
CORNFIELD CLOSE, LITTLEHAMPTON DRAINAGE MAINTENANCE AND MANAGEMENT PLAN

This document outlines the responsibilities for the management and maintenance of the foul and surface water drainage systems at the development site at Cornfield Close, Littlehampton.

Site and Drainage Description

The development site comprises 77 residential homes with associated access roads, car parking, cycle parking, refuse/recycling storage and landscaping.

The following drawings illustrating the site layout and drainage details are provided in the appendices to this report:

- Technical Layout (Appendix A);
- External Works Layout (Appendix B);
- Engineering Construction Details (Appendix C);
- Drainage Construction Details (Appendix D); and
- Exceedance Plan (Appendix E)

Surface Water

Surface water run-off from hardstanding areas is collected via rainwater downpipes (roofs) or gullies (roads) and conveyed into a piped network. Parking bays in the car park areas serving the two apartment blocks are constructed with a permeable block paved surface, draining under their own footprint into the sub-base, whereby flows are collected via distribution tanks and conveyed into the pipe network.

The piped network directs all flows to geocellular crates located within the public open space in the centre of the site. These crates are fully encapsulated by an impermeable membrane and are herein referred to as the 'storage crates'.

Water flows out of the storage crates into a chamber with a perforated riser pipe, which filters the flow. A flow control chamber is located downstream of this chamber, which contains a HydroBrake and an orifice plate set on a weir wall. These act to restrict the inflow into a lower layer of geocellular crates, located immediately below the upper storage crates. These crates have an impermeable membrane to the top and sides only, with water infiltrating to ground via the base of the crates. These crates are therefore herein referred to as the 'soakaway crates'. The lined sides of prevent horizontal infiltration in order to prevent migration of contaminants from the surrounding made ground.

All surface water chambers on the piped network are catchpits or silt traps. Inlet pipes to all geocellular crates are located at the level of the bottom layer of crates and can therefore also be used for maintenance, inspection and jetting of the crates.

Foul Water

Foul water is conveyed via a conventional pipe network to connect into the existing Southern Water manhole located in Cornfield Close adjacent to the site.

Exceedance Flow

The surface water drainage system is designed to accommodate all storm events up to and including the 1 in 100 year return period, with a 40% allowance for the potential effects of climate change. The effects of a higher return period event occurring and inundating the drainage system have been considered. In the event that the drainage system is inundated, flooding will first occur at the low points of the site, in the south-east and south-west car parks. An Exceedance Plan, included in Appendix E, further demonstrates that any overland flows generated within the site will be routed via the road network, away from the proposed dwellings. The finished floor levels of the proposed dwellings are located at a higher elevation than the road network and above existing ground levels, thereby providing protection to dwellings during an exceedance event.

Management Responsibilities

All surface and foul water pipework, chambers and other infrastructure serving a single dwelling is to be owned and maintained by the owner of that property.

All shared surface water drainage pipework, chambers, manholes and features will be owned and maintained by private management company.

All shared foul water pipework, chambers, manholes and features will be owned and maintained by private management company, up to the existing Southern Water manhole located in Cornfield Close into which the system discharges.

Maintenance Activities

This section details the type and frequency of maintenance activities for each drainage feature.

Table 1: Polypipe Polystorm Cellular Storage Crates (Upper) – Maintenance Activities

Schedule	Maintenance Activity	Inspection Frequency
Monitoring	Initial inspection.	Monthly for three months after installation.
	Inspect for evidence of poor operation and signs of clogging or build-up of debris/dirt/silt etc within the crates.	Three monthly, and 48 hours after large storms in the first six months.
	Monitor inspection chambers.	Three monthly for the first year, six monthly thereafter.
Regular Maintenance	Ensure inlets and pre-treatment structures are clear and free of debris.	Six monthly.
	Inspect and remove any sediment, debris and silt from upstream network, including all gullies, silt traps and catchpit chambers.	Monthly or as required.
Remedial Actions	Jet crates to remove clogging or build-up of silt. Sediment, debris and silt to be removed from catchpit manhole upstream of each entry point prior to commencement of jetting.	As required.
	Clear pipework of blockages.	As required.
	Replacement of crates.	At end of design life, or as required.

Table 2: Polypipe Polystorm Cellular Soakaway Crates (Lower) – Maintenance Activities

Schedule	Maintenance Activity	Inspection Frequency
Monitoring	Initial inspection.	Monthly for three months after installation.
	Inspect for evidence of poor operation and signs of clogging or build-up of debris/dirt/silt etc within the soakaway.	Three monthly, and 48 hours after large storms in the first six months.
	Monitor inspection chambers.	Three monthly for the first year, six monthly thereafter.
Regular Maintenance	Ensure inlets and pre-treatment structures are clear and free of debris.	Six monthly.
	Inspect and remove any sediment, debris and silt from upstream network, including all gullies, silt traps and catchpit chambers.	Monthly or as required.
Remedial Actions	Jet crates to remove clogging or build-up of silt. Access for jetting provided from 2 no. manholes (S41 and S50). Sediment, debris and silt to be removed from catchpit manhole upstream of each entry point prior to jetting commencing.	As required, or as identified by regular inspections.
	Clear pipework of blockages.	As required.
	Replacement of crates.	At end of design life, or as required.

Table 3: Gullies and Conventional Pipe Network – Maintenance Activities

Schedule	Maintenance Activity	Inspection Frequency
Regular Maintenance	Inspect and remove any sediment, debris and silt from gullies, silt traps and catchpit chambers.	Monthly or as required.
	CCTV survey to inspect pipework for blockages, root ingress, displaced joints, or other signs of differential settlement.	Monthly.
Remedial Actions	Clear pipework of blockages, root ingress, repair joints or repair other signs of differential settlement.	As required.
	Replacement of gullies / pipe system.	As required.

Table 4: Perforated Riser Chamber and Flow Control Chamber – Maintenance Activities

Schedule	Maintenance Activity	Inspection Frequency
Regular Maintenance	Inspect and remove any sediment, debris and silt from the chamber.	Monthly or as required.
	Inspect chamber and incoming/outgoing pipework for blockages or root ingress.	Monthly.
Remedial Actions	Clear chamber and incoming/outgoing pipework of blockages.	As required.

Table 5: Permeable Paving – Maintenance Activities

Schedule	Maintenance Activity	Inspection Frequency
Monitoring	Initial inspection.	Monthly for three months after installation.
	Inspect for evidence of poor operation and/or weed growth.	Three monthly, and 48 hours after large storms in the first six months.
	Monitor inspection chambers.	Annually.
	Check for surface for signs of clogging or build-up of debris/dirt/silt etc. Particular attention to be paid to areas where water runs onto the pervious surface from adjacent impermeable areas i.e. transition from aisle to parking bay.	Annually.
Regular Maintenance	Brush and/or vacuum surface.	Based on site-specific observations of clogging (see above, or else annually (after autumn leaf fall).
Occasional Maintenance	Stabilise and mow adjacent grassed areas.	As required.
	Removal of weeds or management using glyphosphate applied directly into the weeds by an applicator (rather than spraying).	As required, or else annually.
Remedial Actions	Remedial work to any depressions, rutting and cracked or broken blocks considered detrimental to the structural performance or a hazard to users, and replace lost jointing material.	As required.
	Rehabilitation of surface and upper substructure by remedial sweeping.	Every 10 to 15 years or as required.
	Replacement of pavement system.	As required.

Maintenance Risk Assessment

All maintenance activities should be carried out by appropriately qualified and competent personnel for the tasks specified. Personnel / contractors should carry out their own risk assessment prior to undertaking any maintenance activities.

Some maintenance activities detailed in this plan require man-entry into chambers at up to 5m deep, including the flow control chamber. Man-entry should only occur where absolutely necessary in order to carry out the maintenance activity; maintenance should be carried out from ground level wherever reasonable or practicable. The key risks are identified and considered in the following paragraphs.

All workers should refer to, and carry out maintenance activities in accordance with, BS EN 752, specifically Annex D (normative): “Health and Safety”.

All necessary ventilation, lighting, communication, lifting and rescue equipment shall be provided and shall be appropriate to the task undertaken. All necessary personal protective equipment (PPE) shall be provided.

A safe access and egress route shall be provided and maintained at all times. Ladders have been designed, and chamber sizes and access covers sized in order to allow for ease of access and egress of personnel and equipment, in accordance with Sewers for Adoption (7th Edition) and BS EN 752. Safety signs and/or fencing should be provided to prohibit unauthorised access surrounding any openings.

A sufficient number of personnel should be at ground level to monitor the safety of the operation and carry out a rescue if necessary. First aid equipment shall also be provided. No attempt to enter the confined space to attempt a rescue should be made without breathing apparatus.

Working in a Water Environment

The HydroBrake flow control device is designed to minimise blockage risk, and will also be fitted with a bypass door as standard. The door allows an emergency drain down of the chamber in case of a blockage at the inlet of the unit. It can be operated from the surface, allowing the chamber to be emptied prior to freeing the blockage from the inlet of the unit. On release of the pull cable, the door will close under its own weight and does not require any mechanism that may contribute to debris being caught around the unit. This feature ensures minimises risk of man-entry being required when water is present in the chamber.

Where necessary, water in the chamber should be pumped out and the adjoining pipework blocked up in order to prevent water ingress into the chamber during maintenance activities.

Any personnel conducting work within a chamber should wear breathing apparatus, safety harnesses and rescue ropes, as well as standard personal protective equipment (PPE). All electrical equipment should be operated and protected such as to prevent the risk of danger from electric shock.

Working in a Confined Space (including risk of toxic and noxious gases)

All workers should refer to, and carry out maintenance activities in accordance with, the Health and Safety Executive (HSE) Approved Code of Practice, Regulations and Guidance document “Safe Work in Confined Spaces” (1997).

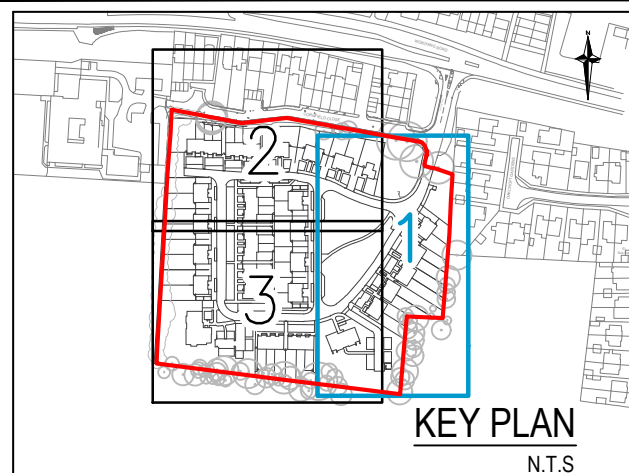
All sewage, silt and sediment should be removed prior to man-entry to the chamber in order to prevent any toxic or noxious gases that may have accumulated from being released and endangering personnel working in the chamber. Ventilating equipment with a sufficient power supply should be used to supply fresh air to the chamber, and continuous atmospheric monitoring equipment used where appropriate.

Working at Height (Depth)

Ladders are provided within deep chambers to facilitate ease of access and egress. Personnel should also wear a harness and use a tripod system, or similar system in accordance with the best practice and guidance at the time.

All workers should refer to, and carry out maintenance activities in accordance with, the Health and Safety Executive (HSE) document “The Work at Height Regulations” (2005) where it applies.

