23rd November 2020

Ruttle Plant Holdings Ltd

C/O Mr. P. Sedgwick
Sedgwick Associates
Chartered Town Planners
PO Box 237
Bolton
BL1 9WY

COMMON BANK WORKS WASHING PLANT, COMMON BANK LANE, CHORLEY DRAINAGE MANAGEMENT STRATEGY STATEMENT

This Drainage Management Strategy Statement has been prepared to support the application for the construction of a recycling washing plant on the site located off Common Bank Lane in Chorley. The purpose of this assessment is to summarise the proposed drainage management strategy for surface water run-off generated by the new proposals in accordance with local and national drainage hierarchy. This assessment will identify how the additional surface water run-off can be sustainably stored onsite within the existing drainage systems. This assessment is supported by an illustrative drainage strategy drawing and indicative rates of discharge with associated stormwater storage estimates for the proposed additional hardstanding.

Site Context & Constraints

The Ordnance Survey National Grid Reference (OS NGR) for the site is E: 356395, N: 417252 and the nearest postcode is PR7 1NH (**Appendix A**). The wider site covers 2.72ha (edged in green) but this assessment focuses on the development area, which is edged in red within **Figure 1** and covers 0.34ha. The wider site is bounded by Common Bank Lane to the north, further industrial development, and Ackhurst Road to the east and the River Yarrow/agricultural land to the south and west of site. The wider site has been operating since 1999 and is used for recycling construction waste for secondary aggregates.

Figure 1: Site Location (Betts Hydro, 2020)

Old Marsh Farm Barns
Welsh Road, Sealand
Flintshire CH5 2LY
Telephone: 01244 289 041

A full topographic survey is not currently available, as the landforms within the site are subject to significant short-term changes due to the stockpiles onsite being created, processed, and removed. The wider site is however shown to fall towards the northern boundary where a land drain is located to intercept any surface water run-off generated onsite at present. From here the site falls towards the south-western corner of site to a level of 31.0mAOD. An existing drainage plan was provided from an earlier application within the wider site boundary which illustrates the existing falls and drainage regime (**Appendix B**).

Development Proposals

As discussed above the wider site is currently used for recycling construction waste for secondary aggregates. The development proposals are however to construct a recycling washing plant within the wider site. The development proposals (shown in **Figure 2**) will only cover 0.34ha and will be complete with, external works, landscaping, and drainage (see full planning layout in **Appendix C**).

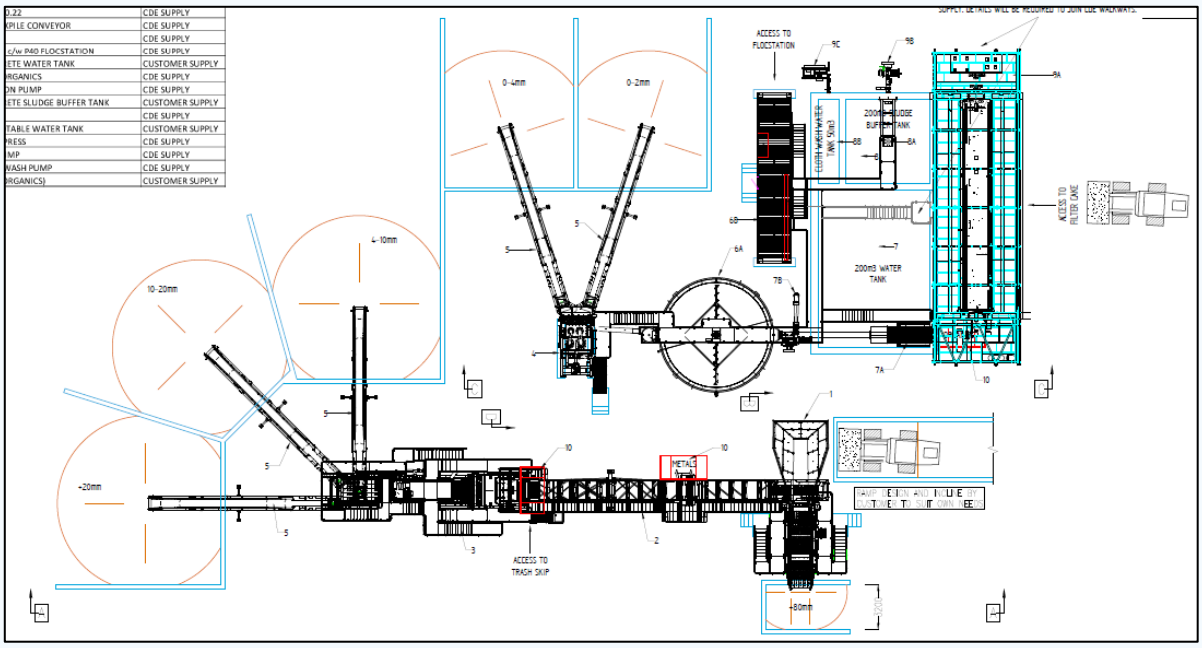

Figure 2: Proposed Planning Layout (CDE, 2020)

Surface Water Management

In terms of surface water management, national and local planning policies identify that surface water run-off generated by new development, is required to be managed in an appropriate and sustainable way. To understand how to manage surface water run-off, first an assessment of the existing management regime is required.

Existing Drainage Situation

The existing drainage situation has been determined based on the available information and the existing drainage plan provided for the wider site from a previous application for the site. The site has an efficient onsite land drainage network made up of an open and culverted land drain that takes run-off generated onsite to outfall into two man-made surface water storage

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lagoons where surface water is attenuated. The existing storage lagoons discharge surface water run-off from the wider site (including the proposed development area) before discharging into the River Yarrow to the west, at a restricted rate. The existing discharge to the River Yarrow is subject to an existing Environmental Permit with the EA, which agrees to the existing discharge rate from the site being restricted to 7.0l/s. **Figure 3** below, shows the existing drainage regime serving the wider site, including the area onsite where the proposed development will be situated.

