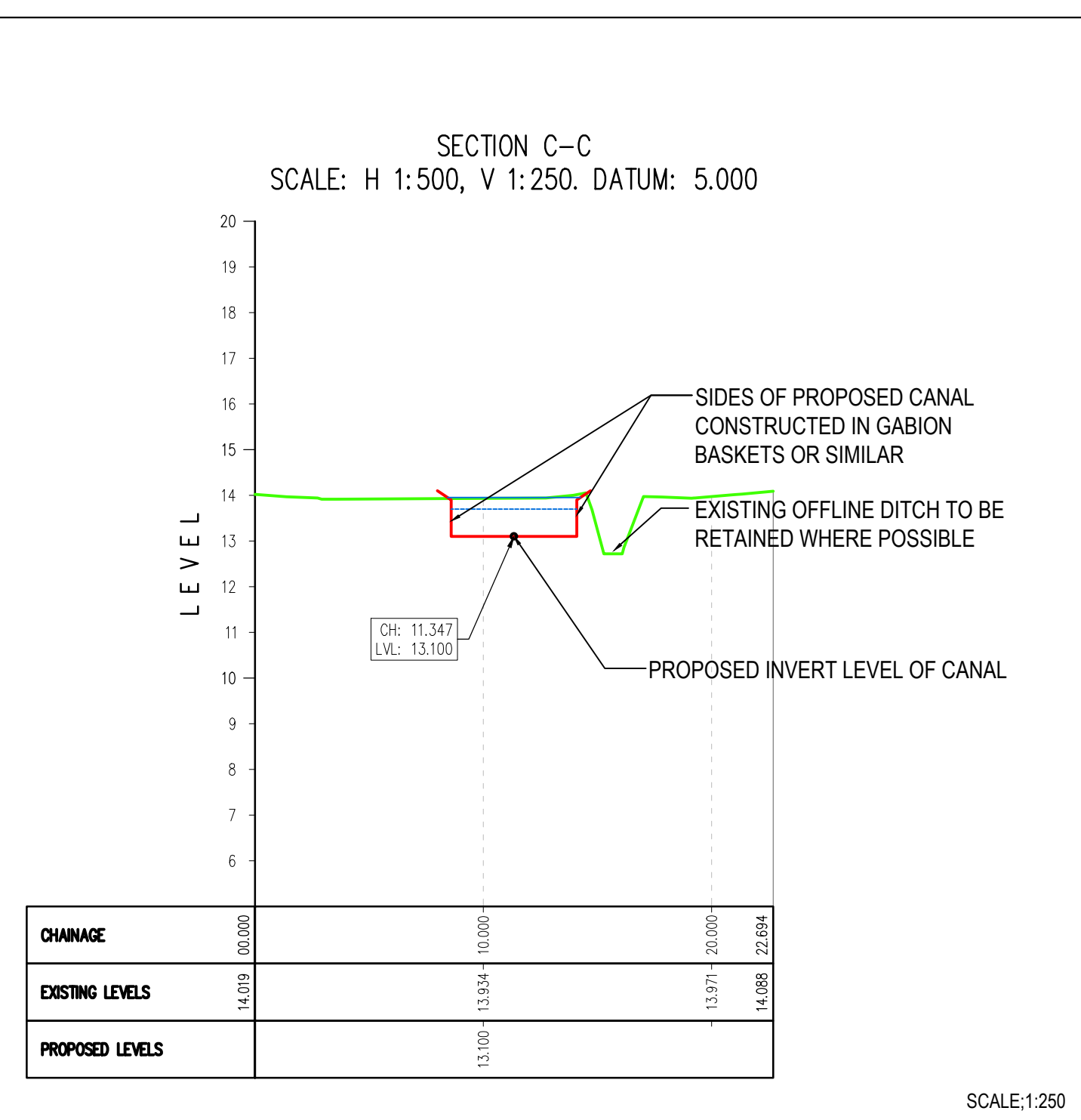
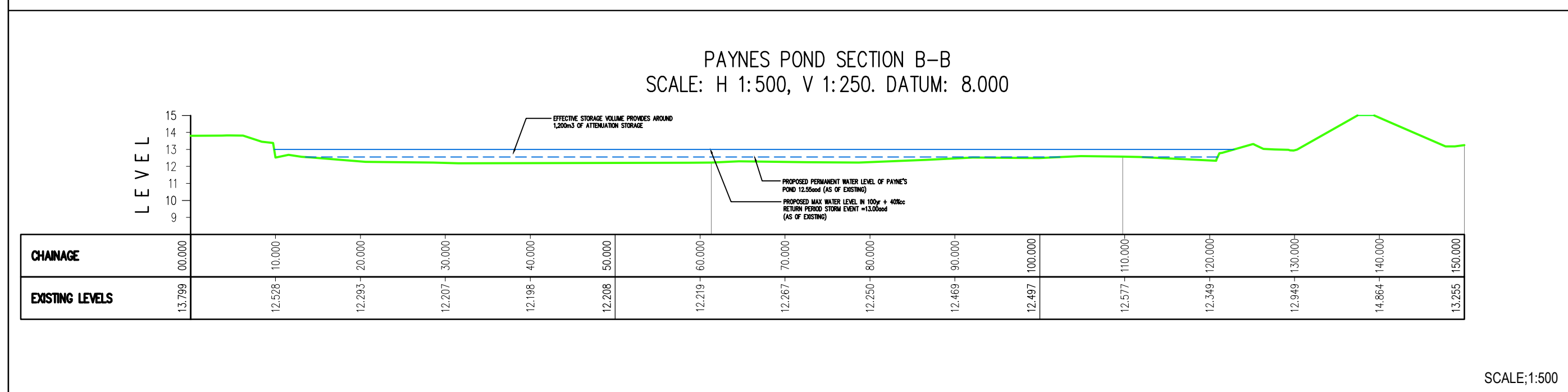
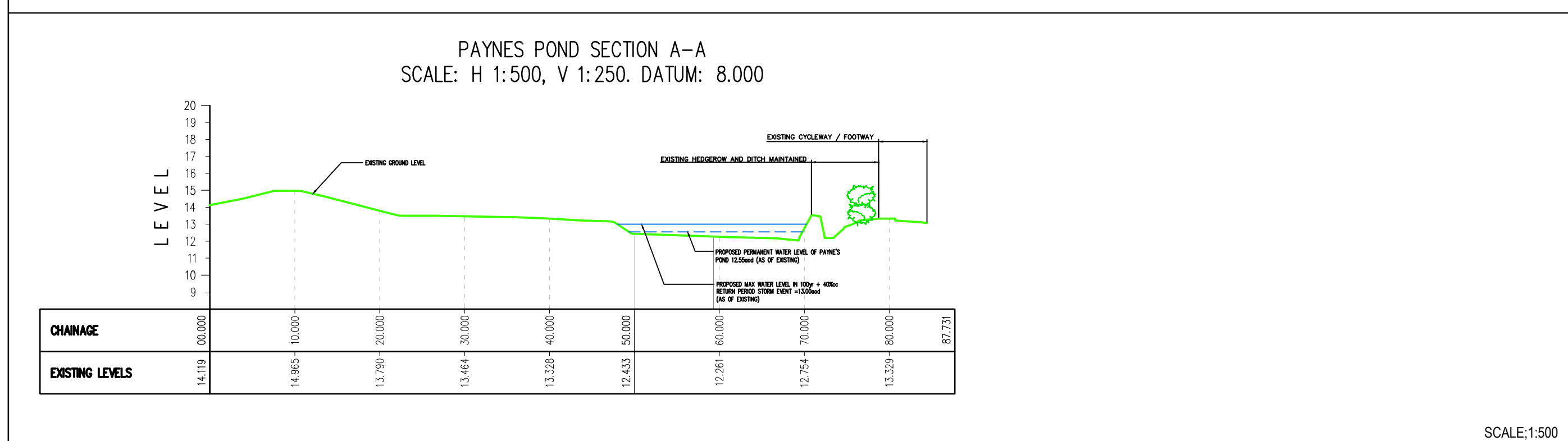


STORAGE FEATURE	EXISTING STORAGE VOLUME (m³)	PROPOSED STORAGE VOLUME (m³)
EASTERN LAKE	9,466m³	18,334m³
CANAL	UNKNOWN	554m³
PAYNES POND	1,200m³ APPROX	1,200m³ APPROX (AS OF EXISTING)



- NOTES**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
  - ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE.
  - ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.
  - THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
  - PROFILES OF EXISTING STORAGE FEATURES SHOWN ON THIS PLAN HAVE BEEN BASED OFF AS-BUILT INFORMATION AND VERIFIED VISUALLY FROM A SITE VISIT

Mark	Revision	Date	Drawn	Chkd	Appd
C	MASTERPLAN UPDATED	30.06.17	GC	ST	ST
B	NOTES AMENDED	12.12.16	GC	RC	ST
A	AMENDED FOLLOWING CPA COMMENTS	03.11.16	DRM	DRM	ST

**SCALING NOTE:** Do not scale from this drawing. If in doubt, ask.

**UTILITIES NOTE:** The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty to this is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing sewers, services, plant or apparatus may affect his operations.

