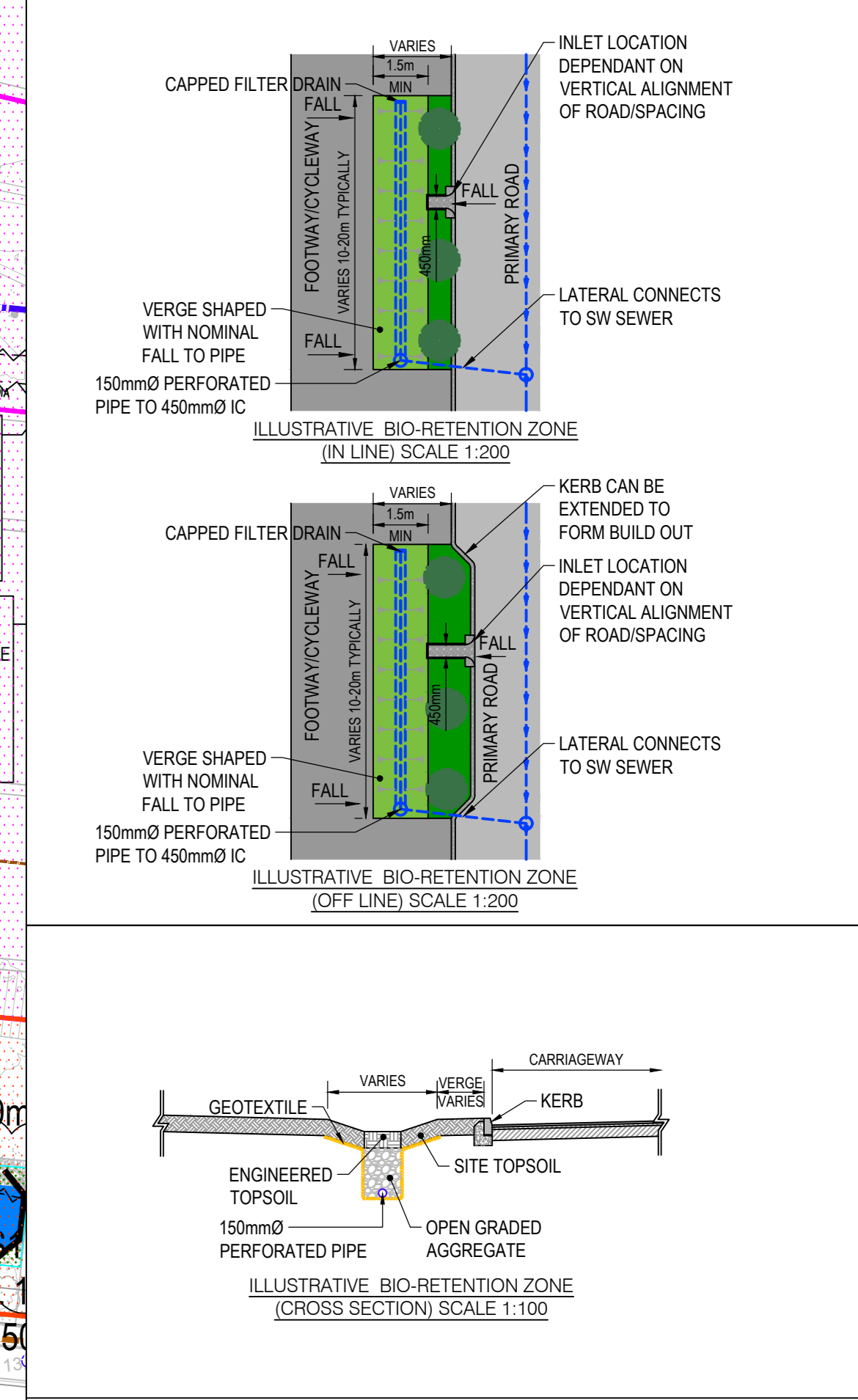


TABLE IDENTIFYING PROPOSED SURFACE WATER STRATEGY AND CONTRIBUTING AREAS

CATCHMENT AREA	TOTAL AREA (ha)	TOTAL BUILDING FLOOR AREA (ha)	IMPERMEABLE AREA (ha)	PERCENTAGE IMPERMEABLE AREA (%)
CATCHMENT AREA DRIVING DIRECTLY TO SURFACE WATER	2.89	2.09	1.81	86.6
CATCHMENT AREA DRIVING DIRECTLY TO SUDS	1.67	1.09	0.94	87.3
CATCHMENT AREA DRIVING TO SUDS VIA STORAGE	2.94	1.99	1.71	85.9
CATCHMENT AREA DRIVING TO SUDS VIA STORAGE AND BIORETENTION	1.00	0.74	0.64	86.5
CATCHMENT AREA DRIVING DIRECTLY TO BIORETENTION	1.76	1.19	1.04	87.4
TOTAL	10.26	6.99	6.11	87.4

- 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 STORAGE PROVISIONS AND ARRANGEMENTS PLEASE REFER TO PBA DRAWINGS 31500-2006-115, 117 & 118.
 - ALL EXISTING INVERT LEVELS SHOWN ON THIS PLAN HAVE BEEN BASED OFF THE FOLLOWING:
 - GREEN HATCH 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 LEVELS SHOULD BE USED 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 STORAGE 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 NORTH OF THE "ORIGINAL WATERSHED" LINE ON THIS PLAN ARE SUBJECT TO CHANGE AS PART OF THE OVERALL SITE EARTHWORKS. 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. 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.
 - 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 AECOM DEVELOPMENT SCHEDULE VERSION 5, DATES 10.02.2016) BY 2.25% 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 PLOTS ARE 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: 38814201/1104-118
 - 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: On all scales 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 position. 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**

