



ALL EXISTING DOWNSTREAM SURFACE WATER DRAINAGE BEING RETAINED MUST BE JET CLEANED AND CAMERA SURVEYED THROUGH TO THE SCHOOL SITE BOUNDARY AFTER PITCH WORKS COMPLETION, TO ENSURE GOOD CLEANLINESS AND PERFORMANCE.

EXISTING MANHOLE IN THE ROUNDABOUT AREA IS SILTED AND NEEDS CLEARING OUT TO ENABLE CLEANING AND SURVEY TO CONTINUE TO THE BOUNDARY.

TO ENSURE THE REQUIRED STORAGE VOLUME IS ACHIEVED, THE MAXIMUM PERMISSIBLE GRADIENT OF THE PERMEABLE SUB-BASE LAYER IS 1:100 ALONG ITS WIDTH

1.2mØ CONCRETE FLOW CONTROL MANHOLE WITH HYDROBRAKE FLOW CONTROL DEVICE. SEE TEXT.

1.2mØ CATCHPIT MANHOLE WITH 300mm SUMP

EXTENT OF 450mm DEEP TYPE 3 PERMEABLE SUB-BASE COVERS THE WHOLE PITCH AND RUNOFF AREA. THIS ACTS AS THE STORAGE RESERVOIR FOR SURFACE WATER BEHIND THE FLOW CONTROL

INTERIM MAINTENANCE ACCESS POINT FOR CARRIER DRAIN

EXISTING SURFACE WATER DRAINAGE TO BE REMOVED.

PROPOSED PITCH DRAINAGE DISCHARGE POINT AT EXISTING MANHOLE.

INDICATIVE EXTENT OF EXISTING PITCH DRAINAGE TAKEN FROM AERIAL PHOTOGRAPHS. ALL EXISTING DRAINAGE UNDER THE PROPOSED PITCH AREA SHALL BE REMOVED

Adult Rugby Pitch (w/ C18 Football)
126 x 80m

2250 PERFORMED CARRIER DRAIN IN 500mm WIDE STONE FILLED TRENCH. DEPTH VARIES TO SUIT PIPE INVERT LEVEL.

PIPE SIZE UPSTREAM OF THE FLOW CONTROL IS SET AT 2250 FOR STORAGE AND BLOCKAGE REDUCTION PURPOSES.

TO ENSURE THE REQUIRED STORAGE VOLUME IS ACHIEVED, THE SUB-BASE LEVEL OF THE LENGTH OF THE PITCH MUST REMAIN FLAT, WITHOUT FALL

TO ENSURE THE REQUIRED STORAGE VOLUME IS ACHIEVED, THE MAXIMUM PERMISSIBLE GRADIENT OF THE PERMEABLE SUB-BASE LAYER IS 1:100 ALONG ITS WIDTH

600Ø INSPECTION CHAMBER AS HEAD OF RUN ACCESS POINT FOR CARRIER DRAIN

INDICATION OF COMPENSATORY LANDSCAPE PLANTING FOR SAB COMPLIANCE (BIODIVERSITY CRITERIA)

GENERAL DRAWING NOTES:

- This drawing is for tender purposes only and presents the surface water drainage strategy for the proposed pitch and associated hardstandings.
- This drawing does not present the civil engineering strategy or solutions for earthworks, levels, boundary conditions, retaining walls or utilities. These are not part of the Hydrock scope.
- This drawing should not be used for construction and is subject to detailed design by the Contractor, including the confirmation of surface water attenuation storage provision.
- No construction works should commence until SAB approval is obtained.
- No construction should commence until all key existing and connection point drainage items are checked and confirmed on site in terms of position, level and condition.
- The contractor should allow for all surface reinstatement for all required trenching works outside of the proposed works area.
- Any material, excavation and depth quantities relating to drainage and attenuation storage given in the tender documentation are indicative only and the information on this drawing takes precedent.

EXISTING PITCH DRAINAGE NOTES:

- An existing piped pitch drainage system is in place in form of a lateral and carrier drain arrangement, installed to drain the existing grass pitch. This drainage system is shallow and the construction of the new 3G pitch will encounter these pipes, therefore they must be removed in the location of the pitch.
- The removal of the existing pitch drainage and the installation of the new permeable sub-base and collector drain will isolate the surface water flow, so that it can be passed through the hydrobrake flow control and discharged to the proposed outlet at no greater than the equivalent greenfield runoff rate.
- The existing pitch drainage system is not mapped, but its outline can be seen on a series of historic aerial photographs that show the general locations of the lateral and main pipes.
- An estimate of the length that needs removal is given in this drawing for information, but the contractor should allow for the removal of all existing pitch drainage below the proposed pitch.