Drawing Issue Status  
**PRELIMINARY**

**PROPOSED WORKS TO EXISTING DRAINAGE INFRASTRUCTURE WEST CAMBRIDGE DENSIFICATION (SHEET 3 OF 3)**

Client  
**WEST CAMBRIDGE**

Date of 1st Issue 19.04.2016	Designed DRM	Drawn DRM
A1 Scale 1:500	Checked DRM	Approved ST
Drawing Number <b>31500/2006/118</b>	Revision <b>C</b>	

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CAMBRIDGE  
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File Location: j31500 west cambridge masterplanning\drawings\civil\02 design models\proposed canal & cotton brook pond masterfile\_november 2016.dwg

**Appendix P Proposed Drainage Strategy –  
Surface/Foul Water Network (Sheets 1 –  
6) Long Sections Western Lake, Canal  
and Payne’s Pond. Exceedance Plan  
Included**



- KEY:**
- - - EXISTING PIPE TO BE ABANDONED
  - - - PROPOSED SURFACE WATER PIPE TO BE INSTALLED (SIZE TO BE DETERMINED)
  - - - PROPOSED FOUL WATER PIPE TO BE INSTALLED
  - - - EXISTING SURFACE WATER PIPE TO BE REPLACED WITH LARGER CAPACITY PIPE
  - - - EXISTING SURFACE WATER PIPE
  - - - EXISTING FOUL WATER PIPE
  - - - INDIVIDUAL PLOT SPUR CONNECTION TO SURFACE WATER SEWER (WHERE ON-SITE STORAGE IS TO BE PROVIDED - REFER TO AREAS SHOWN IN PINK. A FLOW RATE HAS BEEN CALCULATED BY MULTIPLYING THE 100yr GREENFIELD RUNOFF RATE WITH THE EXTENT OF IMPERMEABLE AREA IN WHICH EXISTS ON PLOT)
  - - - INDIVIDUAL PLOT SPUR CONNECTION TO FOUL WATER SEWER LAD AT 1150 AND TO BE 150 DIA.
  - - - INDICATIVE BIORETENTION AREAS
  - - - PROPOSED SUDS SWALE
  - - - PROPOSED TREE PLANTING
  - - - EXISTING TREES WITH ROOT PROTECTION ZONE

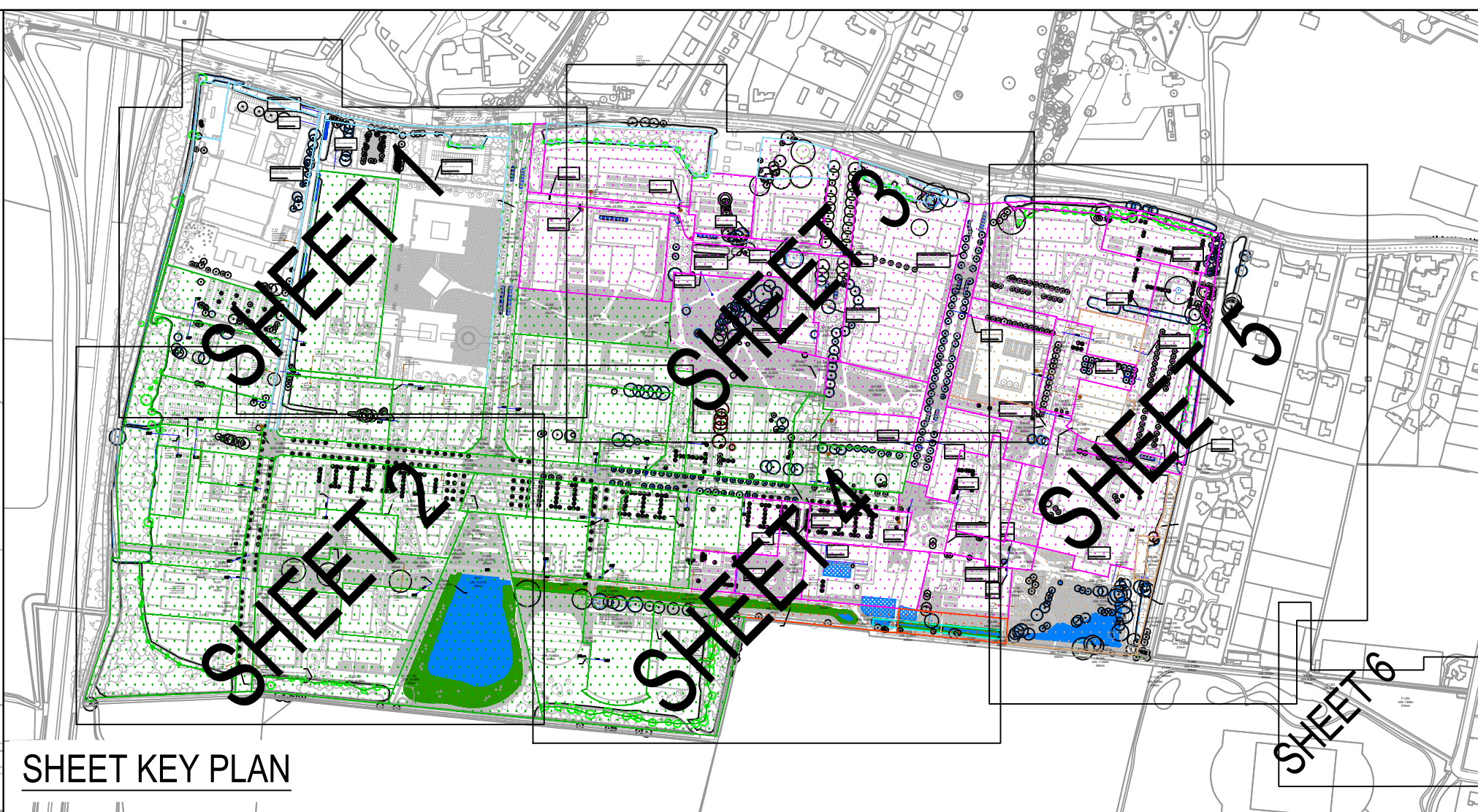
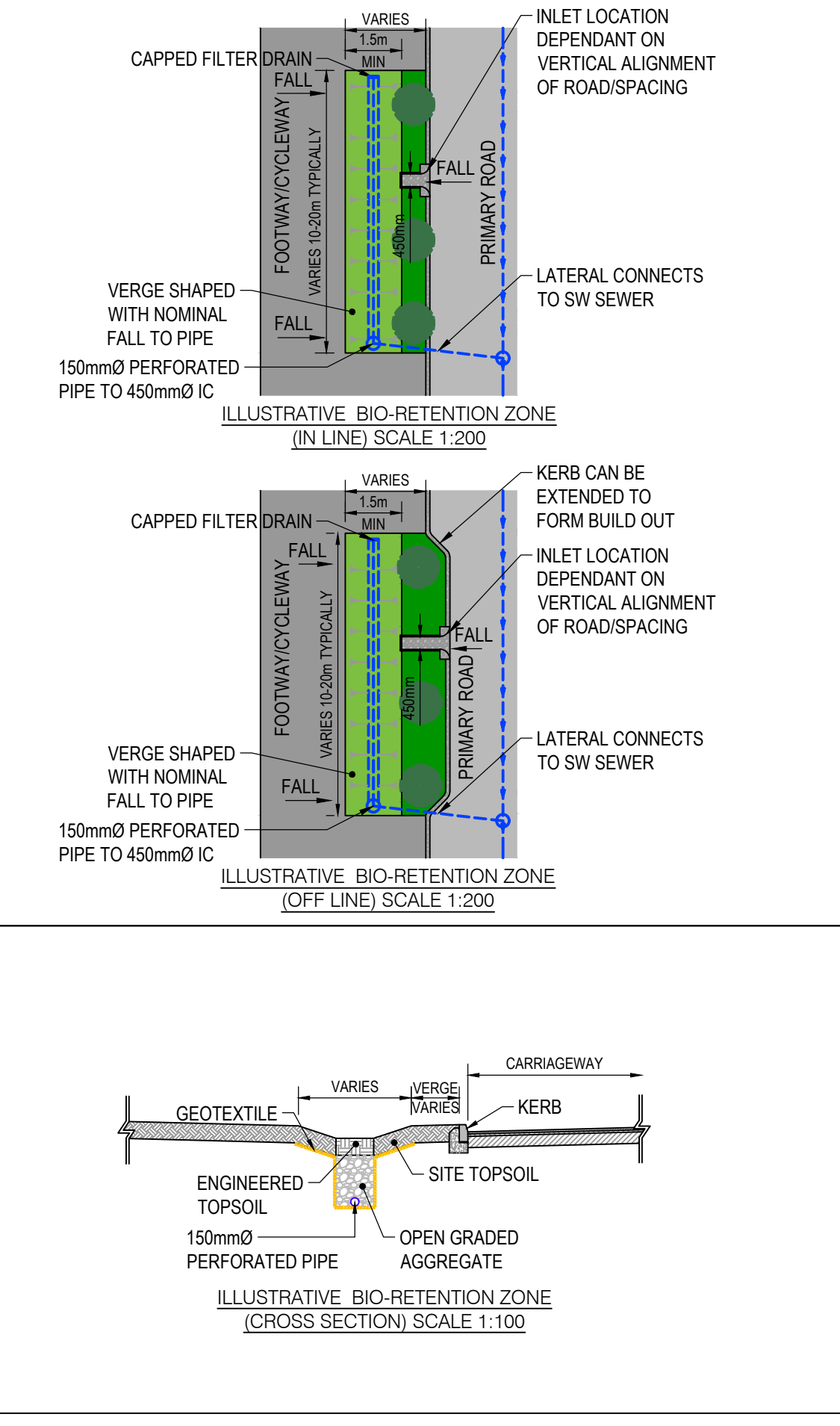
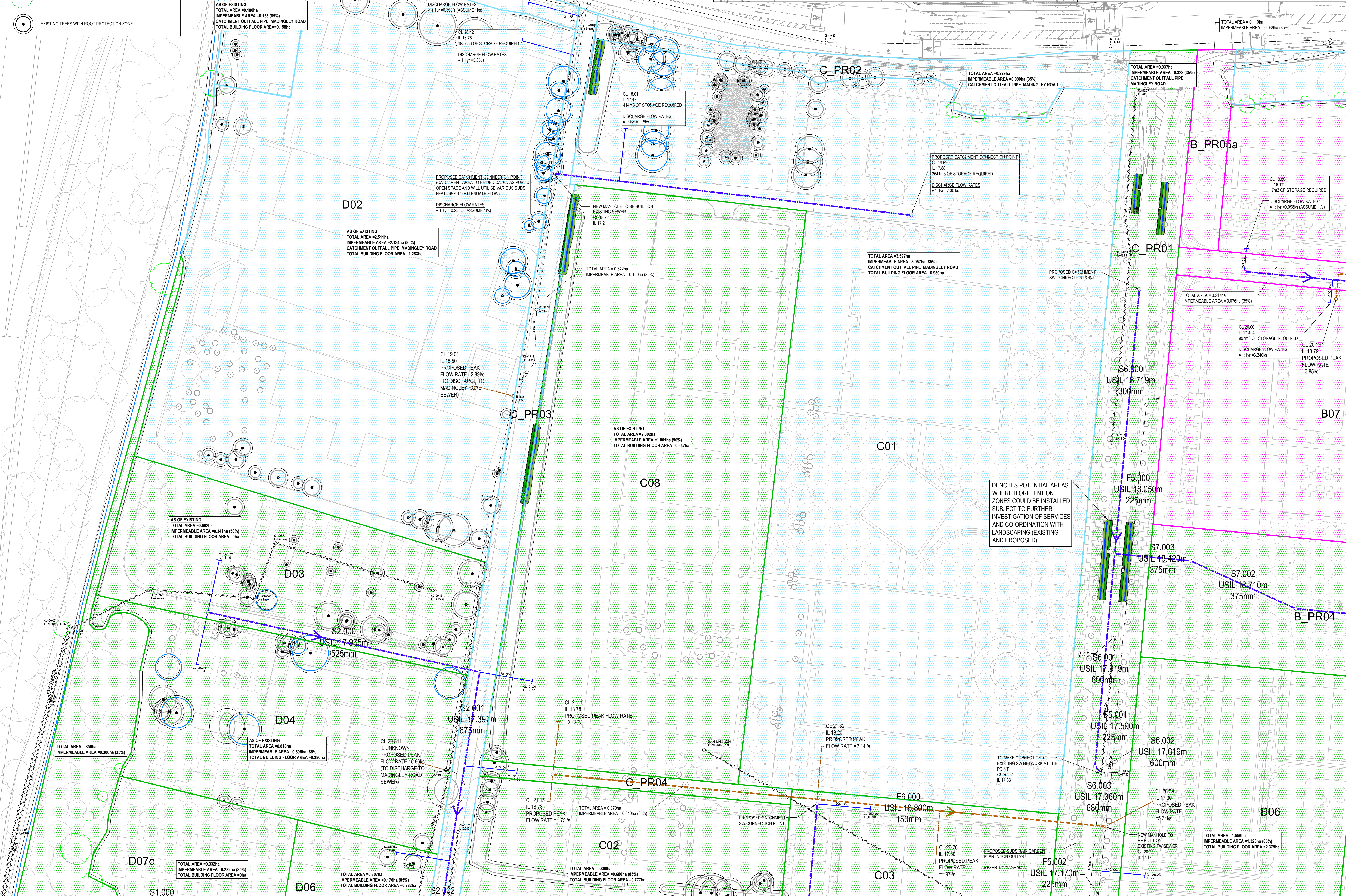