Appendix A
Technical Layout



Drawing reference no.
M637_11.001 - 11.005
M637_12.001
M637_13.001/13.002/13.003/13.004
M637_14.001/14.002/14.003/14.004
M637_15.001/15.002/15.003
M637_15.004/15.005/15.006/15.007
M637_16.001
M637_16.002
M637_17.001/17.002
M637_18.001/18.002/18.003/18.004
THA21635-03A
GY46241/001A

Drawing Title
- Setting Out
- Longitudinal Sections
- Technical Layout
- Surface Finishes Layout
- Engineering Details
- Drainage Details
- Cut and Fill
- Tensar Geogrid Plan
- S278 Agreement Plans
- Combined Services
- Tree Protection Plan, 2018.08.11
- ACD Environmental.
- Topographical Survey, 2017.11.27
- Sunshine Survey Ltd.

NOTES:

- This drawing is to be read in conjunction with all other drawings and specifications.
- Any discrepancies found between information shown on this or any other drawing shall be reported to the Engineer immediately and prior to works commencing on site.
- Dimensions not to be scaled.
- All works to be to Building Regulations Part H and Part M(1).
- This drawing details all below ground drainage up to finish floor level. For details of drainage above finish floor levels refer to Architect's drawings.
- Refer to Architects drawings for rain water pipe locations.
- All stack connections under buildings to be 100mmØ at minimum gradient of 1 in 40 (SVP) or 1 in 30 (FS) unless otherwise noted.
- All RWP's to be provided with above ground roddable access points.
- Where pipe diameters and gradients are not shown, foul and surface water pipes to be 100mm laid at a minimum gradient of 1:60 unless otherwise noted.
- Private pipework to be plastic up to 450mm diameter and comply with BS EN 13476 and WIS 4-35-01 v2. Pipes shall be BSI Kitemarked, or have equivalent third party certification.
- All pipework shall join at soffit level unless otherwise stated on the drawing or schedules.
- Refer to Table 1 for chamber type key. Where chamber types are not shown, chamber to be Type 3 (>2m deep) or Type 4 (<2m deep) inspection chamber.
- Cover grade of chambers with depth to invert >1.2m to be D400. Cover grade of chambers with depth to invert <1.2m, refer to Table C of Drainage Details Sheet 3 (M637_15.006).
- For all other details of manhole, inspection chamber and cover sizing and specification refer to Drainage Details Sheets 3 and 4 (M637_15.006/15.007).
- All manhole / inspection chamber covers to be installed parallel to final kerbs, edgings, paving joints or building lines as appropriate. Cover levels are approximate only. All covers to be set flush with finished surface.
- Invert levels of existing chambers have been taken from third party information and should be confirmed onsite prior to commencement of drainage works. Any discrepancies in the levels of the drainage should be reported immediately to the Engineer.
- Threshold drains to be provided according to Architect's details.
- Gravelboard heights indicative only and to be used where retained heights at property boundaries are 600mm or less.
- Proposed road levels provided at channel level unless noted otherwise.
- It is to be the contractor's responsibility to ensure that all services that are affected by the works are located prior to works commencing. Trial holes are to be dug if necessary.
- Existing drainage that will serve no purpose post development is to be either removed or suitably stopped up by end capping or in infilling with concrete with no hindrance to the retained system.
- Drainage works in connection to the existing foul Southern Water sewer to be undertaken by the chosen contractor under Section 106 of the Water Industry Act 1991. The contractor is to arrange for final inspection of the adoptable works with Southern Water Developer Services (Tel. 01962 716042).
- Buried concrete to be Design Sulphate Class DS-2 and ACEC AC-2 within Made Ground, and DS-1 and AC-1 within River Terrace Deposits or Chalk Bedrock.

KEY:

- Site boundary
- Existing foul water manhole
- Existing foul water sewer
- Proposed private foul water pipe
- Proposed private surface water drainage
- Proposed surface water manhole / inspection chamber
- Proposed surface water flow control chamber
- Proposed foul water manhole / inspection chamber
- RWP Rain Water Pipe
- RE Rodding Eye
- ACO MultiDrain with sump or similar approved
- SVP/FS Proposed Soil Vent Pipe / Foul Stack
- FG Proposed Foul Water Floor Gully
- DT Proposed Permeable Rainwater Diffuser unit
- RG Proposed Road Gully (Polypipe Rigidgully)
- MG Proposed Drive Gully (Polypipe Midgully)
- Proposed Polystorm Crates
- Permeable Paving (refer to Surface Finishes Layout)
- 1.003 Pipe Reference No.
- 1500/1:100/10m Direction of Fall
- 1500/1:100/10m Pipe Diameter / Gradient / Length
- S21.2 (CP) Chamber Reference No. (Chamber Ref. - Table 1)
- CL 8.540 Cover Level
- IL 6.875 (225) Invert Level (Pipe diameter)
- Stepped threshold
- Level threshold
- Existing level
- Proposed level
- Proposed gradient
- Proposed structural slab level
- Proposed finished floor level
- UB-1C Underbuild (with no. brick courses)
- GB-150 Gravelboard (with height in mm)
- Embankment
- Proposed contour (0.05m band)
- Proposed contour (0.50m band)

CRATE SOAKAWAY / ATTENUATION NOTES:

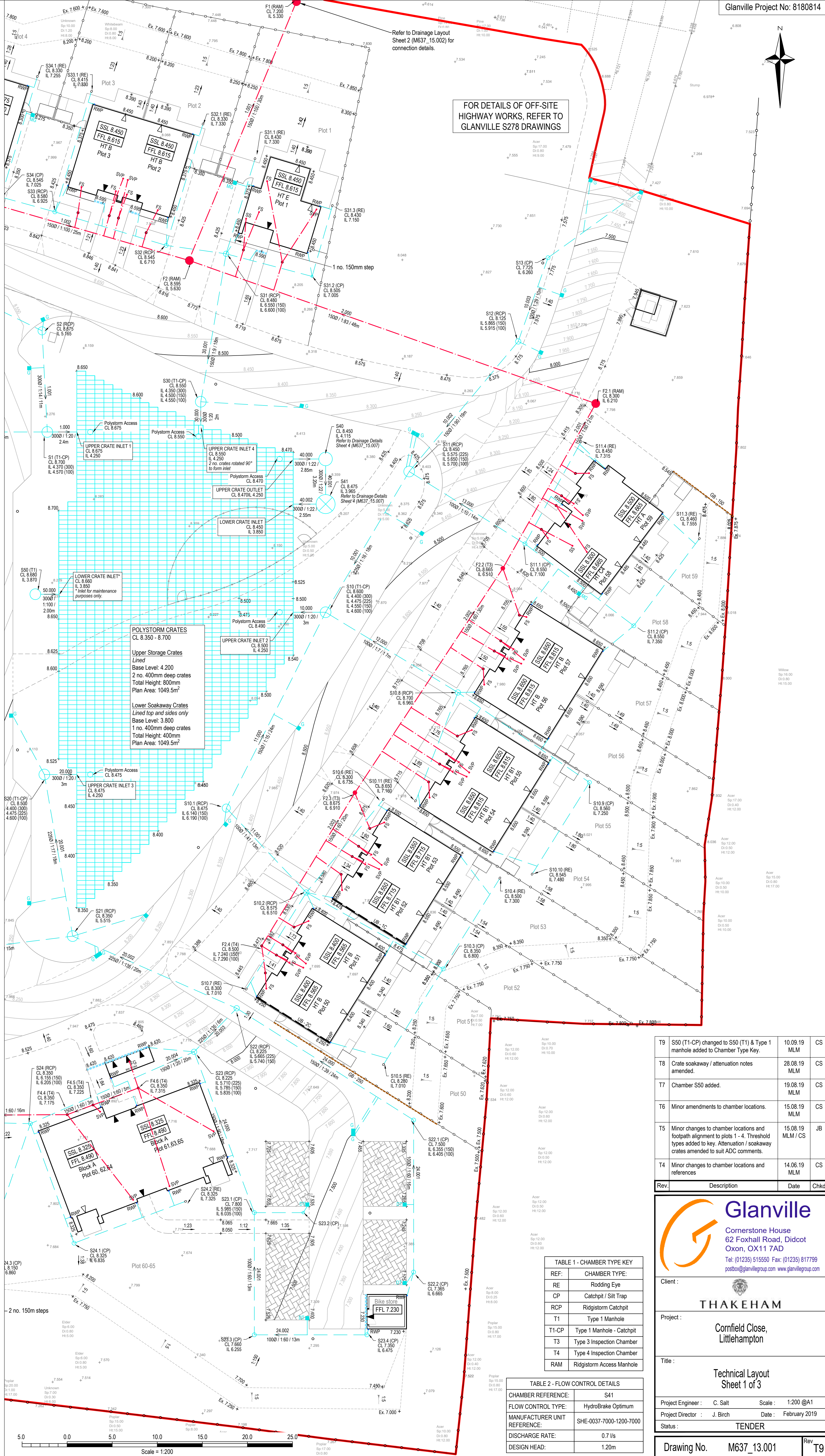
- Refer to Drainage Details Sheet 2 and 4 (M637_15.005 and 15.007) for soakaway construction details and installation guidance.
- Construction detail and product specifications to be approved by Polypipe prior to construction. All Polypipe units to be installed in accordance with Polypipe installation guidance, and where necessary the manufacturer should be consulted prior to installation.
- Upper Attenuation Crates:**
1 no. Polystorm Access Manhole to be provided per inlet and outlet as shown, for use for inspection only. Maintenance activities, such as rodding and flushing, to be carried out from inlet manholes S1, S10, S20 and S30, and outlet manhole S40.
- Lower Soakaway Crates:**
Maintenance activities, such as rodding and flushing, to be carried out from inlet manholes S41 and S50.
- The functioning of the soakaway structure relies upon the continued appropriate maintenance of all upstream catchpits and silt traps. All features to be maintained in accordance with the Management and Maintenance Plan.

SOAKAWAY CONSTRUCTION PRECAUTIONS

Many soakaway failures result from actions carried out during the construction process.

All infiltration devices should be protected from contamination by silt, cement washings etc. during the construction period.

It is recommended that until all construction works have been completed within the contributory areas, that the manholes upstream of the soakaway are used as catchpits and regularly inspected and cleaned throughout the construction process.



FOR DETAILS OF OFF-SITE HIGHWAY WORKS, REFER TO GLANVILLE S278 DRAWINGS

Refer to Drainage Layout Sheet 2 (M637_15.002) for connection details.

