Appendix J – Surface Water Drainage Strategy

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8. Access tracks and new infrastructure buildings have been treated as 100% impermeable. Solar array areas have had a 20% urbanisation factor applied as per SAB pre-application advise.
9. Swale positions have been shown indicatively only and are subject to change at the next stage of design.
10. Check dam positions should be informed based on existing topographic levels in order to provide maximum storage efficiency. As a conservative estimate, storage volumes of the proposed swales have been estimated to be 70% efficient.
11. Calculated storage volumes have been informed via CausewayFlow Quick Storage Estimates, with the largest volume of the provided range used as a conservative estimate.
12. Sensitivity checks to ensure that both a 1 in 100-year+40%CC allowance rainfall event and subsequent 1 in 10-year storm could be managed by the proposed strategy.
13. A site visit/walkover was conducted in January 2026 in order to confirm the presence of the watercourses shown to provide the outfall locations.

Maintenance

Operation and Maintenance details associated with the proposed SuDS features are included in the standalone O&M Manual document. Where SuDS are located adjacent to the proposed access tracks, maintenance access can be provided from the track. Swales at the solar array parcel perimeter could be accessed from the adjacent landscaping or array areas, it should be noted that the swales have been designed with 1 in 3 side slopes given that this is a permissible gradient in order to gain access and carry out maintenance activities. This strategy should be read in conjunction with the O&M Manual.

Site Layout Key:

- Application Boundary
- Perimeter Fence

Drainage Strategy Key:

- Proposed Swales
- Overland Flow Route
- Proposed Flow Control Chamber
- Gravel Subbase Storage
- Proposed Perforated Collector Pipe
- Proposed Pipe
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- Existing Watercourse Route (based on OS mapping)

KEY PLAN
NTS

REV	DATE	DESCRIPTION	REVISED	CHECKED	APPROVED
P02	02.06.2026	REVISED SITE LAYOUT	OM	CT	CT
P01	08.05.2026	FIRST ISSUE	OM	CT	CT

Candwr Solar Farm
Surface Water Drainage Strategy

Land at Court Farm, Ponthir
Monmouthshire - Sheet 1

CLIENT:
Candwr Solar Farm Ltd.

DATE: 08.05.2026	SCALE: 1:1000@A1	DRAWN BY:	OM
		CHECKED BY:	CT
		APPROVED BY:	CT

DRAWING NUMBER: P24-2075- PEG - XX - XX - DR - C - 0501 - P2

PG OFFICE / TEAM: BRS-IN

PEGASUS REF No: P24-2075

DRAWING STATUS: S0

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Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 1A and 1B = 2.1l/s + 5.6l/s = **7.7l/s**

Parcel 1A
Catchment Area: 0.301ha
Greenfield Runoff Rate (1 in 1-year): 2.1l/s
Total Impermeable Area: 0.058ha

Swale Dimensions
Depth: 0.5m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 41m³
Provided Storage Volume: 75.5m³

Access tracks are to drain to an adjacent swale which then drains toward the proposed outfall. Sizing for the adjacent track swales are based on an indicative 10m length (4.5m wide x 10.0m length = 45.0m²).
Based on a catchment area of 45.0m², the 1 in 1-year greenfield runoff rate = 0.0315l/s, which equates to a required storage volume of 3.0m³/10m length (CausewayFlow QSE).
Access track swale dimensions: 0.3m deep, 0.3m base width, 1 in 3 side slopes, 3.6m³/10m length.

Parcel 1B
Catchment Area: 0.798ha
Greenfield Runoff Rate (1 in 1-year): 5.6l/s
Total Impermeable Area: 0.167ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 122m³
Provided Storage Volume: 178.0m³

Parcel 1C
Catchment Area: 0.532ha
Greenfield Runoff Rate (1 in 1-year): 3.7l/s
Total Impermeable Area: 0.156ha

Swale Dimensions
Depth: 0.7m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 131m³
Provided Storage Volume: 192m³

Due to tree root protection area and topographic constraints, no gravity fed connection can be provided through to the outfall location to the south of Parcel 1F. As such, swales are proposed to intercept overland runoff and simply overtop once the attenuation volume is exceeded, as per the existing condition.

Any exceedance overland runoff would follow the topography of the wider site toward the outfall to the south of Parcel 1F - as per the predevelopment scenario.