TABLE IDENTIFYING PROPOSED SURFACE WATER STRATEGIES AND CONTRIBUTING AREAS	TOTAL AREA OF CONTRIBUTING AREAS (ha)	TOTAL IMPERMEABLE AREA (ha)	PROPOSED SURFACE WATER RELEASE RATES
CATCHMENT AREAS DRAINING DIRECTLY TO SURFACE WATER	118ha	28ha	100% 100% GREENFIELD RUNOFF RATE FOR ALL STRATEGIES
CATCHMENT AREAS DRAINING DIRECTLY TO DRAINAGE	107ha	33ha	100% 100% GREENFIELD RUNOFF RATE FOR ALL STRATEGIES
CATCHMENT AREAS DRAINING TO STORAGE	224ha	93ha	100% 100% GREENFIELD RUNOFF RATE FOR ALL STRATEGIES (MIN FLOW RATE = 1%)
CATCHMENT AREAS DRAINING TO PUBLIC SEWER	153ha	62ha	100% 100% GREENFIELD RUNOFF RATE FOR ALL STRATEGIES (MIN FLOW RATE = 1%)
CATCHMENT AREAS DRAINING DIRECTLY TO PROPOSED	153ha	15ha	100% 100% GREENFIELD RUNOFF RATE FOR ALL STRATEGIES
<b>TOTAL</b>	<b>467ha</b>	<b>143ha</b>	

- NOTES**
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM UNLESS NOTED OTHERWISE.
  - ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.
  - THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
  - FOR FURTHER INFORMATION ON SITE WIDE PROPOSED SURFACE WATER STRATEGIES AND ARRANGEMENTS PLEASE REFER TO PBA DRAWING 31500-2006-116, 117 & 118.
  - ALL EXISTING INVERT LEVELS SHOWN ON THIS PLAN HAVE BEEN BASED OFF THE FOLLOWING:
    - GREEN WATCH TOPOGRAPHICAL SURVEY.
    - CAULINE SERVICES CCTV SURVEY.
  - THE COVER LEVELS SHOWN ON THIS PLAN REPRESENT EXISTING GROUND LEVELS. THESE LEVELS WILL BE SUBJECT TO CHANGE AS PROPOSED WORKS AND DEVELOPMENT LEVELS ARE SET. THESE SHOULD THEREFORE BE SEEN AS HIGHLY INDICATIVE AT THIS STAGE.
  - ON PLOT STORAGE ESTIMATES SHOWN ON THIS PLAN ARE BASED OFF THE 1:100 YEAR + 40% CLIMATE CHANGE EVENT AND ARE ASSUMING EACH PLOT WILL UTILISE A SINGLE CONTROL RELEASING WATER AT THE 1:1yr GREENFIELD RUNOFF RATE (MIN FLOW RATE OF 0.1% - SEE NOTE 14).
  - THE PIPE SIZES SHOWN ON THIS PLAN HAVE BEEN TESTED FOR FLOODING FOR THE 130 YEAR RETURN PERIOD STORM ONLY. IT WILL ALSO NEED TO BE DEMONSTRATED THAT FLOODING TO BUILDING AREAS DOES NOT OCCUR DURING THE 1:100 YEAR STORM EVENT + 40% CLIMATE CHANGE EVENT WITHOUT ADEQUATE PROPOSED LEVELS HOWEVER. THIS CANNOT BE SATISFACTORILY DETERMINED AT THIS STAGE AND THEREFORE THE PIPE SIZES SHOWN ON THIS PLAN ARE SUBJECT TO CHANGES WHEN PLOT LEVELS BECOME AVAILABLE.
  - ALL STORAGE VOLUMES SHOWN ON THIS PLAN HAVE INCLUDED FOR AN ADDITIONAL 40% ALLOWANCE FOR CLIMATE CHANGE. THIS REPRESENTS THE 'UPPER' LIMIT OF GOVERNMENT GUIDANCE.
  - THE COVER LEVELS SHOWN ON THIS PLAN REPRESENT EXISTING GROUND LEVEL. THESE LEVELS WILL BE SUBJECT TO CHANGE AS PROPOSED WORKS AND DEVELOPMENT LEVELS ARE SET. THESE SHOULD THEREFORE BE SEEN AS HIGHLY INDICATIVE AT THIS STAGE.
  - AREAS SHOWN HATCHED PINK ON THIS PLAN INDICATE AREAS WHERE ON-SITE PLOT STORAGE (REFER TO NOTE 9) IS REQUIRED. ADVISORY SITE DEVELOPERS ARE FREE TO DELIVER ON PLOT SURFACE WATER STORAGE AS THEY DEEM NECESSARY AND FITTING WITH THE CHARACTERISTICS OF THEIR DEVELOPMENT. IT IS ENVISAGED THIS WILL MEAN UTILISING SUFS FEATURES SUCH AS GREEN, BLUE ROOFS, SWALES AND PERMEABLE PAVING.
  - IT IS ASSUMED THE MINIMUM SW DISCHARGE RATE FROM INDIVIDUAL PLOTS WILL BE CAPPED AT 1% IN ORDER TO REDUCE BLOCKAGE RISK ASSOCIATED WITH FLOW CONTROLS. MONTHLY INSPECTIONS OF ALL FLOW CONTROLS (IN ACCORDANCE WITH THE CAMBROGESHIRE SUFS ADOPTION GUIDE) WILL BE CARRIED OUT AND OVERFLOW WEIRS INSTALLED.
  - PEAK FLOW RATES SHOWN ON THIS PLAN HAVE BEEN DETERMINED BY MULTIPLYING TOTAL PLOT DEVELOPABLE FLOOR AREAS TAKEN FROM ASCOM DEVELOPMENT SCHEDULE VERSION 5, DATES 10.02.2019 BY 2.25x. THIS CAPACITY HAS BEEN AGREED WITH ANGLIA WATER.
  - ALL FINISHED FLOOR LEVELS WILL BE ESTABLISHED TAKING IN TO FULL ACCOUNT DRAINAGE CONNECTIONS.
  - WHILE AREAS SHOWN HATCHED GREEN ON THIS PLAN HAVE A FREE FLOW DISCHARGE TO THE EXISTING WESTERN LAKE, INDIVIDUAL PARCEL OCCUPIERS WILL BE REQUIRED TO IMPLEMENT MEASURES ON-SITE TO PROVIDE TREATMENT OF FLOWS LEAVING PLOTS.
  - ALL DEVELOPMENT PARCELS IMPLEMENTING SERVICE YARDS WILL BE REQUIRED TO ENSURE ALL RUNOFF LEAVING THESE AREAS IS PASSED THROUGH A CLASS 1 BYPASS SEPARATOR PRIOR TO RUNOFF ENTERING THE WIDER SURFACE WATER NETWORK.
  - SUFS FEATURES SHOWN ON THIS PLAN ARE INDICATIVE. ALL LOCATIONS SHOWN ARE SUBJECT TO VERIFICATION AND CO-ORDINATION WITH EXISTING AND PROPOSED UNDERGROUND UTILITY INFRASTRUCTURE. ALL FEATURES TO BE IN ACCORDANCE WITH CAMBROGESHIRE SUFS DESIGN AND ADOPTION GUIDE.
  - THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE INFRASTRUCTURE DRAWINGS, 388142001/04-118.
  - IT WILL BE THE RESPONSIBILITY OF PLOT DEVELOPERS TO ENSURE THEIR INDIVIDUAL PLOT DRAINAGE ARRANGEMENTS ARE ROUTED TO THE SPUR CONNECTION DISCHARGE POINTS SHOWN ON THIS DRAWING. THIS INCLUDES EXISTING BUILDINGS WHICH WILL REQUIRE THEIR EXISTING DRAINAGE TO BE AMENDED TO ALIGN WITH THE PROPOSED STRATEGY SHOWN ON THIS DRAWING.



Mark	Revision	Date	Drawn	Chkd	Appd
C	AMENDED TO REPRESENT UPDATED MASTERPLAN	30.06.17	GC	ST	ST
B	BIO-RETENTION ZONES AMENDED	12.12.16	GC	RC	ST
A	AMENDED FOLLOWING CPA COMMENTS	01.09.16	DRM	DRM	ST

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.  
 UTILITIES NOTE: The position of any existing public or private sewers, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty is made as to its accuracy or completeness. Other such plant or apparatus may be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing services, services, plant or apparatus may affect his operations.