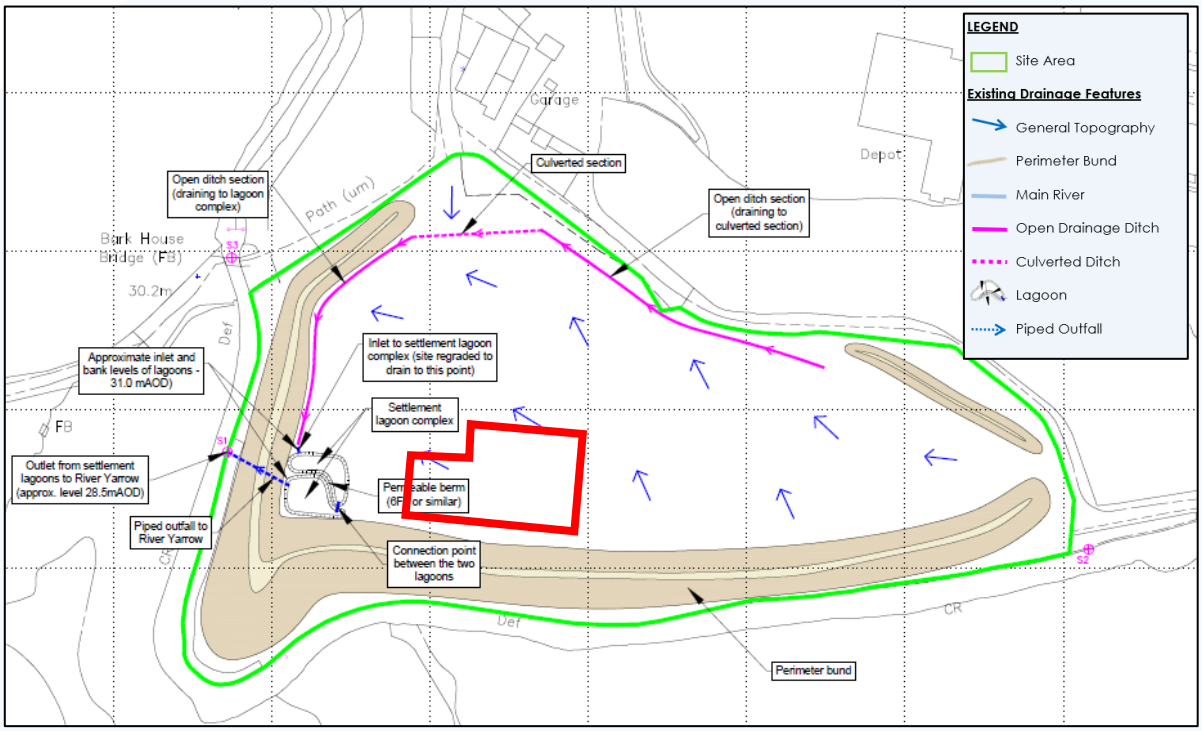

Figure 3: Existing Drainage Plan Extract (Oaktree Environmental Ltd, 2020)

Proposed Drainage Strategy

To ensure no increase in surface water flood risk results from the development, a surface water management regime is required to manage any surface water run-off. In terms of surface water management, national and local planning policies identify that surface water run-off generated by new development is required to be managed in an appropriate and sustainable way. The proposed strategy follows the sustainable hierarchy identified in the SuDS Manual C753 and the Non-statutory technical standards for sustainable drainage systems. There are three methods that have therefore been reviewed for managing surface water run-off generated by the new hardstanding.

Discharge to ground (infiltration) should be the first consideration to minimise discharge to downstream watercourses and sewers. Where infiltration is not practical or viable, discharge to a watercourse system should be considered. Finally, where the first two means of managing surface water have been explored and are evidenced as not feasible, surface water can, subject to agreements, discharge into a sewer network.

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Discharge to Ground

Based on the ground conditions identified by the published online datasets and the previous assessment in support of older approvals, infiltration would not likely provide a viable drainage solution for all the development site due to the cohesive nature of the underlying ground strata. This is supported by the soil classification being 0.47, which indicates low permeability based on the FEH catchment characteristics (0.1 is extremely high permeability and 0.5 is very low). This is supported by the existing drainage regime onsite, that shows the wider site to discharge surface water run-off into the neighbouring Main River and not to ground.

Discharge to Watercourse

The proposals are therefore to mimic the existing regime catering for the wider site and discharge surface water run-off into the adjacent Main River, as shown within **Figure 4** (see **Appendix D**). As the development area is currently part of the wider drainage regime there are no proposals at this time to alter the existing discharge rate approved as part of the current Environmental Permit. The Environmental Management System report (ref: 3658-446-A_EMS_v1-0) has identified that the wider site currently discharges into the River Yarrow at a discharge rate of 7 l/s and the existing lagoons have an attenuation capacity of 605m^3. A copy of the current Environmental Permit covering this discharge to the River Yarrow is appended for completeness (**Appendix D**).

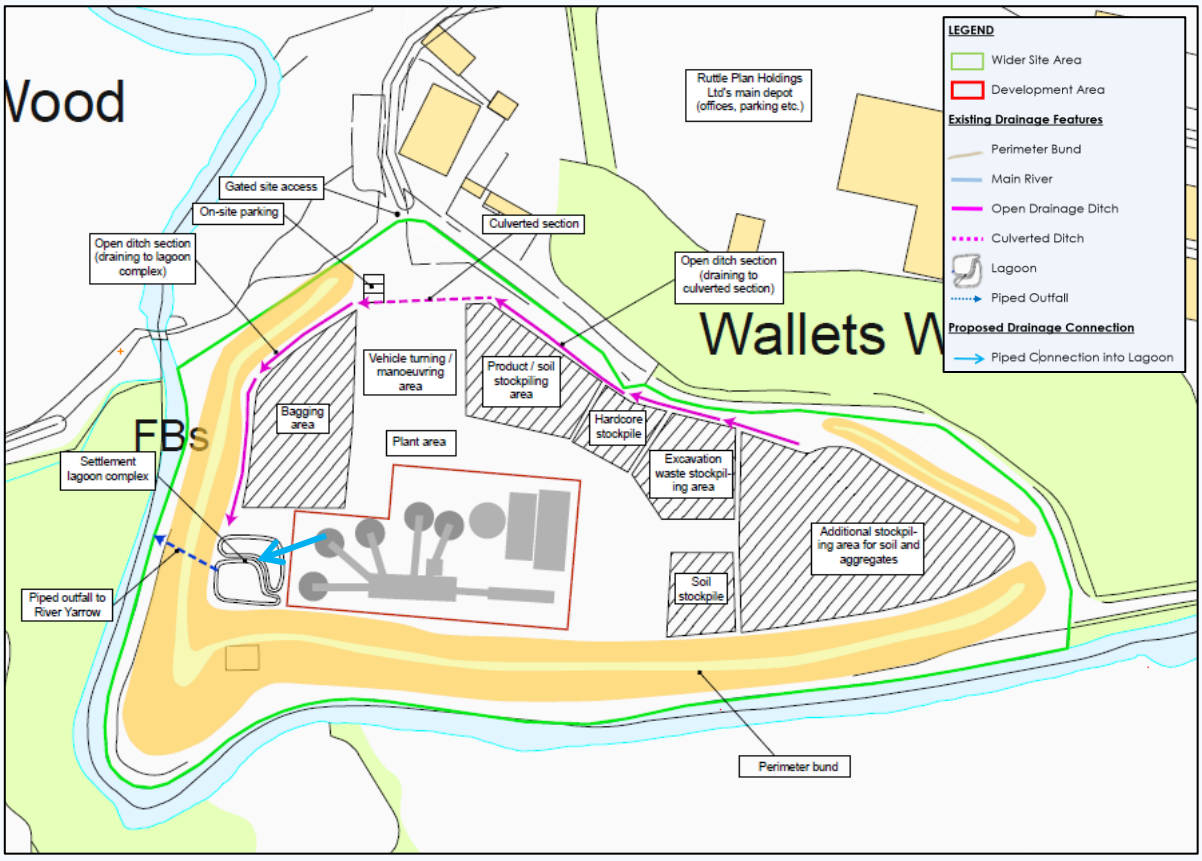

Figure 4: Preliminary Drainage Strategy Plan (The Mineral Planning Group Ltd., 2020)

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The proposals will be to continue to discharge to the River Yarrow mimicking the existing approved discharge rate, given that the proposals will result in an increase in impermeable areas, there will be additional stormwater storage created as a result. The existing attenuation lagoons currently cater for the runoff generated by the currently undeveloped development area. The existing network onsite can easily be adjusted to cater for the additional hardstanding area that will generate the increase in run-off volume. The existing lagoons will need to be enlarged to ensure they cater for the difference in run-off volume generated by the newly proposed hardstanding in comparison to the previously undeveloped development area. Alternatively, an addition small pond can be constructed prior to the lagoons to cater for the additional run-off volume before discharging into the existing onsite lagoons and out to the River Yarrow. It is also proposed that some of surface water run-off would be re-used within the washing plant replacing the water lost in the exported products.

