

High Groundwater and Trench Instability

Deep Made Ground present within area of proposed detention basin and plots 13-22 (exact extents of Made Ground unknown). Constant inflow of groundwater and excavation collapse encountered in this area during ground investigations. There is also the risk of trench instability and high groundwater across the site. Excavations have been limited where possible by raising site levels.

Geogrid required - design to be undertaken by a specialist. Allowance to also be made for removal of Made Ground.

Prior to commencing works the Contractor is to familiarise themselves with the ground conditions detailed within the Elemental GI Ltd Phase II Geo-Environmental Investigation Report (Jan 2022, Ref: E21142/Z/1) and the findings of JPP Geotechnical additional ground investigations undertaken in February 2023. The Contractor is to ensure suitable safe working practices are followed in accordance with current best practice. The Contractor is to ensure the excavations are suitably managed with supports or benched to prevent collapse, and de-watering / pump equipment in place where required. Excavations are not to be left open for long periods

Site Wide Build-Up

Levels across the site have been lifted significantly above existing ground levels to allow for the following:

- To allow surface water drainage to drain to the existing ditch at the southern side of the site by gravity.
- To avoid deep foul drainage required to allow the site to drain to the existing AW manhole by gravity (alternative solution is to pump foul flows via a rising main)
- To limit excavations required for drainage and services in the unstable ground and Made Ground, where high groundwater is present.

A geogrid will be required under all road, footway, parking areas and patios due to low strength soils (CBR values shаве been shown to range from 5.2% to 0.3%) and deep Made Ground. Geogrid to be designed by a specialist.

Allowance to be made for Geogrid to extend below all manholes and inspection chambers, and also to cover POS and garden areas where there is a risk of future settlement. Fill material specification also to be advised by Geotechnical Engineer to reduce risk of settlement - allowance to be made for removal of Made Ground material.

Detention basin maintenance schedule

Maintenance schedule	Required action	Recommended Frequency
Regular maintenance	Remove litter, debris and trash	Monthly
	Cut grass - for landscaped areas and access routes	Monthly (during growing season) or as required
	Cut grass - meadow grass in and around basin	Half yearly: Spring (before nesting season) and Autumn
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
Occasional maintenance	Reseed areas of poor vegetation	As required
	Prune and trim trees and remove cuttings	As required
	Remove sediment from pre-treatment system when 50% full	As required
Remedial actions	Repair erosion or other damage by reseedling or returfing	As required
	Repair or rehabilitate inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required
Monitoring	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect banksides, structures, pipework etc for evidence of physical damage	Monthly
	Inspect inlets and pre-treatment systems for silt accumulation; establish appropriate silt removal frequencies	Half yearly
	Inspect infiltration surfaces for compaction and ponding	Monthly

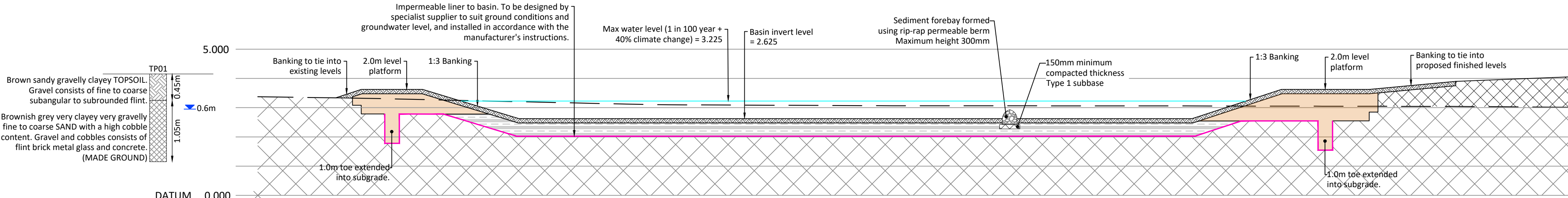
Drawing key

- Site boundary(Taken from reference site layout)
- Adoptable Section 104 Surface Water Sewer with pipe diameter, gradient and manhole
- Trapped S38 Road Gully
- Adoptable Headwall
- Banking Works
- Extent of Detention Basin Proposed for Adoption
- Section Markers
- Trial Pit (Trial pit logs taken from JPP reports: 22590 TP Logs MI.pdf)



