

# Appendix VI

## Approved Drainage Strategy

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- DESIGN RISK ASSESSMENT

A RISK ASSESSMENT RELATING TO POTENTIAL HAZARDS ASSOCIATED WITH THE CONSTRUCTION, OPERATION AND DEMOLITION OF THE WORK DESCRIBED WITHIN THIS DRAWING, IN SO FAR AS IT HAS BEEN DESIGNED BY NIJHUIS HZOK LTD, HAS BEEN UNDERTAKEN. RISKS SO IDENTIFIED HAVE BEEN ELIMINATED BY DESIGN WHEREVER PRACTICABLE. THE SITUATION WITH REGARD TO RESIDUAL RISKS IS AS FOLLOWS:

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KEY

- SITE BOUNDARY
- SW SEWER (TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY EARTHWORKS)
- PRIVATE CONVEYANCE TRENCH (TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY EARTHWORKS)
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED PRIVATE SURFACE WATER POLYPROPYLENE INSPECTION CHAMBER (750 P.P.I.C.)
- OVERLAND FLOW ROUTES

NOTE:

A TEMPORARY BUND SILT CONTROL BARRIER SHOULD BE SET UP AROUND THE DOWNSTREAM PERIMETER OF THE SITE / PHASE PRIOR TO CARRYING OUT EARTHWORKS TO ENSURE RUN-OFF DOES NOT CARRY SILTS OR TOP SOIL MATERIAL OFF THE SITE.

POST INSTALLATION OF SILT FENCE THE CONVEYANCE TRENCH, SURFACE WATER SEWERS AND ALL OTHER SURFACE WATER INFRASTRUCTURE TO BE CONSTRUCTED PRIOR TO FURTHER WORKS.

|                      |               |      |      |     |                   |
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| 31/08/17             | HG            | -    | -    | A   | PRELIMINARY ISSUE |
| DATE:                | DRWN          | CHKD | APPR | REV | NOTES             |
| PROJECT MANAGER:-    | HANNAH GRAHAM |      |      |     |                   |
| ASSISTANT:-          | -             |      |      |     |                   |
| DRAWN DATE:-         | AUGUST 2017   |      |      |     |                   |
| SCALE & SHEET SIZE:- | 1:500@ A1     |      |      |     |                   |

PRELIMINARY



- Waste to Value (AD/Biogas)
- Flood Risk Management/SUDS
- Industrial Effluent Treatment
- Design Consultancy
- Sewage Treatment
- Service and Maintenance

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Bristol Office: Unit 16, Avonbank Industrial Centre, Avonmouth, Bristol, BS11 9DE, United Kingdom



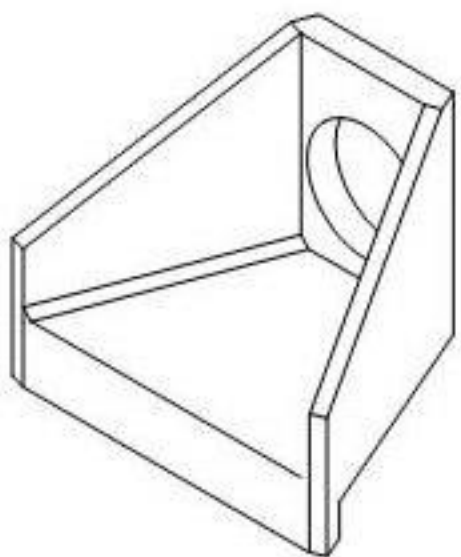
CLIENT

A & M ARCHITECTURAL PARTNERSHIP LLP

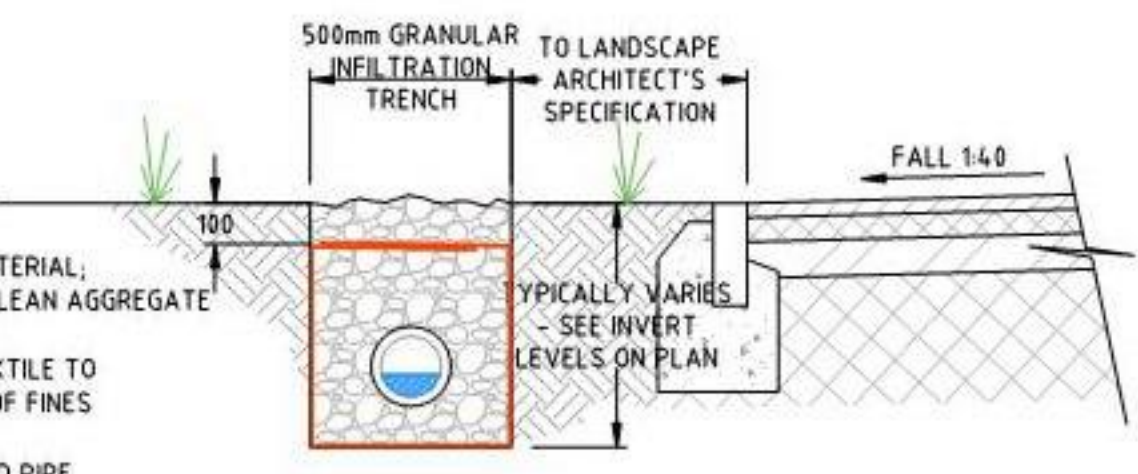
PROJECT  
MILL RYTHE HOLIDAY PARK

DRAWING TITLE  
SURFACE WATER DRAINAGE

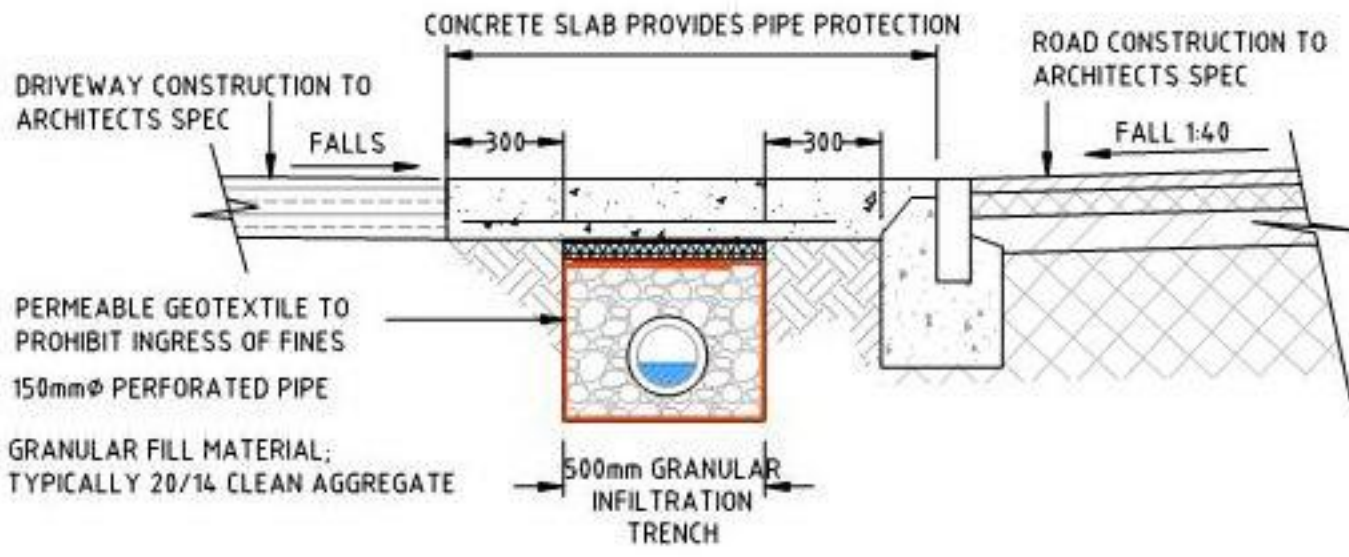
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| J-11713     | 3001        | A    |