SURFACE WATER AND FOUL WATER DRAINAGE STRATEGY SHEET 4 OF 6 WEST CAMBRIDGE DENSIFICATION

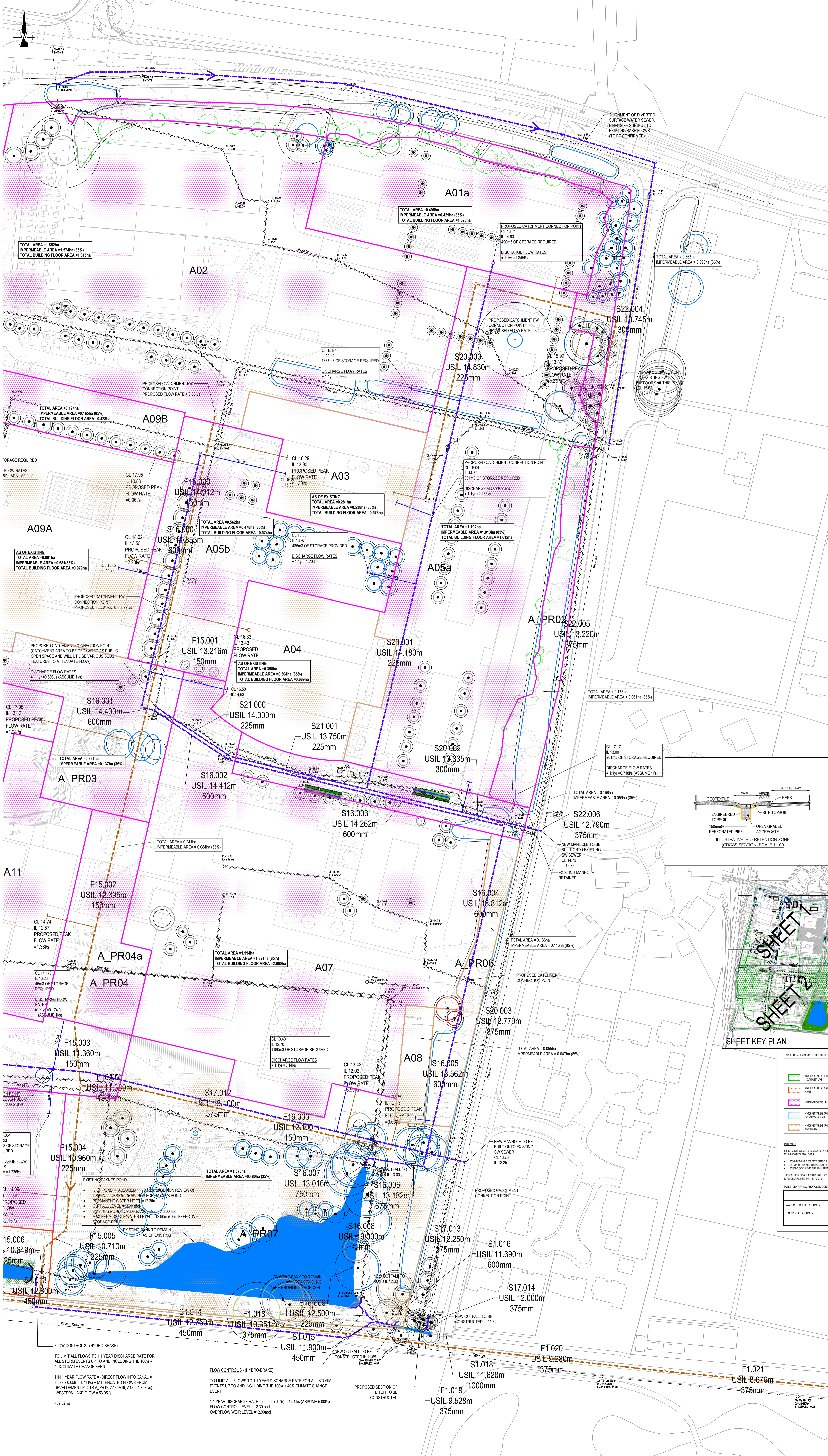
Client: **UNIVERSITY OF CAMBRIDGE**

Date of Issue: 24.12.15
 Drawn: DRM
 Check: ST
 Approved: ST

Drawing Number: **31500/2001/153**

Revision: **C**

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- ### NOTES
- ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE
 - ALL LEVELS ARE IN METRES RELATIVE TO ORDNANCE DATUM NEWLY 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 31500/2001/15 117 & 118
 - ALL EXISTING INVERT LEVELS SHOWN ON THIS PLAN HAVE BEEN BASED OFF THE FOLLOWING:
 - GREEN HATCH 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 100 YEAR + 40% CLIMATE CHANGE EVENT AND ARE ASSUMING EACH LOT WILL UTILISE A SINGLE CONTROL. RELEASING WATER AT THE 1:1yr GREENFIELD RUNOFF RATE (MM FLOW RATE OF 1.1 - 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 CYCLES 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
 - IT IS ASSUMED THE MINIMUM SW DISCHARGE RATE FROM INDIVIDUAL PLOTS WILL BE CAPPED AT 11% 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 ACON DEVELOPMENT SCHEDULE VERSION 5, DATES 10.02.2016) BY 2.25% (THIS CAPACITY HAS BEEN AGREED WITH ANGLIAN WATER)
 - ALL FINISHED FLOOR LEVELS WILL BE ESTABLISHED TAKING IN TO FULL ACCOUNT DRAINAGE CONNECTIONS
 - 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 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: 38814/2001/114-118
 - 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