Parcel 1F
Catchment Area: 0.580ha
Greenfield Runoff Rate (1 in 1-year): 4.1l/s
Total Impermeable Area: 0.104ha

Swale Dimensions
Depth: 0.5m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 71m³
Provided Storage Volume: 95.5m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 2B and 2C: 5.2l/s + 4.6l/s = 11.8l/s

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Total discharge rate from Parcels 2D: 6.3l/s

Parcel 1D
Catchment Area: 0.600ha
Greenfield Runoff Rate (1 in 1-year): 4.2l/s
Total Impermeable Area: 0.132ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 99m³
Provided Storage Volume: 133m³

Parcel 1E
Catchment Area: 0.412ha
Greenfield Runoff Rate (1 in 1-year): 2.9l/s
Total Impermeable Area: 0.081ha

Swale Dimensions
Depth: 0.5m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 58m³
Provided Storage Volume: 94.5m³

Conveyance feature crosses the water main route. To be detailed in collaboration with Welsh Water.

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 1C, 1D, 1E, and 1F: 3.7l/s + 4.2l/s + 2.9l/s + 4.1l/s = 14.9l/s

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Maintenance

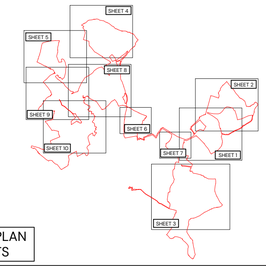
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KEY PLAN
NTS

Parcel 2A
Catchment Area: 1.596ha
Greenfield Runoff Rate (1 in 1-year): 11.2l/s
Total Impermeable Area: 0.299ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 209m³
Provided Storage Volume: 278.0m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 2A: 11.2l/s

Parcel 2B
Catchment Area: 0.737ha
Greenfield Runoff Rate (1 in 1-year): 5.2l/s
Total Impermeable Area: 0.139ha

Swale Dimensions
Depth: 0.7m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 97m³
Provided Storage Volume: 154.5m³

Parcel 2C
Catchment Area: 0.651ha
Greenfield Runoff Rate (1 in 1-year): 4.6l/s
Total Impermeable Area: 0.158ha

Swale Dimensions
Depth: 0.6m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 122m³
Provided Storage Volume: 180.6m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 1A and 1B = 2.1l/s + 5.6l/s = **7.7l/s**

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 2B and 2C: 5.2l/s + 4.6l/s = 11.8l/s

Parcel 2D
Catchment Area: 0.898ha
Greenfield Runoff Rate (1 in 1-year): 6.3l/s
Total Impermeable Area: 0.209ha

Swale Dimensions
Depth: 0.7m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 122m³
Provided Storage Volume: 180.6m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 11: 6.7l/s

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 2D: 6.3l/s

Parcel 11
Catchment Area: 0.901ha
Greenfield Runoff Rate (1 in 1-year): 6.7l/s
Total Impermeable Area: 0.171ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 134m³
Provided Storage Volume: 190.5m³

Access tracks are to drain to an adjacent swale which then drains toward the proposed outfall. Sizing for the adjacent track swales are based on an indicative 10m length (4.5m wide x 10.0m length = 45.0m²).
Based on a catchment area of 45.0m², the 1 in 1-year greenfield runoff rate = 0.0315l/s, which equates to a required storage volume of 3.0m³/10m length (CausewayFlow QSE).
Access track swale dimensions: 0.3m deep, 0.3m base width, 1 in 3 side slopes, 3.6m³/10m length.

Parcel 1B
Catchment Area: 0.798ha
Greenfield Runoff Rate (1 in 1-year): 5.6l/s
Total Impermeable Area: 0.167ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 122m³
Provided Storage Volume: 178.0m³

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P01	08.05.2026	FIRST ISSUE	OM	CT	CT

Candwr Solar Farm
Surface Water Drainage Strategy

Land at Court Farm, Ponthir
Monmouthshire - Sheet 2

CLIENT:
Candwr Solar Farm Ltd.

DATE: 08.05.2026	SCALE: 1:1000@A1	DRAWN BY: OM CHECKED BY: CT APPROVED BY: CT
DRAWING NUMBER: P24-2075- PEG - XX - XX - DR - C - 0502 - P2		PG OFFICE / TEAM: BRS-IN
PEGASUS REF No: P24-2075	DRAWING STATUS: S0	PEGASUS GROUP

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Parcel 2D
Catchment Area: 5.029ha
Greenfield Runoff Rate (1 in 1-year): 35.3l/s
Total Impermeable Area: 1.021ha

Swale Dimensions
Depth: 0.7m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 837m³
Provided Storage Volume: 845.8m³

Parcel 8C
Catchment Area: 0.499ha
Greenfield Runoff Rate (1 in 1-year): 3.5l/s
Total Impermeable Area: 0.092ha

Swale Dimensions
Depth: 0.5m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 73m³
Provided Storage Volume: 132.0m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 8C =3.5l/s