T9	S50 (T1-CP) changed to S50 (T1) & Type 1 manhole added to Chamber Type Key.	10.09.19	CS
T8	Crate soakaway / attenuation notes amended.	28.08.19	CS
T7	Chamber S50 added.	19.08.19	CS
T6	Minor amendments to chamber locations.	15.08.19	CS
T5	Minor changes to chamber locations and footpath alignment to plots 1 - 4. Threshold types added to key. Attenuation / soakaway crates amended to suit ADC comments.	15.08.19	JB
T4	Minor changes to chamber locations and references	14.06.19	CS

Rev.	Description	Date	Chkd
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Client: **THAKEHAM**
Project: **Cornfield Close, Littlehampton**

Title: **Technical Layout Sheet 1 of 3**

Project Engineer: **C. Salt** Scale: **1:200 @A1**
Project Director: **J. Birch** Date: **February 2019**
Status: **TENDER**

Drawing No. **M637_13.001** Rev **T9**

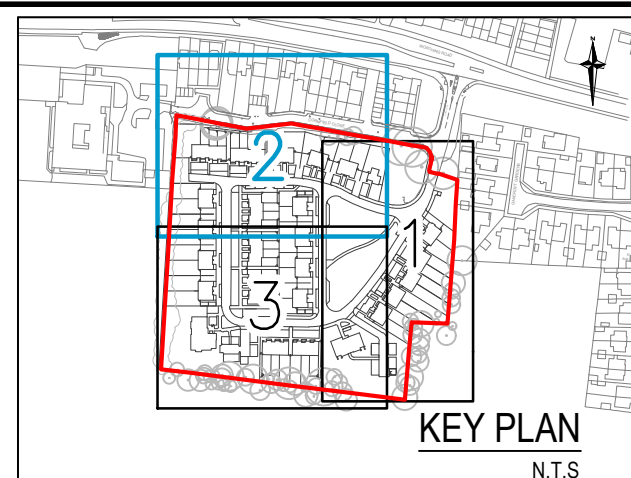
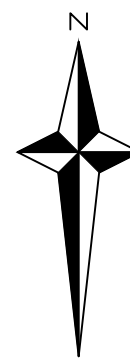
TABLE 1 - CHAMBER TYPE KEY

REF.	CHAMBER TYPE:
RE	Rodding Eye
CP	Catchpit / Silt Trap
RCP	Ridgistorm Catchpit
T1	Type 1 Manhole
T1-CP	Type 1 Manhole - Catchpit
T3	Type 3 Inspection Chamber
T4	Type 4 Inspection Chamber
RAM	Ridgistorm Access Manhole

TABLE 2 - FLOW CONTROL DETAILS

CHAMBER REFERENCE:	S41
FLOW CONTROL TYPE:	HydroBrake Optimum
MANUFACTURER UNIT REFERENCE:	SHE-0037-7000-1200-7000
DISCHARGE RATE:	0.7 l/s
DESIGN HEAD:	1.20m

Scale = 1:200



KEY:

- Site boundary
- Existing level
- Proposed level
- Proposed gradient
- SSL 7.500
- FFL 7.400
- UB - 1C
- GB - 150
- Gravelboard (with height in mm)
- Embankment
- Proposed contour (0.05m band)
- Proposed contour (0.50m band)
- Stepped threshold
- Level threshold

CRATE SOAKAWAY / ATTENUATION NOTES:

- Refer to Drainage Details Sheet 2 and 4 (M637_15.005 and 15.007) for soakaway construction details and installation guidance.
- Construction detail and product specifications to be approved by Polypipe prior to construction. All Polypipe units to be installed in accordance with Polypipe installation guidance, and where necessary the manufacturer should be consulted prior to installation.
- Upper Attenuation Crates:
1 no. Polystorm Access Manhole to be provided per inlet and outlet as shown, for use for inspection only. Maintenance activities, such as rodding and flushing, to be carried out from inlet manholes S1, S10, S20 and S30, and outlet manhole S40.
- Lower Soakaway Crates:
Maintenance activities, such as rodding and flushing, to be carried out from inlet manholes S41 and S50.
The functioning of the soakaway structure relies upon the continued appropriate maintenance of all upstream catchpits and silt traps. All features to be maintained in accordance with the Management and Maintenance Plan.

SOAKAWAY CONSTRUCTION PRECAUTIONS

Many soakaway failures result from actions carried out during the construction process.

All infiltration devices should be protected from contamination by silt, cement washings etc. during the construction period.

It is recommended that until all construction works have been completed within the contributory areas, that the manholes upstream of the soakaway are used as catchpits and regularly inspected and cleaned throughout the construction process.

TABLE 1 - CHAMBER TYPE KEY

REF:	CHAMBER TYPE:
RE	Rodding Eye
CP	Catchpit / Silt Trap
RCP	Ridgiform Catchpit
T1	Type 1 Manhole
T1-CP	Type 1 Manhole - Catchpit
T3	Type 3 Inspection Chamber
T4	Type 4 Inspection Chamber
RAM	Ridgiform Access Manhole

TABLE 2 - FLOW CONTROL DETAILS

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FLOW CONTROL TYPE:	HydroBrake Optimum
MANUFACTURER UNIT REFERENCE:	SHE-0037-7000-1200-7000
DISCHARGE RATE:	0.7 l/s
DESIGN HEAD:	1.20m

Drawing reference no.
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M637_15.001/15.002/15.003
M637_15.004/15.005/15.006/15.007
M637_16.001
M637_16.002
M637_17.001/17.002
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THA21635-03A
GY46241/1001A

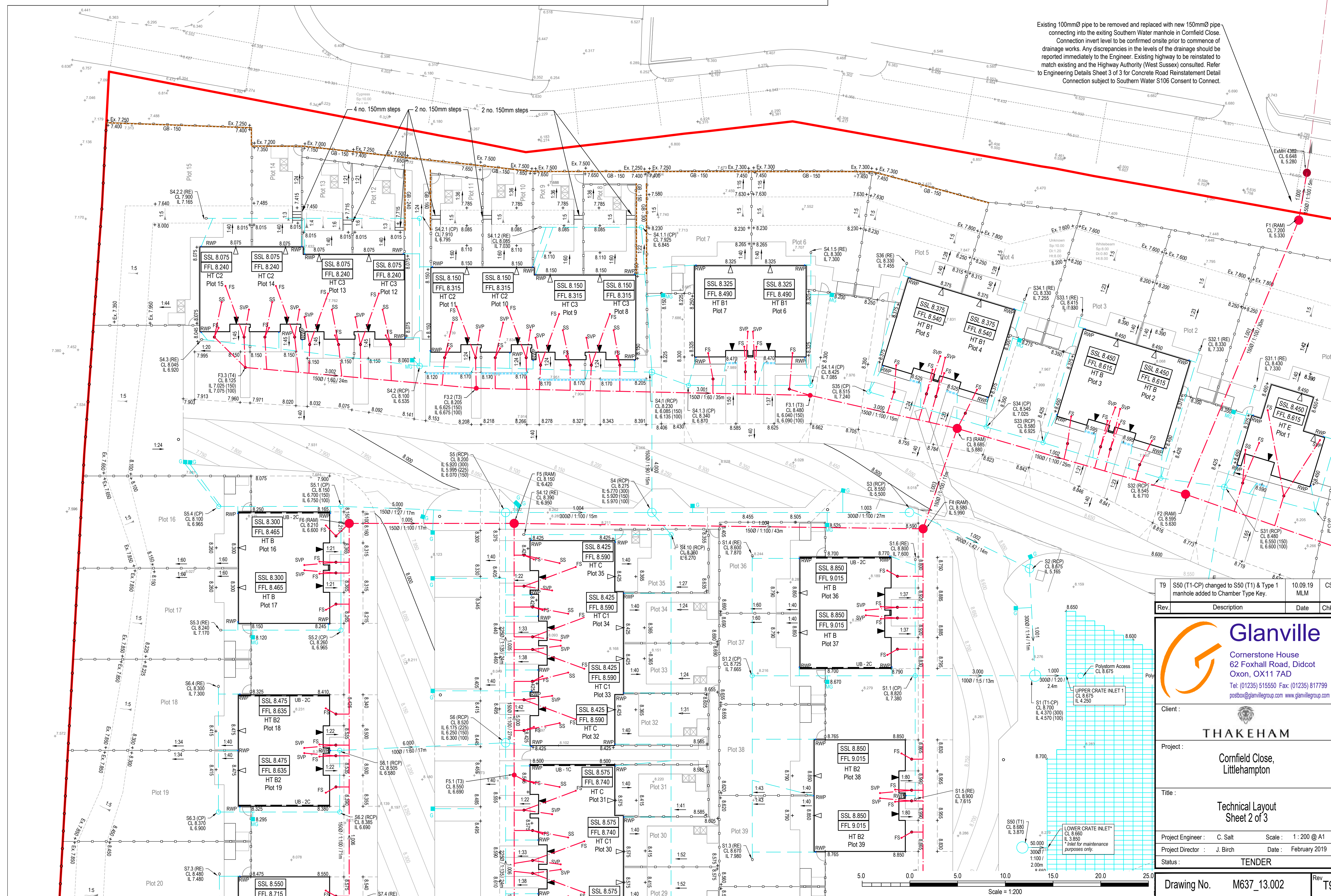
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- Drainage Details
- Out and Fill
- Tensar Geogrid Plan
- S278 Agreement Plans
- Combined Services
- Tree Protection Plan, 2018.08.11
- ACD Environmental
- Topographical Survey, 2017.11.27
- Sunshine Survey Ltd

NOTES:

- This drawing is to be read in conjunction with all other drawings and specifications.
- Any discrepancies found between information shown on this or any other drawing shall be reported to the Engineer immediately and prior to works commencing on site.
- Dimensions not to be scaled.
- All works to be to Building Regulations Part H and Part M(1).
- This drawing details all below ground drainage up to finish floor level. For details of drainage above finish floor levels refer to Architect's drawings.
- Refer to Architects drawings for rain water pipe locations.
- All stack connections under buildings to be 100mmØ at minimum gradient of 1 in 40 (SVP) or 1 in 30 (FS) unless otherwise noted.
- All RWP's to be provided with above ground roddable access points.
- Where pipe diameters and gradients are not shown, foul and surface water pipes to be 100mm laid at a minimum gradient of 1:60 unless otherwise noted.
- Private pipework to be plastic up to 450mm diameter and comply with BS EN 13476 and WIS 4-35-01 v2. Pipes shall be BSI Kitemarked, or have equivalent third party certification.
- All pipework shall join at socket level unless otherwise stated on drawing or schedules.
- Refer to Table 1 for chamber type key. Where chamber types are not shown, chamber to be Type 3 (>2m deep) or Type 4 (<2m deep) inspection chamber.
- Cover grade of chambers with depth to invert >1.2m to be D400. Cover grade of chambers with depth to invert <1.2m, refer to Table C of Drainage Details Sheet 3 (M637_15.006).
- For all other details of manhole, inspection chamber and cover sizing and specification refer to Drainage Details Sheets 3 and 4 (M637_15.006/15.007).
- All manhole / inspection chamber covers to be installed parallel to final kerbs, edgings, paving joints or building lines as appropriate. Cover levels are approximate only. All covers to be set flush with finished surface.
- Invert levels of existing chambers have been taken from third party information and should be confirmed onsite prior to commencement of drainage works. Any discrepancies in the levels of the drainage should be reported immediately to the Engineer.
- Threshold drains to be provided according to Architect's details.
- Gravelboard heights indicative only and to be used where retained heights at property boundaries are 600mm or less.
- Proposed road levels provided at channel level unless noted otherwise.
- It is to the contractor's responsibility to ensure that all services that are affected by the works are located prior to works commencing. Trial holes are to be dug if necessary.
- Existing drainage that will serve no purpose post development is to be either removed or suitably stopped up by end capping or in infilling with concrete with no hindrance to the retained system. Drainage works in connection to the existing foul Southern Water sewer to be undertaken by the chosen contractor under Section 106 of the Water Industry Act 1991. The contractor is to arrange for final inspection of the adoptable works with Southern Water Developer Services (Tel. 01962 716042).
- Buried concrete to be Design Sulphate Class DS-2 and ACEC AC-2 within Made Ground, and DS-1 and AC-1 within River Terrace Deposits or Chalk Bedrock.

KEY:

- Existing foul water manhole
- Existing foul water sewer
- Proposed private foul water pipe
- Proposed private surface water drainage
- Proposed surface water manhole / inspection chamber
- Proposed surface water flow control chamber
- Proposed foul water manhole / inspection chamber
- RWP Rain Water Pipe
- RE Rodding Eye
- ACO MultiDrain with sump or similar approved
- SVP / FS Proposed Soil Vent Pipe / Foul Stack
- Proposed Foul Water Floor Gully
- Proposed Permeable Rainwater Diffuser unit
- Proposed Road Gully (Polytype Ridgully)
- Proposed Drive Gully (Polytype Midgully)
- Proposed Polystorm Crates
- Permeable Paving (refer to Surface Finishes Layout)
- Pipe Reference No.
Direction of Fall
Pipe Diameter / Gradient / Length
S212 (CP)
CL 8.540
IL 6.875 (225)
- Chamber Reference No. (Chamber Ref. - Table 1)
Cover Level
Invert Level (Pipe diameter)



Existing 100mmØ pipe to be removed and replaced with new 150mmØ pipe connecting into the existing Southern Water manhole in Cornfield Close. Connection invert level to be confirmed onsite prior to commencement of drainage works. Any discrepancies in the levels of the drainage should be reported immediately to the Engineer. Existing highway to be reinstated to match existing and the Highway Authority (West Sussex) consulted. Refer to Engineering Details Sheet 3 of 3 for Concrete Road Reinstatement Detail Connection subject to Southern Water S106 Consent to Connect.