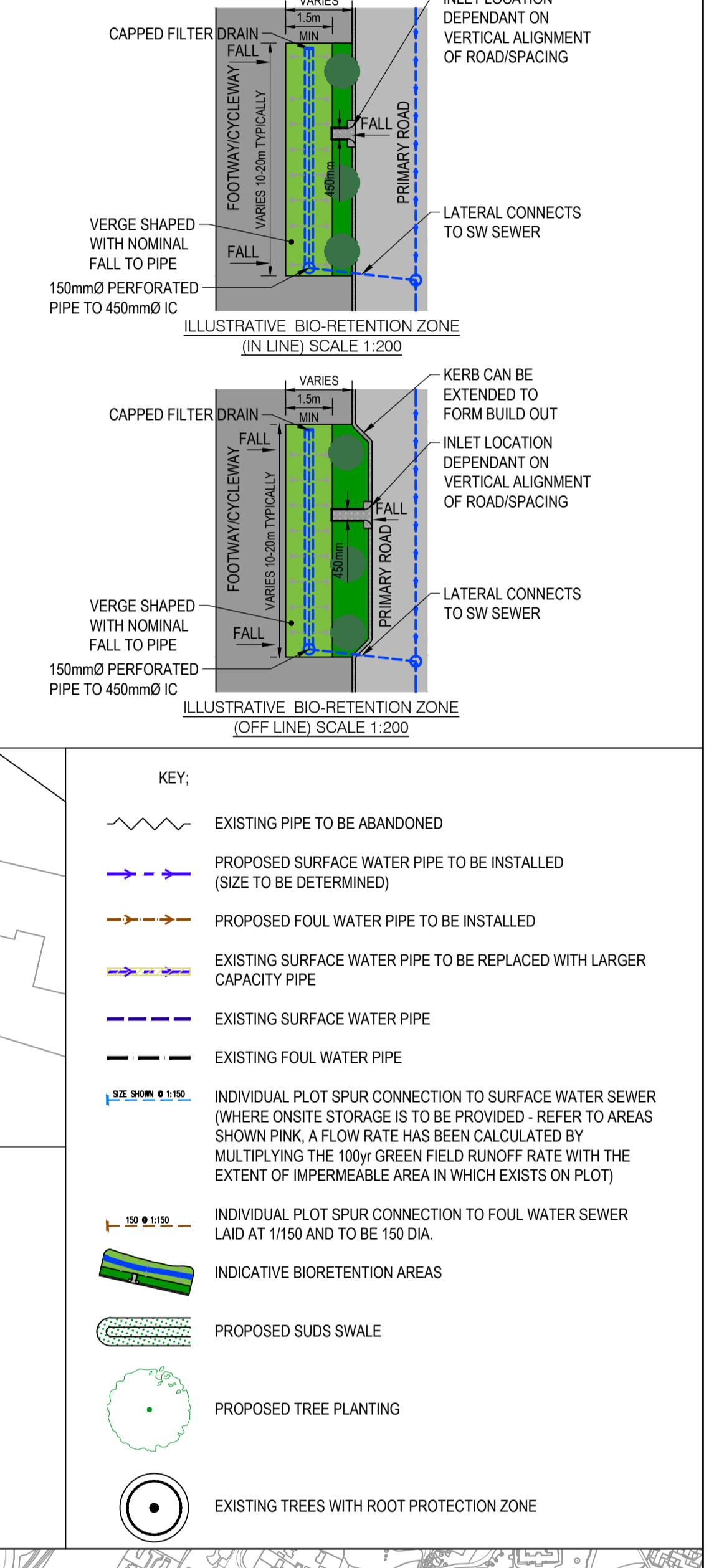


TABLE IDENTIFYING PROPOSED SURFACE WATER STRATEGY AND CONTRIBUTING AREAS

CONTRIBUTING AREA	CONTRIBUTING AREA (m²)	PERMITTED TOTAL AREA (m²)	PERMITTED TOTAL AREA (m²)	PERMITTED SURFACE WATER RELEASE RATE (L/S)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)
EXISTING ROAD DRAINAGE TO DRAINAGE	1000	1000	1000	1.1 (1 YEAR GREENFIELD RUNOFF RATE FOR 100 YEAR EVENT)

TABLE IDENTIFYING PROPOSED CONTRIBUTING AREAS TO SW BROOK AND WASHBROOK DRAINAGE

CONTRIBUTING AREA	TOTAL CATCHMENT AREA (m²)	TOTAL CATCHMENT AREA (m²)	TOTAL CATCHMENT AREA (m²)
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000
SW BROOK CATCHMENT	1000	1000	1000

REVISIONS

NO	REVISION	DATE	BY	CHKD	APPD
B	AMENDED TO REPLACE UPDATED MASTERPLAN	30.08.17	GC	ST	ST
C	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 the designer for clarification. 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 extent. 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 the operations.

