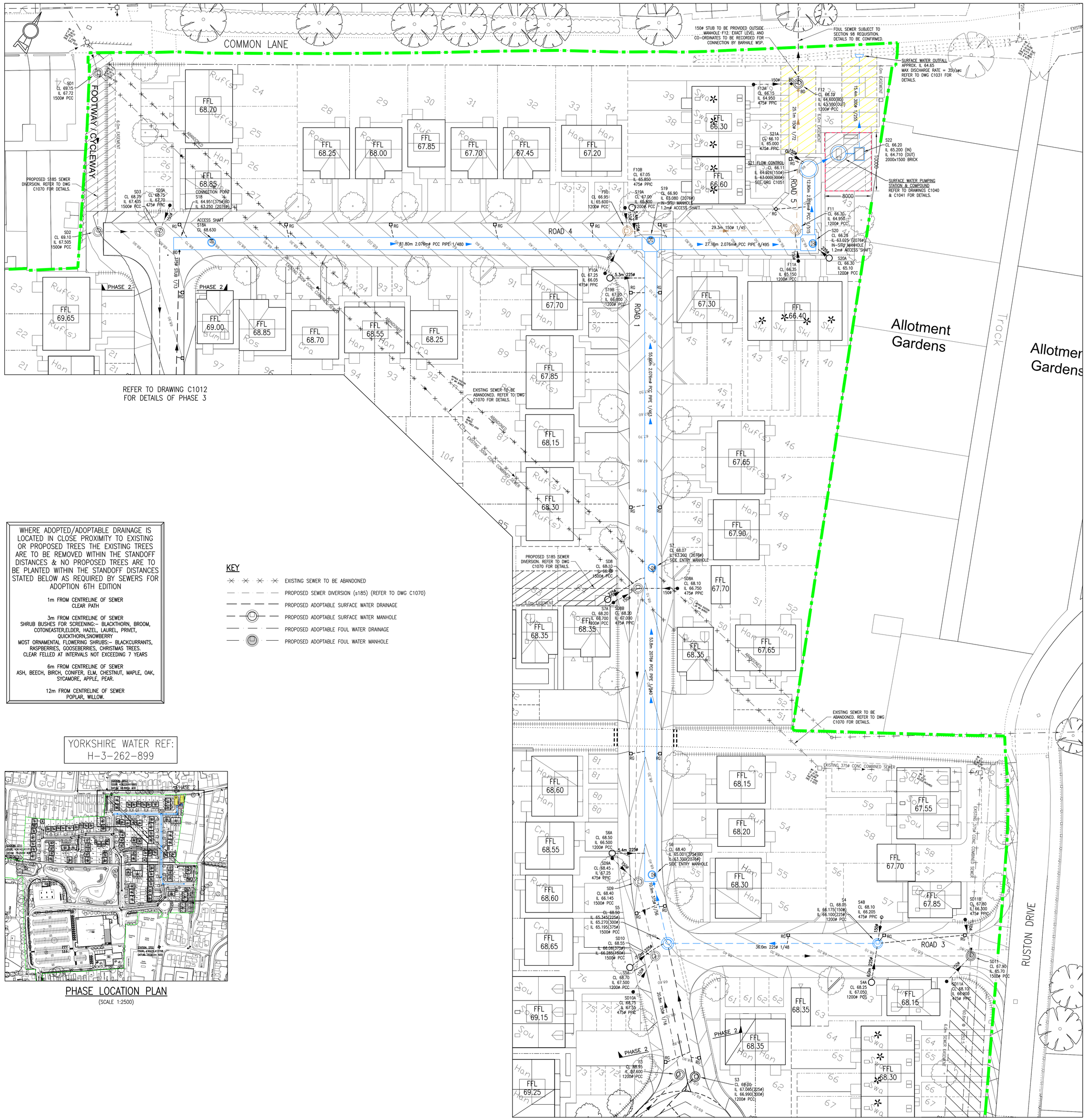
A0



PROPOSED DRAINAGE LAYOUT – PHASE 2

(SCALE 1:250)