Rev.	Description	Date	Chkd
T9	S50 (T1-CP) changed to S50 (T1) & Type 1 manhole added to Chamber Type Key.	10.09.19	MLM

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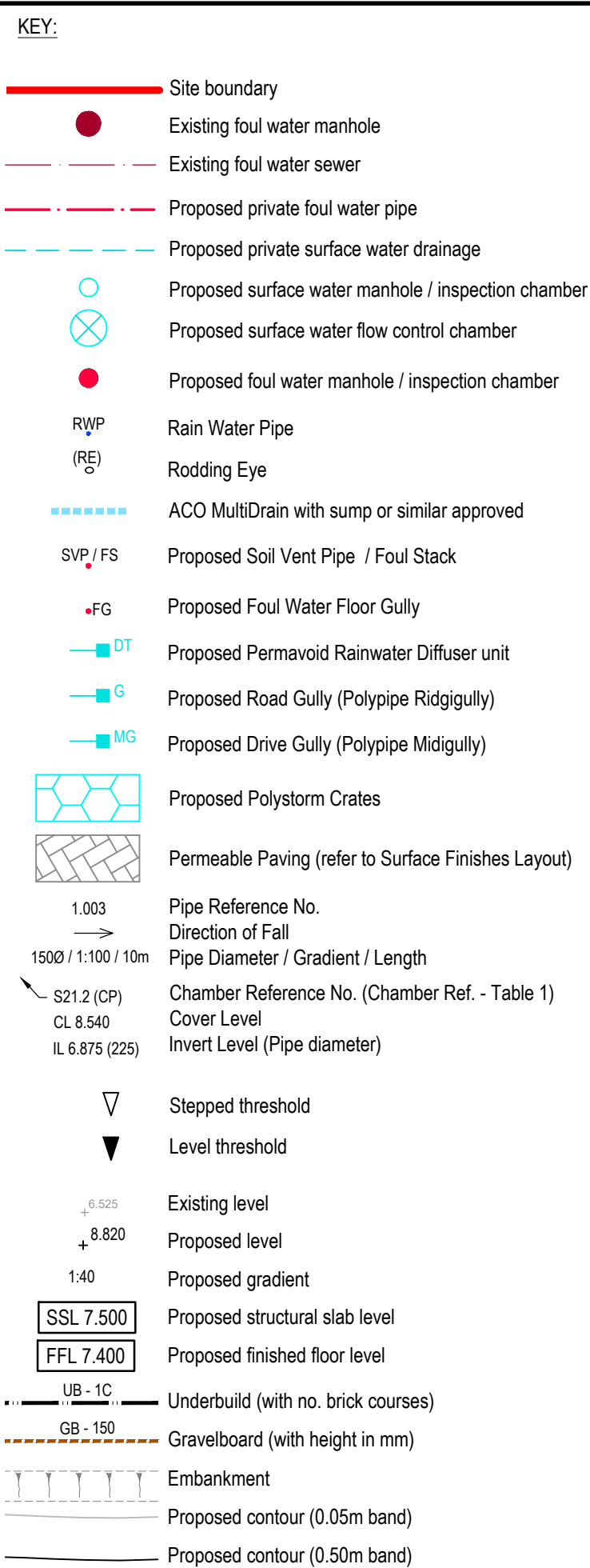
Client : **THAKEHAM**

Project : **Cornfield Close, Littlehampton**

Title : **Technical Layout Sheet 2 of 3**

Project Engineer : C. Salt Scale : 1:200 @ A1
Project Director : J. Birch Date : February 2019
Status : **TENDER**

Drawing No. **M637_13.002** Rev **T9**



REF:	CHAMBER TYPE:
RE	Rodding Eye
CP	Catchpit / Silt Trap
RCP	Ridgistorm Catchpit
T1	Type 1 Manhole
T1-CP	Type 1 Manhole - Catchpit
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T4	Type 4 Inspection Chamber
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TABLE 2 - FLOW CONTROL DETAILS	
CHAMBER REFERENCE:	S41
FLOW CONTROL TYPE:	HydroBrake Optimum
MANUFACTURER UNIT REFERENCE:	SHE-0037-7000-1200-7000
DISCHARGE RATE:	0.7 l/s
DESIGN HEAD:	1.20m

1. This drawing is to be read in conjunction with all other drawings and specifications.
2. Any discrepancies found between information shown on this or any other drawing shall be reported to the Engineer immediately and prior to works commencing on site.
3. Dimensions not to be scaled.
4. All works to be to Building Regulations Part H and Part M(1).
5. This drawing details all below ground drainage up to finish level for details of drainage above finish floor levels refer to Architect's drawings.
6. Refer to Architects drawings for rain water pipe locations.
7. All stack connections under buildings to be 100mmØ at minimum gradient of 1 in 40 (SVP) or 1 in 30 (FS) unless otherwise noted.
8. All RVPs to be provided with above ground roadable access points.
9. Where pipe diameters and gradients are not shown, fall and surface water pipes to be 100mm laid at a minimum gradient of 1:60 unless otherwise noted.
10. Private pipework to be plastic up to 450mm diameter and comply with BS EN 13476 and W5-4:35-01 v2. Pipes shall be BS1 Kitemarked, or have equivalent third party certification.
11. All pipework shall join at socket level unless otherwise stated on the drawing or schedules.
12. Refer to Table 1 for chamber type key. Where chamber types are not shown, chamber to be Type 3 (>2m depth) or Type 4 (<2m depth) inspection chamber.
13. Cover grade of chambers with depth to invert >1.2m to be D400. Cover grade of chambers with depth to invert <1.2m, refer to Table C of Drainage Details Sheet 3 (M637, 15.006).
14. For all other details of manhole, inspection chamber and cover sizing and specification refer to Drainage Details Sheets 3 and 4 (M637, 15.006/15.007).
15. All manhole / inspection chamber covers to be installed parallel to final kerbs, levelling joints and covering lines as appropriate. Cover edges are approximate only. All covers to be set flush with finished surface.
16. Invert levels of existing chambers have been taken from third party information and should be confirmed onsite prior to commencement of drainage works. Any discrepancies in the levels of drainage should be notified immediately to the Engineer.
17. Threshold drains to be provided according to Architect's details.
18. Gravel/bed heights indicated only and to be used where detailed heights at property boundaries are 600mm or less.
19. Proposed road levels provided at channel level unless noted otherwise.
20. It is to the contractor's responsibility to ensure that all services that are affected by the works are located prior to works commencing. Trial holes are to be dug if necessary.
21. Existing drainage that will serve no purpose post development is to be either removed or suitably stopped up by end capping or in filling with concrete with no hindrance to the retained system.
22. All drainage works in connection to the existing foul Southern Water sewerage system shall be in accordance with the chosen contractor under Section 106 of the Water Industry Act 1991. The contractor is to arrange for final inspection of the adoptable works with Southern Water Developer Services (Tel. 01982 716042).
23. Buried concrete to be Design Sulphate Class DS-2 and ACCEC AC-2 within Made Ground, and DS-1 and AC-1 within River Terrace Deposits or Chalk Bedrock.

1. Refer to Drainage Details Sheet 2 and 4 (MG37, 15.005 and 15.007) for swagway construction details and installation guidance.
2. Construction detail and product specifications to be approved by Polytype prior to construction. All Polytype units to be installed in accordance with Polytype installation guidance, and where necessary the manufacturer should be consulted prior to installation.
3. Upper Attenuation Crates:
 1. No. Polystorm Access Manhole to be provided per inlet and outlet as shown, for use for inspection only. Maintenance activities, such as rodding and flushing, to be carried out from inlet manholes S1, S10, S20 and S30, and outlet manhole S40.
4. Lower Swagway Crates:
 1. Maintenance activities, such as rodding and flushing, to be carried out from inlet manholes S41 and S50.
5. The functioning of the swagway structure relies upon the continued appropriate maintenance of all upstream catchpits and silt traps. All features to be maintained in accordance with the Management and Maintenance Plan.

Many soakaway failures result from actions carried out during the construction process.

All infiltration devices should be protected from contamination by silt, cement washings etc. during the construction period.

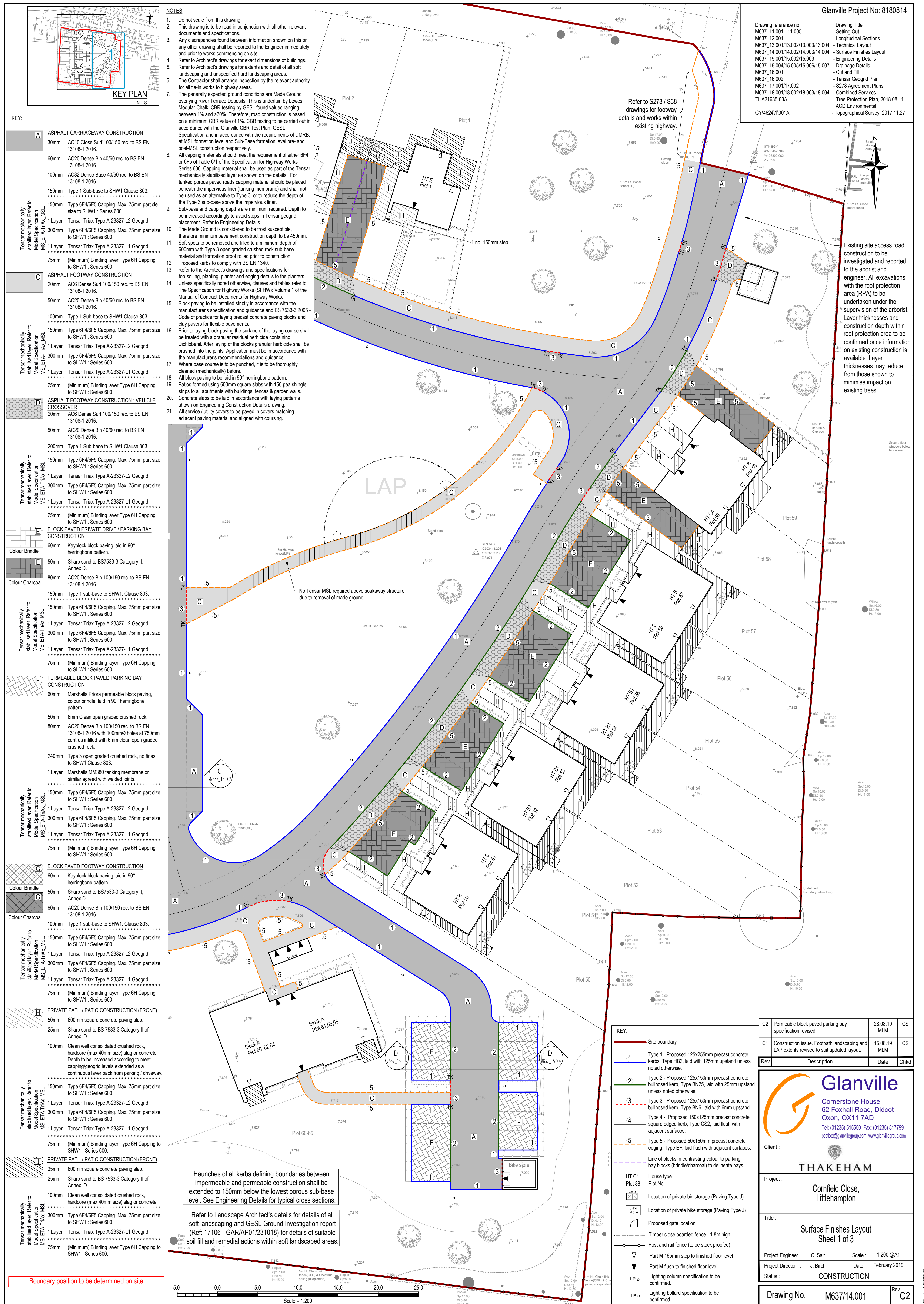
It is recommended that until all construction works have been completed within the contributory areas, that the manholes upstream of the soakaway are used as catchpits and regularly inspected and cleaned throughout the construction process.