Drawing Issue Status: PRELIMINARY

SURFACE WATER AND FOUL WATER DRAINAGE STRATEGY SHEET 5 OF 6 WEST CAMBRIDGE DENSIFICATION

Client: UNIVERSITY OF CAMBRIDGE

Date of Issue: 24.12.15
 AD Scale: 1:500@AG
 Drawing Number: 31500/2001/154

Designed: DRM
 Checked: DRM
 Drawn: ST
 Approved: ST

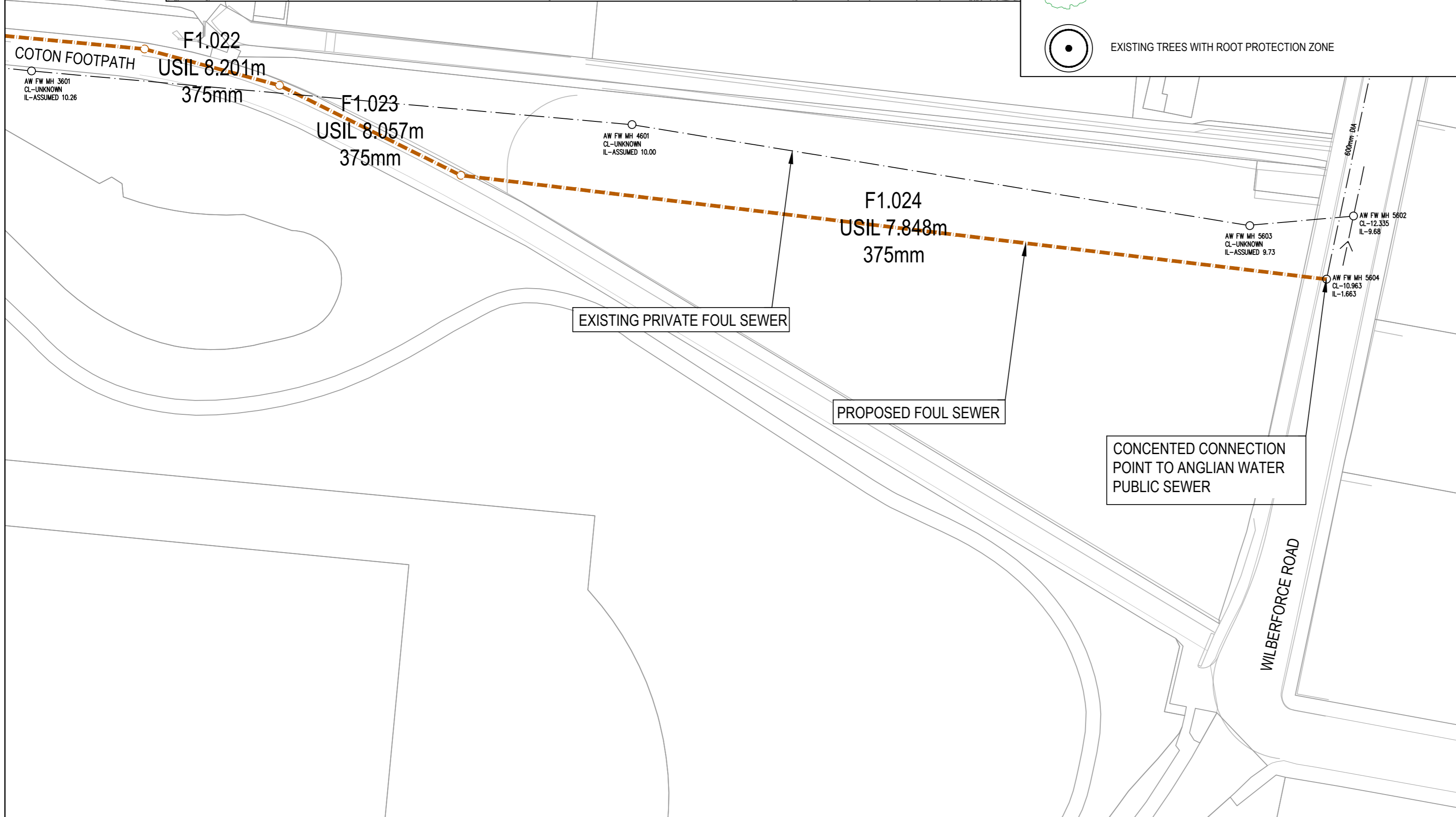
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KEY:

- 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 ONSITE STORAGE IS TO BE PROVIDED - REFER TO AREAS SHOWN PINK, A FLOW RATE HAS BEEN CALCULATED BY MULTIPLYING THE 100yr 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 1/150 AND TO BE 150 DIA.
- INDICATIVE BIORETENTION AREAS
- PROPOSED SUDS SWALE
- PROPOSED TREE PLANTING
- EXISTING TREES WITH ROOT PROTECTION ZONE

- NOTES**
1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
 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 PROVISIONS AND ARRANGEMENTS PLEASE REFER TO PBA DRAWING 31500-2006-116, 117 & 118
 7. ALL EXISTING INVERT LEVELS SHOWN ON THIS PLAN HAVE BEEN BASED OFF THE FOLLOWING:
 - GREEN HATCH TOPOGRAPHICAL SURVEY.
 - CAMLINE SERVICES CCTV SURVEY.
 8. 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
 9. 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 1:1yr GREENFIELD RUNOFF RATE (MIN FLOW RATE OF 1 l/s - SEE NOTE 14).
 10. 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
 11. 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
 12. THE COVER LEVELS SHOWN NORTH OF THE "ORIGINAL WATERSHED" LINE ON THIS PLAN ARE SUBJECT TO CHANGE AS PART OF THE OVERALL SITE EARTHWORKS. THESE SHOULD THEREFORE BE SEEN AS INDICATIVE AT THIS STAGE
 13. 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 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.
 14. 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 INSPECTIONS OF ALL FLOW CONTROLS (IN ACCORDANCE WITH THE CAMBRIDGESHIRE SUDS ADOPTION GUIDE) WILL BE CARRIED OUT AND OVERFLOW WEIRS INSTALLED)
 15. PEAK FOUL FLOW RATES SHOWN ON THIS PLAN HAVE BEEN DETERMINED BY MULTIPLYING TOTAL PLOT DEVELOPABLE FLOOR AREAS (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.
 16. ALL FINISHED FLOOR LEVELS WILL BE ESTABLISHED TAKING IN TO FULL ACCOUNT DRAINAGE CONNECTIONS.
 17. WHILST 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.
 18. 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
 19. 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



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
Mark	Revision	Date	Drawn	Chkd	Appd

SCALING NOTE: Do not scale from this drawing. If in doubt, ask.
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Drawing Issue Status
PRELIMINARY

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

Client
UNIVERSITY OF CAMBRIDGE

Date of 1st Issue	Designed	Drawn
24.12.15	DRM	DRM
A2 Scale	Checked	Approved
1:500@A2	ST	ST
Drawing Number	Revision	
31500/2001/154B	C	