In terms of additional stormwater storage required to be catered for, if we consider the entire development area to be 100% impermeable (0.34ha) and an ultimate discharge rate of 7.0l/s (as agreed on the EA Environmental Permit for the site) then the mean stormwater storage requirement for the proposed development in 1 in 100yr plus 20% Climate Change is 173cu.m. The run-off volume for the development area in its current undeveloped state equates to 108.5cu.m in the 1 in 100yr storm event. So the difference between the existing and the proposed volumes generated in this event would be 64.5cu.m, which is the additional volume of run-off that the existing lagoons onsite will need to be enhanced to include (full details can be found in **Appendix E**).

There is a requirement to consider sustainable drainage systems where at all feasible for new development. In terms of these proposals, due to the use of the development the proposals will be to re-use run-off generated where at all possible, even though the formal drainage design will include the entire run-off generated, some volume will in most events be re-used as part of the development. Furthermore, any parts of the development area that are not proposed to be hardstanding will comprise of granular material to allow the first 5mm of rainfall to be dealt with at source (as identified in the SuDS Manual) before entering the onsite formal drainage network, therefore improving the water quality.

As noted above the proposals will also be to utilise the existing attenuation lagoons within the drainage management strategy to serve the proposals, these lagoons are considered to be a form of a Sustainable Drainage System (SuDS). The lagoons act as an attenuation pond/basin by reducing the volume of surface water entering the downstream watercourse and providing further opportunity for natural processes (evapotranspiration) to occur. Due to the scale and nature of the development however, it would not be feasible to include any other form of large-scale SuDS.

Discharge to Public Sewer

Furthermore, due to the proximity of the existing Main River, the existing onsite drainage network, and the nature of the development proposals there are no proposals to connect run-off generated by the development area into the sewer network at this time.

Conclusions

This Drainage Management Strategy Statement has summarised the drainage proposals for the site to conform with the local and national drainage hierarchy. The proposed surface water regime ensures the additional surface water run-off created by the proposed hardstanding because of the development can be sustainably stored onsite within the existing

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drainage systems. This will be achieved by mimic the existing drainage regime and utilising the existing drainage network.

The total site will continue to discharge into the River Yarrow at the agreed restricted discharge rate of 7l/s and The proposals will be to increase the capacity in the existing attenuation lagoons serving the wider site to accommodate the increase in run-off generated by the proposed hardstanding. As the proposals will not increase the rate of run-off entering the downstream system, it is assumed that the proposals will be acceptable.

If you have any queries or require further information, please do not hesitate to contact us.

Yours sincerely,

Kind Regards

Megan Berry BSc(Hons) MCIWEM
Graduate Flood Risk Analyst

Appendices
Appendix A – Location Plan
Appendix B – Existing Drainage Plan
Appendix C – Development Proposals
Appendix D – Preliminary Drainage Strategy Plan
Appendix E – Surface Water Calculations & Stormwater Storage Estimates

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Appendix A – Location Plan

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LOCATION PLAN

LANCASTER HOUSE, ACKHURST ROAD, CHORLEY, PR7 1NH

OS X (Eastings)	356395
OS Y (Northings)	417252
Nearest Post Code	PR7 1NH
Lat (WGS84)	N53:38:60 (53.649941)
Long (WGS84)	W2:39:40 (-2.661160)
Lat,Long	53.649941,-2.661160
Nat Grid	SD563172 / SD5639517252
mX	-296238
mY	7069697

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Appendix B – Development Proposals

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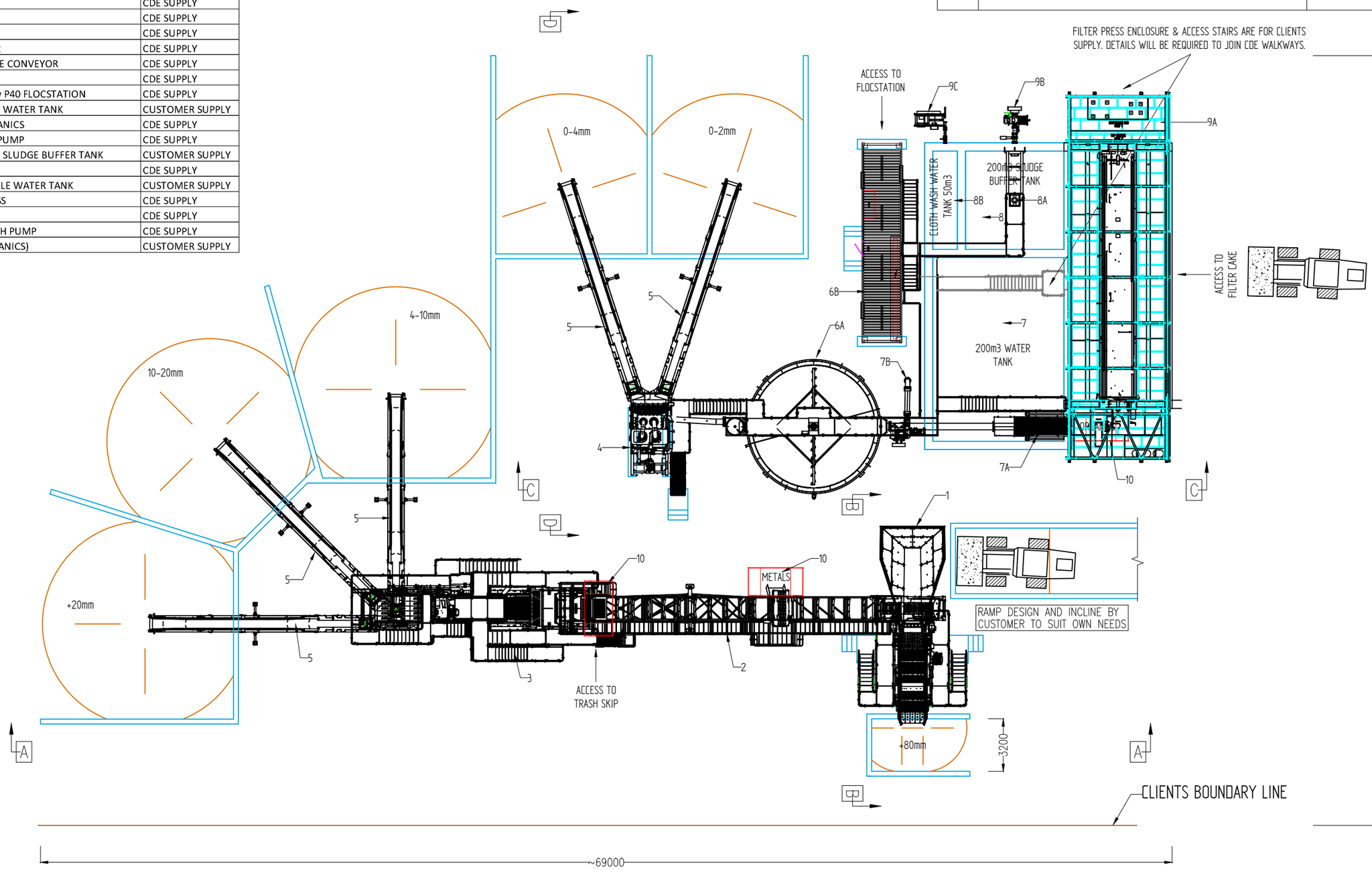
ITEM	QTY	NAMES, DESIGNATION, MATERIAL ETC.	REFERENCE
1	1	R4500 PRIMARY FEEDER	CDE SUPPLY
2	1	S2310 FEED CONVEYOR	CDE SUPPLY
2A	1	OVERBAND MAGNET	CDE SUPPLY
3	1	AGGMAX 83SR	CDE SUPPLY
4	1	EVOWASH B.50.40.100.22	CDE SUPPLY
5	5	M1565 MOBILE STOCKPILE CONVEYOR	CDE SUPPLY
6A	1	A400 AQUACYCLE	CDE SUPPLY
6B	1	12m CONTROL CABIN c/w P40 FLOCSTATION	CDE SUPPLY
7	1	200m3 INSITU CONCRETE WATER TANK	CUSTOMER SUPPLY
7A	1	STATIC SCREEN FOR ORGANICS	CDE SUPPLY
7B	1	WATER RECIRCULATION PUMP	CDE SUPPLY
8	1	200m3 INSITU CONCRETE SLUDGE BUFFER TANK	CUSTOMER SUPPLY
8A	1	AGITATOR	CDE SUPPLY
8B	1	INSITU CONCRETE POTABLE WATER TANK	CUSTOMER SUPPLY
9A	1	GHT1500 P13 FILTER PRESS	CDE SUPPLY
9B	1	FILTER PRESS FEED PUMP	CDE SUPPLY
9C	1	FILTER PRESS CLOTH WASH PUMP	CDE SUPPLY
10	3	SKIP (METAL/TRASH/ORGANICS)	CUSTOMER SUPPLY

