

Client: Regent Parks

# Selby Park, York

## Drainage Summary Report



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DOCUMENT CONTROL			
Revision	Author Initials	DATE OF ISSUE	REASON FOR ISSUE
V1	EP	10-01-2023	For Planning Submission
V2	TBP	23-01-23	Touring car-park area amended
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### Accompanying Plan and Information:

Drawing No. 22121-001 rev P2 - Key plan

Drawing No. 22121-002 rev P1 – Detailed Plan 1

Drawing No. 22121-003 rev P1 – Detailed Plan 2

Drawing No. 22121-004 rev P1 – Detailed Plan 3

Drawing No. 22121-005 rev P4 – Detailed Plan 4

Drawing No. 22121-006 rev P4 - Pumping Station Detail

Drawing No. 22121-007 rev P1 - Long Section Detail

Drawing No. 22121-008 rev P4 - Washout Valve Chamber Detail

Drawing No. 22121-009 rev P4 - Air Release Valve Chamber Detail

Drawing No. 22121-011 rev P2 - Existing Drainage & Material Plan

Drawing No. 22121-012 rev P3 - Storm Water Drainage Plan

Drawing No. 22121-013 rev P3 - Foul Water Drainage Plan

Existing Storm Water Calculation

Proposed Storm Water Calculation

# 1 Introduction

## 1.1 The Brief

Parsons Consulting Engineers Ltd has been engaged by Regent Parks to provide a drainage strategy for the foul and storm water from the proposed Holiday Park at North Selby Mine.

## 1.2 The Site and Proposed Development

The site is located on North Selby Mine, New Road Deighton, York, and its postcode is YO19 6EZ. The area of the site is 9.6ha and the site is currently a disused brownfield site having been cleared of all workings from the previous use as a coal mine. The Site is largely surfaced with concrete, with access roads and areas laid out as car-parking. Some landscaped bunds exist centrally that have become over-grown. The south-western corner of the Site is wooded and slopes downwards to towards the Brook. An operational area containing the derelict site foul water treatment plant and large open sedimentation tank for the storm water exists at the bottom of the Site.

All the site areas are located in Flood Zone 1.

The proposed development includes the redevelopment of the former North Selby Mine site to a holiday leisure development to include a range of touring caravans and static caravans with associated facilities.

## 1.3 Existing Drainage System

### 1.3.1 Storm Water Drainage System

Approximately 90% of the Site is currently paved with concrete or tarmac. All of the existing hard-surfaced areas are positively drained to a system of storm drainage pipework leading to the disused sedimentation tank. The sedimentation tank is bypassed and storm water currently discharges uncontrolled top the brook that runs along the western boundary of the Site. There is no storm attenuation within the current system.

All the existing manholes and pipes have been Jetted and CCTV'd and apart from minor maintenance issues (blocked gullies, damaged covers and rusted step-irons) the system is largely considered to be in good condition.

Utilising information from the CCTV surveys, a hydraulic model has been developed to assess the capacity of the existing system. Missing information from the CCTV's survey (approx. 25% of manhole depths and diameters) has been assumed by interpolation between known information results. The detail drawing which is indicating how the existing drainage system works can be seen in Drawing '22121-011'.

The model has been run for a range of storm events and durations up to 1 in 100-year event, with additional allowance made for Climate Change. The model predicts that under highest rainfall events the system will discharge 475-l/s and over 2930 m<sup>3</sup> of flooding would occur, mainly from the extremities of the system. The details of hydraulic model calculations can be seen in '22121 - Existing Storm Water Calculation' Pack.

### 1.3.2 Foul Water Drainage System

Historically foul water from operational buildings (mostly now demolished) discharged to a separate drainage system that discharged to a pumping station at the bottom of the Site. An above ground packaged

Treatment Plant existed, providing primary and secondary treatment processes, before discharging to the Brook. The packaged treatment plant is now derelict and largely removed. The Pumping Station wet well does remain intact and has been found to be in good condition.

Jetting and CCTV has been undertaken and found that the majority of the existing system is in good condition. The detail drawing which is indicating how the existing drainage system works can be seen in Drawing '22121-011'.

## 1.4 Proposed Drainage System

### 1.4.1 Storm Water Drainage System

The existing car-park in the north-west corner of the Site is to be retained for Touring Caravan use. The existing drainage from this area and the main site roads shall all be retained. A flow control device (Hydrobrake) shall be installed to limit discharges from the Site to 237.5-l/s (being 50% of the Existing Runoff Rate for the site). New storm attenuation tanks and additional pipework shall be added to allow the system to manage all storm events up to 1 in 100-years, plus an allowance for climate change.

The remainder of the site shall be altered to suit the proposed new layout.

Three infiltration Tests have been undertaken on site revealing very high rates of infiltration. Test pits were 1.2m x 0.4m width and excavated to a depth of 1.5 - 1.6m. Ground conditions beneath the surface construction were found to be sandy Gravel and Cobble deposits. The gravel and cobbles were angular ranging from fine to course, mostly granite/sandstone, likely to be Made Ground. Ground water was not encountered in any of the trial pits. The pits were part filled with water and the following results achieved:

Pit 1 (East end of site) –  $6 \times 10^{-5}$  m/s

Pit 2 (Centre of Site) –  $5 \times 10^{-5}$  m/s

Pit 3 (West end of Site) – Infiltration Rate too high to measure (Test abandoned)

By reason of the very high infiltration rates it is proposed that the existing storm drainage system shall be abandoned in favour of infiltrating to the ground. All of the existing concrete hardstanding areas are to be removed and new access roads with French-drains provided.

New drainage from the retained buildings shall be provided discharging to soakaways.

Hard-standing areas shall be provided for each static caravan, draining to French drains around the caravans. Roofs of the caravans shall drain onto the hardstands.

An area for car-parking is proposed to be surfaced with permeable blockwork to remove risk of pollution.

The detail drawing which is indicating how the proposed storm drainage system works can be seen in Drawing '22121-012'.

A Hydraulic model is used to investigate how many storage are needed for each existing building. The detail calculation report can be seen in '22121 – Proposed Storm Water Calculation' Pack.

## 1.4.2 Foul Water Drainage System

The existing foul drainage system is proposed to be extended to allow connection of foul drains from each caravan and building to be collected. The proposed system is shown on Drawing '22121-006'.

The Pump Station shall discharge via a new rising main along the side of the access road to a gravity sewer (Requisitioned from Yorkshire Water), ultimately discharging into Thames Water's public sewerage system off York Road. The detail foul water drainage system is shown on Drawing '2121-013'.

In the event of failure of the system, tankers shall be used to transport flows to the nearest suitable treatment works.

Washout Chamber and Air-release Valve Chambers are required along the length of the main as indicated on drawings '22121-008 and 22121-009'.

A Foul Water Drainage Calculation is provided to show the proposed foul water system works for the proposed development and it can be observed in '22121-Selby-SW Calculation' Pack.