SPILLWAY HEADWALL (DRAINAGE OUTFALL)  
1:25



SECTION THROUGH TYPICAL INFILTRATION / CONVEYANCE TRENCH  
1:25



SECTION THROUGH TYPICAL INFILTRATION / CONVEYANCE TRENCH CROSSING BENEATH DRIVEWAY  
1:25

SURFACE WATER DRAINAGE STATEMENT

THE SITE AT PRESENT IS LOW LYING AND SURROUNDED BY TIDAL FLOOD DEFENCES, AS SUCH, WATER FALLING ON TO THE SITE RUNS DIRECTLY INTO THE DRAINAGE DITCH TO THE NORTH. THE RE-DEVELOPMENT RESULTS IN AN OVERALL DECREASE IN IMPERMEABLE AREA AND WILL NOT INCREASE THE PRE-DEVELOPMENT RUNOFF ROUTE. IN ADDITION TO THIS, THE DISCHARGE IS TO COASTAL WATERS, SO NO INCREASED FLOOD RISK TO THIRD PARTIES OR THE SITE ITSELF IS ANTICIPATED. THE FILTER DRAIN/CONVEYANCE TRENCH WILL PROVIDE ADDITIONAL STORAGE AND FILTRATION OVER AND ABOVE THAT CURRENTLY IN PLACE OF THE SITE.

DUE TO THE LOW LYING NATURE OF THE SITE, IT IS LIKELY THAT THE GROUNDWATER IS CLOSE TO THE SURFACE. SURFACE PONDING HAS BEEN NOTED ON PREVIOUS VISITS TO SITE (FEB 2011) AND IN ADDITION TO THIS, ACCORDING TO THE CRANFIELD UNIVERSITY NATIONAL SOIL MAP THE SITE IS DESCRIBED AS "LOAMY AND CLAYEY SOILS OF COASTAL FLATS WITH NATURALLY HIGH GROUNDWATER", THUS PROVIDING LOW PERMEABILITY.

IT IS NOT RECOMMENDED TO USE A SOAKAWAY BASED SYSTEM DUE TO THE INABILITY FOR THE RUNOFF TO INFILTRATE THE GROUND.

THEREFORE, IT IS PROPOSED THAT A DRAINAGE SYSTEM WHICH UTILISES A CONVEYANCE TRENCH AS A MEANS OF ATTENUATION IS USED WITHIN THE DEVELOPMENT. THIS WILL OFFER A SLIGHT DEGREE OF INFILTRATION AS WELL AS WATER QUALITY BENEFITS.

IT IS PROPOSED TO INSTALL THE CONVEYANCE TRENCH ADJACENT TO THE ROAD, RUNNING DOWNHILL TOWARDS THE EXISTING DITCH TO THE NORTH. NEW DISCHARGE POINTS WILL DISCHARGE FLOWS INTO THE EXISTING DITCH WHICH FEEDS INTO AN ONSITE PRIVATE POND TO THE EAST WITH DISCHARGE TO COASTAL WATERS.

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| ASSISTANT:-          |      |      |      |     | -                 |
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| SCALE & SHEET SIZE:- |      |      |      |     | 1500@ A1          |

PRELIMINARY



- Waste to Value (AD/Biogas)
- Industrial Effluent Treatment
- Sewage Treatment
- Flood Risk Management/SUDS
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- Service and Maintenance

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CLIENT  
A & M ARCHITECTURAL PARTNERSHIP  
LLP

PROJECT  
MILL RYTHE HOLIDAY PARK

DRAWING TITLE  
SURFACE WATER DRAINAGE

|             |             |      |
|-------------|-------------|------|
| PROJECT No. | DRAWING No. | REV. |
| J-11713     | 3002        | A    |

Our Ref: J-11713-01-AW

30 August 2017

A & M Architectural Partnership LLP  
40 Cambridge Road  
Hastings  
East Sussex  
TN34 1DT

**RE: Demolition of 6,111 square metres of redundant chalets and facilities buildings, use of land for the siting of 203 holiday caravans including 5 caravans for use as staff accommodation, refurbishment of retained single and two storey holiday chalets to form 87 units of holiday accommodation, retain managers bungalow, sales area for 5 caravans, refurbishment of remainder of central facilities building, CCTV cameras, provision of new pedestrian concourse with terraces, splash and dry play areas, multi-games court, adventure golf course and outdoor theatre and new landscaping. Retaining existing pitch and putt golf course to the east of the site.**

## Introduction

Away Resorts are proposing to develop Mill Rythe Holiday Park to partly demolish and convert the existing chalet accommodation into 203 holiday caravans, including 5 caravans for use as staff accommodation, refurbishment of single and two story holiday chalets to form 87 units of holiday accommodation, retain the managers bungalow, sales area for 5 caravans and refurbishment of the central facilities building. Planning permission has been granted under application reference number APP/16/01237.

As part of the approval a number of conditions were imposed upon the development. As such Nijhuis H2OK Ltd. Have been commissioned with a view to discharge Condition 14 of the aforementioned planning approval. The condition reads as follows:

**14** *No development shall commence on site until details of a scheme for foul and surface water drainage has been submitted to and approved in writing by the Local Planning Authority. Such details should include provision for all surface water drainage from parking areas and areas of hardstanding. Where a SUDS scheme is to be implemented, the drainage details submitted to the Local Planning Authority should:*

*i) Specify the responsibilities of each party for the implementation of the SUDS scheme*

*ii) Specify a timetable for implementation*

*iii) Provide a management and maintenance plan for the lifetime of the development. This should include the arrangements for adoption by any public*

*authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime.*

*The development shall be carried out in accordance with the approved details before any part of the development is occupied and shall be retained thereafter.*

*Reason: To ensure adequate provision for drainage in accordance with the NPPF and in accordance with policy CS15 of the Havant Borough Local Plan (Core Strategy) 201*

The objective of this letter is to present sufficient information to discharge planning condition 14 relating to the foul water drainage system proposed on site. The surface water drainage will be dealt with in a separate report for the site.

### Existing Foul Drainage Arrangements

The existing foul drainage arrangements at Mill Rythe comprise a combination of gravity drains and a satellite pumping station leading to a terminal pumping station which discharges via a rising main to the public sewer off site.

An indicative layout showing the existing drainage arrangements can be seen in **Annex B**.

A copy of the sewer records is included within **Annex A** for information, these do not show all private sewerage networks. The site has indicated the connection point to the public sewer is at the park entrance road by Havent Road, the closest manhole to this location is number 4603 as shown on the sewage plans.