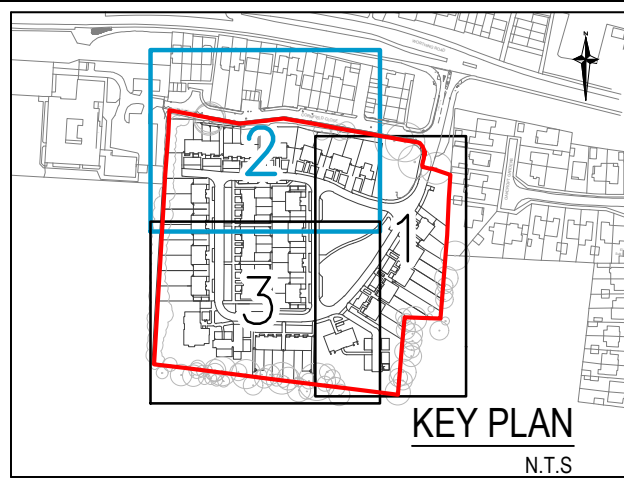




Appendix B

External Works Layout





Drawing reference no.
M637_11.001 - 11.005
M637_12.001
M637_13.001/13.002/13.003/13.004
M637_14.001/14.002/14.003/14.004
M637_15.001/15.002/15.003
M637_15.004/15.005/15.006/15.007
M637_16.001
M637_16.002
M637_17.001/17.002
M637_18.001/18.002/18.003/18.004
THA21635-03A

Drawing Title
- Setting Out
- Longitudinal Sections
- Technical Layout
- Surface Finishes Layout
- Engineering Details
- Drainage Details
- Cut and Fill
- Tensar Geogrid Plan
- S278 Agreement Plans
- Combined Services
- Tree Protection Plan, 2018.08.11
ACD Environmental.
- Topographical Survey, 2017.11.27
Sunshine Survey Ltd

KEY:

- A ASPHALT CARRIAGEWAY CONSTRUCTION**
30mm AC10 Close Surf 100/150 rec. to BS EN 13108-1:2016.
60mm AC20 Dense Bin 40/60 rec. to BS EN 13108-1:2016.
100mm AC32 Dense Base 40/60 rec. to BS EN 13108-1:2016.
150mm Type 1 Sub-base to SHW1 Clause 803.
150mm Type 6F4/6F5 Capping. Max. 75mm particle size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L2 Geogrid.
100mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L1 Geogrid.
75mm (Minimum) Blinding layer Type 6H Capping to SHW1 : Series 600.
- C ASPHALT FOOTWAY CONSTRUCTION**
20mm AC6 Dense Surf 100/150 rec. to BS EN 13108-1:2016.
50mm AC20 Dense Bin 40/60 rec. to BS EN 13108-1:2016.
100mm Type 1 Sub-base to SHW1 Clause 803.
150mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L2 Geogrid.
300mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L1 Geogrid.
75mm (Minimum) Blinding layer Type 6H Capping to SHW1 : Series 600.
- D ASPHALT FOOTWAY CONSTRUCTION : VEHICLE CROSSOVER**
20mm AC6 Dense Surf 100/150 rec. to BS EN 13108-1:2016.
50mm AC20 Dense Bin 40/60 rec. to BS EN 13108-1:2016.
200mm Type 1 Sub-base to SHW1 Clause 803.
150mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L2 Geogrid.
300mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L1 Geogrid.
75mm (Minimum) Blinding layer Type 6H Capping to SHW1 : Series 600.
- E BLOCK PAVED PRIVATE DRIVE / PARKING BAY CONSTRUCTION**
60mm Keyblock block paving laid in 90° herringbone pattern.
50mm Sharp sand to BS7533-3 Category II, Annex D.
80mm AC20 Dense Bin 100/150 rec. to BS EN 13108-1:2016.
150mm Type 1 sub-base to SHW1: Clause 803.
150mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L2 Geogrid.
300mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L1 Geogrid.
75mm (Minimum) Blinding layer Type 6H Capping to SHW1 : Series 600.

Boundary position to be determined on site.

Haunches of all kerbs defining boundaries between impermeable and permeable construction shall be extended to 150mm below the lowest porous sub-base level. See Engineering Details for typical cross sections.

Refer to Landscape Architect's details for details of all soft landscaping and GESL Ground Investigation report (Ref: 17106 - GAR/AP01/231018) for details of suitable soil fill and remedial actions within soft landscaped areas.

PERMEABLE BLOCK PAVED PARKING BAY CONSTRUCTION
60mm Marshalls Piora permeable block paving, colour brindle, laid in 90° herringbone pattern.
50mm Clean open graded crushed rock.
80mm AC20 Dense Bin 100/150 rec. to BS EN 13108-1:2016 with 100mmØ holes at 750mm centres infilled with 6mm clean open graded crushed rock.
240mm Type 3 open graded crushed rock, no fines to SHW1: Clause 803.
1 Layer Marshalls M3080 tanking membrane or similar agreed with welded joints.
150mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L2 Geogrid.
300mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L1 Geogrid.
75mm (Minimum) Blinding layer Type 6H Capping to SHW1 : Series 600.

BLOCK PAVED FOOTWAY CONSTRUCTION
60mm Keyblock block paving laid in 90° herringbone pattern.
50mm Sharp sand to BS7533-3 Category II, Annex D.
60mm AC20 Dense Bin 100/150 rec. to BS EN 13108-1:2016
100mm Type 1 sub-base to SHW1: Clause 803.
150mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L2 Geogrid.
300mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L1 Geogrid.
75mm (Minimum) Blinding layer Type 6H Capping to SHW1 : Series 600.

PRIVATE PATH / PATIO CONSTRUCTION (FRONT)
50mm 600mm square concrete paving slab.
25mm Sharp sand to BS 7533-3 Category II of Annex D.
100mm+ Clean well consolidated crushed rock, hardcore (max 40mm size) slag or concrete. Depth to be increased according to meet capping/geogrid levels extended as a continuous layer back from parking / driveway.
150mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L2 Geogrid.
300mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L1 Geogrid.
75mm (Minimum) Blinding layer Type 6H Capping to SHW1 : Series 600.

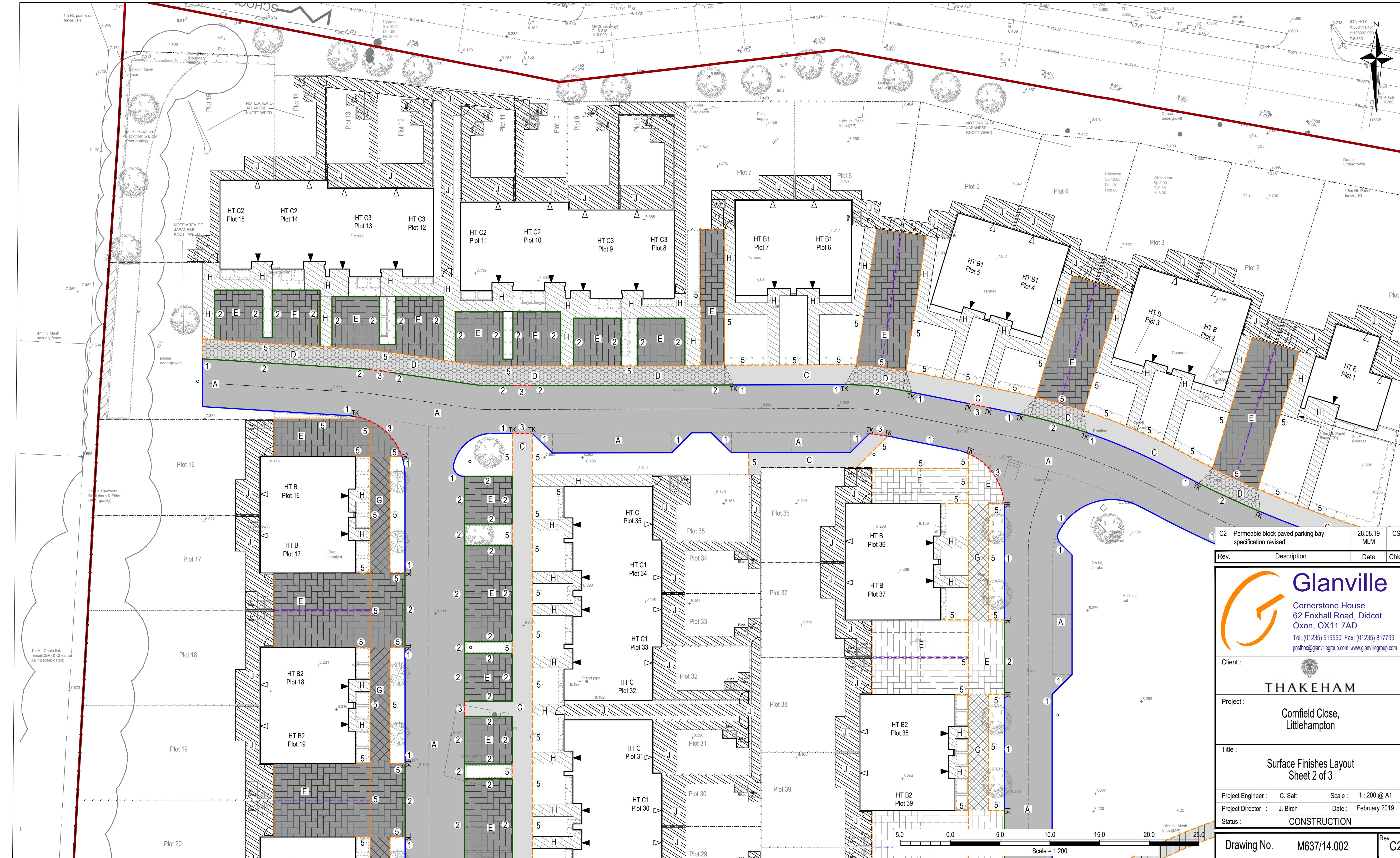
PRIVATE PATH / PATIO CONSTRUCTION (FRONT)
35mm 600mm square concrete paving slab.
25mm Sharp sand to BS 7533-3 Category II of Annex D.
100mm Clean well consolidated crushed rock, hardcore (max 40mm size) slag or concrete.
300mm Type 6F4/6F5 Capping. Max. 75mm part size to SHW1 : Series 600.
1 Layer Tensar Triax Type A-23327-L1 Geogrid.
75mm (Minimum) Blinding layer Type 6H Capping to SHW1 : Series 600.