**Drawing Issue Status**

**PRELIMINARY**

**SURFACE WATER AND FOUL WATER DRAINAGE STRATEGY SHEET 1 OF 6 WEST CAMBRIDGE FENSIFICATION**

Client: UNIVERSITY OF CAMBRIDGE

Date of 1st Issue: 24.12.15

As Scale: 1:500 @ A0

Drawing Number: 31500/2001/150

Designed: DRM

Checked: ST

Approved: ST

Revision: C

Drawn: GC

Chkd: ST

Appd: ST

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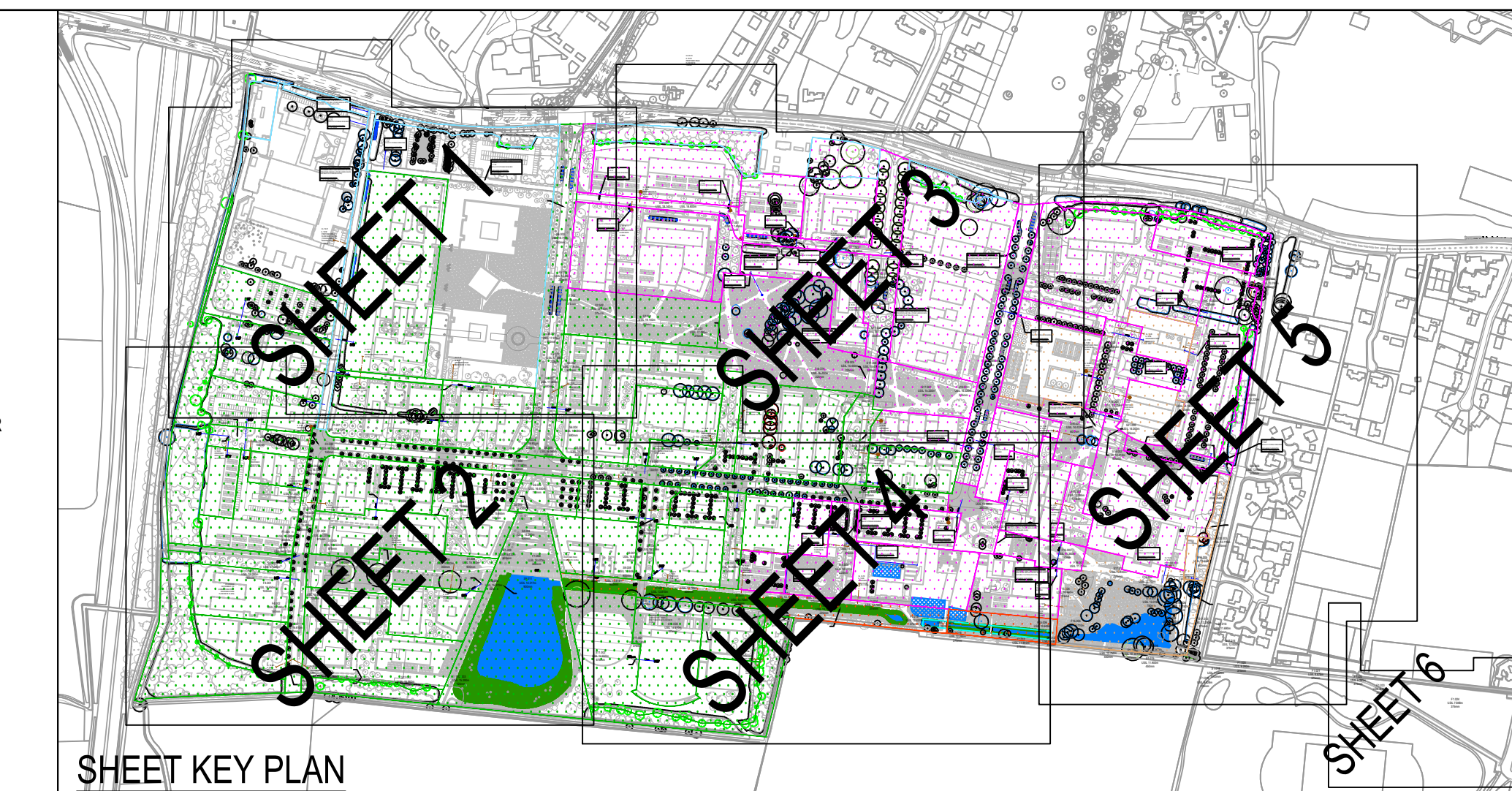
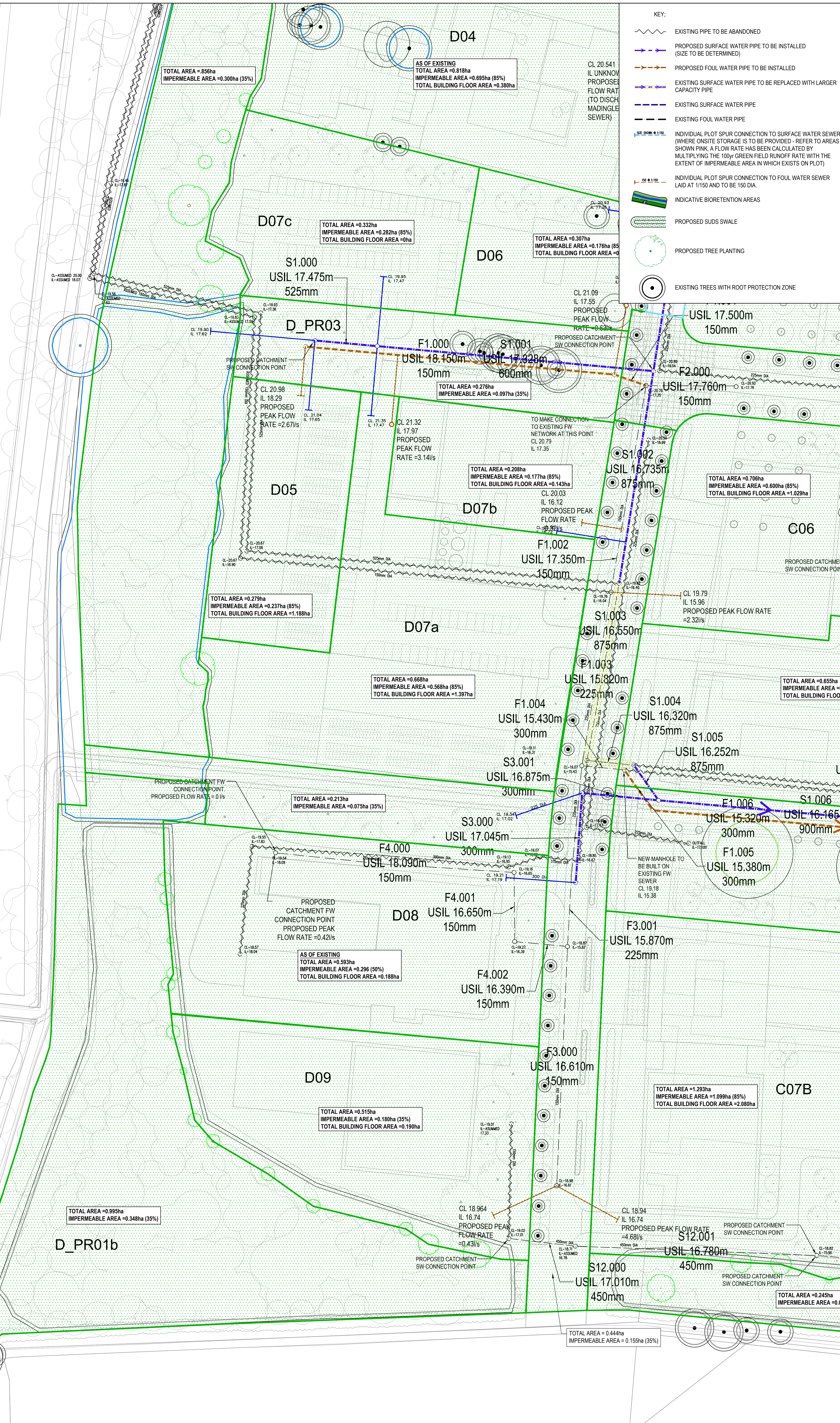
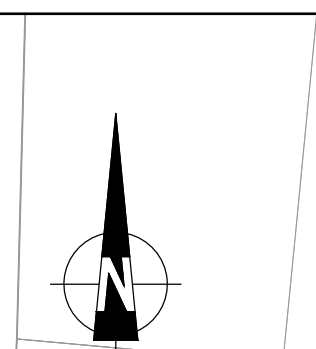
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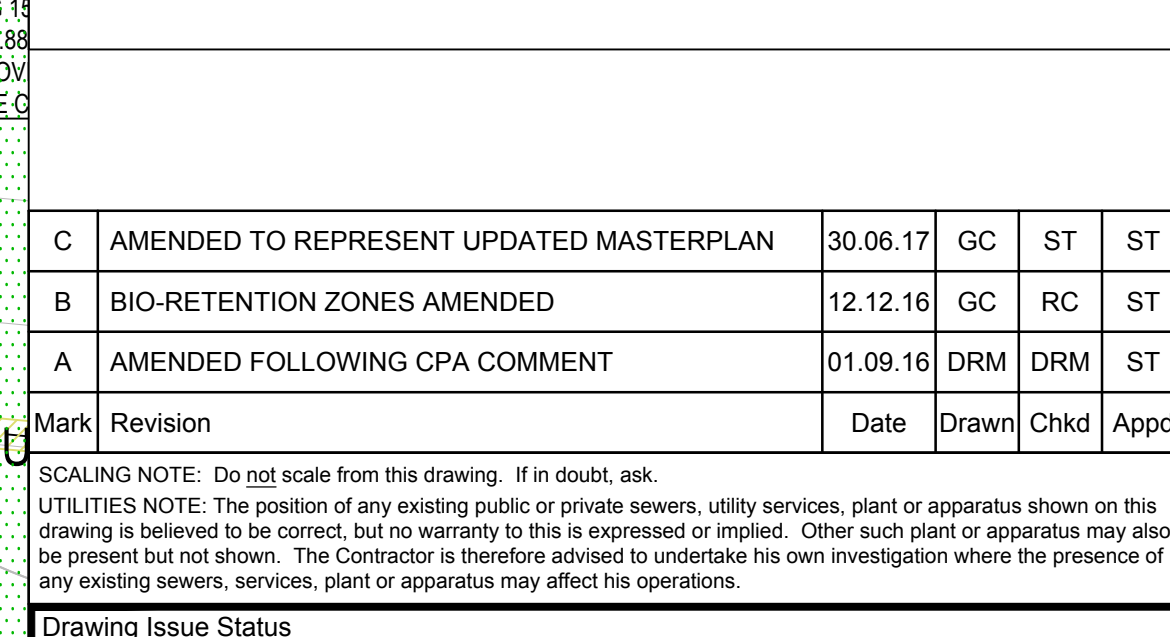
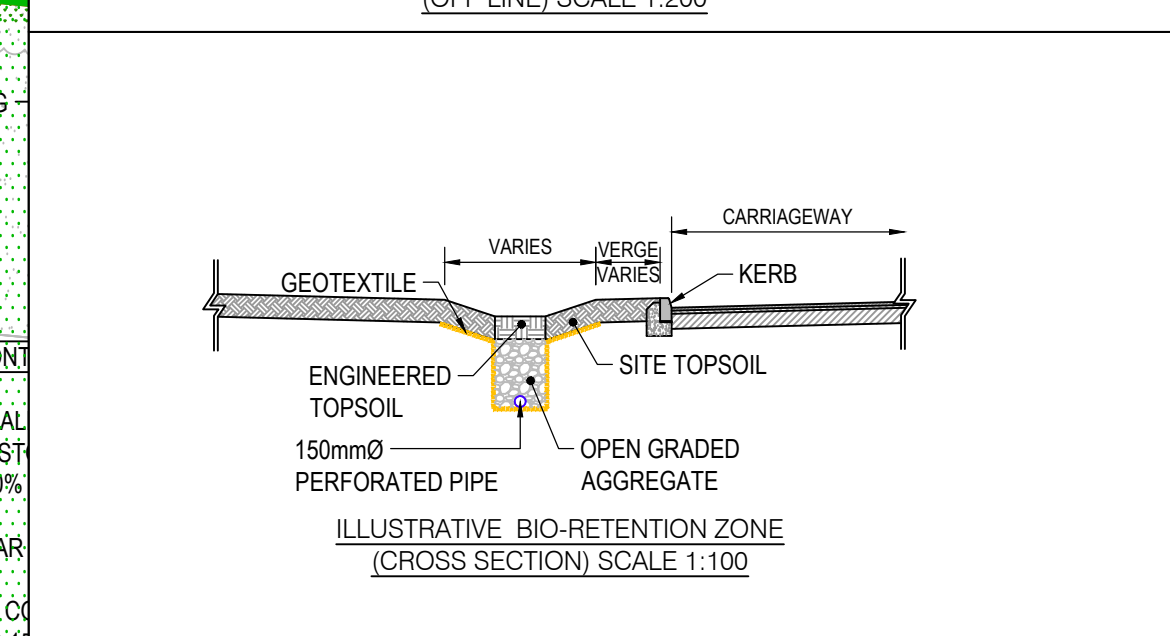
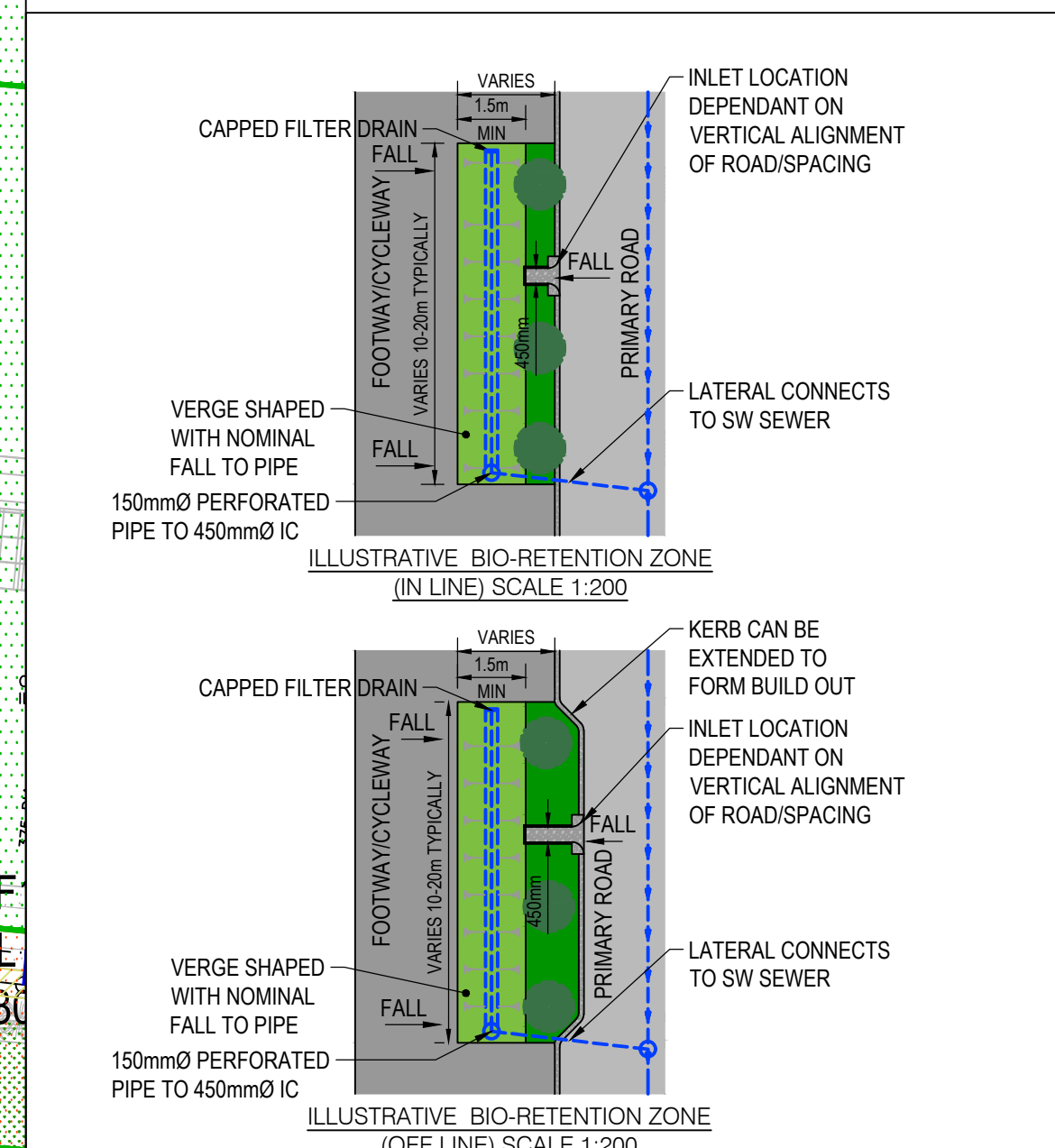
KEY:

- EXISTING PIPE TO BE ABANDONED
- PROPOSED SURFACE WATER PIPE TO BE INSTALLED (SIZE TO BE DETERMINED)
- PROPOSED FOUL WATER PIPE TO BE INSTALLED
- EXISTING SURFACE WATER PIPE TO BE REPLACED WITH LARGER CAPACITY PIPE
- EXISTING SURFACE WATER PIPE
- EXISTING FOUL WATER PIPE
- INDIVIDUAL PLOT SPUR CONNECTION TO SURFACE WATER SEWER (WHERE ON-SITE STORAGE IS TO BE PROVIDED - REFER TO AREAS SHOWN IN PINK A FLOW RATE HAS BEEN CALCULATED BY MULTIPLYING THE 100% GREEN FIELD RUNOFF RATE WITH THE EXTENT OF IMPERMEABLE AREA IN WHICH EXISTS ON PLOT)
- INDIVIDUAL PLOT SPUR CONNECTION TO FOUL WATER SEWER LAID AT 1150 AND TO BE 150 DIA.
- INDICATIVE BIORETENTION AREAS
- PROPOSED SUDS SWALE
- PROPOSED TREE PLANTING
- EXISTING TREES WITH ROOT PROTECTION ZONE

TABLE IDENTIFYING PROPOSED SURFACE WATER STRATEGY AND CONTRIBUTING AREAS

DOCUMENT AREA (DRAWING DIRECTLY TO SITE)	TOTAL CATCHMENT AREA (ha)	TOTAL CATCHMENT IMPERMEABLE AREA (ha)	PROPOSED SURFACE WATER RATES
DOCUMENT AREA (DRAWING DIRECTLY TO SITE)	0.78ha	0.39ha	1.8% (100% GREENFIELD RUNOFF RATE FOR ALL SURFACES)
DOCUMENT AREA (DRAWING DIRECTLY TO SITE)	0.47ha	0.24ha	1.8% (100% GREENFIELD RUNOFF RATE FOR ALL SURFACES)
DOCUMENT AREA (DRAWING DIRECTLY TO SITE)	0.24ha	0.12ha	1.8% (100% GREENFIELD RUNOFF RATE FOR ALL SURFACES)
DOCUMENT AREA (DRAWING TO PUBLIC SERVICES OR MAINDRAUGHT FEED)	0.59ha	0.29ha	1.8% (100% GREENFIELD RUNOFF RATE FOR ALL SURFACES)
DOCUMENT AREA (DRAWING DIRECTLY TO MAINDRAUGHT FEED)	0.39ha	0.19ha	1.8% (100% GREENFIELD RUNOFF RATE FOR ALL SURFACES)
TOTAL	2.57ha	1.29ha	