The satellite pumping station, labelled PS #2 on the associated drawings, consists of a wet well constructed from pre-cast concrete rings with approximate diameter 1.8m and 2.6m total depth from cover level. During the site visit a temporary pump was installed due to maintenance operations and it is planned to install two KSB Ama Porter 501 ND pumps to service the well with approximately a 50mm diameter rising main (60m length). This pumps flows to a manhole upstream of the terminal pump station where flows then gravitate thereafter. This pump station was in a serviceable condition with no obvious damage to the system or leaks within the vicinity.

The terminal pump station, labelled PS #1, is located adjacent to the main complex building. This comprises of a wet well constructed from pre-cast concrete rings with approximate diameter of 1.8m and total depth of 4m from cover level. Storage within the wet well is estimated at around 5m<sup>3</sup>. Pumps consist of a duty assist set up with two Grundfos SE1.80.80.40.4.51D units. These pump through a separate valve chamber and approximately 100mm diameter ductile iron rising main. This pump station was in a serviceable condition with no obvious damage to the system or leaks within the vicinity.

The on-site restaurant and kitchen have been fitted with a PPD underground Biomass Grease Trap (Model number NS20 UGB) within the last year to alleviate blocking issues within the gravity system.

### Drainage Strategy

The existing network of gravity drainage infrastructure and pump stations will serve the chalets, launderette and complex building. The proposed development consisting of new static caravans will be drained via a traditional gravity sewerage system network comprising access / inspection chambers, gravity drains and sewers, and two new sewage pumping stations and pumping mains.

It is proposed the site will retain the indoor swimming pool which is currently served by a backwash filter system. The new pool complex and associated backwash filtration system should discharge to the public sewage system and comply with the utility providers requirements.

The proposed restaurant will be served by the existing grease trap system and therefore no modifications are proposed.

An indicative drainage arrangement is shown on the plan enclosed within **Annex B**.

As can be seen from the plan, the majority of new caravan units in the centre of the site will drain under gravity as per the existing arrangements. Two low lying areas to the east and the west will drain to new pumping stations. The eastern development consists of a population equivalent of 144 (totaling 72 units) and the western development consists of a population equivalent of 128 (64 units). These areas will require their own foul pumping stations which will incorporate 24 hour emergency storage and duty/standby submersible pumps. These pumping stations are labelled PS #5 (eastern) and PS #6 (western). PS #5 will incorporate emergency storage of 22.5m<sup>3</sup> and convey flows using an 80mm rising main at a flow rate of 4 l/s. PS #6 will incorporate emergency storage of 20m<sup>3</sup> and convey flow using an 80mm rising main at a flow rate of 4 l/s.

The terminal pumping station, labelled PS #1, is to be modified to accommodate additional 24 hour emergency storage consisting of an online storage tank system. This storage tank should be 91m<sup>3</sup> in size to increase the total storage to 96m<sup>3</sup> to accommodate 24 hours emergency storage from the site. Flows will be conveyed to the public sewerage system via the existing pumping main and pumps. This equipment may need to be upgraded depending on its capacity, although the theoretical increase in flows is minimal and therefore the existing system is likely to be sufficient. The addition of emergency storage provision will also provide a buffer during times of peak flow. The peak flow rate will be approximately 7 l/s calculated with a peaking factor of 6. Flows and loads calculations for the existing and proposed development are included in **Annex C** at the end of this report. The increase in flows resulting from the proposed development is approximately 8% and therefore should not have a large impact on the public sewerage system. With the installation of new modern caravan units and the refurbishment of the existing chalet units it is expected that water saving technologies will reduce this figure even further in reality. The impact of the flows and loads on the public sewerage system is to be agreed with the sewerage utility provider.

An indicative drawing showing the existing and proposed drainage arrangement is enclosed within **Annex B**.

## Conclusions

The existing sewerage system at Mill Rythe Holiday Park is in a serviceable condition and will be retained for the majority of the proposed development which will retain a number of the chalets and the main complex building on site.

The proposed development of 203 new static caravans will be serviced by a combination of traditional gravity sewers and associated infrastructure along with two new pumping stations. Flows will be conveyed to the public sewer via the existing terminal pumping station and pumping main. Additional emergency storage is to be installed at this pumping station to allow for 24 hours emergency storage of flows.

The increase in total daily flows for the site as a result of the proposed development is minimal, calculated at 8% of the existing situation. The pumped flow rate to the public sewer may change and this is to be agreed with the sewerage utility provider. An increase in flow may require an upsizing of the pumping main



and a replacement of the existing pumps, although this is unlikely due to the small increase in flows and the addition of emergency storage provision providing a buffer during times of peak flow. This can be confirmed once further investigations have been undertaken to confirm the capacity of the existing pumps and rising main.

The drawings in **Annex B** show the layout of the existing drainage infrastructure and the proposed new installations.

We trust that the above provides sufficient information to enable the discharge of the foul aspects of planning condition 14.

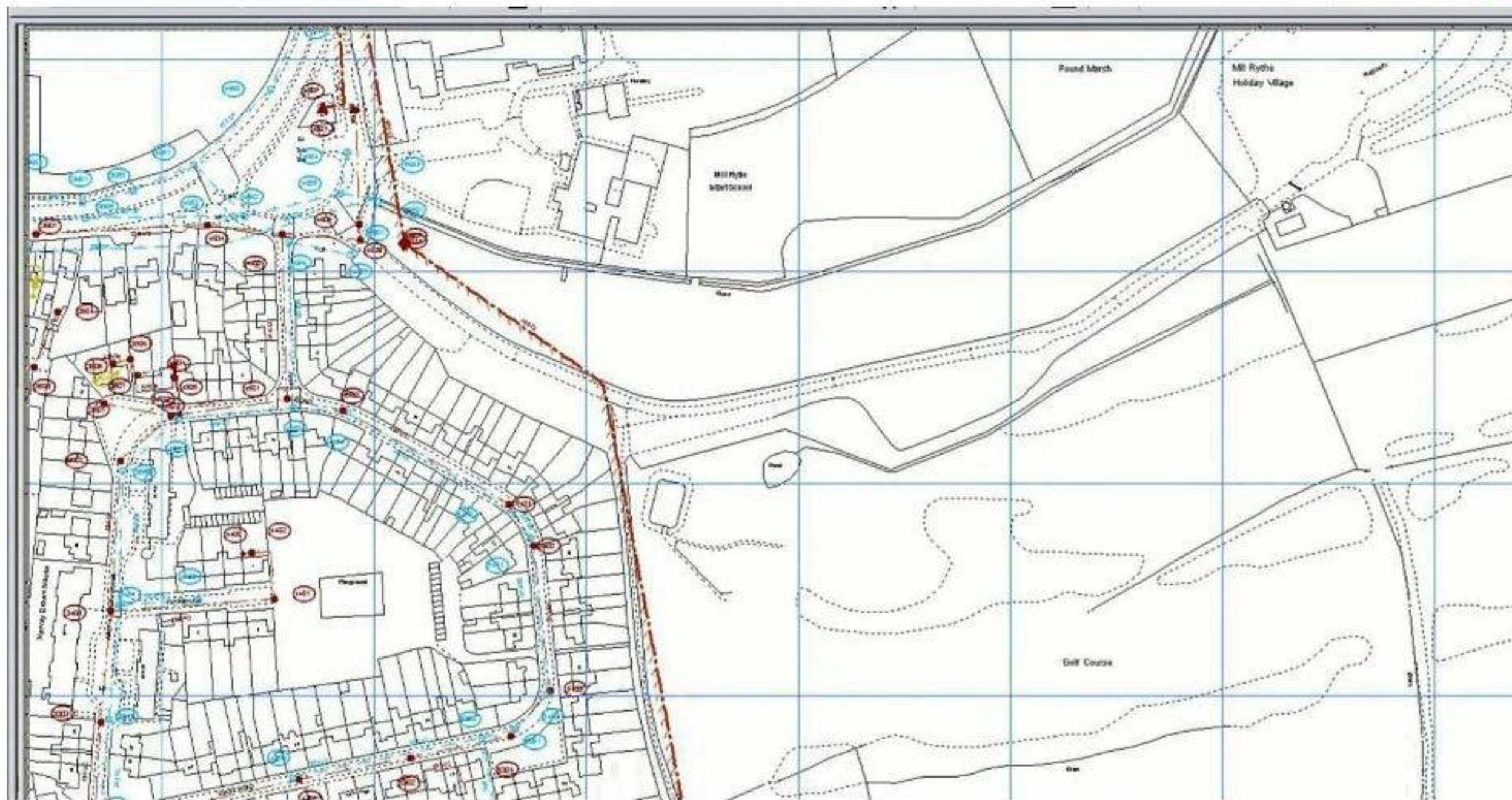
Yours sincerely  
For and on behalf of Nijhuis H<sub>2</sub>OK Ltd