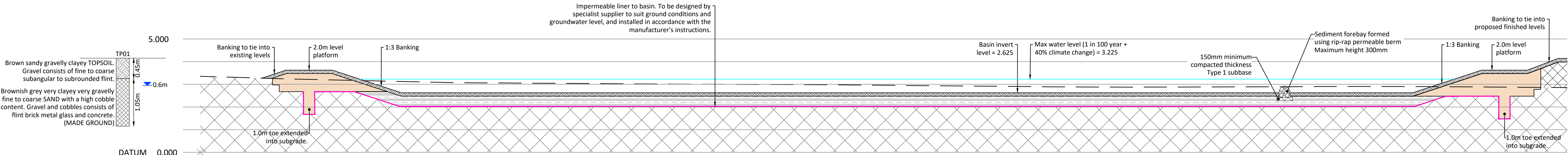
Site Context Plan

Scale 1:500



CHAINAGE	0.000	5.000				10.000				15.000				20.000				25.000				30.000				35.000				40.000				44.918																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
BASIN LEVEL		3.336	3.625	3.625	3.225	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.625	2.6

Detention Basin Section A-A
(Scale H-1:100 , V-1:100)



60.355	4.140	2.855
60.000		2.857
55.000	3.625	2.893
	3.625	
	3.625	
	3.270	
50.000	2.625	2.902
45.000	2.625	2.884
40.000	2.625	2.879
35.000	2.625	2.913
30.000	2.625	2.959
25.000	2.625	2.992
20.000	2.625	3.014
15.000	2.625	3.047
10.000	2.625	3.099
5.000	3.625	3.212
	3.625	
	3.625	
	3.270	
0.000		3.353
CHAINAGE	BASIN LEVEL	EXISTING GROUND LEVEL

Detention Basin Section B-B
(Scale H-1:100 , V-1:100)

Section Key

- Top soil and vegetated side slopes
- Class 7A selected cohesive material in accordance with Specification for Highway Works, Volume 1, Series 600.
- Impermeable clay used to form bund.
- Existing subgrade
- Existing levels
- Top of water level for 1 in 100 year event + 40% climate change
- Impermeable liner (to be designed by specialist)

General Notes

- All dimensions are in metres unless otherwise stated.
- All levels are in metres.
- This drawing is to be read in conjunction with all relevant Engineers and Architect's drawings, Specifications, Reports and Engineering Details.
- Do not scale from this drawing.

Detention Basin

- All residents living within the development are to be informed of the location and purpose of the detention basin
- Signs must be provided to warn pedestrians of detention basin, and further "nag" signs must be provided to alert pedestrians further
- Banking on the basin limited to 1:3 to allow for safe maintenance access/egress and unaided movement in either direction
- Grills will be provided at headwalls
- The basin is situated close to the public highway and dwellings to ensure a high degree of natural surveillance
- Vegetation shall be planted around to discourage access but will not obstruct visibility of the water level

Section Key

- Top soil and vegetated side slopes
- Class 7A selected cohesive material in accordance with Specification for Highway Works, Volume 1, Series 600.
- Impermeable clay used to form bund.
- Existing subgrade
- Existing levels
- Top of water level for 1 in 100 year event + 40% climate change
- Impermeable liner (to be designed by specialist)

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- Infrastructure Design
- Structural Engineering
- Development Planning
- Geotechnical & Environmental
- Surveying
- Professional Advice

Rev	A	Maintenance schedule added	By AD	Checked LC	13.04.2023
Drawn By:	SH	Client	Burmor Construction		
Chkd By:	LC	Project	Land East of Surfleet Road Pinchbeck		
Scale @ A1:	As Shown	Title	Detention Basin Cross Sections		
Date:	March 2023				
Status:	FOR TECHNICAL APPROVAL				
Project No.:	26043	Drawing No:	122	Rev:	A