- KEY:
- 1 Site boundary
 - 2 Type 1 - Proposed 125x255mm precast concrete kerbs, Type HB2, laid with 125mm upstand unless noted otherwise.
 - 3 Type 2 - Proposed 125x150mm precast concrete bullnosed kerb, Type BN25, laid with 25mm upstand unless noted otherwise.
 - 4 Type 3 - Proposed 125x150mm precast concrete bullnosed kerb, Type BN6, laid with 6mm upstand.
 - 5 Type 4 - Proposed 150x125mm precast concrete square edged kerb, Type CS2, laid flush with adjacent surfaces.
 - Type 5 - Proposed 50x150mm precast concrete edging, Type EF, laid flush with adjacent surfaces.
 - Line of blocks in contrasting colour to parking bay blocks (brindle/charcoal) to delineate bays.
 - HT C1 Plot No.
 - HT B1 Plot No.
 - Location of private bin storage (Paving Type J)
 - Location of private bike storage (Paving Type J)
 - Proposed gate location

NOTES

- Do not scale from this drawing.
- This drawing is to be read in conjunction with all other relevant documents and specifications.
- Any discrepancies found between information shown on this or any other drawing shall be reported to the Engineer immediately and prior to works commencing on site.
- Refer to Architect's drawings for exact dimensions of buildings.
- Refer to Architect's drawings for extents and detail of all soft landscaping and unspecified hard landscaping areas.
- The Contractor shall arrange inspection by the relevant authority for all tie-in works to highway areas.
- The generally expected ground conditions are Made Ground overlying River Terrace Deposits. This is underlain by Lewes Modular Chalk. CBR testing by GESL found values ranging between 1% and >30%. Therefore, road construction is based on a minimum CBR value of 1%. CBR testing to be carried out in accordance with the Glanville CBR Test Plan, GESL Specification and in accordance with the requirements of DMRB, at MSL formation level and Sub-Base formation level pre- and post-MSL construction respectively.
- All capping materials should meet the requirement of either 6F4 or 6F5 of Table 6/1 of the Specification for Highway Works Series 600. Capping material shall be used as part of the Tensar Mechanically stabilised layer as shown on the details. For tanked porous paved roads capping material should be placed beneath the impervious liner (tanking membrane) and shall not be used as an alternative to Type 3, or to reduce the depth of the Type 3 sub-base above the impervious liner. Sub-base and capping depths are minimum required. Depth to be increased accordingly to avoid steps in Tensar geogrid placement. Refer to Engineering Details.

- The Made Ground is considered to be frost susceptible, therefore minimum pavement construction depth to be 450mm.
- Soft spots to be removed and filled to a minimum depth of 600mm with Type 3 open graded crushed rock sub-base material and formation proof rolled prior to construction.
- Proposed kerbs to comply with BS EN 1340.
- Refer to the Architect's drawings and specifications for top-soiling, planting, planter and edging details to the planters.
- Unless specifically noted otherwise, clauses and tables refer to The Specification for Highway Works (SFHW): Volume 1 of the Manual of Contract Documents for Highway Works.
- Block paving to be installed strictly in accordance with the manufacturer's specification and guidance and BS 7533-3:2005 - Code of practice for laying precast concrete paving blocks and clay pavers for flexible pavements.
- Prior to laying block paving the surface of the laying course shall be treated with a granular residual herbicide containing Dichlobenil. After laying of the blocks granular herbicide shall be brushed into the joints. Application must be in accordance with the manufacturer's recommendations and guidance.
- Where base course is to be punched, it is to be thoroughly cleaned (mechanically) before.
- All block paving to be laid in 90° herringbone pattern.
- Pavements formed using 600mm square slabs with 150 pea shingle strips to all abutments with buildings, fences & garden walls.
- Concrete slabs to be laid in accordance with laying patterns shown on Engineering Construction Details drawing.
- All service / utility covers to be paved in covers matching adjacent paving material and aligned with coursing.



Rev.	Description	Date	Chkd
C2	Permeable block paved parking bay specification revised.	28.08.19	MLM

Glanville
Cornerstone House
62 Foxhall Road, Didcot
Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
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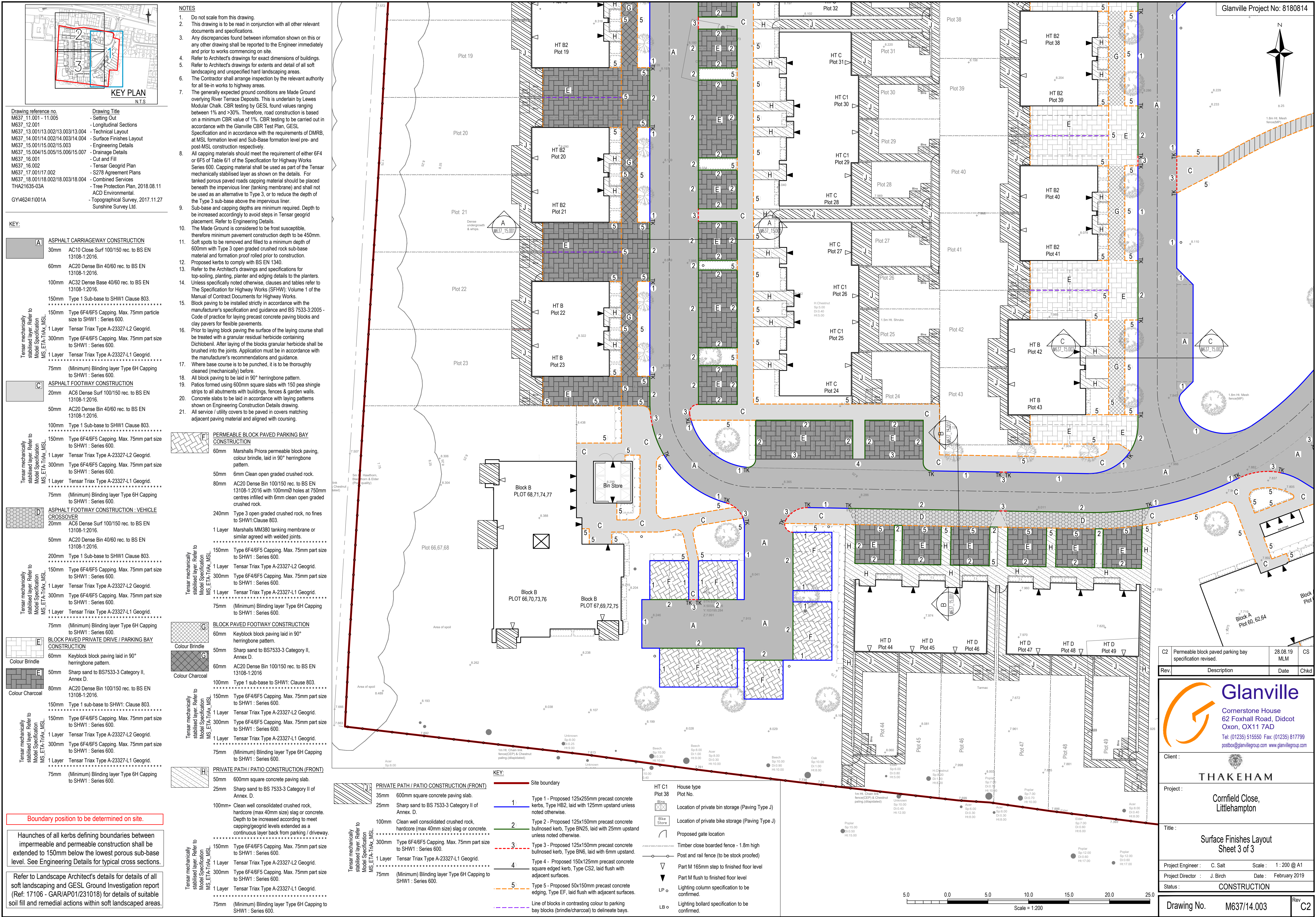
Client : **THAKEHAM**

Project : **Cornfield Close, Littlehampton**

Title : **Surface Finishes Layout Sheet 2 of 3**

Project Engineer : C. Salt Scale : 1:200 @ A1
Project Director : J. Birch Date : February 2019
Status : **CONSTRUCTION**

Drawing No. **M637/14.002** Rev **C2**





KEY PLAN

Drawing reference no. M37_11.001 - 11.005
Drawing Title
Setting Out
Longitudinal Sections
Technical Layout
Surface Finishes Layout
Engineering Details
Drainage Details
Cut and Fill
Tender Geoprint Plan
S277 Agreement Plans
Combined Services
Tree Protection Plan, 2018.08.11
ACD Environmental
Topographical Survey, 2017.11.27
Sunshine Survey Ltd.

NOTES

- Do not scale from this drawing.
- This drawing is to be read in conjunction with all other relevant documents and specifications.
- Any discrepancies found between information shown on this or any other drawing shall be reported to the Engineer immediately and prior to works commencing on site.
- Refer to Architect's drawings for exact dimensions of buildings. Refer to Architect's drawings for extent and detail of all soft landscaping and unspecified hard landscaping areas.
- The Contractor shall arrange inspection by the relevant authority for all its works to highway areas.
- The generally expected ground conditions are Made Ground overlying River Terrace Deposits. This is underlain by Levee Module Chalk. CBR testing by GESC, found values ranging between 1% and >30%. Therefore, road construction is based on a minimum CBR value of 1%. CBR testing to be carried out in accordance with the Glanville CBR Test Plan, GESC. Specification and in accordance with the requirements of DMRB, MS1, formation level and Sub-Base formation level pre- and post-MSL construction respectively.
- All capping materials should meet the requirement of either 6F4 or 6F5 of Table 6.1 of the Specification for Highway Works Series 600. Capping material shall be used as part of the Tensar mechanically stabilised layer as shown on the details. For selected porous paved roads capping material should be placed beneath the impervious liner (tanking membrane) and shall not be used as an alternative to Type 3, or to reduce the depth of the Type 3 sub-base above the impervious liner.
- Sub-base and capping depths are minimum required. Depth to be increased accordingly to avoid steps in Tensar geogrid placement. Refer to Engineering Details.
- The Made Ground is considered to be frost susceptible. Therefore minimum pavement construction depth to be 450mm. Soft spots to be removed and filled to a minimum depth of 600mm with Type 3 open graded crushed rock sub-base material and formation profile rolled prior to construction.
- Proposed paving to comply with BS EN 1340.
- Refer to the Architect's drawings and specifications for top-sowing, planting, planter and edging details to the planters. Unless specifically noted otherwise, clauses and tables refer to The Specification for Highway Works (SFHW): Volume 1 of the Manual of Contract Documents for Highway Works.
- Block paving to be installed strictly in accordance with the manufacturer's specification and guidance and BS 7533-3:2005 - Code of practice for laying precast concrete paving blocks and city pavers for flexible pavements.
- Prior to laying block paving the surface of the laying course shall be treated with a granular residual herbicide containing Dichlorophenol. After laying of the blocks granular herbicide shall be brushed into the joints. Application must be in accordance with the manufacturer's recommendations and guidance.
- Where base course is to be purchased, it is to be thoroughly cleaned (mechanically) before.
- All block paving to be laid in 90° herringbone pattern.
- Patios formed using 600mm square slabs with 150 pvc single strips to all abutments with buildings, fences & garden walls.
- Concrete slabs to be laid in accordance with laying patterns shown on Engineering Construction Details drawing.
- All service / utility covers to be paved in covers matching adjacent paving material and aligned with curbing.

KEY:

- Site boundary
- Type 1 - Proposed 125x55mm precast concrete kerbs, Type H2C, laid with 125mm upstand unless noted otherwise.
- Type 2 - Proposed 125x150mm precast concrete bullnosed kerbs, Type BNC2, laid with 25mm upstand unless noted otherwise.
- Type 3 - Proposed 125x150mm precast concrete bullnosed kerbs, Type BNC, laid with 6mm upstand.
- Type 4 - Proposed 150x125mm precast concrete square edged kerbs, Type CS2, laid flush with adjacent surfaces.
- Type 5 - Proposed 50x150mm precast concrete edging, Type EF, laid flush with adjacent surfaces.
- Line of blocks contrasting colour to parking bay blocks (brindacharcoal) to delineate bays.
- HT C1 House type
- Plot 38 Plot No.
- Location of private bin storage (Paving Type J)
- Location of private bin storage (Paving Type J)
- Proposed gate location
- Timber close boarded fence - 1.8m high
- Post and rail fence (to be stock proofed)
- Part M 165mm step to finished floor level
- Part M flush to finished floor level
- Lighting column specification to be confirmed.
- Lighting bollard specification to be confirmed.

