PHASE 9, HEYFORD PARK, UPPER HEYFORD, BICESTER

DORCHESTER LIVING

REVISION/S:

A. 2017-07-03 UPDATED TO SUIT LATEST SITE LAYOUT. DRAINAGE STRATEGY REVIEWED FOLLOWING RECEIPT OF LATEST INFILTRATION TESTING RESULTS. RWW
B. 2017-12-12 UPDATED TO SUIT LATEST SITE LAYOUT. RWW
C. 2018-04-09 WATERCOURSE INFILTRATION RATE UPDATED, PP13 CHANGED TO 400MM. JAK
D. 2018-05-01 PLOT NUMBERS AMENDED TO SUIT PHASING AT CLIENT REQUEST. MED
E. 2018-09-07 BASE LAYOUT AMENDED TO ADDRESS HIGHWAY COMMENTS. MED

DRAINAGE STATEMENT

Foul Drainage

1. Heyford Park is served by an existing private foul sewerage system and treatment works.
2. The existing sewers immediately downstream of Phase 9 have been deemed not to be to an adoptable standard due proximity to existing and proposed buildings and shallow gradients.
3. As such, it will be necessary to provide a pump station to convey the proposed foul sewerage from the site to a previously agreed connection point towards the east of Phase 4.
4. The foul pumping station with Phase 4 has been designed and installed to accept flows from Phase 9 via Harris Road.
5. The proposed foul sewerage systems, including pumping station and rising main are to be adopted by County Water Ltd as part of a Section 104 Agreement.

Surface Water Drainage

1. The natural topography of the site drains towards Gallos Brook, which originates on the southern boundary within the south-eastern corner of the site prior to flowing south.
2. Immediately north of the existing outfall to Gallos Brook is an existing surface water treatment works which serves a 525Ø culvert which crosses the site in a north-south direction.
3. The existing 525Ø culvert transfers flows from the airfield to the north of Camp Road (which runs adjacent to the northern site boundary) and as such we will have to be maintained but diverted to eliminate a significant restraint on the proposed layout and drainage strategy.
4. The existing surface water treatment works shall be removed and replaced with a modern equivalent (Hydro International's Downstream Defender or similar approved) located to eliminate a significant restraint on the proposed layout and drainage strategy.
5. The site is comprised predominantly of limestone with local borehole records showing the geology to be silty clay with much limestone gravel. The underlying geology therefore has the potential to provide infiltration as a means of discharging surface water. Targeted in-situ infiltration testing has been carried out at 3 No locations within the site, The resulting rates were 1.18 x 10-5, 3.28 x 10-4 and 6.86 x 10-5 m/s. The lowest rate of 1.18 x 10-5 m/s has been used in the design of all permeable paving, permeable tarmac, rain gardens, private soakaways and the infiltration basin. 6.86 x 10-5 m/s has been used in the design of the watercourse/swale.
6. The proposed surface water drainage strategy shall consist of a combination of a conventional drainage network and Sustainable Urban Drainage Systems (SUDS) using the natural topography of the site to convey surface water run-off to a strategically placed attenuation basin located adjacent to the existing outfall to Gallos Brook on the southern boundary.
7. A flow control device shall be placed downstream of the proposed infiltration basin, restricting flows to the greenfield run off rate for the 1 in 100 Year event.
8. The infiltration basin shall comprise of a soft-landscaped feature with banks ranging from 1:5 minimum - 1:4 maximum, and a total volume of 2775m^3 providing storage for the 1 in 100 Year event plus 30% climate change with a freeboard allowance of 573mm. The attenuation area will be constructed in 'cut' and graded into existing ground levels.
9. Finished floor levels are to be set a minimum of 600mm above the maximum water level of 120.142.
10. The following SUDS measures are to be incorporated in the proposed surface water drainage strategy:

- Open Channel Watercourse adjacent to adoptable carriageway - The use of watercourse will provide visual and ecological amenity while assisting in improving the quality of the surface water runoff by filtering out organic matter, silt and hydrocarbons as the water passes through the soft-landscaped channel.
- Permeable Paving within private roads, driveways and courtyards, tanked with an outfall to the downstream sewers - The use of permeable paving will assist in improving the quality of the surface water runoff by filtering out organic matter, silt and hydrocarbons as the water passes through the geo-textile and stone layers.
- Rain Gardens within public open space i.e. a 300mm deep depression with a planted filter bed at the base and drain conveying flows through the rain garden towards an outfall to downstream SUDS or sewers - The use of rain gardens will provide visual and ecological amenity while assisting in improving the quality of the surface water runoff by filtering out organic matter, silt and hydrocarbons as the water passes through the filter bed.
- Water butts - each affordable dwelling will be provided with a water butt attached to a rainwater pipe in rear gardens. This will allow surface water runoff from roof areas to be stored for reuse in the garden.

All adoptable foul and surface water drainage is to be designed in accordance with Sewers for Adoption 7th Edition and the Building Regulations.

LEGEND

DRAINAGE STRATEGY

	EXISTING SURFACE WATER SEWER		EXISTING FOUL WATER SEWER
	PROPOSED SURFACE WATER SEWER		PROPOSED FOUL WATER SEWER
	PROPOSED FOUL RISING MAIN		AREAS DRAINING TO PERMEABLE BLOCK PAVING (INFILTRATION)
	AREAS DRAINING TO INFILTRATION BASIN (WITH ADDITIONAL RESTRICTED DISCHARGE TO EXISTING WATERCOURSE)		AREAS DRAINING TO RAIN GARDEN (INFILTRATION)
	AREAS DRAINING TO PERMEABLE MACADAM (INFILTRATION)		AREAS DRAINING TO PRIVATE SOAKAWAY
	AREAS DRAINING TO PROPOSED WATERCOURSE (INFILTRATION)		PERMEABLE BLOCK PAVING
	PRIVATE SOAKWAY		INFILTRATION BASIN

FOCUS ON DESIGN
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DRAINAGE STRATEGY PLAN

SCALE: 1:500 @ A0
0 5 10 15 [m]

DATE: OCT 2016
DRAWN: JIL

DRAWING TITLE: DRAINAGE STRATEGY PLAN
DRAWING NO: 0521/PH9/320 E

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