- NOTES
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
  - ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE.
  - ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.
  - THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
  - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
  - FOR FURTHER INFORMATION ON SITE WIDE PROPOSED STORAGE PROVISIONS AND ARRANGEMENTS PLEASE REFER TO PBA DRAWING 31500-2006-116, 117 & 118.
  - ALL EXISTING LEVELS SHOWN ON THIS PLAN HAVE BEEN BASED OFF THE FOLLOWING:
    - GREEN WATCH TOPOGRAPHICAL SURVEY.
    - CAMLINE SERVICES CCTV SURVEY.
  - THE COVER LEVELS SHOWN ON THIS PLAN REPRESENT EXISTING GROUND LEVEL. THESE LEVELS WILL BE SUBJECT TO CHANGE AS PROPOSED WORKS AND DEVELOPMENT LEVELS ARE SET. THESE SHOULD THEREFORE BE SEEN AS HIGHLY INDICATIVE AT THIS STAGE.
  - ON PLOT STORAGE ESTIMATES SHOWN ON THIS PLAN ARE BASED OFF THE 1:100 YEAR + 40%cc STORM EVENT AND ARE ASSUMING EACH PLOT WILL UTILISE A SINGLE CONTROL RELEASING WATER AT THE 1% GREENFIELD RUNOFF RATE (MIN FLOW RATE OF 1% - SEE NOTE 14).
  - THE PIPE SIZES SHOWN ON THIS PLAN HAVE BEEN TESTED FOR FLOODING FOR THE 1:30 YEAR RETURN PERIOD STORM ONLY. IT WILL ALSO NEED TO BE DEMONSTRATED THAT FLOODING TO BUILDING AREAS DOES NOT OCCUR DURING THE 1:100 YEAR STORM EVENT + 40% CLIMATE CHANGE EVENT. WITHOUT ADEQUATE PROPOSED LEVELS HOWEVER, THIS CANNOT BE SATISFACTORILY DETERMINED AT THIS STAGE AND THEREFORE THE PIPE SIZES SHOWN ON THIS PLAN ARE SUBJECT TO RUNNING THIS SIMULATION WHEN PLOT LEVELS BECOME AVAILABLE.
  - ALL STORAGE VOLUMES SHOWN ON THIS PLAN HAVE INCLUDED FOR AN ADDITIONAL 40% ALLOWANCE FOR CLIMATE CHANGE. THIS REPRESENTS THE 'UPPER' LIMIT OF GOVERNMENT GUIDANCE.
  - THE COVER LEVELS SHOWN ON THIS PLAN REPRESENT EXISTING GROUND LEVEL. THESE LEVELS WILL BE SUBJECT TO CHANGE AS PROPOSED WORKS AND DEVELOPMENT LEVELS ARE SET. THESE SHOULD THEREFORE BE SEEN AS HIGHLY INDICATIVE AT THIS STAGE.
  - AREAS SHOWN HATCHED IN PINK ON THIS PLAN INDICATE AREAS WHERE ON-SITE PLOT STORAGE REFER TO NOTE 9) IS REQUIRED. INDIVIDUAL SITE DEVELOPERS ARE FREE TO UTILISE ON PLOT SURFACE WATER STORAGE AS THEY DEEM NECESSARY AND FITTING IN WITH THE CHARACTERISTICS OF THEIR DEVELOPMENT. IT IS ENVISAGED THIS WILL MEAN UTILISING SUDS FEATURES SUCH AS GREEN, BLUE ROOFS, SWALES AND PERMEABLE PAVING.
  - IT IS ASSUMED THE MINIMUM SW DISCHARGE RATE FROM INDIVIDUAL PLOTS WILL BE CAPPED AT 1% IN ORDER TO REDUCE BLOCKAGE RISK ASSOCIATED WITH FLOW CONTROLS. MONTHLY INSPECTIONS OF ALL FLOW CONTROLS (IN ACCORDANCE WITH THE CAMBRIDGESHIRE SUDS ADOPTION GUIDE) WILL BE CARRIED OUT AND OVERFLOW WEIRS INSTALLED.
  - PEAK FLOW RATES SHOWN ON THIS PLAN HAVE BEEN DETERMINED BY MULTIPLYING TOTAL PLOT DEVELOPABLE FLOOR AREAS (TAKEN FROM ASCOM DEVELOPMENT SCHEDULE VERSION 5, DATES 10/2/2016 BY 2.28%) BY THIS CAPACITY HAS BEEN AGREED WITH ANGLIAN WATER.
  - ALL FINISHED FLOOR LEVELS WILL BE ESTABLISHED TAKING IN TO FULL ACCOUNT DRAINAGE CONNECTIONS.
  - WHILE AREAS SHOWN HATCHED GREEN ON THIS PLAN HAVE A FREE FLOW DISCHARGE TO THE EXISTING WESTERN LAKE, INDIVIDUAL PARCEL OCCUPIERS WILL BE REQUIRED TO IMPLEMENT MEASURES ON-SITE TO PROVIDE TREATMENT OF FLOWS LEAVING PLOTS.
  - ALL DEVELOPMENT PARCELS IMPLEMENTING SERVICE YARDS WILL BE REQUIRED TO ENSURE ALL RUNOFF LEAVING THESE AREAS IS PASSED THROUGH A CLASS 1 BYPASS SEPARATOR PRIOR TO RUNOFF ENTERING THE WIDER SURFACE WATER NETWORK.
  - SUDS FEATURES SHOWN ON THIS PLAN ARE INDICATIVE. ALL LOCATIONS SHOWN ARE SUBJECT TO VERIFICATION AND CO-ORDINATION WITH EXISTING AND PROPOSED UNDERGROUND UTILITY INFRASTRUCTURE. ALL FEATURES TO BE IN ACCORDANCE WITH CAMBRIDGESHIRE SUDS DESIGN AND ADOPTION GUIDE.
  - THESE INSET PLOT PLANS ARE TO BE READ IN CONJUNCTION WITH THE INFRASTRUCTURE DRAWINGS: 38812001104-118.
  - IT WILL BE THE RESPONSIBILITY OF PLOT DEVELOPERS TO ENSURE THEIR INDIVIDUAL PLOT DRAINAGE ARRANGEMENTS ARE ROUTED TO THE SPUR CONNECTION DISCHARGE POINTS SHOWN ON THIS DRAWING. THIS INCLUDES EXISTING BUILDINGS WHICH WILL REQUIRE THEIR EXISTING DRAINAGE TO BE AMENDED TO ALIGN WITH THE PROPOSED STRATEGY SHOWN ON THIS DRAWING.



SCALING NOTE: Do not scale from this drawing. If in doubt, ask.

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Mark	Revision	Date	Drawn	Chkd	Appd
C	AMENDED TO REPRESENT UPDATED MASTERPLAN	30.06.17	GC	ST	ST
B	BIO-RETENTION ZONES AMENDED	12.12.16	GC	RC	ST
A	AMENDED FOLLOWING CPA COMMENT	01.09.16	DRM	DRM	ST

Drawing Issue Status

PRELIMINARY

SURFACE WATER AND FOUL WATER DRAINAGE STRATEGY SHEET 2 OF 6 WEST CAMBRIDGE DENSIFICATION

Client: UNIVERSITY OF CAMBRIDGE

Date of 1st issue: 24.12.15

AD Scale: 1:500@AD

Number: 31500/2001/151

Revision: C

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1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE NOTED
2. ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLYN UNLESS NOTED OTHERWISE
3. ALL COORDINATES ARE IN METRES RELATIVE TO ORDNANCE SURVEY NATIONAL GRID.
4. THE CONTRACTOR IS TO VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS.
5. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.
6. FOR FURTHER INFORMATION ON SITE WIDE PROPOSED STORAGE OF PROVISIONS AND ARRANGEMENTS PLEASE REFER TO P&A DRAWING 31500-2006-116, 117 & 118
7. ALL EXISTING INVERT LEVELS SHOWN ON THIS PLAN HAVE BEEN BASED OFF THE FOLLOWING:
  - GREEN WATCH TOPOGRAPHICAL SURVEY.
  - CANLINE SERVICES CCTV SURVEY.
8. ON PLOT STORAGE ESTIMATES SHOWN ON THIS PLAN ARE BASED OFF THE 1:100 YEAR + 45%kpa STORM EVENT AND ARE ASSUMING EACH PLOT WILL UTILISE A SINGLE CONTROL RELEASING WATER AT THE 1:1yr GREENFIELD RUNOFF RATE (MIN FLOW RATE OF 1 l/s - SEE NOTE 14).
9. THE PIPE SIZES SHOWN ON THIS PLAN HAVE BEEN TESTED FOR FLOODING FOR THE 1:30 YEAR RETURN PERIOD STORM ONLY. IT WILL ALSO NEED TO BE DEMONSTRATED THAT FLOODING TO BUILDING AREAS DOES NOT OCCUR DURING THE 1:100 YEAR STORM EVENT + 45% CLIMATE CHANGE EVENT. WITHOUT ADEQUATE PROPOSED LEVELS HOWEVER, THIS CANNOT BE SATISFACTORILY DETERMINED AT THIS STAGE AND THEREFORE THE PIPE SIZES SHOWN ON THIS PLAN ARE SUBJECT TO RUNNING THIS SIMULATION WHEN PLOT LEVELS BECOME AVAILABLE.
10. ALL STORAGE VOLUMES SHOWN ON THIS PLAN HAVE INCLUDED FOR AN ADDITIONAL 40% ALLOWANCE FOR CLIMATE CHANGE. THIS REPRESENTS THE 'UPPER' LIMIT OF GOVERNMENT GUIDANCE.
11. THE COVER LEVELS SHOWN ON THIS PLAN REPRESENT EXISTING GROUND LEVEL. THESE LEVELS WILL BE SUBJECT TO CHANGE AS PROPOSED WORKS AND DEVELOPMENT LEVELS ARE SET. THESE SHOULD THEREFORE BE SEEN AS HIGHLY INDICATIVE AT THIS STAGE.
12. AREAS SHOWN HATCHED PINK ON THIS PLAN INDICATE AREAS WHERE ONSITE PLOT STORAGE (REFER TO NOTE 9) IS REQUIRED. INDIVIDUAL SITE DEVELOPERS ARE FREE TO DELIVER ON PLOT SURFACE WATER STORAGE AS THEY DEEM NECESSARY AND FITTING WITH THE CHARACTERISTICS OF THEIR DEVELOPMENT. IT IS ENVISAGED THIS WILL MEAN UTILISING SUDS FEATURES SUCH AS GREEN / BLUE ROOFS, SWALES AND PERMEABLE PAVING.
13. IT IS ASSUMED THE MINIMUM SW DISCHARGE RATE FROM INDIVIDUAL PLOTS WILL BE CAPPED AT 1 l/s. IN ORDER TO REDUCE BLOCKAGE RISK ASSOCIATED WITH FLOW CONTROLS MONTHLY VERIFICATION AND CO-ORDINATION WITH EXISTING AND PROPOSED UNDERGROUND UTILITY INFRASTRUCTURE. ALL FEATURES TO BE IN ACCORDANCE WITH CAMBRIDGESHIRE SUDS ADOPTION GUIDE) WILL BE CARRIED OUT AND OVERFLOW WEIRS INSTALLED).
14. PEAK FLOW RATES SHOWN ON THIS PLAN HAVE BEEN DETERMINED BY MULTIPLYING TOTAL PLOT DEVELOPABLE FLOOR AREA (TAKEN FROM AECOM DEVELOPMENT SCHEDULE VERSION 5, DATES 10.02.2016) BY 2.25 l/s/ha. THIS CAPACITY HAS BEEN AGREED WITH ANGLIAN WATER.
15. ALL FINISHED FLOOR LEVELS WILL BE ESTABLISHED TAKING IN TO FULL ACCOUNT DRAINAGE CONNECTIONS.
16. WHILEST AREAS SHOWN HATCHED GREEN ON THIS PLAN HAVE A FREE FLOW DISCHARGE TO THE EXISTING WESTERN LAKE. INDIVIDUAL PARCEL OCCUPIERS WILL BE REQUIRED TO IMPLEMENT MEASURES ONSITE TO PROVIDE TREATMENT OF FLOWS LEAVING PLOTS.
17. ALL DEVELOPMENT PARCELS IMPLEMENTING SERVICE YARDS WILL BE REQUIRED TO ENSURE ALL RUNOFF LEAVING THESE AREAS IS PASSED THROUGH A CLASS 1 BYPASS SEPARATOR PRIOR TO RUNOFF ENTERING THE WIDER SURFACE WATER NETWORK.
18. SUDS FEATURES SHOWN ON THIS PLAN ARE INDICATIVE. ALL LOCATIONS SHOWN ARE SUBJECT TO VERIFICATION AND CO-ORDINATION WITH EXISTING AND PROPOSED UNDERGROUND UTILITY INFRASTRUCTURE. ALL FEATURES TO BE IN ACCORDANCE WITH CAMBRIDGESHIRE SUDS DESIGN AND ADIPTION GUIDE.
19. THESE INSET PLOT PLANS ARE TO BE READ IN CONJUNCTION WITH THE INFRASTRUCTURE DRAWINGS: 388142001104-118
20. IT WILL BE THE RESPONSIBILITY OF PLOT DEVELOPERS TO ENSURE THEIR INDIVIDUAL PLOT DRAINAGE ARRANGEMENTS ARE ROUTED TO THE SPUR CONNECTION DISCHARGE POINTS SHOWN ON THIS DRAWING. THIS INCLUDES EXISTING BUILDINGS WHICH WILL REQUIRE THEIR EXISTING DRAINAGE TO BE AMENDED TO ALIGN WITH THE PROPOSED STRATEGY SHOWN ON THIS DRAWING.