Andy Woolley  
Intermediate Engineer

Enc.    Annex A: Sewage Undertaker Asset Plans  
          Annex B: Existing and Proposed Foul Drainage Arrangements  
          Annex C: Flows and Loads Calculations

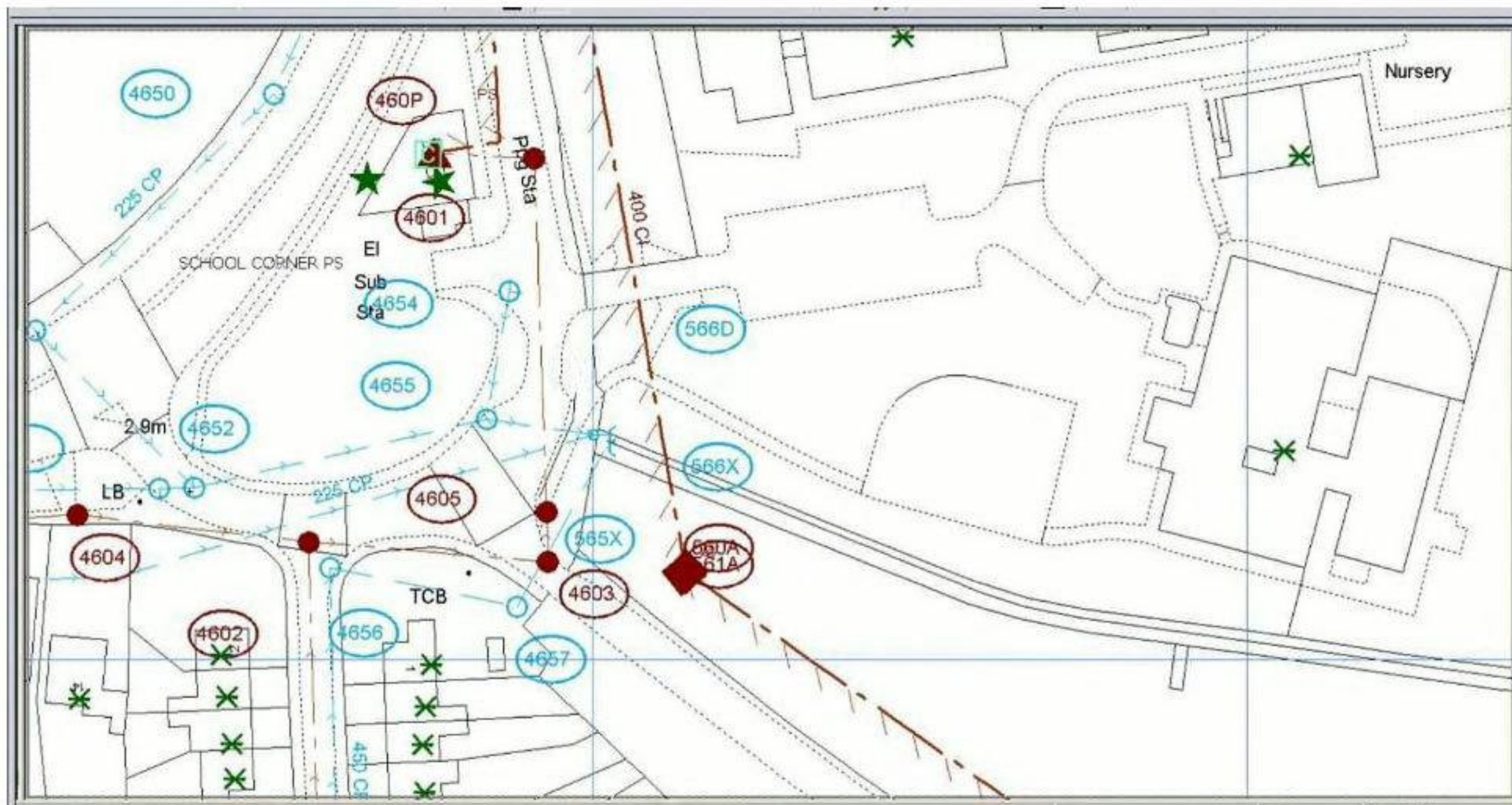
## **ANNEX A: SEWAGE UNDERTAKER ASSET PLANS**



**SOLID SOLUTIONS IN A FLUID WORLD**



**SOLID SOLUTIONS IN A FLUID WORLD**



SOLID SOLUTIONS IN A FLUID WORLD

## **ANNEX B: EXISTING AND PROPOSED FOUL DRAINAGE ARRANGEMENTS**

PLANS FROM THE PREPARED DEVELOPMENT WILL BE CONNECTED TO THE EXISTING TORNADO PUMPING STATION AS SET. THEY WILL BE PUMPED PAST THE EXISTING WASTEWATER TREATMENT PLANT TO THE PUBLIC SEWER BY SET. THE CONNECTION POINT TO THE PUBLIC SEWER IS IN FRONT OF THE HANCOCK ROAD AND AS INDICATED BY THE PLAN. THE PUMP RISE IS AS PER THE EXISTING ARRANGEMENTS.

THE TORNADO PUMPING STATION IS TO BE EQUIPPED WITH AUTOMATIC EMERGENCY STOPPING PROGRAM AS PER THE POWER IN DRAWING 100-1 AND 101-1 AND INFORMATION FROM THE REPORT 3-1015 PIA. CHANNEL (STATIONARY) TO ACCOMMODATE THESE DRAWINGS. THE PUMP MAY BE REQUIRED UPGRADING TO PROVIDE ADEQUATE CAPACITY.

PLANS FROM THE EXISTING CHANNELS WHICH ARE TO BE RETAINED WILL BE CONNECTED TO THE TORNADO PUMPING STATION VIA THE EXISTING INFRASTRUCTURE AS SET OR BY NEW DRAINAGE.