WHERE ADOPTED/ADOPTABLE DRAINAGE IS LOCATED IN CLOSE PROXIMITY TO EXISTING OR PROPOSED TREES THE EXISTING TREES ARE TO BE REMOVED WITHIN THE STANDOFF DISTANCES & NO PROPOSED TREES ARE TO BE PLANTED WITHIN THE STANDOFF DISTANCES STATED BELOW AS REQUIRED BY SEWERS FOR ADOPTION 6TH EDITION

1m FROM CENTRELINE OF SEWER
CLEAR PATH

3m FROM CENTRELINE OF SEWER
SHRUB BUSHES FOR SCREENING:– BLACKTHORN, BROOM, COTONEASTER,ELDER, HAZEL, LAUREL, PRIVET, QUICKTHORN,SNOWBERRY
MOST ORNAMENTAL FLOWERING SHRUBS:– BLACKCURRANTS, RASPBERRIES, GOOSEBERRIES, CHRISTMAS TREES.
CLEAR FELLED AT INTERVALS NOT EXCEEDING 7 YEARS

6m FROM CENTRELINE OF SEWER
ASH, BEECH, BIRCH, CONIFER, ELM, CHESTNUT, MAPLE, OAK, SYCAMORE, APPLE, PEAR.

12m FROM CENTRELINE OF SEWER
POPLAR, WILLOW.

KEY

- EXISTING SEWER TO BE ABANDONED
- PROPOSED SEWER DIVERSION (s185) (REFER TO DWG C1070)
- PROPOSED ADOPTABLE SURFACE WATER DRAINAGE
- PROPOSED ADOPTABLE SURFACE WATER MANHOLE
- PROPOSED ADOPTABLE FOUL WATER DRAINAGE
- PROPOSED ADOPTABLE FOUL WATER MANHOLE

YORKSHIRE WATER REF:
H-3-262-899

PHASE LOCATION PLAN

(SCALE 1:2500)

NOTES – (CONT.)

29. ALL DEMARCATION CHAMBERS TO BE 475Ø POLYPROPYLENE INSPECTION CHAMBERS (PPIC) & ALL PRECAST CONCRETE CHAMBERS ARE 1200Ø UNLESS NOTED OTHERWISE.
30. THE CONTRACTOR MUST ALLOW FOR ANY FEES REQUIRED FOR ROAD AND SEWER OPENING PERMITS.
31. THE CONTRACTOR MUST MAKE PUBLIC SEWER CONNECTION APPLICATION TO RELEVANT WATER AUTHORITY PRIOR TO MAKING CONNECTION, WHEN REQUIRED.
32. ALL MANHOLES LESS THAN 1.5m DEEP ARE CONSIDERED AS NONE MAN ENTRY & SHALL BE MAINTAINED FROM GROUND LEVEL.
33. YORKSHIRE WATERS 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 REGARDS TO THE DISPOSAL OF THE FILTER DRAIN/LAND DRAINAGE RUN–OFF.

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Contractors should refer to the residual risks contained in the CDM Pre Construction Information before carrying out any site operations and should not issue parts of this drawing without including the CDM notes and references. This information will include details of the SIGNIFICANT risks which JE have considered beyond that which a competent contractor should be aware.