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 Tel: 01223 882000

NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
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. THE PURPOSE OF THIS DRAWING IS TO IDENTIFY WHERE SURFACE WATER FLOODING ABOVE 6m³ ARISING FROM A 100yr + 40% CLIMATE CHANGE STORM EVENT OCCURS AND WHERE IT WILL BE STORED. IT SHOULD BE NOTED THAT WHERE FLOODING DOES OCCUR, FINISHED FLOOR LEVELS OF BUILDINGS WILL BE A MINIMUM OF 300mm ABOVE FLOOD LEVELS.
7. THE FLOOD DEPTHS AND LOCATIONS SHOWN ON THIS PLAN HAVE BEEN INFORMED BY A FULL MACRODRAINAGE NETWORK ANALYSIS OF THE PROPOSED SURFACE WATER SYSTEM. THE HYDRAULIC CALCULATIONS SHOULD BE REFERRED TO FOR MORE INFORMATION.
8. FOR FLOOD VOLUMES LESS THAN 6m³, PLEASE REFER TO STORM WATER CALCULATIONS.



B	AMENDED FOLLOWING CHANGES TO MASTERPLAN	30.06.17	GC	SF	ST
A	BIO-RETENTION AREAS AMENDED	12.12.16	GC	RC	ST
Mark	Revision	Date	Drawn	Chkd	Appd

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

PRELIMINARY
100 YEAR PLUS 40% CLIMATE CHANGE FLOOD ROUTES AND OVERLAND EXCEEDANCE FLOW PATHS WEST CAMBRIDGE DENSIFICATION

Client
UNIVERSITY OF CAMBRIDGE

Date of 1st Issue: 07.11.2016
 AO Scale: 1:1250@A0

Designed: DRM
 Checked: DRM
 Drawn: DRM
 Approved: ST

Drawing Number: **31500/2001/157**
 Revision: **B**

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KEY:

- INDICATIVE EXTENTS OF FLOOD WATER ARISING FROM CRITICAL 100yr + 40% CLIMATE CHANGE STORM EVENT
- OVERLAND FLOW ROUTE DURING EXCEEDANCE STORM EVENT (A STORM EVENT GREATER THAN THE 100 YEAR PLUS 40% CLIMATE CHANGE EVENT)

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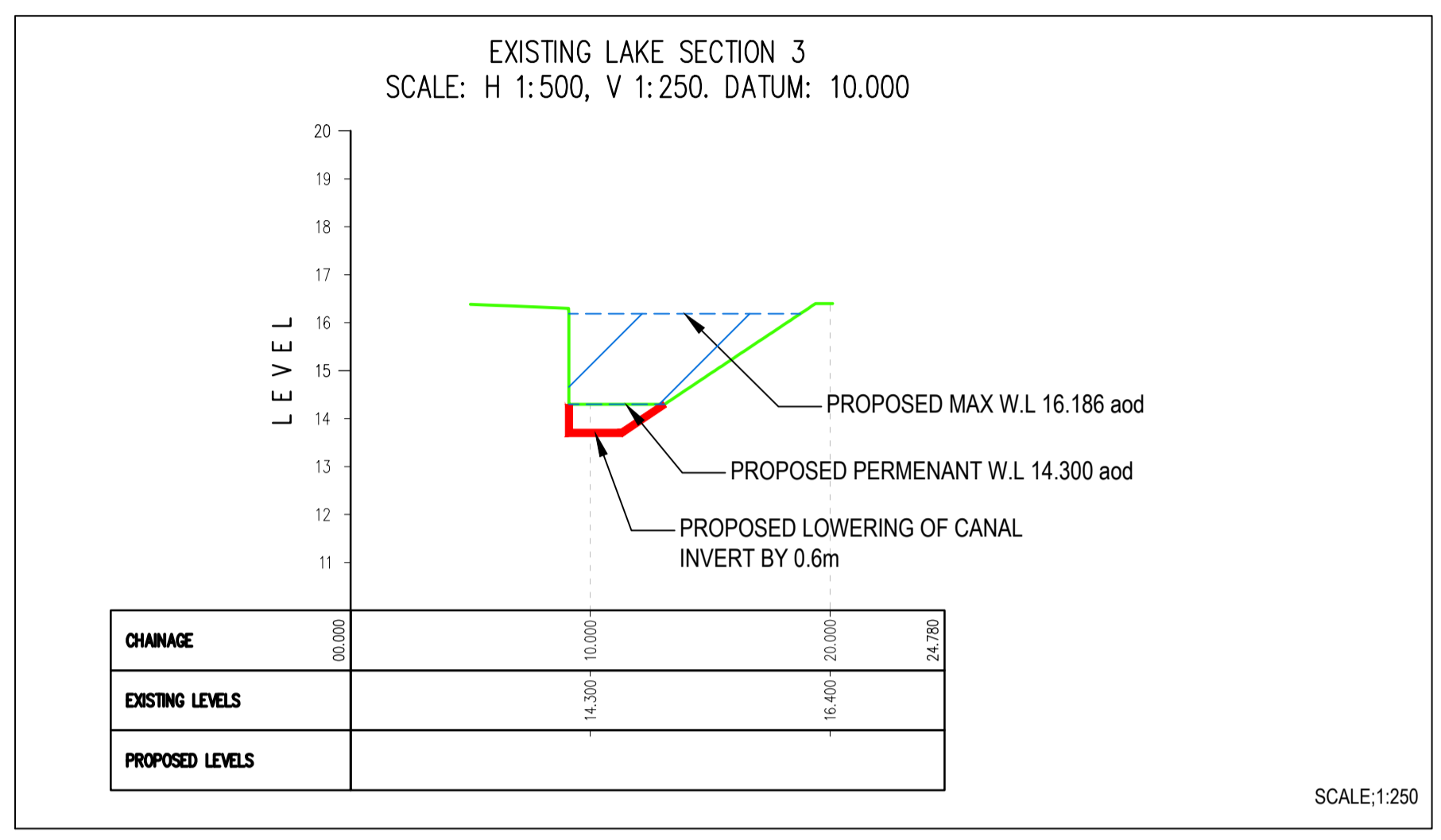
FLOW CONTROL 1 - (HYDRO-BRAKE)
 TO LIMIT ALL FLOWS TO 1:1 YEAR DISCHARGE RATE FOR ALL STORM EVENTS UP TO AND INCLUDING THE 100yr + 40% CLIMATE CHANGE EVENT
 1 IN 1 YEAR FLOW RATE = 20.447 x 2.592 = 53.00 l/s
 INLET TO CONTROL STRUCTURE TO BE LOWERED FROM EXISTING 15.300 AOD TO 14.300m AOD (MAX CONTROL HEAD = 1.885m)
 (THIS PROVIDES APPROXIMATELY 9,000m³ EXTRA STORAGE COMPARED TO EXISTING)