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcel 8B =35.3l/s

Parcel 12C
Catchment Area: 0.350ha
Greenfield Runoff Rate (1 in 1-year): 2.5l/s
Total Impermeable Area: 0.073ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 60m³
Provided Storage Volume: 82.4m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 12D =8.5l/s

Parcel 8A
Catchment Area: 0.563ha
Greenfield Runoff Rate (1 in 1-year): 4.2l/s
Total Impermeable Area: 0.107ha

Swale Dimensions
Depth: 0.7m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 84m³
Provided Storage Volume: 121.9m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 8A =4.2l/s

Parcel 12A
Catchment Area: 0.274ha
Greenfield Runoff Rate (1 in 1-year): 1.9l/s
Total Impermeable Area: 0.049ha

Swale Dimensions
Depth: 0.5m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 39m³
Provided Storage Volume: 73.3m³

Parcel 12B
Catchment Area: 1.160ha
Greenfield Runoff Rate (1 in 1-year): 8.1l/s
Total Impermeable Area: 0.212ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 168m³
Provided Storage Volume: 257.5m³

Parcel 12D
Catchment Area: 1.214ha
Greenfield Runoff Rate (1 in 1-year): 8.5l/s
Total Impermeable Area: 0.213ha

Swale Dimensions
Depth: 0.6m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 166m³
Provided Storage Volume: 260.9m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

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Total discharge rate from Parcels 12A and 12B =1.9l/s + 8.1l/s = 10.0l/s

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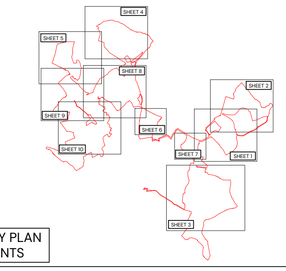
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CLIENT:
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DATE: 08.05.2026	SCALE: 1:1250@A1	DRAWN BY: OM CHECKED BY: CT APPROVED BY: CT
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10. Check dam positions should be informed based on existing topographic levels in order to provide maximum storage efficiency. As a conservative estimate, storage volumes of the proposed swales have been estimated to be 70% efficient.
11. Calculated storage volumes have been informed via CausewayFlow Quick Storage Estimates, with the largest volume of the provided range used as a conservative estimate.
12. Sensitivity checks to ensure that both a 1 in 100-year+40%CC allowance rainfall event and subsequent 1 in 10-year storm could be managed by the proposed strategy.
13. A site visit/walkover was conducted in January 2026 in order to confirm the presence of the watercourses shown to provide the outfall locations.

Maintenance

Operation and Maintenance details associated with the proposed SuDS features are included in the standalone O&M Manual document. Where SuDS are located adjacent to the proposed access tracks, maintenance access can be provided from the track. Swales at the solar array parcel perimeter could be accessed from the adjacent landscaping or array areas, it should be noted that the swales have been designed with 1 in 3 side slopes given that this is a permissible gradient in order to gain access and carry out maintenance activities. This strategy should be read in conjunction with the O&M Manual.

Site Layout Key:

- Application Boundary
- Perimeter Fence

Drainage Strategy Key:

- Proposed Swales
- Overland Flow Route
- Proposed Flow Control Chamber
- Gravel Subbase Storage
- Proposed Perforated Collector Pipe
- Proposed Pipe
- Proposed Headwall
- Existing Watercourse Route (based on OS mapping)

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 3A and 3B: 13.4l/s + 11.7l/s = 25.1l/s

Parcel 3A
Catchment Area: 1.917ha
Greenfield Runoff Rate (1 in 1-year): 13.4l/s
Total Impermeable Area: 0.362ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

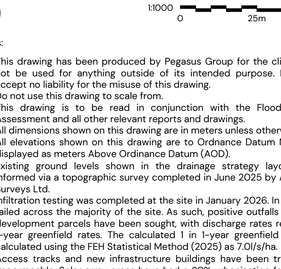
Required Storage Volume (1 in 100-year+40%CC): 290m³
Provided Storage Volume: 420.3m³

Parcel 3B
Catchment Area: 1.668ha
Greenfield Runoff Rate (1 in 1-year): 11.7l/s
Total Impermeable Area: 0.327ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 265m³
Provided Storage Volume: 382.1m³

In order to provide connectivity to the downstream watercourse receptor, a cut through the existing hedgerow will be required. This should be completed in collaboration with the ecologist/arboricultural consultant.



KEY PLAN
NTS

REV	DATE	DESCRIPTION	REVISED	CHECKED	APPROVED
P02	02.06.2026	REVISED SITE LAYOUT	OM	CT	CT
P01	08.05.2026	FIRST ISSUE	OM	CT	CT

Candwr Solar Farm
Surface Water Drainage Strategy

Land at Court Farm, Ponthir
Monmouthshire - Sheet 4

CLIENT:
Candwr Solar Farm Ltd.

