational need to lay longer.
- Plastic channel sections in manholes are not acceptable and clayware is preferable. Plastic channels are difficult to set in concrete and a satisfactory finish cannot be obtained on the bedding.
- Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (Table A2).
- The chamber size of manholes with more than one connection in them may need to be increased an increment to accommodate the connections and bends.
- Yorksire Water policy is not to accept Type "C" brick manhole and 1050mm dia manhole rings. Instead it is preferred that you use a type "B" manhole with 1200mm dia or 1500mm dia. rings, with the opening slid over the channel where depth of cover to pipe soffit is 1.15m.
- Surface water and foul rising mains to be provided with marker tape above the rising mains.
- If plastic pipes are to be used then the following should apply -
 - All adoptable sewers to be BSI Kitemark (certified to WIS 4-35-01).
 - Bedding and backfill material to conform to the requirements of Water Industry Specification 4-08-02 (Table A2)
- Where plastic pipes are proposed for adoptable sewers, structural calculations for the plastic pipes and a site investigation report to prove that the ground condition is suitable for the plastic pipes are to be produced.
- Where plastic pipes are installed into the ground prior to getting full technical approval, the developer must provide a CCTV survey of the prospectively adoptable sewers and a deformation test (Light-Line test) of the plastic pipes.
- Demarcation chambers to be a min. 450mmØ chamber for 100mmØ foul & 150mmØ surface water pipes up to 1.2m depth. For depths greater than 1.2m, restricted access opening to 350mm is required for safety reasons.
- Maximum depth of demarcation chamber to be 2m, where depth exceeds 2m, manhole to be constructed as type B manhole.
- Yorksire Water is not obliged to accept filter drain/land drainage runoff into the public sewer network or adoptable drainage system (directly or in-directly). An alternative method of disposal of the land drainage runoff will therefore be required and you will have to liaise with the Land Drainage Authority/Land Drainage Section with regard to the disposal of the filter drain/land drainage runoff is required.
- Strength of vitrified clay pipes (if used) to be 40kN/m for 100Ø, 40kN/m for 150Ø, 45kN/m for 225Ø and 72kN/m for 300Ø. All concrete pipes to be Class 120 concrete to EN 1916/BS 5911-1:2002.
- All levels of existing drainage to be confirmed prior to work commencing on site.
- The contractor must allow for any fee's required for road and sewer opening permits, sewer connections and make the appropriate applications.
- All pipes with a diameter equal or greater than 450mm shall be concrete.
- Any existing sewers or culverts shown on this drawing are taken from records and exact location and levels should be determined prior to commencement of works.
- There may be a requirement for the diversion or protection of statutory undertakers apparatus to facilitate the works shown on this drawing.

General Notes

- All private drainage shall comply with current building regulations.
- Drains passing through buildings shall be protected with a lintel over.
- No building to be constructed within 3m of an adoptable sewer.
- No services to be sited over an adoptable sewer without agreement from the water authority.
- Private drainage connections not direct to manholes are to be made via a 45 degree junction.
- Upon completion of the drainage works the contractor shall clean all drainage works by jetting, removing all debris from site. No debris shall be permitted to enter the public drainage or watercourse system. All drains shall be CCTV surveyed with the DVD passed to Redrow Homes technical department for review.
- Any live connections to be picked up as part of the diversion works.

B	Highway gullies and private plot drainage added.	NJB	21.09.20	PJM
A	Site layout and other details updated.	NJB	14.08.20	PJM

Rev	Amendment	Drawn	Date	Checked

PRELIMINARY
DRAWING

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Client	YGI LTD		
Project Title	STUD FARM, BARNSELEY LAND OFF SPRING LANE, CARLTON		
Drawing Title	MAIN ROADS & SEWER PLAN		
Scale	1:200	Drawn By	NJB
Drawing Size	A1	Checked By	PJM
Date	27.06.20	Approved By	PJM
Drawing Number		Rev	B