SHEET KEY PLAN

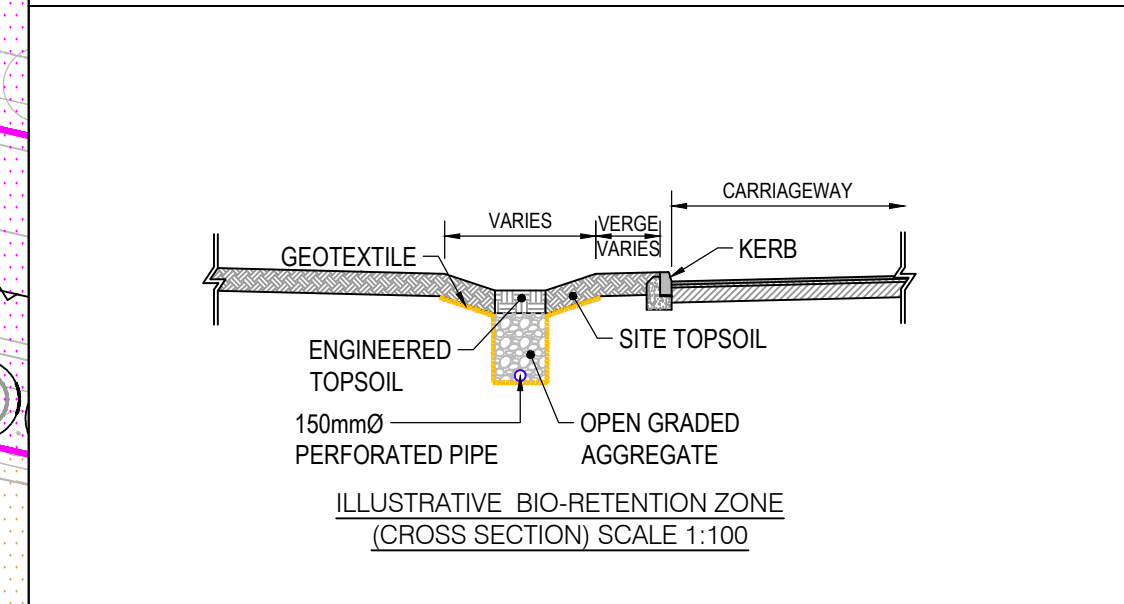
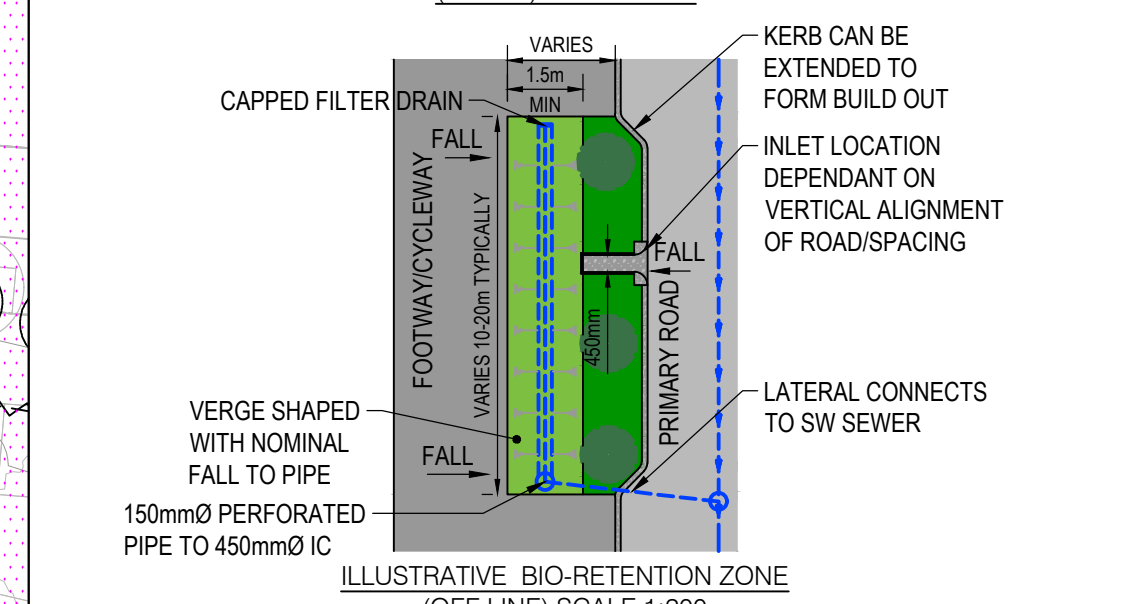
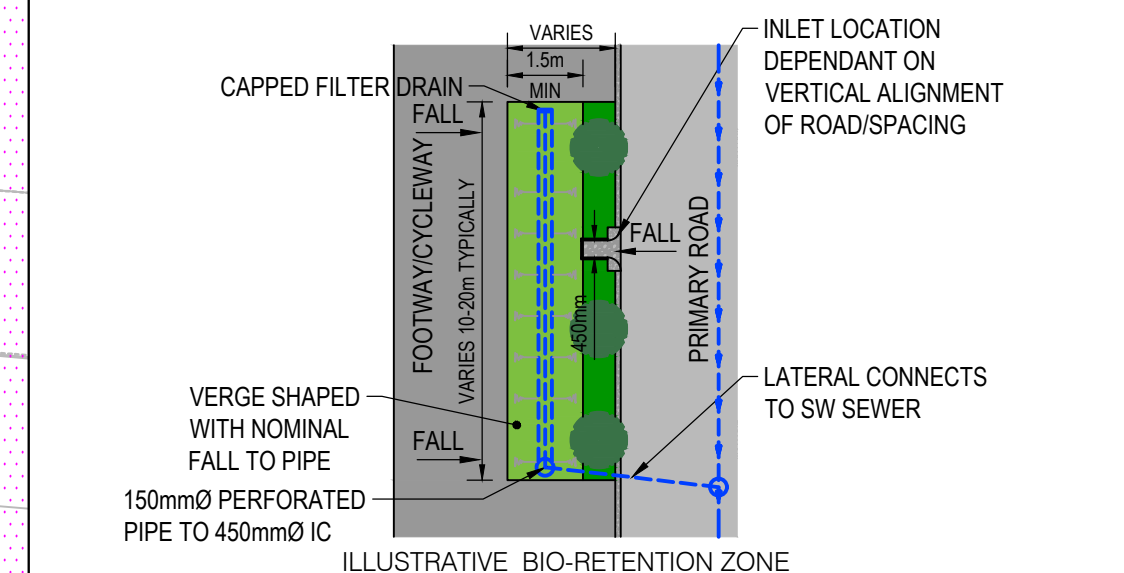
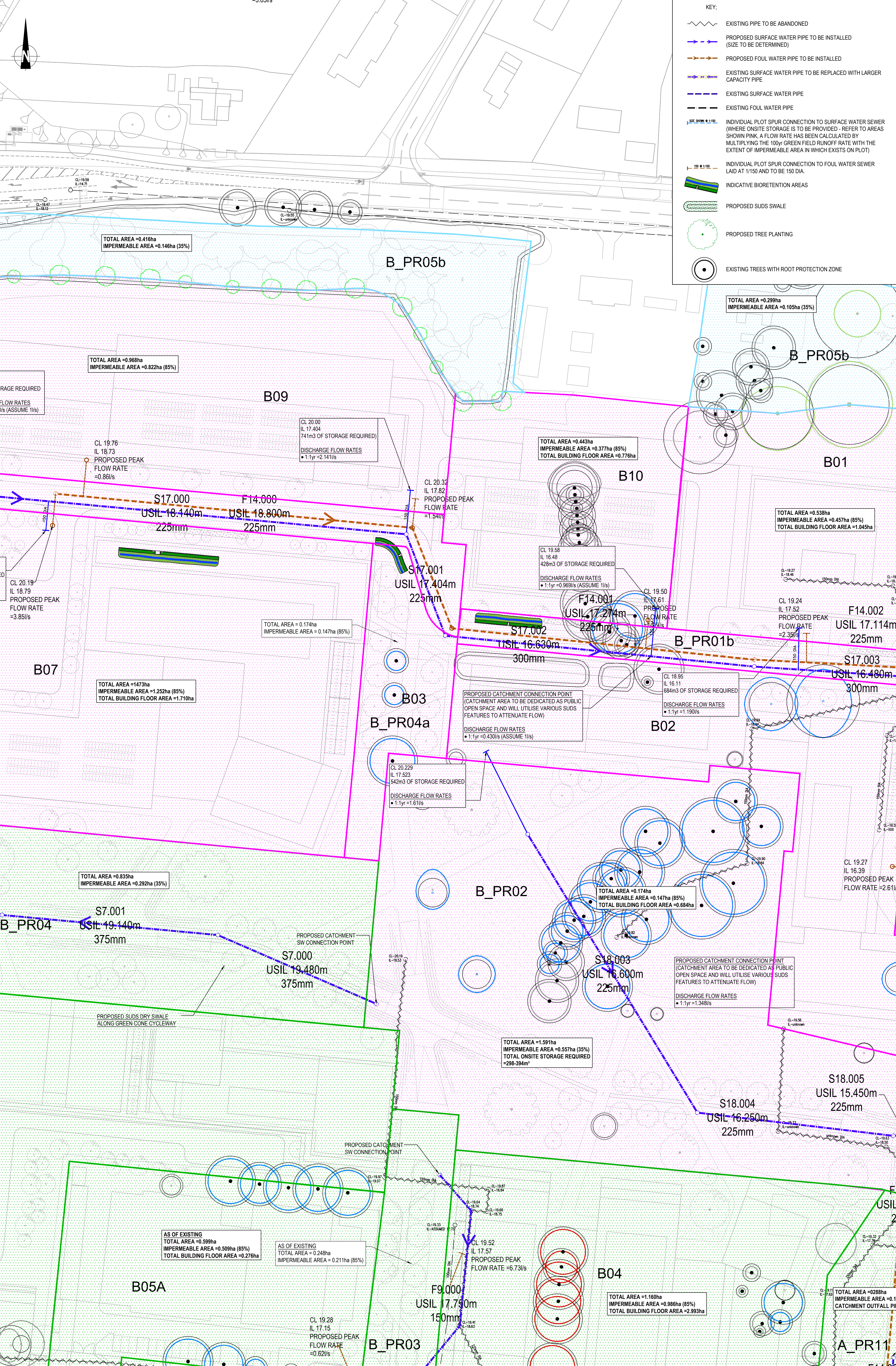
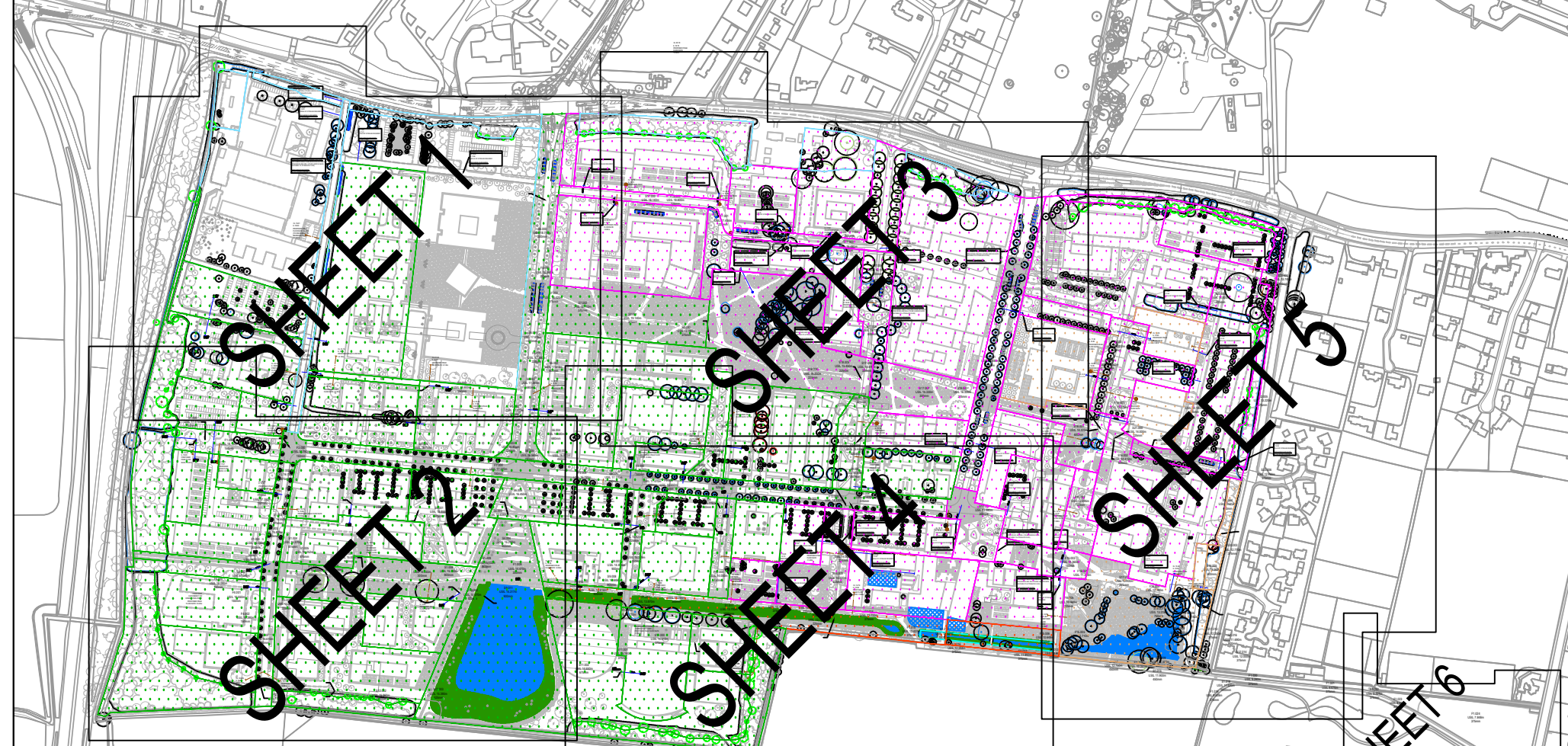
- KEY:
- - - - - EXISTING PIPE TO BE ABANDONED
  - - - - - PROPOSED SURFACE WATER PIPE TO BE INSTALLED (SIZE TO BE DETERMINED)
  - - - - - PROPOSED FOUL WATER PIPE TO BE INSTALLED
  - - - - - EXISTING SURFACE WATER PIPE TO BE REPLACED WITH LARGER CAPACITY PIPE
  - - - - - EXISTING SURFACE WATER PIPE
  - - - - - EXISTING FOUL WATER PIPE
  - 1:100 0.15 l/s • INDIVIDUAL PLOT SPUR CONNECTION TO SURFACE WATER SEWER (WHERE ONSITE STORAGE IS TO BE PROVIDED - REFER TO AREAS SHOWN PINK. A FLOW RATE HAS BEEN CALCULATED BY MULTIPLYING THE 100% GREEN FIELD RUNOFF RATE WITH THE EXTENT OF IMPERMEABLE AREA IN WHICH EXISTS ON PLOT)
  - 1:100 0.15 l/s • INDIVIDUAL PLOT SPUR CONNECTION TO FOUL WATER SEWER LAID AT 1:150 AND TO BE 150 DIA.
  - INDICATIVE BIORETENTION AREAS
  - PROPOSED TREE PLANTING
  - EXISTING TREES WITH ROOT PROTECTION ZONE