PITCH SURFACE WATER ATTENUATION STORAGE NOTES:

- Minimum area of permeable (Type 3) sub-base area required to meet the under-pitch storage volume requirement is 120m² x 1m at 400mm deep.
- The maximum gradient of the pitch (and permeable sub-base under the pitch) along its length is flat. Any fall will reduce the available storage volume in the sub-base and will not comply.
- Maximum gradient of the pitch (and permeable sub-base under the pitch) along its width is 1:100. If this can be laid flatter then the depth of sub-base (as storage) can potentially be reduced.
- Hydrobrake flow control in the final manhole. Specification reference: MD-SHE-0119-5700-0530-5700, for a maximum greenfield QBAR discharge of 5.7% for storms up to 1:100-40%.
- The storage volume required under the pitch, within the sub-base layer is 60m³. Other design options presented by the contractor to achieve this storage volume will be considered, which can involve varying depths of sub-base across the pitch area.

DRAINAGE STRATEGY OVERVIEW NOTES:

- The surface water drainage strategy for the proposed pitch is to let rainfall falling on the pitch infiltrate through the pitch construction layers and into a layer of permeable sub-base stone below.
- This layer acts as a storage reservoir for the water, which is then collected by a 225mm diameter perforated carrier drain and the flow is conveyed to a flow control manhole before discharging to the existing drainage system.
- The maximum discharge rate from the hydrobrake flow control manhole is set to be equivalent to the greenfield runoff rate for the drained area, during all storm events up to the critical duration 5 to 100 year storm event, plus a 40% climate change allowance factor.
- The discharge point is to the existing surface water drainage system that already receives flows from the positively drained grass pitch area.
- The on- and off-site flood risk is reduced compared to the existing grass pitch situation due to the provision of attenuation storage and flow control. Within the drainage design and strategy there is no consideration for infiltration drainage, from the permeable sub-base layer and into the underlying ground. The pitch is not lined, so there will be some marginal water volume losses to the underlying ground, but infiltration is not relied upon to drain the pitch or to achieve compliance. The pitch and any other porous surfaces areas provide their own interception area.
- The pitch drainage work is subject to detailed design for compliance with the SuDS legislation and must achieve SAB approval before construction commences.
- In terms of the SuDS standards for SAB compliance the general strategy is as follows:
 - Discharge Destination:** To existing private surface water drainage system, so per the existing grass pitch drainage.
 - Discharge Quantity:** Outflow limited to QBAR greenfield runoff rate for all storms up to 1:100-40%.
 - Water Quality:** Very low water quality risk. Some treatment occurs within the permeable sub-base layer. Catchpits provided for silt and debris collection.
 - Amenity:** As a sports facility the proposal is fundamentally amenity and amenity development.
 - Biodiversity:** No biodiversity provision within a 3G pitch development. Contractor to allow for compensatory landscape planting elsewhere on the site to satisfy SAB requirements equivalent to 10% of the proposed pitch area.
 - Ownership:** Owned and operated by the school / Cardiff Council.
 - Maintenance:** By the school / Cardiff Council. Catchpits and rodding eyes are provided on key drainage lines to aid future cleaning and maintenance.

REVISIONS		Hydrock		CLIENT MACE FOR CARDIFF COUNTY COUNCIL	
RA	13/02/24	Architect Layout Updated	CC	RB	RB
PE3	30/05/23	Lateral pitch drains shown	RB	RB	RB
PE2	28/04/23	Notes added, hard informal play area works omitted from location	RB	RB	RB
PE1	19/04/23	Tender Issue	RB	RB	RB
PE0			RB	RB	RB

TITLE SUSTAINABLE SURFACE WATER DRAINAGE STRATEGY	
HYDROCK PROJECT NO. C-20700	SCALE @ A1 Custom Scale
STATUS DESCRIPTION FOR STAGE APPROVAL	
DRAWING NO. (PROJECT ORIGINATOR ZONE LEVEL-TYPE-ROLE-NUMBER) C3G-HYD-XX-DR-C-1010	STATUS S4
REVISION P03	