NOTES –

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT JE, ARCHITECT'S AND M&E CONSULTANTS DRAWINGS AND PROJECT SPECIFICATIONS.
2. ALL ADOPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH "SEWERS FOR ADOPTION" 6th EDITION, THE RELEVANT BRITISH/EUROPEAN AND YORKSHIRE WATERS STANDARDS/REQUIREMENTS/ADDENDUM AND "KITEMARKED".
3. THE LOCATION, SIZE AND DEPTH OF ALL EXISTING DRAINS/SEWERS AND SERVICES SHALL BE ESTABLISHED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORKS ON SITE. ANY DISCREPANCIES FROM THE INFORMATION INDICATED ON THESE DRAWINGS SHALL IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
4. 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 GRANULAR BED AND SURROUND.
5. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT AND DIVERSION WORKS AS NECESSARY, TO ALL EXISTING SERVICES TO THE SATISFACTION OF THE PUBLIC UTILITIES.
6. THE CONTRACTOR SHALL ALLOW FOR DEALING WITH SURFACE WATER RUN–OFF INTO EXCAVATIONS AND FROM GROUNDWATER BY MEANS OF SUMPS, PUMPING AND DE–WATERING AS APPROPRIATE, IN ORDER TO KEEP THE EXCAVATION AS REASONABLY DRY AS POSSIBLE DURING THE CONSTRUCTION OF THE WORKS.
7. THE CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS IN LINE WITH CURRENT LEGISLATION WHEN WORKING IN/NEAR CONFINED SPACES, DEEP EXCAVATIONS/LIVE SEWERS AND MACHINERY. THE CONTRACTOR SHALL SUITABLY PROTECT PEDESTRIANS AND VEHICLES FROM THE WORKING AREAS.
8. ALL PIPES SHALL BE LAID WITH SOFFITS LEVEL AND ALL MANHOLE/INSPECTION CHAMBER INVERT LEVELS SHOWN ARE FOR THE OUTLET PIPE (UNLESS OTHERWISE SHOWN). ALL PIPE RUNS SHALL BE LAID TO THE LEVELS INDICATED; ALL PIPE GRADIENTS INDICATED ARE APPROXIMATE.
9. ALL INSITU AND PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH CLASS DS1 REQUIREMENTS FOR SULPHATE EXPOSURE IN ACCORDANCE WITH BRE SPECIAL DIGEST 1, CONCRETE IN AGGRESSIVE GROUND (2001) PART 1: TABLE 2.
10. ALL PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. ALL PRECAST CONCRETE PIPES SHALL BE CLASS 120.
11. ALL VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN295 AND BS 65 RESPECTIVELY AND BE KITEMARKED, ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH AND BE OF A SLEEVED SYSTEM.
12. SELECTED BACKFILL MATERIAL SHALL CONSIST OF UNIFORM SOIL, FREE FROM STONES LARGER THAN 40mm, CLAY LUMPS LARGER THAN 75mm, TREE ROOTS, CONTAMINATED MATERIAL. SELECTED BACKFILL MATERIAL IS TO BE PLACED IN LAYERS NOT EXCEEDING 150mm THICKNESS. SHOULD THE EXCAVATED MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A SUITABLE HARD GRANULAR MATERIAL SHALL BE USED.
13. GENERAL BACKFILL TO DRAINAGE TRENCHES IN VEHICULAR TRAFFICKED AREAS ABOVE THE PIPE BEDDING DETAIL, SHALL BE SUITABLY SELECTED MATERIAL (IN ACCORDANCE WITH BS 8301 CLAUSE 5.7.6.1.) AND BE PLACED IN LAYERS NOT EXCEEDING 225mm, EACH LAYER COMPACTED TO FORM A STABLE TRENCH BACKFILL. SHOULD THE MATERIAL BE UNSUITABLE OR WEATHER CONDITIONS AFFECT THE MATERIALS STABILITY, THEN A HARD GRANULAR MATERIAL SHALL BE USED UP TO FORMATION LEVEL.
13. NO MECHANICAL COMPACTION OF FILL MATERIAL SHALL BE PERMITTED WITHIN 300mm ABOVE THE BARREL/CROWN OF THE PIPE.
14. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4–08–02 (TABLE A2).
15. ALL EXCAVATIONS IN AREAS OF HIGH WATER TABLES AND GRANULAR MATERIALS WITH HIGH SAND/SILT CONTENTS SHALL BE WRAPPED WITH A SUITABLE GEOTECHNICAL FILTER MEMBRANE TO PREVENT MIGRATION OF SANDS/SILTS. FULL HEIGHT CLAY STANKS ACROSS TRENCHES AND/OR AT MANHOLE LOCATIONS AT 25m INTERVALS TO RESTRICT WATER MOVEMENT ALONG THE EXCAVATION.
16. ALL EXISTING DRAINAGE/STRUCTURES TO BE ABANDONED SHALL BE BROKEN OUT AND REMOVED FROM SITE. THE EXCAVATION SHALL BE BACKFILLED WITH A SUITABLE GRANULAR MATERIAL TO THE REQUIRED LEVEL. ALTERNATIVELY, DEEP DRAINS MY BE CLEANED AND GROUTED WITH A 1:10 CEMENTITIOUS GROUT, WITH STRUCTURES BROKEN DOWN 1m BELOW FINISHED GROUND LEVEL AND BACKFILLED WITH A SUITABLE GRANULAR MATERIAL.
17. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
18. UPON COMPLETION OF THE WORKS THE CONTRACTOR SHALL CLEAN ALL DRAINAGE BY JETTING, REMOVING ALL DEBRIS FROM SITE. NO DEBRIS SHALL BE PERMITTED TO ENTER THE EXISTING DRAINAGE SYSTEM. THE CONTRACTOR SHALL CARRY OUT A COLOUR CCTV SURVEY OF ALL THE DRAINAGE SYSTEMS WITHIN THE AREA OF THE WORKS AND PROVIDE THE ENGINEER WITH TWO COPIES OF THE CCTV ON CDROM (MPEG–1 FORMAT) AND REPORT TO WRC STANDARD.
19. GEOTEXTILE FABRIC TO BE WRAPPED AROUND GRANULAR PIPE BEDDING WHERE SEWER TRENCHES ARE FORMED IN RUNNING SAND/SILT MATERIAL WHERE THERE IS A RISK OF FINE MATERIAL ENTERING THE VOIDED GRANULAR BEDDING. IN THESE CONDITIONS THE GEOTEXTILE IS TO BE EXTENDED UNDER THE MANHOLE BASES
20. WHERE UTILITY/LAND DRAINAGE TRENCHES ETC CROSS OVER DRAINAGE TRENCHES, THE CONTRACTOR SHALL CONSTRUCT AN IMPERMEABLE BARRIER TO PREVENT GROUNDWATER INFILTRATING INTO THE DRAINAGE TRENCH.
21. MANHOLE COVERS AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN214, HAVE 600x600 CLEAR OPENINGS AND BE KITEMARKED. ALL COVERS TO BE LOAD CLASS D400 WITH 150mm DEEP FRAMES.
22. COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY YORKSHIRE WATER INSPECTORS. 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 600mm x 600mm FOR THE YORKSHIRE WATER SPECIFIED COVER SIZE. PLEASE REFER TO CONCRETE PIPE SYSTEMS ASSOCIATION (CPSA), TECHNICAL BULLETIN ISSUED AUTUM 2004 FOR KITE MARKED COVER SLAB OPENING SIZES, MANHOLE COVERS SHALL/MUST HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN124 WITH 150mm DEEP FRAMES IN HIGHWAYS.
23. SULPHATE RESISTANT CEMENT (C20–DC2) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
24. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1m AND MANHOLES 0.5m FROM KERB FACES AND SERVICE MARGINS.
25. 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.
26. 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.
27. YORKSHIRE WATERS POLICY IS NOT TO ACCEPT TYPE "C" BRICK MANHOLES 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 SITED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1–1.5m.
28. ALL WORKS ARE ASSUMED TO BE WITHIN PUBLIC HIGHWAY OR WITHIN LAND OWNERS LANDS & NO WORKS ARE REQUIRED ON THIRD PARTY LAND OWNERS PROPERTY.