TABLE IDENTIFYING PROPOSED SURFACE WATER STRATEGY AND CONTROLLING AREAS

CATCHMENT AREA (DRAINING DIRECTLY TO SOUTH WEST LAKE)	VOLUMED TOTAL OF CATCHMENT AREA (ha)	VOLUMED TOTAL AREA IMPERMEABLE AREA (ha)	PROPOSED SURFACE WATER RELEASE RATE
GREEN	3.20ha	0.48ha	1 l/s 1:100 GREENFIELD RUNOFF RATE FOR ALL STORM EVENTS
PINK	14.70ha	0.89ha	1 l/s 1:100 GREENFIELD RUNOFF RATE FOR ALL STORM EVENTS
MAGENTA	3.20ha	0.50ha	1 l/s 1:100 GREENFIELD RUNOFF RATE FOR ALL STORM EVENTS (MIN FLOW RATE 1 l/s)
CYAN	10.30ha	1.02ha	1 l/s 1:100 GREENFIELD RUNOFF RATE FOR ALL STORM EVENTS (MIN FLOW RATE 1 l/s)
ORANGE	3.02ha	1.17ha	1 l/s 1:100 GREENFIELD RUNOFF RATE FOR ALL STORM EVENTS
TOTAL	23.42ha	3.06ha	

TABLE IDENTIFYING PROPOSED CONTRIBUTION AREAS TO THE BROOK AND BROADBROOK WATERCOURSE

TOTAL CATCHMENT AREA (ha)	TOTAL CATCHMENT IMPERMEABLE AREA (ha)	
WINDYBROOK CATCHMENT	8.00ha	0.20ha
BR BROADBROOK CATCHMENT	59.14ha	38.00ha
TOTAL	67.14ha	38.20ha



Mark	Revision	Date	Drawn	Chkd	Appd
C	AMENDED TO REPRESENT UPDATED MASTERPLAN	30.06.17	GC	ST	ST
B	BIO-RETENTION ZONES AMENDED	12.12.16	GC	RC	ST
A	AMENDED FOLLOWING CPA COMMENT	01.09.16	DRM	DRM	ST

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.

UTILITIES NOTE: The position of any existing public or private services, utility services, plant or apparatus shown on this drawing is believed to be correct, but no warranty is expressed or implied. Other such plant or apparatus may also be present but not shown. The Contractor is therefore advised to undertake his own investigation where the presence of any existing services, services, plant or apparatus may affect his operations.

Client: UNIVERSITY OF CAMBRIDGE

Drawing Title: SURFACE WATER AND FOUL WATER DRAINAGE STRATEGY SHEET 3 OF 6 WEST CAMBRIDGE DENSIFICATION

Date of Issue: 24.12.15

Scale: 1:500 @ A0

Revision: C

Drawing Number: 31500/2001/152

Client Reference: 31500/2001/152

Revision: C

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