EXISTING LAKE
 TO REMAIN AS OF EXISTING WITH FLOW CONTROL INLET LOWERED FROM 15.30 aod TO 14.300 aod
 POND INVERT LEVEL = 12.20 aod
 PROPOSED PERMANENT WATER LEVEL = 14.30 aod
 PROPOSED PERMANENT WATER DEPTH = 2.10m
 PROPOSED EFFECTIVE STORAGE VOLUME = 18,334m³
 PROPOSED EFFECTIVE STORAGE DEPTH = 1.885m
 MAX PROPOSED EFFECTIVE STORAGE LEVEL = 16.186 aod

SCALE:1:500

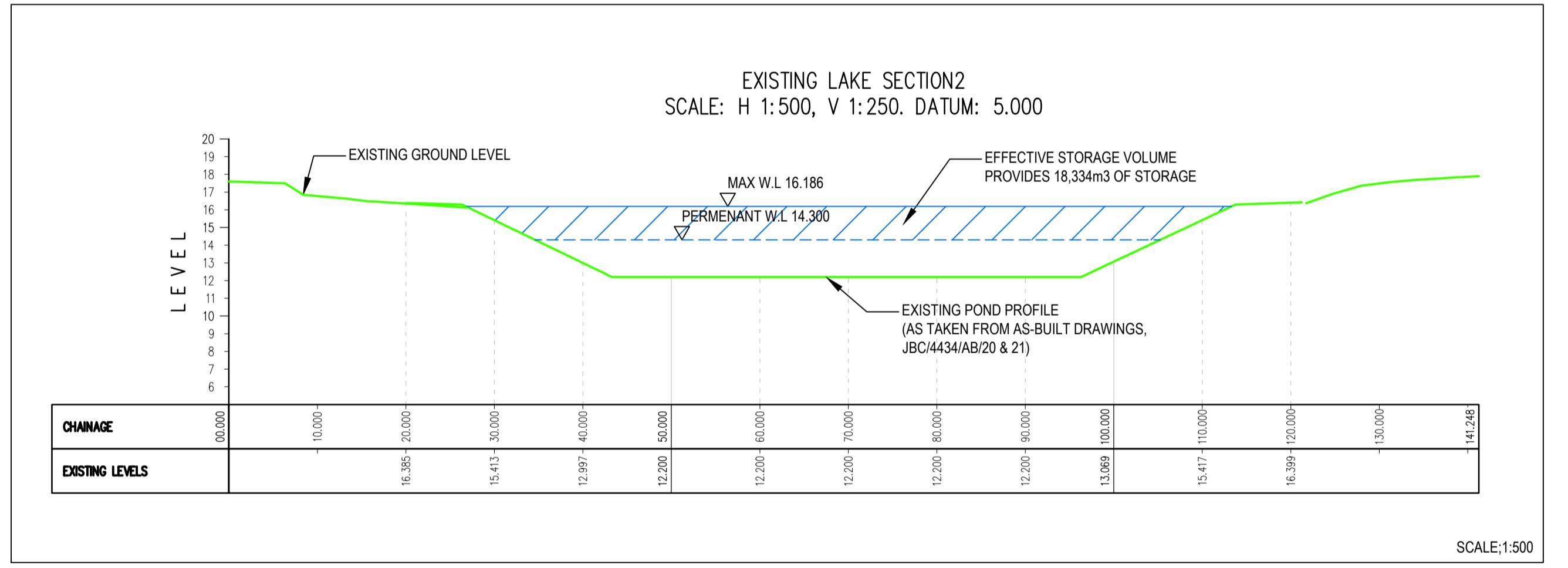
STORAGE FEATURE	EXISTING STORAGE VOLUME (m ³)	PROPOSED STORAGE VOLUME (m ³)
EASTERN LAKE	9,466m ³	18,334m ³
CANAL	UNKNOWN	554m ³
PAYNES POND	1,200m ³ APPROX	1,200m ³ APPROX (AS OF EXISTING)