ASPHALT CARRIAGEWAY CONSTRUCTION

- 30mm AC10 Chalk Surf 100/150 rec. to BS EN 13108-1:2016.
- 60mm AC20 Dense Bin 40/60 rec. to BS EN 13108-1:2016.
- 100mm AC20 Dense Base 40/60 rec. to BS EN 13108-1:2016.
- 150mm Type 1 Sub-base to SHW1 Clause 803.
- 150mm Type 6F4/6F5 Capping, Max. 75mm part size to SHW1 - Series 600.
- 1 Layer Tensar Trax Type A-23327-L2 Geogrid.
- 1 Layer Tensar Trax Type A-23327-L1 Geogrid.
- 75mm (Minimum) Binding layer Type 6H Capping to SHW1 - Series 600.

ASPHALT FOOTWAY CONSTRUCTION

- 20mm AC6 Dense Surf 100/150 rec. to BS EN 13108-1:2016.
- 50mm AC20 Dense Bin 40/60 rec. to BS EN 13108-1:2016.
- 100mm Type 1 Sub-base to SHW1 Clause 803.
- 150mm Type 6F4/6F5 Capping, Max. 75mm part size to SHW1 - Series 600.
- 1 Layer Tensar Trax Type A-23327-L2 Geogrid.
- 1 Layer Tensar Trax Type A-23327-L1 Geogrid.
- 75mm (Minimum) Binding layer Type 6H Capping to SHW1 - Series 600.

ASPHALT FOOTWAY CONSTRUCTION - VEHICLE CROSSOVERS

- 20mm AC6 Dense Surf 100/150 rec. to BS EN 13108-1:2016.
- 50mm AC20 Dense Bin 40/60 rec. to BS EN 13108-1:2016.
- 100mm Type 1 Sub-base to SHW1 Clause 803.
- 150mm Type 6F4/6F5 Capping, Max. 75mm part size to SHW1 - Series 600.
- 1 Layer Tensar Trax Type A-23327-L2 Geogrid.
- 1 Layer Tensar Trax Type A-23327-L1 Geogrid.
- 75mm (Minimum) Binding layer Type 6H Capping to SHW1 - Series 600.

BLOCK PAVED PRIVATE DRIVE / PARKING BAY CONSTRUCTION

- 60mm Keyblock block paving laid in 90° herringbone pattern.
- 50mm Sharp sand to BS7533-3 Category II, Annex D.
- 80mm AC20 Dense Bin 100/150 rec. to BS EN 13108-1:2016.
- 150mm Type 1 Sub-base to SHW1 Clause 803.
- 150mm Type 6F4/6F5 Capping, Max. 75mm part size to SHW1 - Series 600.
- 1 Layer Tensar Trax Type A-23327-L2 Geogrid.
- 1 Layer Tensar Trax Type A-23327-L1 Geogrid.
- 75mm (Minimum) Binding layer Type 6H Capping to SHW1 - Series 600.

PERMEABLE BLOCK PAVED PARKING BAY CONSTRUCTION

- 60mm Marshalls Piora permeable block paving, colour: brindacharcoal, laid in 90° herringbone pattern.
- 50mm Clean open graded crushed rock.
- 80mm AC20 Dense Bin 100/150 rec. to BS EN 13108-1:2016 with 100mmx20mm holes at 750mm centres filled with 6mm clean open graded crushed rock.
- 240mm Type 3 open graded crushed rock, no fines to SHW1 Clause 803.
- 1 Layer Marshalls MM380 tanking membrane or similar agreed with Jeddah Jeddah.
- 150mm Type 6F4/6F5 Capping, Max. 75mm part size to SHW1 - Series 600.
- 1 Layer Tensar Trax Type A-23327-L2 Geogrid.
- 1 Layer Tensar Trax Type A-23327-L1 Geogrid.
- 75mm (Minimum) Binding layer Type 6H Capping to SHW1 - Series 600.

BLOCK PAVED FOOTWAY CONSTRUCTION

- 60mm Keyblock block paving laid in 90° herringbone pattern.
- 50mm Sharp sand to BS7533-3 Category II, Annex D.
- 60mm AC20 Dense Bin 100/150 rec. to BS EN 13108-1:2016.
- 100mm Type 1 Sub-base to SHW1 Clause 803.
- 150mm Type 6F4/6F5 Capping, Max. 75mm part size to SHW1 - Series 600.
- 1 Layer Tensar Trax Type A-23327-L2 Geogrid.
- 1 Layer Tensar Trax Type A-23327-L1 Geogrid.
- 75mm (Minimum) Binding layer Type 6H Capping to SHW1 - Series 600.

PRIVATE PATH / PATIO CONSTRUCTION (FRONT)

- 50mm 600mm square concrete paving slab.
- 25mm Sharp sand to BS 7533-3 Category II of Annex D.
- 100mm Clean well consolidated crushed rock, hardcore (max 40mm size) slag or concrete.
- 300mm Type 6F4/6F5 Capping, Max. 75mm part size to SHW1 - Series 600.
- 1 Layer Tensar Trax Type A-23327-L1 Geogrid.
- 1 Layer Tensar Trax Type A-23327-L2 Geogrid.
- 75mm (Minimum) Binding layer Type 6H Capping to SHW1 - Series 600.

PRIVATE PATH / PATIO CONSTRUCTION (FRONT)

- 35mm 600mm square concrete paving slab.
- 25mm Sharp sand to BS 7533-3 Category II of Annex D.
- 100mm Clean well consolidated crushed rock, hardcore (max 40mm size) slag or concrete.
- 300mm Type 6F4/6F5 Capping, Max. 75mm part size to SHW1 - Series 600.
- 1 Layer Tensar Trax Type A-23327-L1 Geogrid.
- 1 Layer Tensar Trax Type A-23327-L2 Geogrid.
- 75mm (Minimum) Binding layer Type 6H Capping to SHW1 - Series 600.

Boundary position to be determined on site.

Haunches of all kerbs defining boundaries between impermeable and permeable construction shall be extended to 150mm below the lowest porous sub-base level. See Engineering Details for typical cross sections.

Refer to Landscape Architect's details for details of all soft landscaping and GESL Ground Investigation report (Ref: 17.106 - GAR/AP/1231018) for details of suitable soil fill and remedial actions within soft landscaped areas.

Scale = 1:200

C2	Permeable block paved parking bay specification revised.	28.08.19	CS
C1	Construction issue. Surface finishes revised to suit relocated Block B bin store, LAP extents and public footpath updated to suit revised layout.	15.08.19	CS

Rev	Description	Date	CHK

Glanville

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62 Foxhall Road, Didcot
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Tel: (01235) 515550 Fax: (01235) 817799
post@glanvillegroup.com www.glanvillegroup.com

Client: **THAKEHAM**

Project: **Comfield Close, Littlehampton**

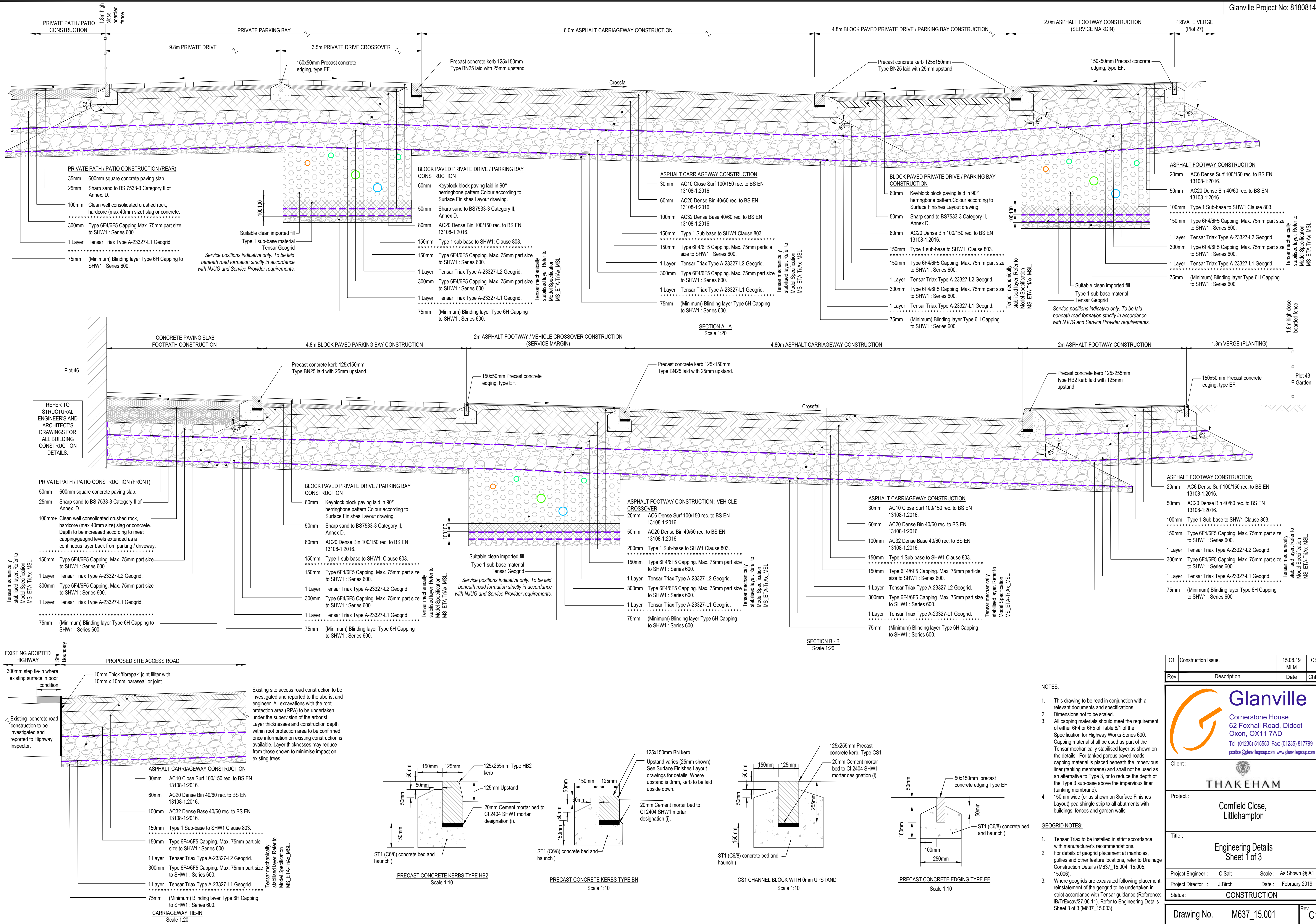
Title: **Surface Finishes Layout
Overall Site Arrangement**

Project Engineer: C. Salt Scale: 1:200 @ A0
Project Director: J. Birch Date: February 2019
Status: **CONSTRUCTION**