THIRD ANGLE PROJECTION.

Rev	Rev Notes	Date	Initials
B	REPOSITION OF EVOWASH, A400, WATER & CLOTH WASH PUMPS	27/03/2020	DCB



NOTES:
CUSTOMER TO SUPPLY AND FIT THE FOLLOWING:

1. ADEQUATE BASE FOR PLANT – CDE TO SUPPLY CIVIL DRAWINGS UPON LAYOUT APPROVAL
2. RAMP DESIGN AND INCLINE TO SUIT CUSTOMER LOADING ARRANGEMENTS.
3. TOP UP WATER, POTABLE WATER AND ELECTRICAL POWER TO THE WASH PLANT CONTROL PANEL.
4. COLOUR SCHEME – BLUE (RAL 5015) & WHITE (RAL 9016).
5. FILTER PRESS ENCLOSURE INCLUDING FLOOR SECTION AND ACCESS STEPS AS HIGHLIGHTED ABOVE.

CDE
Ballyreagh Industrial Estate, Sandholes Road, Cookstown, Co. Tyrone, N. Ireland, BT80 9DG
TEL: (028) 8676 7900, FAX: (028) 8676 1414
www.cdeglobal.com

NAME:	80TPH C&D RECYCLING WASH PLANT		
CLIENT:	RUTTLE GROUP		
SITE:	CHORLEY		
JOB:	SP1145	DRWN BY: DAVID BARBOUR	DATE: 30/03/20
DRWG NO: C466225	REVISION: B	APP BY: CIARAN HEGARTY	DATE: 30/03/20
EXT NO: C466225		SCALE: 1:250@A3 SHEET: 1 OF 2	SIZE: A3

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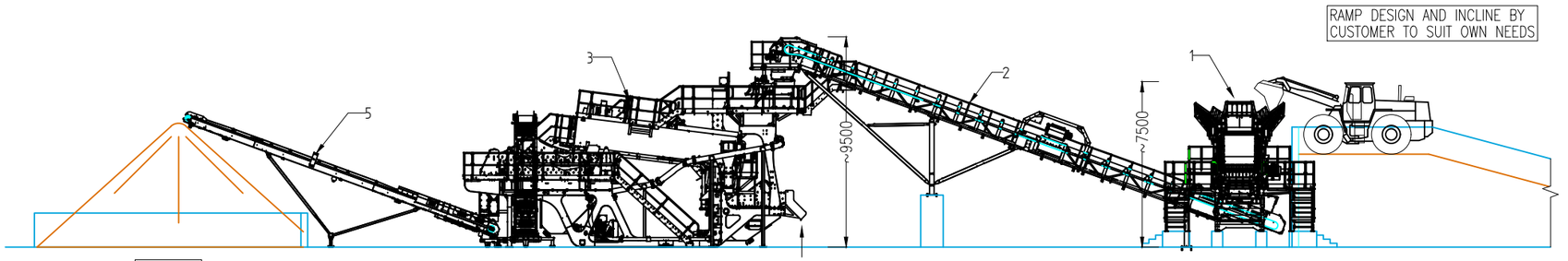

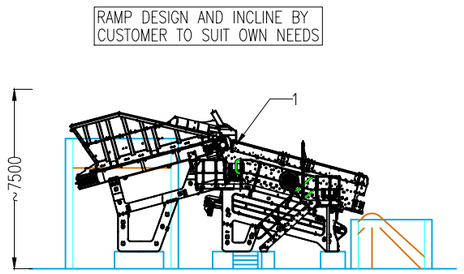

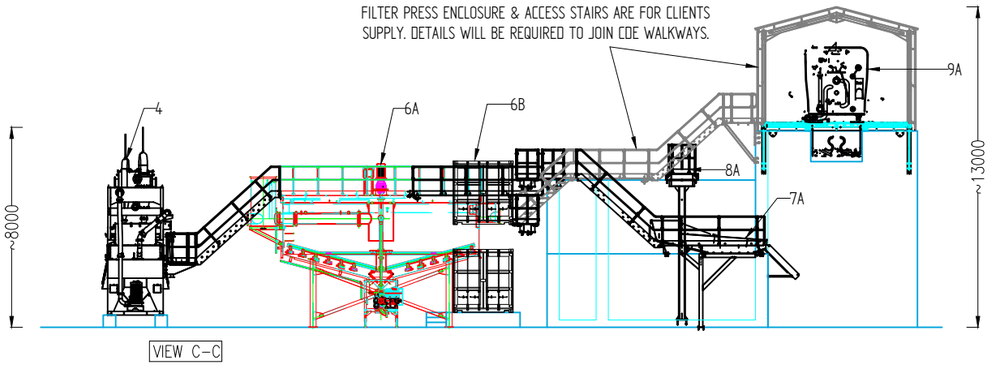

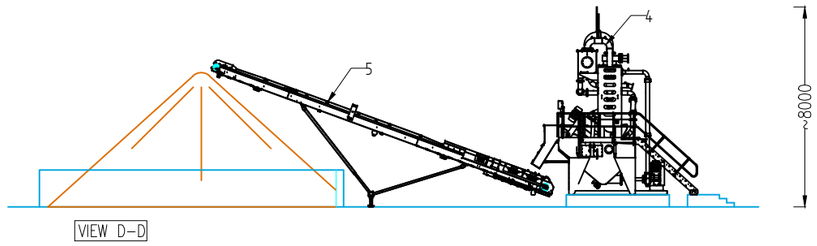

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EXT NO: C466225		SCALE: 1:250@A3 SHEET: 2 OF 2	SIZE: A3