THE EXISTING DRAINAGE AS SET TO BE RETAINED WILL BE GRADED AS PER THE EXISTING DRAINAGE INFRASTRUCTURE. A GRAVEL PAD HAS BEEN INSTALLED TO EXISTING DRAINAGE AND AS SET FROM THE HYDROLOGICAL. THE PROPOSED DRAINAGE PLAN AS SET SHOULD BE COVERED BY A SUITABLY DESIGNED BACKWATER TREATMENT SYSTEM WHICH DISCHARGES TO THE PUBLIC SEWERAGE SYSTEM AND PROVIDES THE SAFETY PROTECTION REQUIREMENTS.

THE PROPOSED NEW ELITE CHANNELS ON SITE WILL BE SERVED BY A COMBINATION OF THE EXISTING DRAINAGE NETWORK, NEW GRAVITY SEWAGE SYSTEMS, AND TWO PROPOSED PUMPING CHANNELS, PUMP AND PUMP. THE PUMPING STATIONS MAY BE PROVIDED WITH IN-SITU EMERGENCY STOPPING PROGRAMS AND DISCHARGE TO THE EXISTING TORNADO PUMPING STATION WHERE PLANS ARE THEY PUMPED OUT SET TO THE PUBLIC SEWER.

THE FINAL DRAINAGE SYSTEMS TO BE MANUALLY OPERATED, MONITORED AND MAINTAINED BY THE SITE OWNER/OPERATOR.



PLAN INDICATING ASSUMED CONNECTION POINT TO PUBLIC SEWER - NTS

FOUL DRAINAGE STRATEGY

PLANS FROM THE PROPOSED DEVELOPMENT WILL BE CONNECTED TO THE EXISTING TOWNHALL PUMP STATION ON SITE. THEY WILL THEN BE PUMPED TO THE EXISTING ARRANGEMENTS TO THE PUBLIC SEWER OFF SITE. THE CONNECTION POINT TO THE PUBLIC SEWER IS IN VICINITY OF THE HARBURY ROAD AREA AS INDICATED BY THE PINK. THE PUMP STATION IS AS PER THE EXISTING ARRANGEMENTS.

THE TOWNHALL PUMP STATION IS TO BE UPGRADED WITH ADDITIONAL EMERGENCY STORAGE PROVIDED AS PER THE NOTES ON DRAINAGE SUD AND SUD INFORMATION WITHIN THE REPORT 1-1010 Foul Drainage Strategy to accompany these drawings. THE PUMP STATION REQUIRE UPGRADES TO PROVIDE ADEQUATE CAPACITY.

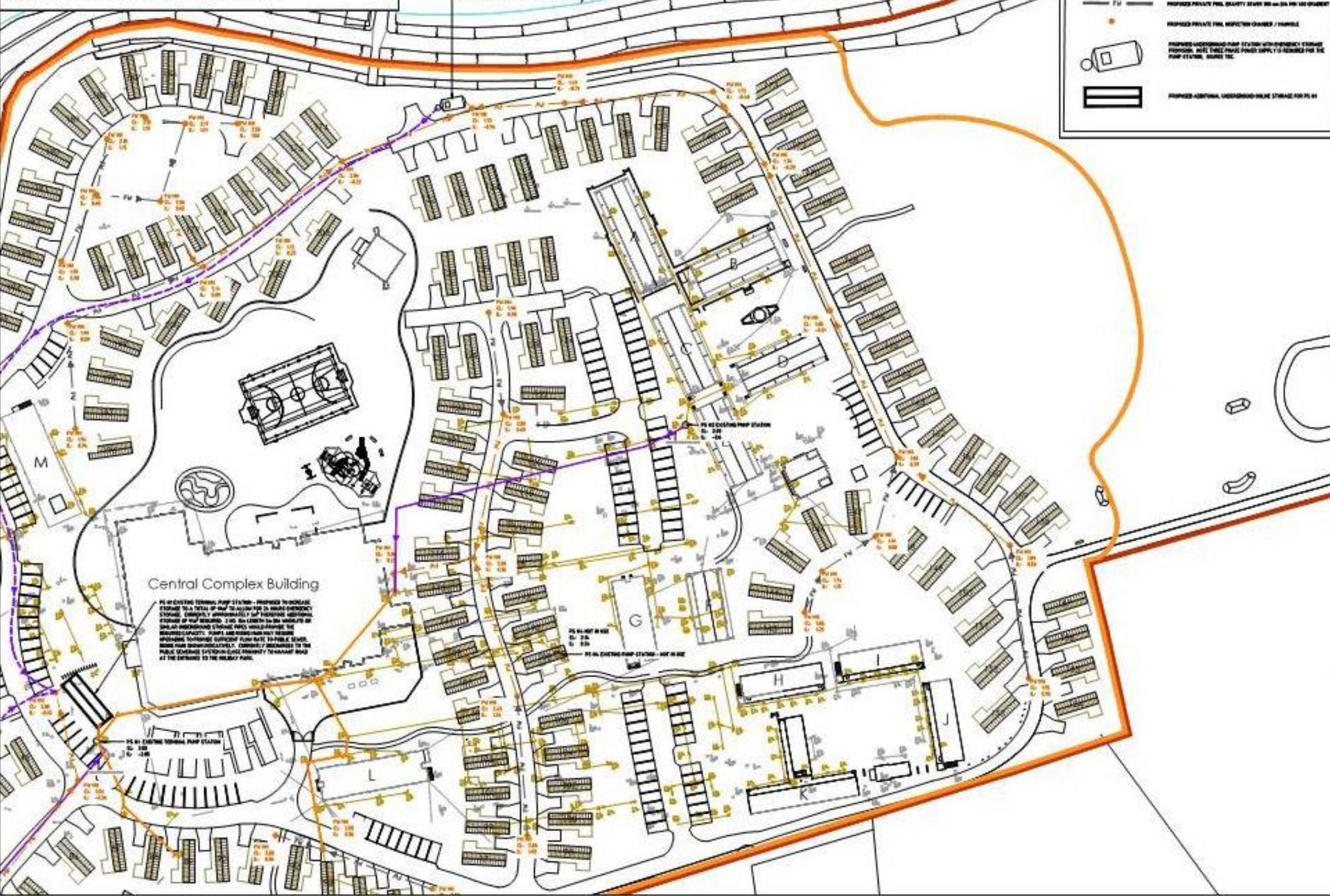
PLANS FROM THE EXISTING CHANGELI WHICH ARE TO BE RETAINED WILL BE CONNECTED TO THE TOWNHALL PUMP STATION USING THE EXISTING INFRASTRUCTURE ON SITE. CHANGELI HAS GRAVITY SEWERS AND WASTEWATER OVERFLOW CHAMBERS AND A PUMP STATION (LABELLED PS 41 ON DRAWING SUD).

THE EXISTING CHANGELI ON SITE THOSE BETWEEN WILL BE AS PER THE EXISTING SEWER INFRASTRUCTURE. A BRIDGE TRAP HAS BEEN INSTALLED TO EXISTING GREASE AND OILS FROM THE EXISTING CHANGELI. THE PROPOSED CHANGELI AREA ON SITE SHOULD BE DESIGNED AS A SEPARATELY DESIGNED BACKGROUND TREATMENT SYSTEM WITH DRAINAGE TO THE PUBLIC SEWERAGE SYSTEM AND MEETS THE UTILITY PROVIDER REQUIREMENTS.