- 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



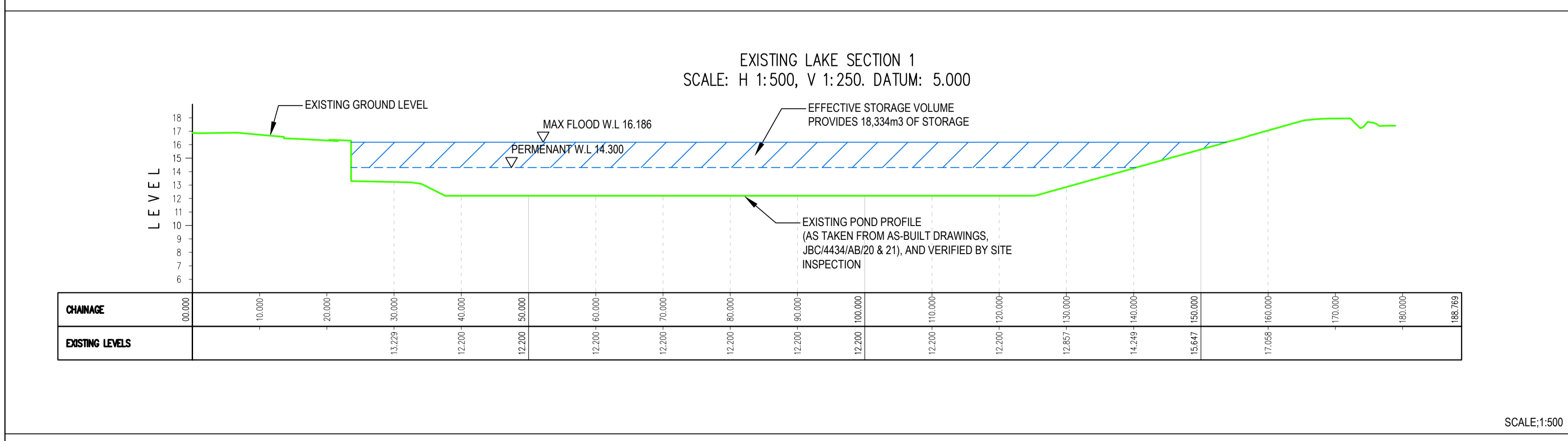
CHAINAGE	00.000	10.000	20.000	24.280
EXISTING LEVELS		14.300	16.400	
PROPOSED LEVELS				

SCALE:1:250



CHAINAGE	00.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	144.240
EXISTING LEVELS			16.385	15.413	12.997	12.200	12.200	12.200	12.200	13.089	15.467	16.399			

SCALE:1:500



CHAINAGE	00.000	10.000	20.000	30.000	40.000	50.000	60.000	70.000	80.000	90.000	100.000	110.000	120.000	130.000	140.000	150.000	160.000	170.000	188.769	
EXISTING LEVELS			13.229	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200	12.200

SCALE:1:500

Mark	Revision	Date	Drawn	Chkd	Appd
C	MASTERPLAN UPDATED	23.06.17	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 1 OF 3)

Client
WEST CAMBRIDGE

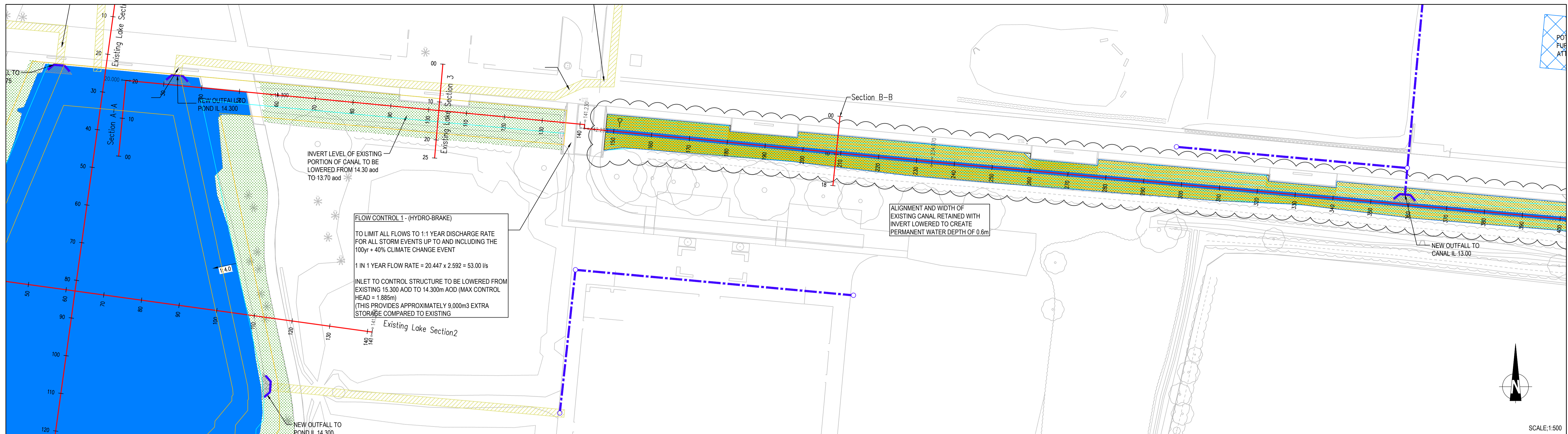
Date of 1st Issue: 19.04.16
 A1 Scale: AS SHOWN

Designed: DRM
 Checked: DRM

Drawn: DRM
 Approved: ST

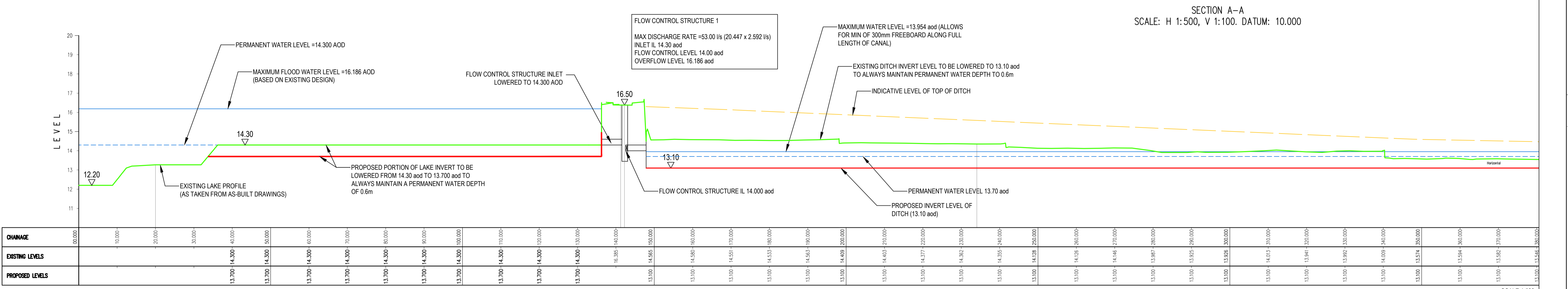
Drawing Number: **31500/2006/116**
 Revision: **C**