Appendix C – Existing Drainage Plan

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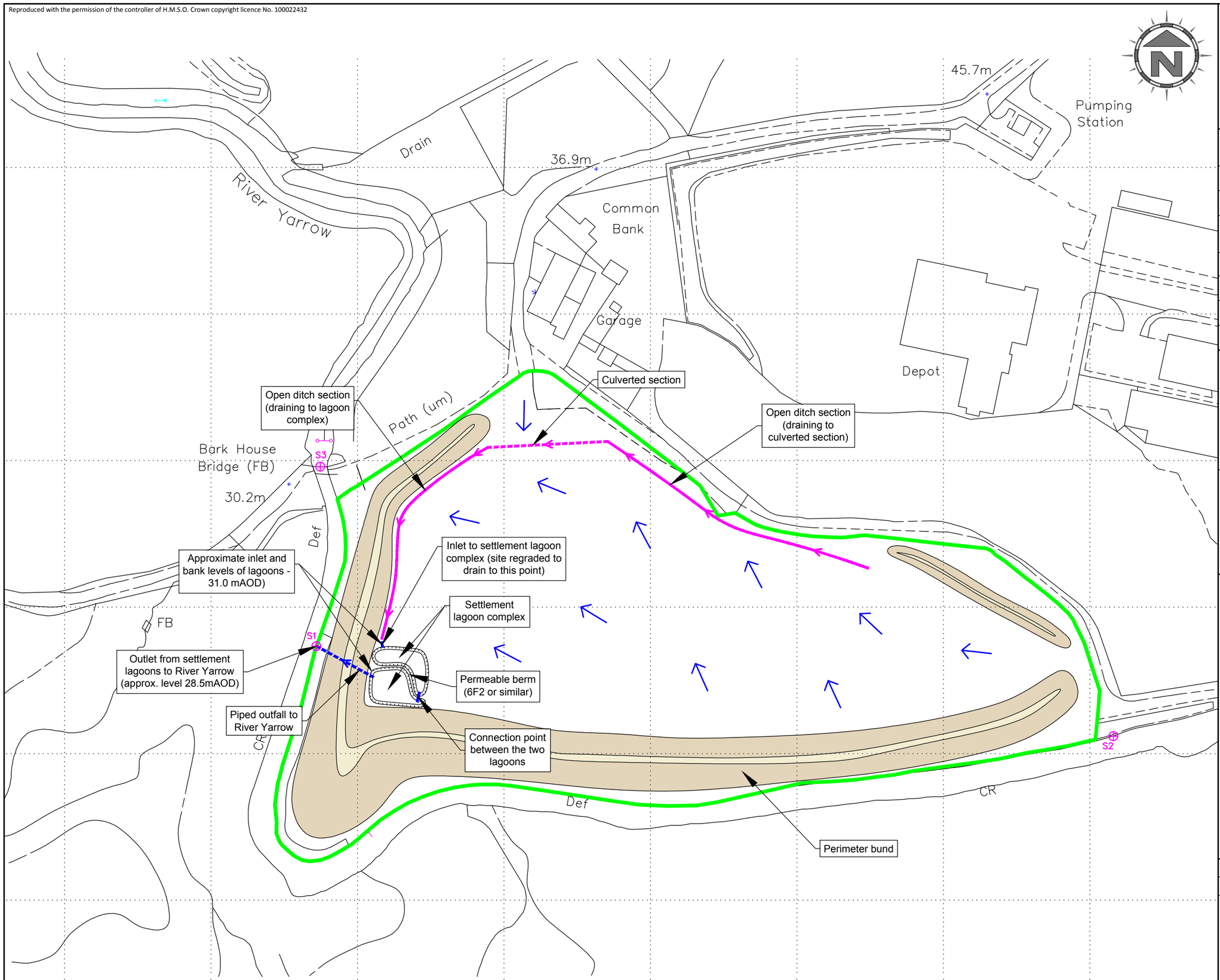

Oaktree Environmental Ltd
Planning, Waste Management and Environmental Consultants
Unit 5, Oasis Park, 19 Road One
Winsford Industrial Estate
Winsford, Cheshire CW7 3RY
Tel: 01606 558833 Fax: 01606 861182
E-mail: sales@oaktree-environmental.co.uk

Title: DRAINAGE ARRANGEMENT PLAN

Drawing No: 3658/446/04	Revision: -
Client: Ruttle Plant Holdings Ltd	
Site: Common Bank Works, off Common Bank Lane, Chorley	
NGR:	
Date: 26 June 2017	Printed At: A3
Scale: 1:1,250	

Job No:	Client No:	Drawn By:	Checked:
3658	446	RS	-

KEY:

- Permit boundary
- Arrows showing the direction of fall after site regrading works
- Monitoring locations

Monitoring locations:

Location Ref	Grid Reference
S1	SD 56286 17236
S2	SD 56558 17206
S3	SD 56287 17298

Notes:

(1) Drawing for indication only.
(2) Do not scale from this drawing.

Revision Details:

Rev:	Description:	Date:
-	Initial drawing	26/06/17

Oaktree Environmental Ltd
Planning, Waste Management and Environmental Consultants
Unit 5, Oasis Park, 19 Road One
Winsford Industrial Estate
Winsford, Cheshire CW7 3RY
Tel: 01606 558833 Fax: 01606 861182
E-mail: sales@oaktree-environmental.co.uk

Title: SITE LAYOUT PLAN

Drawing No:	Revision:
3658/446/03	-

Client: Ruttle Plant Holdings Ltd

Site: Common Bank Works, off Common Bank Lane, Chorley

NGR:

Date:	Printed At:
26 June 2017	A3

Scale: 1:1,250

Job No:	Client No:	Drawn By:	Checked:
3658	446	RS	-

KEY:

Permit boundary

Notes:

(1) Drawing for indication only.
(2) Do not scale from this drawing.

Revision Details:

Rev:	Description:	Date:
-	Initial drawing	26/06/17

Scale Bar (1:1,250)

0 m 50 m 100 m

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Appendix D – Preliminary Drainage Strategy Plan