THE PROPOSED NEW STAGE CHANGELI ON SITE WILL BE SERVED BY A COMBINATION OF THE EXISTING SEWER NETWORK, NEW GRAVITY SEWERAGE SYSTEMS, AND TWO PROPOSED PUMP STATIONS, PUMP AND PUMP. THE PUMP STATION WILL BE DESIGNED WITH 24 HOURS EMERGENCY STORAGE PROVIDED AND CONNECTED TO THE EXISTING TOWNHALL PUMP STATION WHICH PUMPS ARE THEN PUMPED OFF SITE TO THE PUBLIC SEWER.

THE Foul Drainage System is to remain privately owned, operated and maintained by the site owner/operator.

PROPOSED PS 42 TO HAVE STORAGE CAPACITY OF 20M<sup>3</sup> TO ALLOW FOR 24 HOURS EMERGENCY STORAGE. AN UNDERGROUND 11 PUMPS IS PROPOSED PUMP STATION WITH 20M<sup>3</sup> STORAGE CAPACITY (24 HRS) WHICH MEETS THE REQUIREMENT. DRAIN TO GRAVITY PUMPS WITH 10M<sup>3</sup> PUMP SUD AND 10M<sup>3</sup> PUMP SUD WITH 10M<sup>3</sup> PUMP SUD. (STAGE) MEETS APPROXIMATELY 10M<sup>3</sup> FROM LOWEST OF CHANGELI MEETS WITHOUT/IN VICINITY OF CHANGELI.



**LEGEND**

- PROPOSED SEWER MAIN 150mm Ø INTERNAL - WHITE UNDRIGHT AND/OR AS NOTED BUT BE REQUIRED - SEE IN DETAIL DESIGN
- EXISTING PRIVATE Foul DRAINAGE INFRASTRUCTURE
- EXISTING PRIVATE Foul DRAINAGE MAIN - INDICATIVE LOCATION
- EXISTING PRIVATE Foul DRAINAGE INFRASTRUCTURE TO BE USED AS CONDUITS FOR PROPOSED CABLES
- PROPOSED PRIVATE Foul GRAVITY SEWER 150mm Ø IN-PHASE DRAINAGE
- PROPOSED PRIVATE Foul GRAVITY SEWER 150mm Ø IN-PHASE DRAINAGE
- PROPOSED PRIVATE Foul INSPECTION CHAMBER / MANHOLE
- PROPOSED UNDERGROUND PUMP STATION WITH EMERGENCY STORAGE PROVIDED. IN-USE THREE PHASE POWER SUPPLY IS REQUIRED FOR THE PUMP STATION, SOURCE TBC
- PROPOSED ADDITIONAL UNDERGROUND-ONLINE STORAGE FOR PS 41

**NOTES**

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DESIGNER: - RUSSELL HORN      DRAWING REVISION: - 8  
DATE: - 08/07

| DATE | BY | CHK | APP | REV | NOTES |
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PROJECT MANAGER: - WILLIAM STONE HOBBS  
ASSISTANT: - NAME OF ASSISTANT  
DRAWN BY: - JACOB STONE  
SCALE & SHEET NO.: - 1:500 @ A1

**FOR INFORMATION**

Wrote to: John (JACOB)      Read to: William (WILLIAM)  
Technical: William (WILLIAM)      Design: William (WILLIAM)  
Project: William (WILLIAM)      Project: William (WILLIAM)

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**DATE**  
AWAY RESORTS

**PROJECT**  
MILL RYTHE PROPOSED HOLIDAY PARK DEVELOPMENT

**DRAWING TITLE**  
FOUL DRAINAGE GENERAL ARRANGEMENT (2 OF 2)

| PROJECT NO. | DRAWING NO. | REV. |
|-------------|-------------|------|
| J-11713     | 3102        | A    |

## **ANNEX C: FLOWS AND LOADS CALCULATIONS**

## Flows and Loads

### 4 Calculations

#### Existing

| Type                  | No. dwellings | Occupancy | Population (P) | Adjusted P value (12-25 P x 0.9. 26-50 P x 0.8) | Flow L/day/p | Total Flow / day |
|-----------------------|---------------|-----------|----------------|-------------------------------------------------|--------------|------------------|
| Static Fully Serviced | 5             | 2.5       | 12.5           | 12                                              | 150          | 1800             |
| Chalets               | 260           | 2.5       | 650            | 520                                             | 150          | 78000            |
| Restaurant            | 1             | 200       | 200            | -                                               | 25           | 5000             |
| Laundry facilities    | 1             | 2         | 2              | -                                               | 500          | 1000             |
| Swimming pool         | 1             | 200       | 200            | -                                               | 10           | 2000             |
| Office staff          | 1             | 20        | 20             | -                                               | 50           | 1000             |

|                            |  |              |
|----------------------------|--|--------------|
| Total flows (litres/day)   |  | <b>88800</b> |
| Population Equivalent (PE) |  | 592          |

#### Proposed

| Type                     | No. dwellings | Occupancy | Population (P) | Adjusted P value (12-25 P x 0.9. 26-50 P x 0.8) | Flow L/day/p | Total Flow / day |
|--------------------------|---------------|-----------|----------------|-------------------------------------------------|--------------|------------------|
| Static Fully Serviced    | 203           | 2.5       | 507.5          | 406                                             | 150          | 60900            |
| Chalets                  | 87            | 2.5       | 217.5          | 174                                             | 150          | 26100            |
| Restaurant               | 1             | 200       | 200            | -                                               | 25           | 5000             |
| Laundry facilities       | 1             | 4         | 4              | -                                               | 500          | 2000             |
| Swimming pool facilities | 1             | 200       | 200            | -                                               | 10           | 2000             |
| Office staff             | 1             | 20        | 20             | -                                               | 50           | 1000             |

|                                       |  |              |
|---------------------------------------|--|--------------|
| Total flows (litres/day)              |  | <b>96000</b> |
| Population Equivalent (PE)            |  | 640          |
| Average flow (l/s)                    |  | 1.1          |
| Design flow peaking factor of 6 (l/s) |  | 6.7          |

SOLID SOLUTIONS IN A FLUID WORLD

Our Ref: J-11713-01-HG  
31 August 2017

Michael Catterall  
A&M Architectural Partnership LLP

**RE: Demolition of 6,111 square metres of redundant chalets and facilities buildings, use of land for the siting of 204 holiday caravans including 5 caravans for use as staff accommodation, refurbishment of retained single and two storey holiday chalets to form 87 units of holiday accommodation, retain managers bungalow, sales area for 5 caravans, refurbishment of remainder of central facilities building, CCTV cameras, provision of new pedestrian concourse with terraces, splash and dry play areas, multi-games court, adventure golf course and outdoor theatre and new landscaping. Retaining existing pitch and putt golf course to the east of the site at Mill Rythe Holiday Village, 16 Havant Road, Hayling Island, PO11 0PB**

Away Resorts have been granted planning permission for the proposed re-development of Mill Rythe Holiday Park. As part of the permission a number of conditions have been imposed. Condition 14 of this permission relates to the drainage of the site. This statement aims to address the surface water element of condition 14. The condition reads as:

*No development shall commence on site until details of a scheme for foul and surface water drainage has been submitted to and approved in writing by the Local Planning Authority. Such details should include provision for all surface water drainage from parking areas and areas of hardstanding. Where a SUDS scheme is to be implemented, the drainage details submitted to the Local Planning Authority should:*

- i) Specify the responsibilities of each part for the implementation of the SUDS scheme*
- ii) Specify a timetable for implementation*
- iii) Provide a management and maintenance plan for the lifetime of the development. This should include the arrangements for adoption by any public authority or statutory undertaker and any other arrangements to secure the operation of the scheme throughout its lifetime*

The proposal is for the re-development of the existing holiday park. It is noted that the overall impermeable area across the site will decrease once the site has been re-developed. Therefore the run-off post-development will be lower than the pre-development runoff.