DATE: 08.05.2026	SCALE: 1:1000@A1	DRAWN BY: OM CHECKED BY: CT APPROVED BY: CT
DRAWING NUMBER: P24-2075- PEG - XX - XX - DR - C - 0504 - P2		PG.OFFICE / TEAM: BRS-IN
PEGASUS REF No: P24-2075	DRAWING STATUS: S0	

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1:1000
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Maintenance

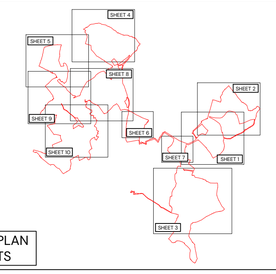
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KEY PLAN
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Parcel 7A
Catchment Area: 3.059ha
Greenfield Runoff Rate (1 in 1-year): 21.4l/s
Total Impermeable Area: 0.579ha

Swale Dimensions
Depth: 0.7m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 459m³
Provided Storage Volume: 467.1m³

Parcel 7B
Catchment Area: 1.476ha
Greenfield Runoff Rate (1 in 1-year): 10.3l/s
Total Impermeable Area: 0.270ha

Swale Dimensions
Depth: 0.5m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 214m³
Provided Storage Volume: 302.3m³

Parcel 6C
Catchment Area: 0.685ha
Greenfield Runoff Rate (1 in 1-year): 4.8l/s
Total Impermeable Area: 0.166ha

Swale Dimensions
Depth: 0.5m
Side Slope: 1 in 3
Base Width: 0.6m

Required Storage Volume (1 in 100-year+40%CC): 144m³
Provided Storage Volume: 176.0m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcel 7A: 21.4l/s

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 7B: 10.3l/s

REV	DATE	DESCRIPTION	REVISED	CHECKED	APPROVED
P02	02.06.2026	REVISED SITE LAYOUT	OM	CT	CT
P01	08.05.2026	FIRST ISSUE	OM	CT	CT

Candwr Solar Farm
Surface Water Drainage Strategy

Land at Court Farm, Ponthir
Monmouthshire - Sheet 5

CLIENT:
Candwr Solar Farm Ltd.

DATE:	SCALE:	DRAWN BY:	OM
08.05.2026	1:1000@A1	CHECKED BY:	CT
		APPROVED BY:	CT

DRAWING NUMBER:
P24-2075- PEG - XX - XX - DR - C - 0505 - P2

PG OFFICE / TEAM:
BRS-IN

PEGASUS REF No:
P24-2075

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N

1:500
0 12.5m 25m

Parcel 10A
Catchment Area: 0.905ha
Greenfield Runoff Rate (1 in 1-year): 6.3l/s
Total Impermeable Area: 0.191ha

Swale Dimensions
Depth: 0.65m
Side Slope: 1 in 3
Base Width: 0.5m

Required Storage Volume (1 in 100-year+40%CC): 159m³
Provided Storage Volume: 228.3m³

Parcel 10B
Catchment Area: 1.274ha
Greenfield Runoff Rate (1 in 1-year): 8.9l/s
Total Impermeable Area: 0.213ha

Swale Dimensions
Depth: 0.6m
Side Slope: 1 in 3
Base Width: 0.4m

Required Storage Volume (1 in 100-year+40%CC): 163m³
Provided Storage Volume: 251.2m³

Outfall location shown indicatively. Due to RPA constraints, outfall details will be designed in collaboration with the ecologist and arboricultural consultant at the detailed design stage.

Discharge rates to be restricted via the use of orifice plates.

Total discharge rate from Parcels 10A: 6.3l/s

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Total discharge rate from Parcels 10B: 8.9l/s

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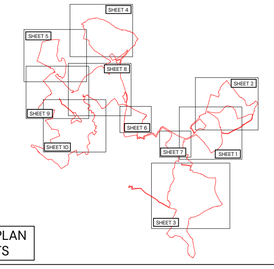
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P01	08.05.2026	FIRST ISSUE	OM	CT	CT

Candwr Solar Farm
Surface Water Drainage Strategy

Land at Court Farm, Ponthir
Monmouthshire - Sheet 6

CLIENT:
Candwr Solar Farm Ltd.

DATE: 08.05.2026	SCALE: 1:500@A1	DRAWN BY:	OM
		CHECKED BY:	CT
		APPROVED BY:	CT

DRAWING NUMBER: P24-2075- PEG - XX - XX - DR - C - 0506 - P2

PG OFFICE / TEAM: BRS-IN

PEGASUS REF No: P24-2075

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