Date	Revisions	Drawn	Rev.
12.02.14	REVISED TO SUIT Y.W. COMMENTS ON LETTER DATED 5TH JANUARY 2014.	JM	P7
14.11.13	REVISED TO SUIT YW COMMENTS	JM	P6
02.10.13	REVISED TO SUIT YW COMMENTS	JM	P5
30.07.13	REVISED TO SHOW 2.1m DIA CONCRETE ATTENUATION PIPES.	JM	P4
22.07.13	REVISED TO SUIT YW COMMENTS. LOCATION PLAN & GRID REFERENCE ADDED.	JM	P3
14.05.13	REVISED TO SUIT LATEST DRAINAGE DESIGN	JM	P2
30.04.13	INITIAL ISSUE	JM	P1

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Client: Kier Property Development Limited

Project: Midland Road, Royston

Title: Proposed Drainage Layout Phase 2

Scale	Drawn	Checked	Date
1:250	JM	AL	APR 13

Drawing Status: Preliminary

Job No.	Drawing No.	Revision
11120	C1011	P7

NOTE
SW ATTENUATION BASED ON STANTON BONNA DN2100 EASI-SLIDE PIPES (ACTUAL INTERNAL DIAMETER 2.076m)

SUBJECT TO THE APPROVAL OF ALL RELEVANT AUTHORITIES

DO NOT SCALE.