The site at present is low lying and surrounded by tidal flood defences, as such, water falling on to the site runs directly into the drainage ditch to the north. The discharge is to coastal water as such there is no increased flood risk to third parties or the site itself. The filter drain/conveyance trench will provide additional storage and filtration over and above that currently in place on site. It is noted that this was an appropriate method for the surface water drainage related planning condition for part of the site under planning reference APP/11/01080.

Due to the low lying nature of the site, it is likely that the groundwater is close to the surface. Surface ponding has been noted on previous visits to site (Feb 2011) and in addition to this, according to the Cranfield University National Soil Map the site is described as "loamy and clayey soils of coastal flats with naturally high groundwater", thus providing low permeability. It is not recommended to use a soakaway based system due to the inability for the runoff to infiltrate the ground.

Therefore it is proposed that a drainage system which utilises a conveyance trench as a means of attenuation is used within the re-development. This will offer a slight degree of infiltration as well as water quality benefits.



It is proposed to install the conveyance trenches adjacent to the roadways towards the existing ditch to the north. New discharge points will discharge flows into the existing ditch which feeds into an onsite private pond/lake to the east with discharge to coastal waters. This is the anticipated receptor of the existing surface water onsite at present.

It will be the responsibility of the developer to ensure that the surface water drainage scheme is implemented.

#### Timetable for Implementation

Construction works are to take place in such an order that the risk of pollution and overland flow incidences' are kept to a minimum.

Construction run-off is usually heavily laden with silt, which must not be allowed to block or clog the infrastructure during construction.

Gullies and other formal drainage infrastructure are to be fitted with suitable screens, and silt traps to be regularly inspected and emptied when necessary.

Once the works are complete all parts of the system are to be checked that they meet the design requirements, any sediments or construction by-product must be removed to prevent loading on downstream infrastructure once screens and or other temporary measures are decommissioned.

The proposed drainage systems will be implemented prior to the occupation of the proposed re-development.

#### Management and Maintenance Plan

The proposed drainage systems will remain private and will be operated and maintained by the site owner.

Regular inspection and cleaning of the drainage infrastructure, including guttering, down-pipes, trenches and outfalls, should be carried out frequently to prevent build-up of silt and debris which will reduce the system conveyance capacity.

Visual inspection should ideally be carried out after any heavy rainfall event during the first year of operation, then six-monthly after that. Particular attention should be paid during the autumn months when leaf litter and other dead plant material may cause obstruction.

Routine inspection of the trenches should occur to ensure its volume is maintained. Silt/debris removal may be needed from time to time.

Any issues or failures identified with the system should be rectified immediately by a suitable contractor, observing suitable working practices and following the guidance and procedures as identified above.

I hope the above is clear and please do not hesitate to contact me should you have any further queries.

Yours sincerely

For and on behalf of Nijhuis H<sub>2</sub>OK Ltd

Hannah Graham

Team Leader – Flood Water Management

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#### KEY

- SITE BOUNDARY
- SW SEWER (TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY EARTHWORKS)
- PRIVATE CONVEYANCE TRENCH (TO BE CONSTRUCTED PRIOR TO COMMENCEMENT OF ANY EARTHWORKS)
- PROPOSED SURFACE WATER MANHOLE
- PROPOSED PRIVATE SURFACE WATER POLYPROPYLENE INSPECTION CHAMBER (475ø P.P.I.C)
- OVERLAND FLOW ROUTES

#### NOTE:

A TEMPORARY BUND SILT CONTROL BARRIER SHOULD BE SET UP AROUND THE DOWNSTREAM PERIMETER OF THE SITE / PHASE PRIOR TO CARRYING OUT EARTH WORKS TO ENSURE RUN-OFF DOES NOT CARRY SILTS OR TOP SOIL MATERIAL OFF THE SITE

POST INSTALLATION OF SILT FENCE THE CONVEYANCE TRENCH, SURFACE WATER SEWERS AND ALL OTHER SURFACE WATER INFRASTRUCTURE TO BE CONSTRUCTED PRIOR TO FURTHER WORKS.

|                      |      |      |      |     |                   |
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| DATE                 | DRWN | CHKD | APPR | REV | NOTES             |
| PROJECT MANAGER:-    |      |      |      |     | HANNAH GRAHAM     |
| ASSISTANT:-          |      |      |      |     | -                 |
| DRAWN DATE:-         |      |      |      |     | AUGUST 2017       |
| SCALE & SHEET SIZE:- |      |      |      |     | 1:500@ A1         |

## PRELIMINARY



- Waste to Value (AD/Biogas)
- Industrial Effluent Treatment
- Sewage Treatment
- Flood Risk Management/SUDS
- Design Consultancy
- Service and Maintenance

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CLIENT  
A & M ARCHITECTURAL PARTNERSHIP  
LLP