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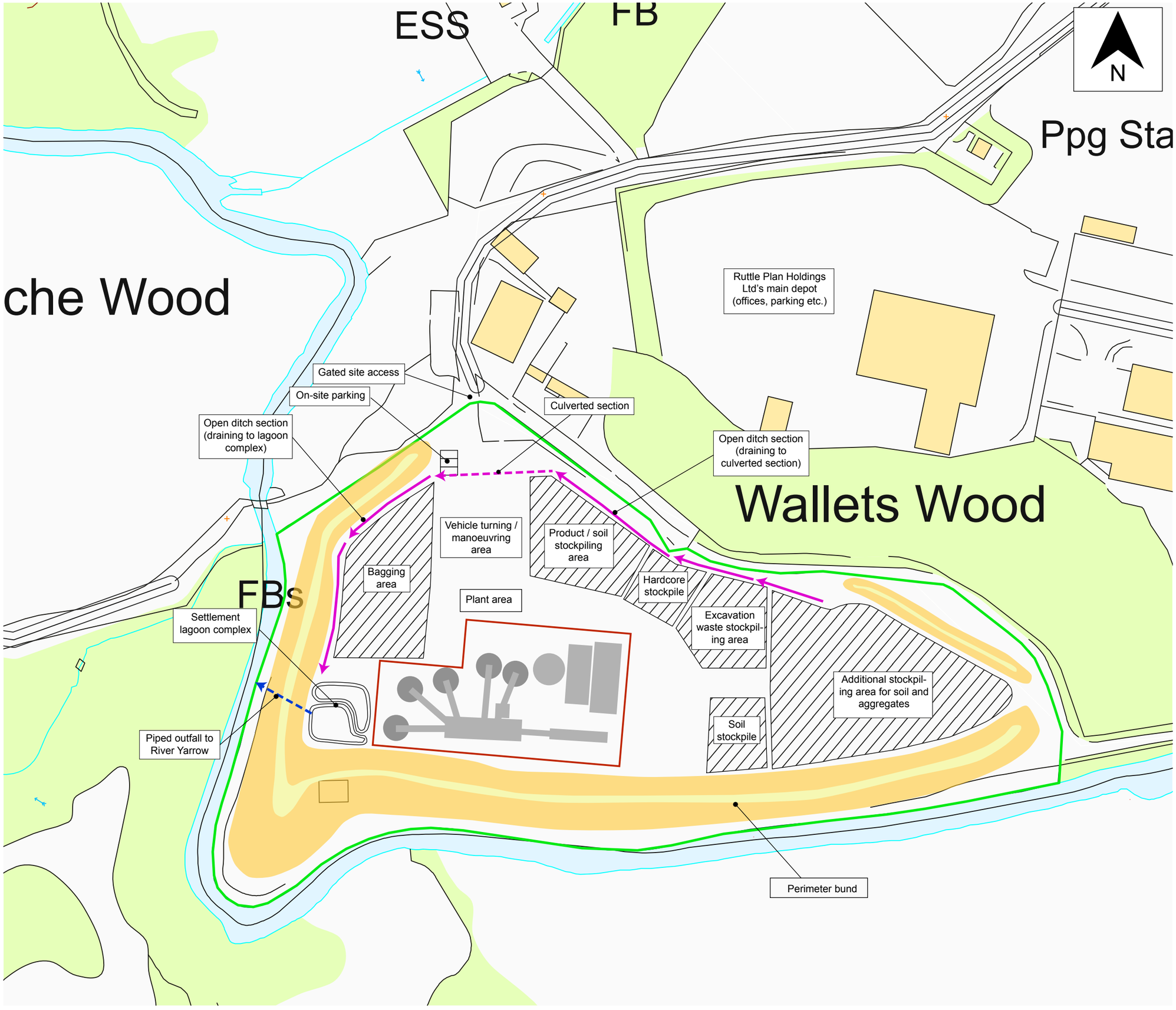

Drawing Title:
Layout Plan

Key:

- Site Boundary
- Approximate Plant Area
- Plant elements (represented schematically)

Notes:
Operational layout subject to minor changes due to on-the-ground challenges

Drawn by:	MS
Checked by:	JMS
Approved by:	CH

The Mineral Planning Group Ltd.
The Rowan Suite
Oakdene House
Cottingley Business Park
Bingley, West Yorkshire
BD16 1PE
Tel: 01274 884599
headoffice@mpgyorks.co.uk
www.mpgyorks.co.uk

MPG

Scale:
1:1250 @ A3

Client:
Ruttle Plant Ltd.

Site:
Common Bank

Drawing Number:
305/6 - 2

Rev:
3.0

Date:
09/07/2020

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Appendix E – Surface Water Calculations & Stormwater Storage Estimates

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SURFACE WATER RUN-OFF CALCULATION SHEET

Development	COMMON WORKS, CHORLEY
Project No.	HYD552

Revision	A	**Completed by**	MB
Date	29.10.20	**Checked by**	KW

Areas

Total Site	2.720	ha	
Development Area[1]	0.344	ha	
Existing Impermeable	0.000	ha	
Existing Impermeable[2]	0.000	ha	
Existing Pervious	2.720	ha	
Existing Pervious[2]	0.000	ha	
Proposed total impermeable	0.344	ha	100%

Catchment Characteristics

SAAR	1005	mm			
SPR	0.51				
BFI	0.463				
i_1	17.8	mm/hr	d_1	22.2	mm
i_{30}	35.0	mm/hr	d_{30}	53.5	mm
i_{100}	45.8	mm/hr	d_{100}	70.1	mm

Run-off Rates

Pre-development

Impermeable ------	1yr	0.0	l/s
	30yr	0.0	l/s
	100yr	0.0	l/s
	40mm/hr[3]	0.0	l/s
Pervious[4] ------	1yr		l/s
	30yr		l/s
	100yr		l/s
	QBar[5]		l/s
Total ------	1yr	0.0	l/s
	30yr	0.0	l/s
	100yr	0.0	l/s

Post-development (without control)

Impermeable[6] ------	1yr	17.0	l/s
	30yr	33.4	l/s
	100yr+40%CC	61.2	l/s

Volumes

Pre-development

Impermeable ------	1yr	0.0	cu.m
	30yr	0.0	cu.m
	100yr	0.0	cu.m
Pervious[4] ------	1yr	35.0	cu.m
	30yr	80.3	cu.m
	100yr	108.5	cu.m
Total ------	1yr	35.0	cu.m
	30yr	80.3	cu.m
	100yr	108.5	cu.m

Post-development

Impermeable[6] ------	1yr	7.6	cu.m
	30yr	18.4	cu.m
	100yr+40%CC	24.1	cu.m

Stormwater Storage Estimates

Based on Greenfield run-off QBar

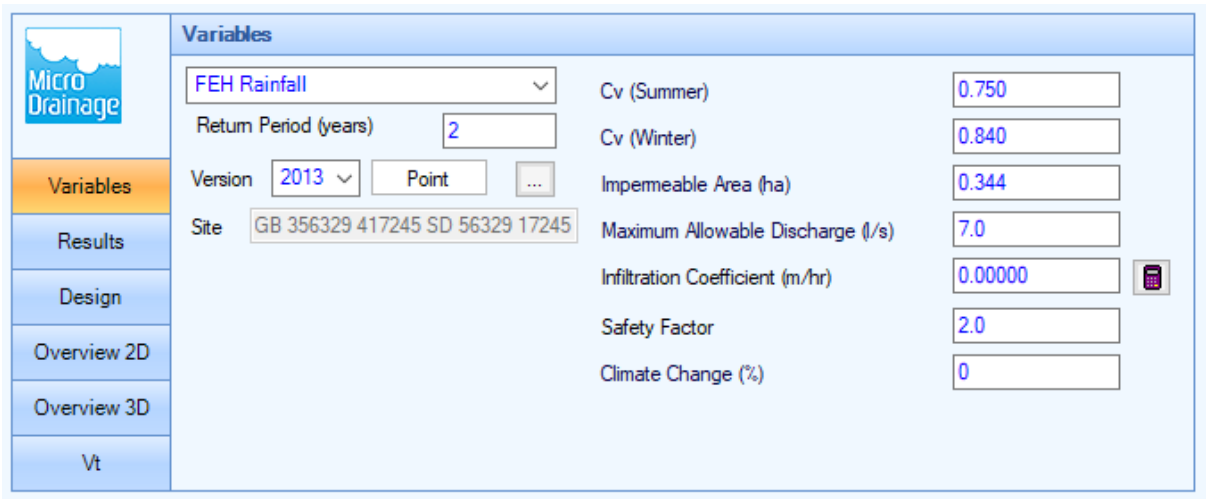
Microdrainage Quick Storage Estimates (using FEH catchment data)