File Location: J:\31500 west cambridge masterplan\drawings\civil\31502 design model\proposed canal & cotton brook pond masterfile_november 2016.dwg

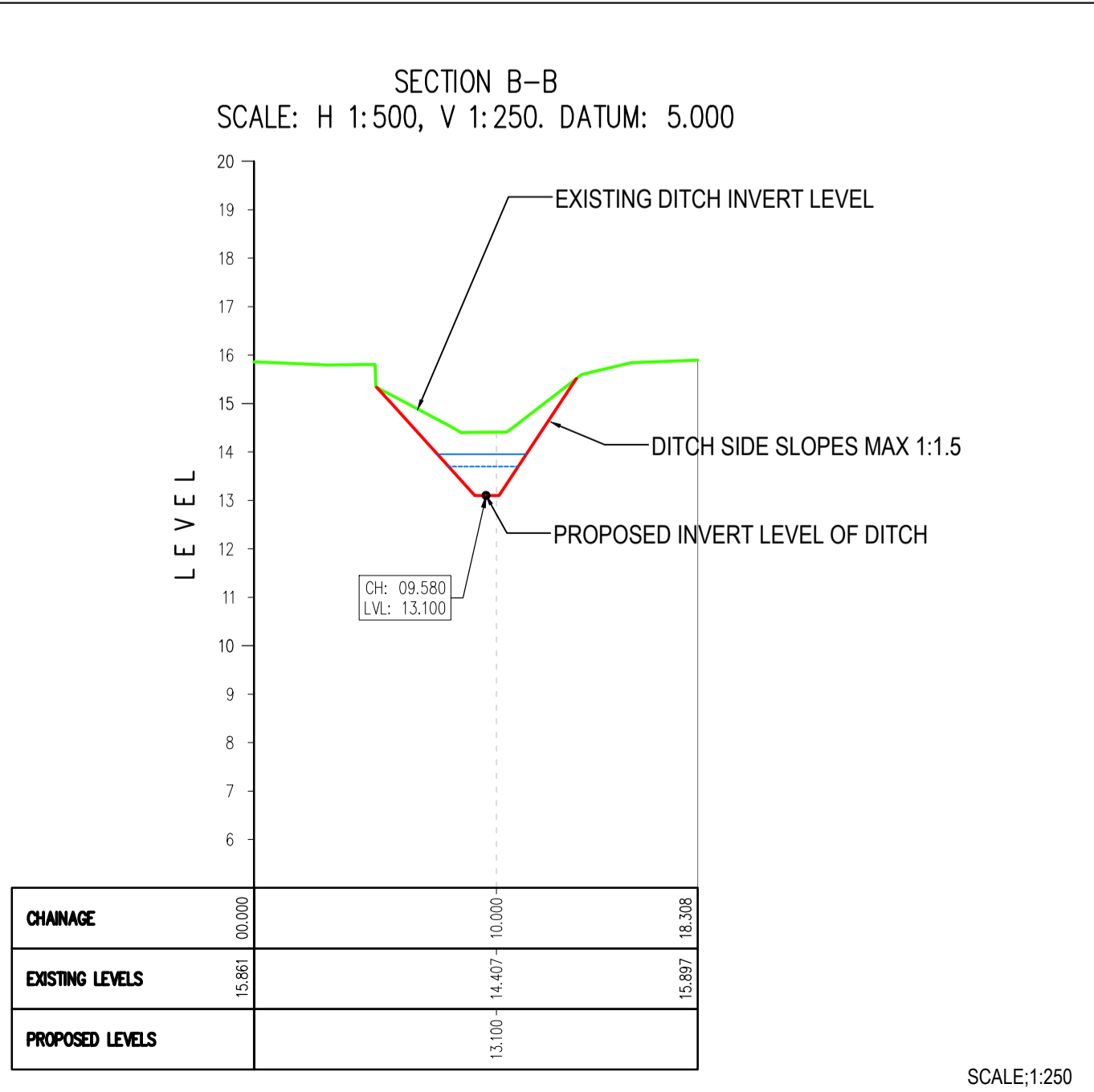


FLOW CONTROL 1 - (HYDRO-BRAKE)
 TO LIMIT ALL FLOWS TO 1:1 YEAR DISCHARGE RATE FOR ALL STORM EVENTS UP TO AND INCLUDING THE 100yr + 40% CLIMATE CHANGE EVENT
 1 IN 1 YEAR FLOW RATE = 20.447 x 2.592 = 53.00 l/s
 INLET TO CONTROL STRUCTURE TO BE LOWERED FROM EXISTING 15.300 AOD TO 14.300m AOD (MAX CONTROL HEAD = 1.885m)
 (THIS PROVIDES APPROXIMATELY 9,000m³ EXTRA STORAGE COMPARED TO EXISTING)

ALIGNMENT AND WIDTH OF EXISTING CANAL RETAINED WITH INVERT LOWERED TO CREATE PERMANENT WATER DEPTH OF 0.6m



CANAL LONG SECTION



SCALE:1:250

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NOTES

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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 IN-LINE WITH CCC COMMENT	03.11.16	DRM	DRM	ST

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Drawing Issue Status
PRELIMINARY

PROPOSED WORKS TO EXISTING DRAINAGE INFRASTRUCTURE WEST CAMBRIDGE DENSIFICATION (SHEET 2 OF 3)

Client
WEST CAMBRIDGE

Date of 1st Issue 19.04.2016	Designed DRM	Drawn DRM
A1 Scale AS SHOWN	Checked DRM	Approved ST
Drawing Number 31500/2006/117	Revision C	

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