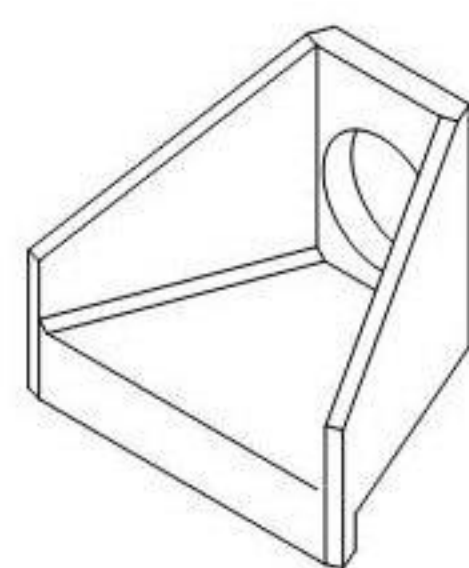
PROJECT  
MILL RYTHE HOLIDAY PARK

DRAWING TITLE  
SURFACE WATER DRAINAGE

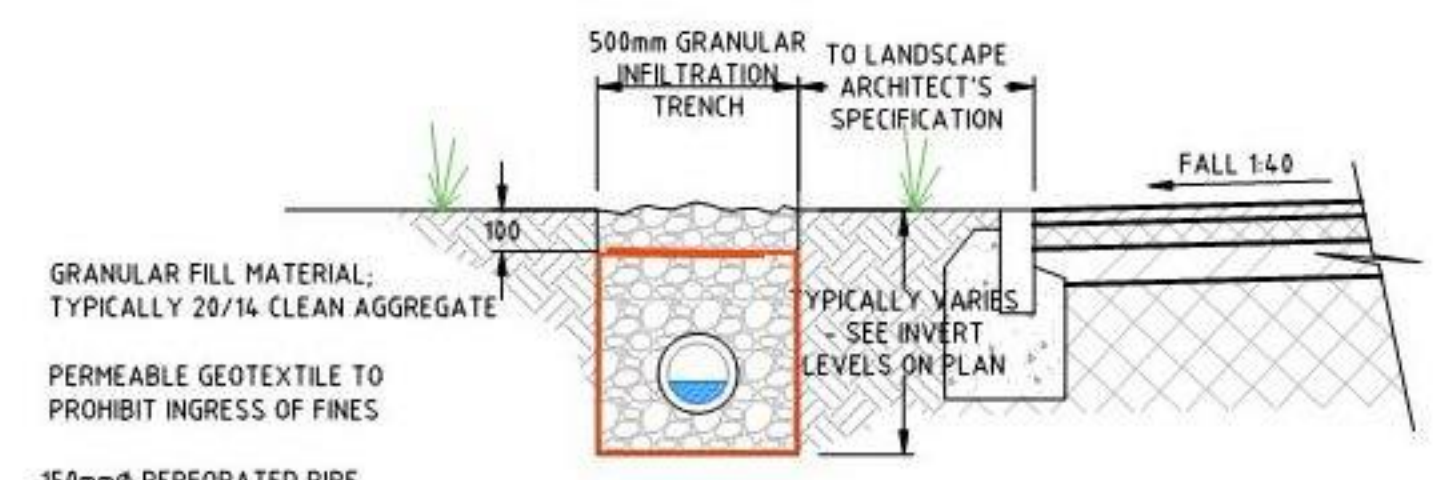
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| J-11713     | 3001        | A    |



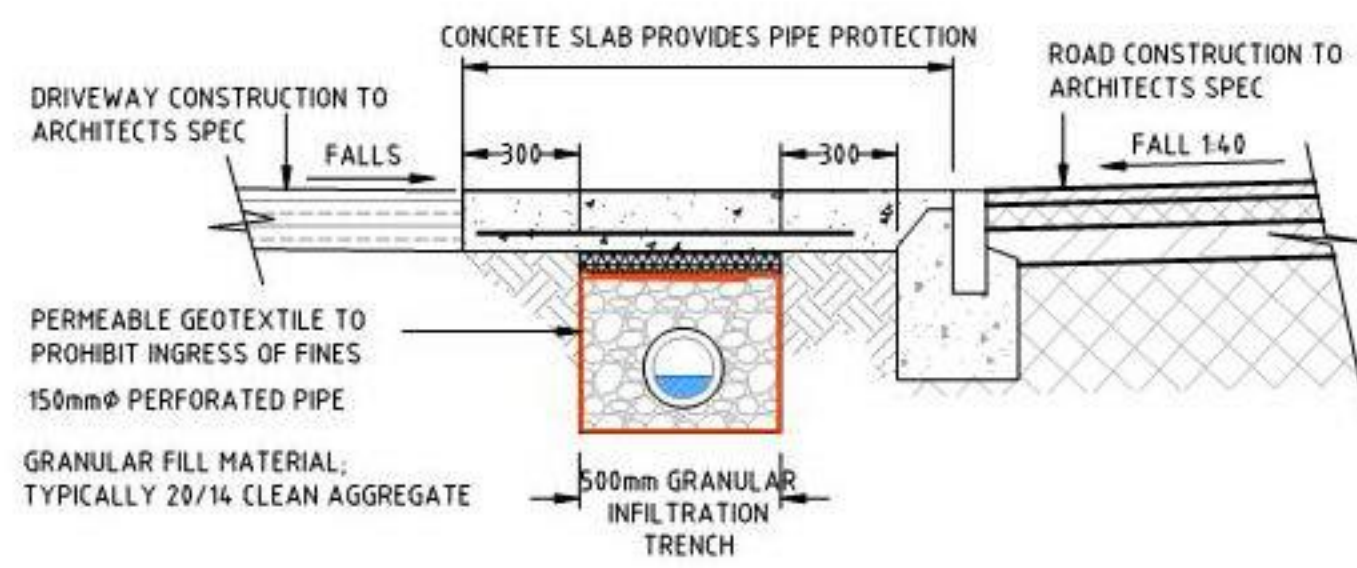
MAIN  
ENTRANCE



SPILLWAY HEADWALL (DRAINAGE OUTFALL)  
1:25



SECTION THROUGH TYPICAL INFILTRATION /  
CONVEYANCE TRENCH  
1:25



SECTION THROUGH TYPICAL INFILTRATION /  
CONVEYANCE TRENCH CROSSING BENEATH DRIVEWAY  
1:25

#### SURFACE WATER DRAINAGE STATEMENT

THE SITE AT PRESENT IS LOW LYING AND SURROUNDED BY TIDAL FLOOD DEFENCES, AS SUCH, WATER FALLING ON TO THE SITE RUNS DIRECTLY INTO THE DRAINAGE DITCH TO THE NORTH. THE RE-DEVELOPMENT RESULTS IN AN OVERALL DECREASE IN IMPERMEABLE AREA AND WILL NOT INCREASE THE PRE-DEVELOPMENT RUNOFF ROUTE. IN ADDITION TO THIS, THE DISCHARGE IS TO COASTAL WATERS, SO NO INCREASED FLOOD RISK TO THIRD PARTIES OR THE SITE ITSELF IS ANTICIPATED. THE FILTER DRAIN/CONVEYANCE TRENCH WILL PROVIDE ADDITIONAL STORAGE AND FILTRATION OVER AND ABOVE THAT CURRENTLY IN PLACE OF THE SITE.

DUE TO THE LOW LYING NATURE OF THE SITE, IT IS LIKELY THAT THE GROUNDWATER IS CLOSE TO THE SURFACE. SURFACE PONDING HAS BEEN NOTED ON PREVIOUS VISITS TO SITE (FEB 2011) AND IN ADDITION TO THIS, ACCORDING TO THE CRANFIELD UNIVERSITY NATIONAL SOIL MAP THE SITE IS DESCRIBED AS "LOAMY AND CLAYEY SOILS OF COASTAL FLATS WITH NATURALLY HIGH GROUNDWATER", THUS PROVIDING LOW PERMEABILITY.

IT IS NOT RECOMMENDED TO USE A SOAKAWAY BASED SYSTEM DUE TO THE INABILITY FOR THE RUNOFF TO INFILTRATE THE GROUND.

THEREFORE, IT IS PROPOSED THAT A DRAINAGE SYSTEM WHICH UTILISES A CONVEYANCE TRENCH AS A MEANS OF ATTENUATION IS USED WITHIN THE DEVELOPMENT. THIS WILL OFFER A SLIGHT DEGREE OF INFILTRATION AS WELL AS WATER QUALITY BENEFITS.

IT IS PROPOSED TO INSTALL THE CONVEYANCE TRENCH ADJACENT TO THE ROAD, RUNNING DOWNHILL TOWARDS THE EXISTING DITCH TO THE NORTH. NEW DISCHARGE POINTS WILL DISCHARGE FLOWS INTO THE EXISTING DITCH WHICH FEEDS INTO AN ONSITE PRIVATE POND TO THE EAST WITH DISCHARGE TO COASTAL WATERS.

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A & M ARCHITECTURAL PARTNERSHIP  
LLP

PROJECT  
MILL RYTHE HOLIDAY PARK

DRAWING TITLE  
SURFACE WATER DRAINAGE

|             |             |      |
|-------------|-------------|------|
| PROJECT No. | DRAWING No. | REV. |
| J-11713     | 3002        | A    |