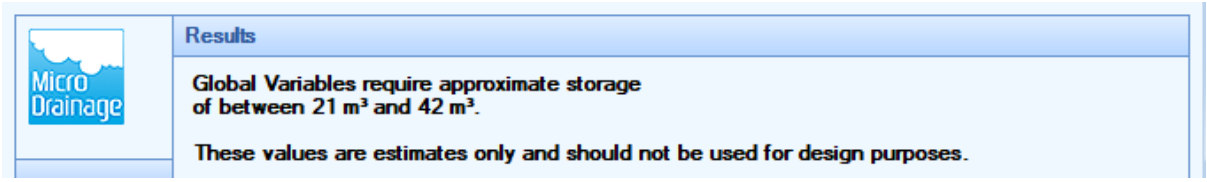
Return Period	Rate		lower	upper	mean	
1yr	7.0	l/s	21	42	31.5	cu.m
30yr	7.0	l/s	76	113	94.5	cu.m
100yr+20%CC	7.0	l/s	148	198	**173**	**cu.m**

1/ The 'development area' removes areas of POS and/or landscaped areas of the wider site that are to remain as existing.
2/ On occasion the existing impermeable area cannot be evidenced to connect and a reduction is applied.
3/ 50mm/hr is used for BRegs calculations and often used by Water Companies when considering allowable post-development rates of discharge. (Rational Method)
4/ The Greenfield rates and of run-off have been calculated using the UK SUDS Calculator
5/ QBar is the estimated flood flow for the 2.33yr return period event and is often used as a post-development rate restriction.
6/ Post-development run-off is only considered from the impermeable area when the proposed post-development impermeable area >50% in accordance with the EA Guidance Preliminary rainfall runoff management for developments (W5-074/A/TR1/1 rev E (2012).

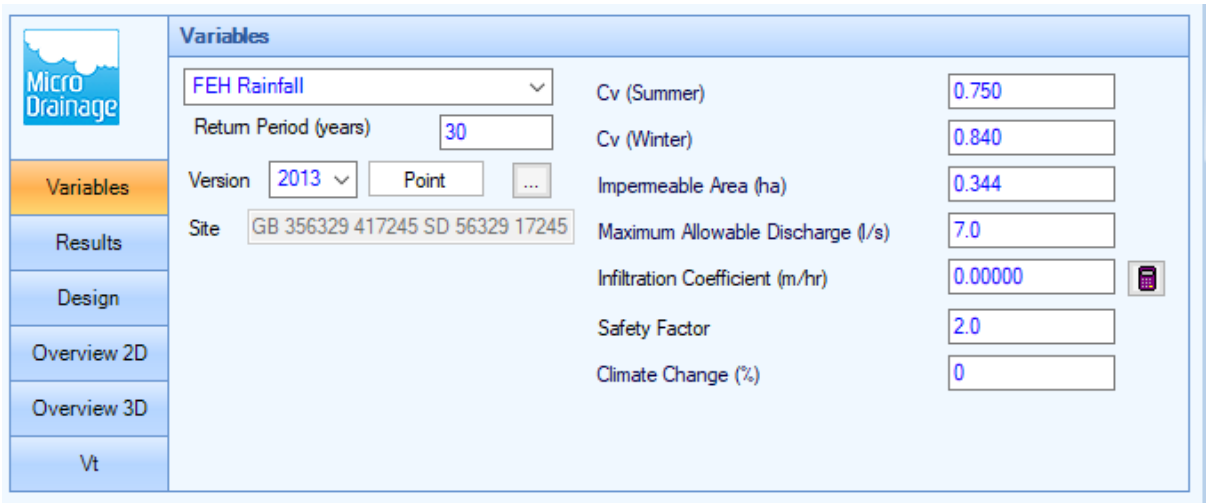
NB. The catchment characteristics are from the FEH catchment, the UK SUDS Calculator and Microdrainage.
NB. The rainfall intensities and depths are calculated for the 6hr duration rainfall event (peak summer intensity)

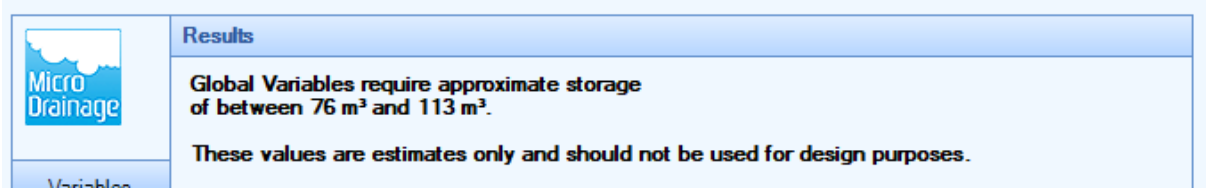
1 YEAR RETURN PERIOD STORM EVENT



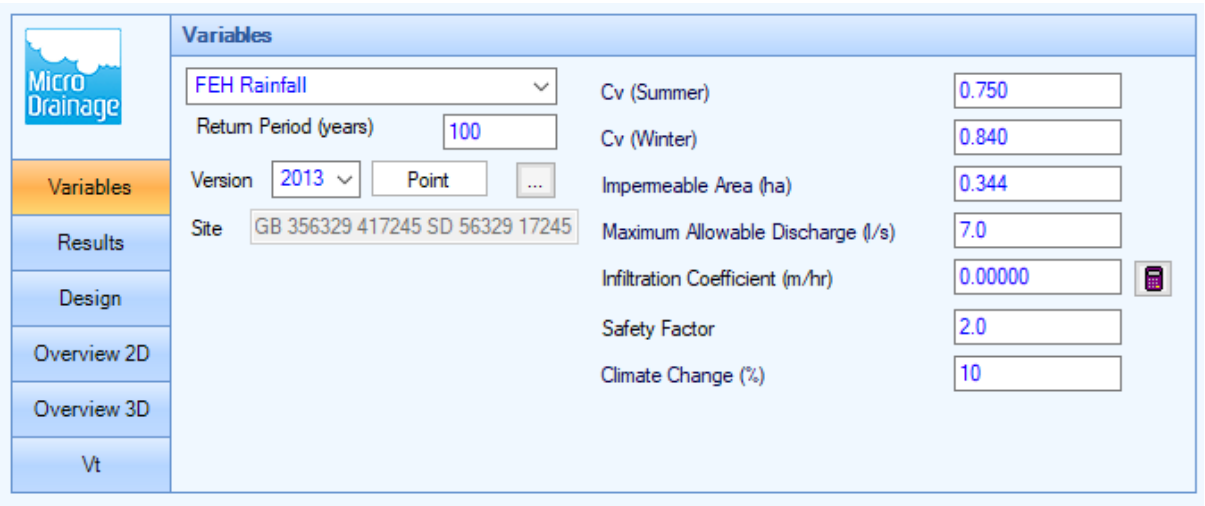


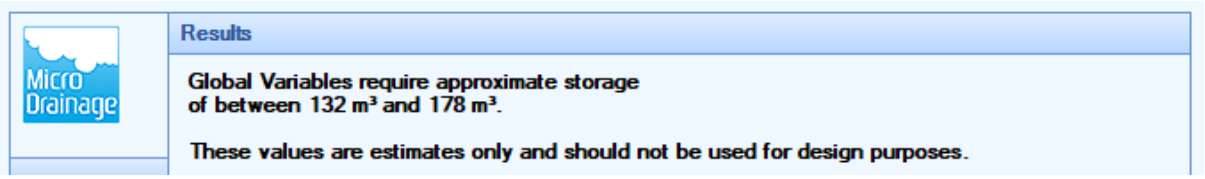
30 YEAR RETURN PERIOD STORM EVENT



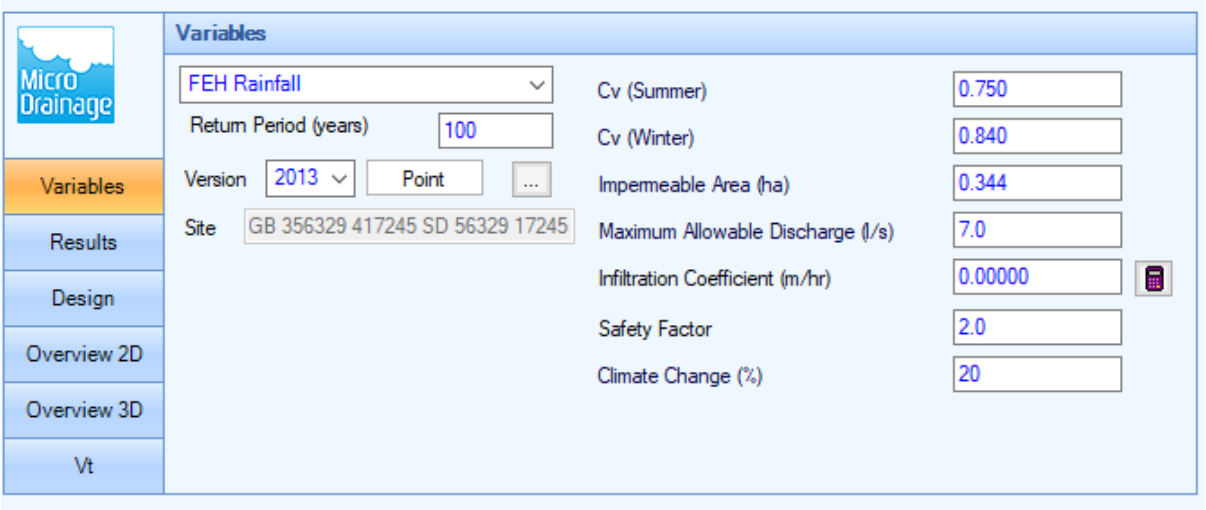


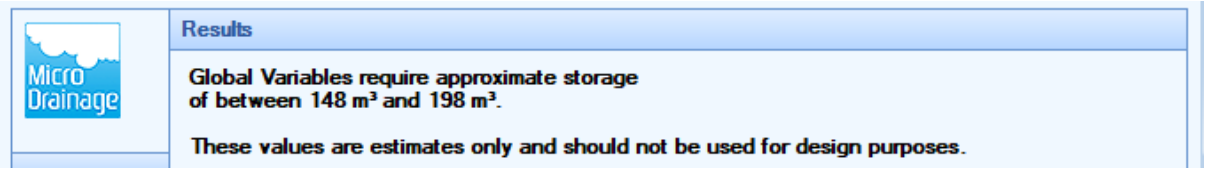
100 YEAR RETURN PERIOD STORM EVENT + 10% CLIMATE CHANGE



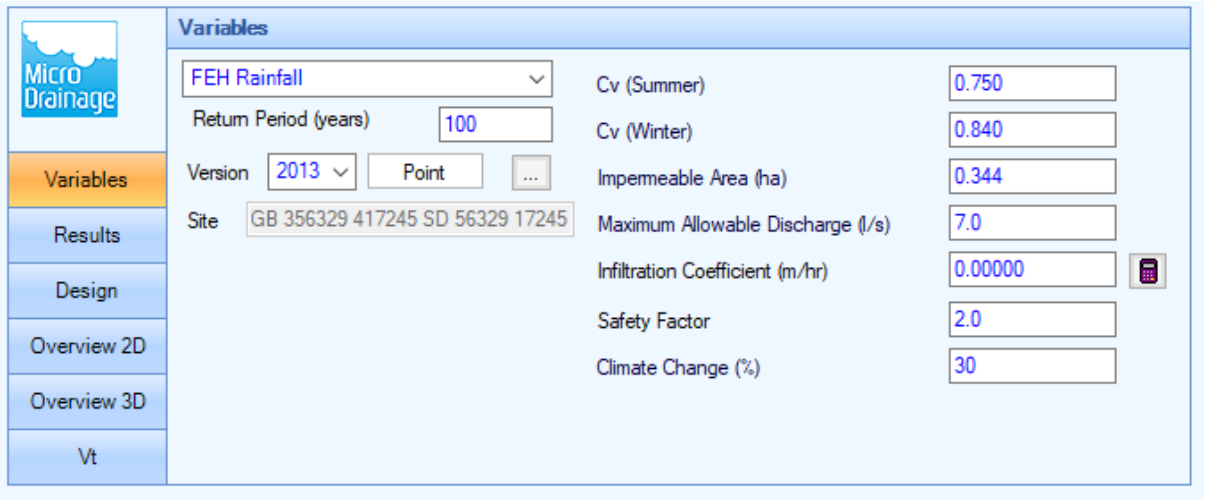


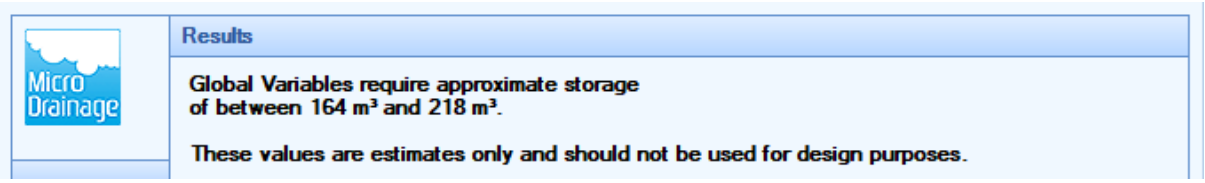
100 YEAR RETURN PERIOD STORM EVENT + 20% CLIMATE CHANGE





100 YEAR RETURN PERIOD STORM EVENT + 30% CLIMATE CHANGE





Greenfield Runoff Volume

FSR Data

Return Period (years)	100
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	18.600
Ratio R	0.343
Areal Reduction Factor	1.00
Area (ha)	0.344
SAAR (mm)	1005
CWI	123.376
Urban	0.000
SPR	47.000

Results

Percentage Runoff (%)	50.56
Greenfield Runoff Volume (m^3)	108.487

Greenfield Runoff Volume

FSR Data

Return Period (years)	30
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	18.600
Ratio R	0.343
Areal Reduction Factor	1.00
Area (ha)	0.344
SAAR (mm)	1005
CWI	123.376
Urban	0.000
SPR	47.000

Results

Percentage Runoff (%)	48.54
Greenfield Runoff Volume (m^3)	80.318

Greenfield Runoff Volume

FSR Data

Return Period (years)	1
Storm Duration (mins)	360
Region	England and Wales
M5-60 (mm)	18.600
Ratio R	0.343
Areal Reduction Factor	1.00
Area (ha)	0.344
SAAR (mm)	1005
CWI	123.376
Urban	0.000
SPR	47.000

Results

Percentage Runoff (%)	46.59
Greenfield Runoff Volume (m^3)	34.973