Drawing No. **M37/14.004** Rev. **C2**

Appendix C

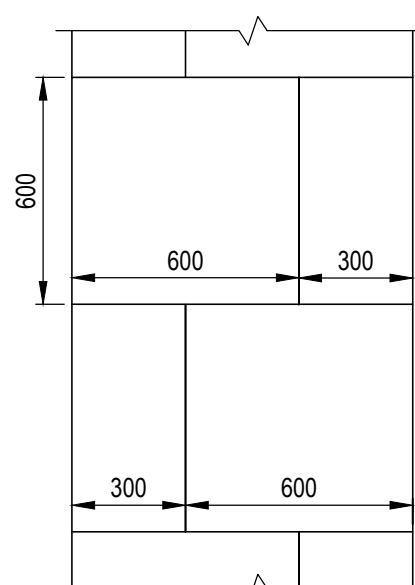
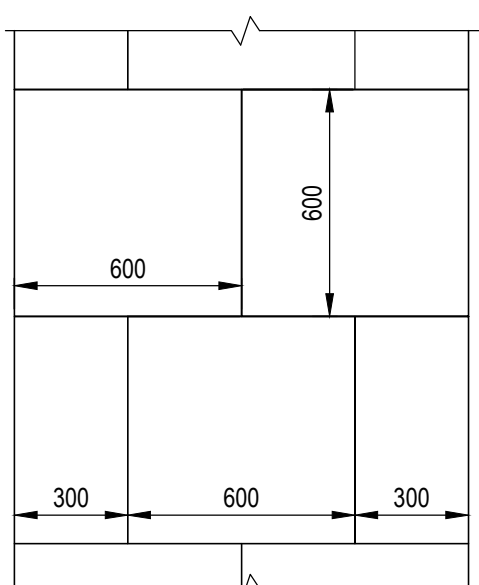
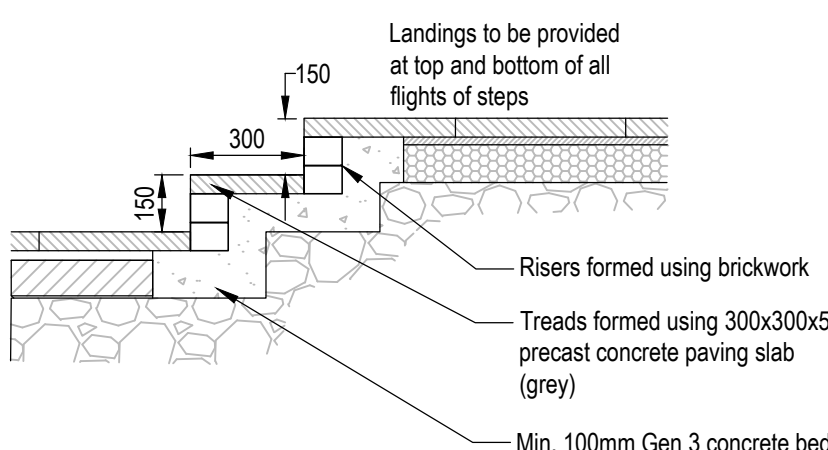
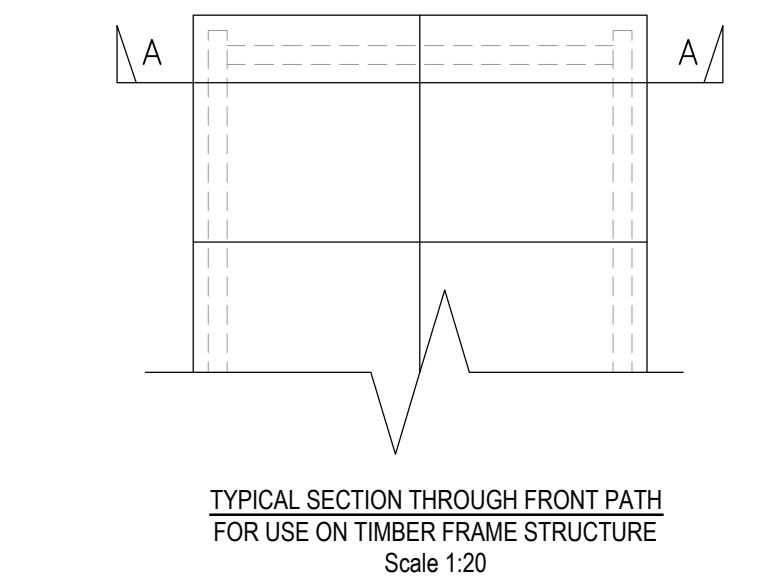
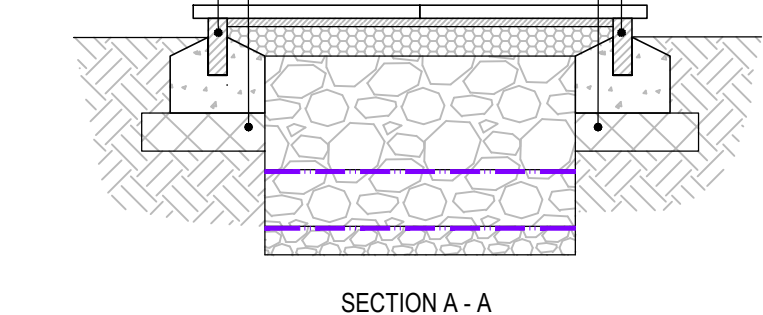
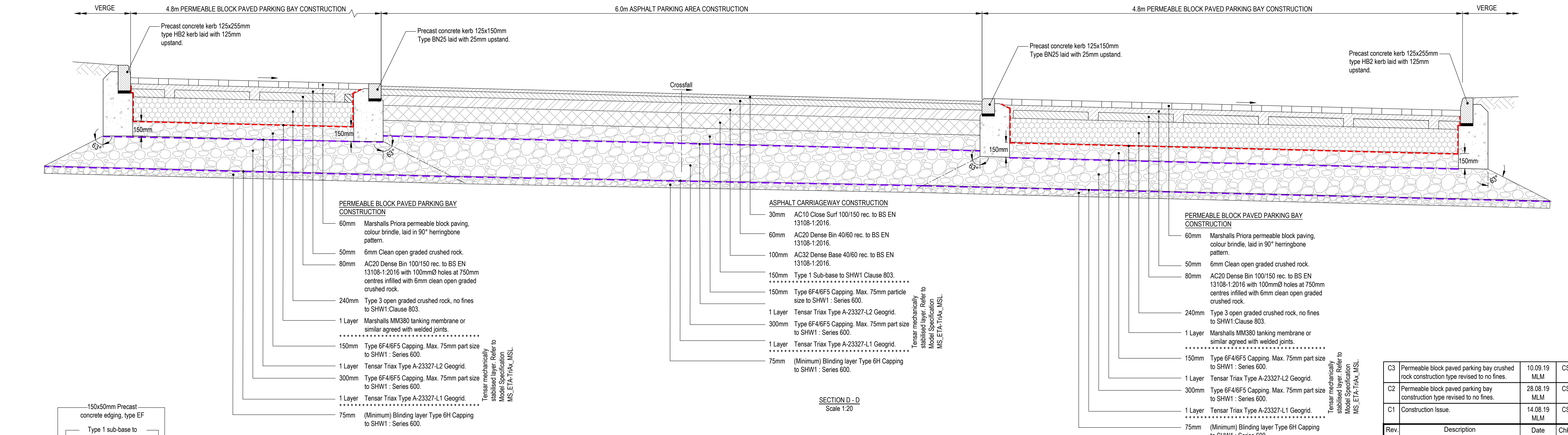
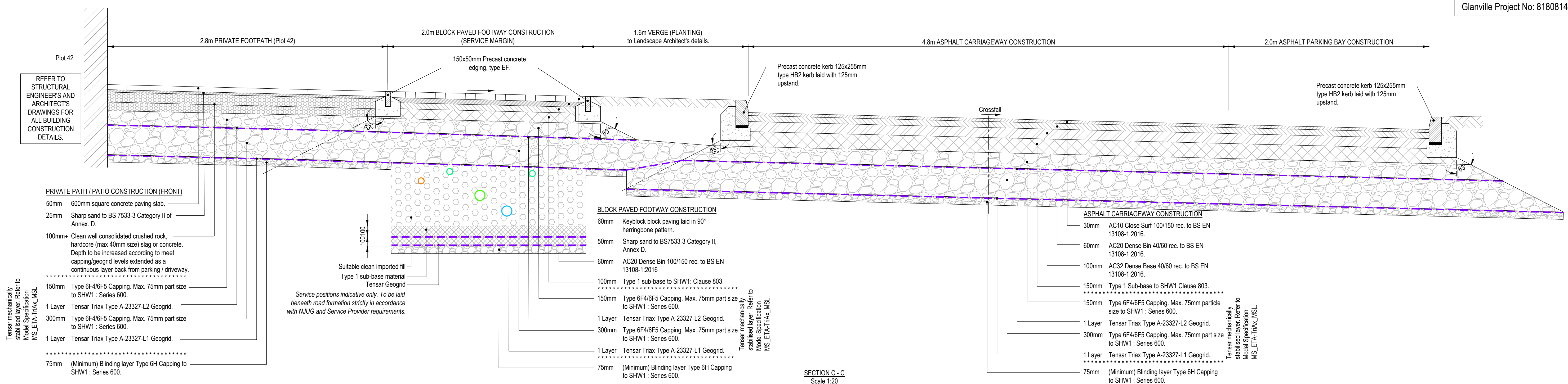
Engineering Construction Details



C1	Construction Issue.	15.08.19	CS
Rev.	Description	Date	Chkd

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Client :			
THAKEHAM			
Project :	Cornfield Close, Littlehampton		
Title :	Engineering Details Sheet 1 of 3		
Project Engineer :	C.Salt	Scale :	As Shown @ A1
Project Director :	J.Birch	Date :	February 2019
Status :	CONSTRUCTION		
Drawing No.	M637_15.001		Rev C



- NOTES:
- This drawing to be read in conjunction with all relevant documents and specifications.
 - Dimensions not to be scaled.
 - All capping materials should meet the requirement of either 6F4 or 6F5 of Table 611 of the Specification for Highway Works Series 600. Capping material shall be used as part of the Tensar mechanically stabilised layer as shown on the details. For tanked porous paved roads capping material is placed beneath the impervious liner (tanking membrane) and shall not be used as an alternative to Type 3, or to reduce the depth of the Type 3 sub-base above the impervious liner (tanking membrane).
 - 150mm wide (or as shown on Surface Finishes Layout) pea shingle strip to all abutments with buildings, fences and garden walls.
- GEOGRID NOTES:
- Tensar Triax to be installed in strict accordance with manufacturer's recommendations.
 - For details of geogrid placement at manholes, gullies and other feature locations, refer to Drainage Construction Details (M637_15.004, 15.005, 15.006).
 - Where geogrids are excavated following placement, reinstatement of the geogrid to be undertaken in strict accordance with Tensar guidance (Reference: IB/TrExcav/27.06.11). Refer to Engineering Details Sheet 3 of 3 (M637_15.003).

C3	Permeable block paved parking bay crushed rock construction type revised to no fines.	10.09.19	MLM	CS
C2	Permeable block paved parking bay construction type revised to no fines.	28.08.19	MLM	CS
C1	Construction Issue.	14.08.19	MLM	CS
Rev.	Description	Date	Chkd	



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Client : 

Project : **Cornfield Close, Littlehampton**

Title : **Engineering Details Sheet 2 of 3**

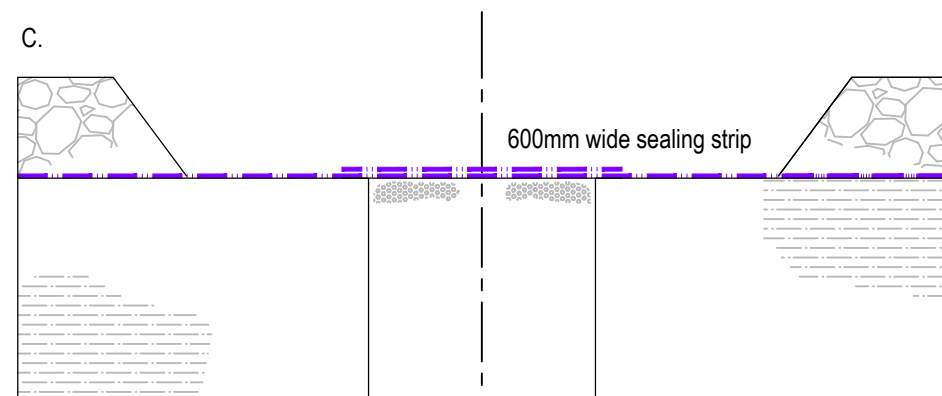
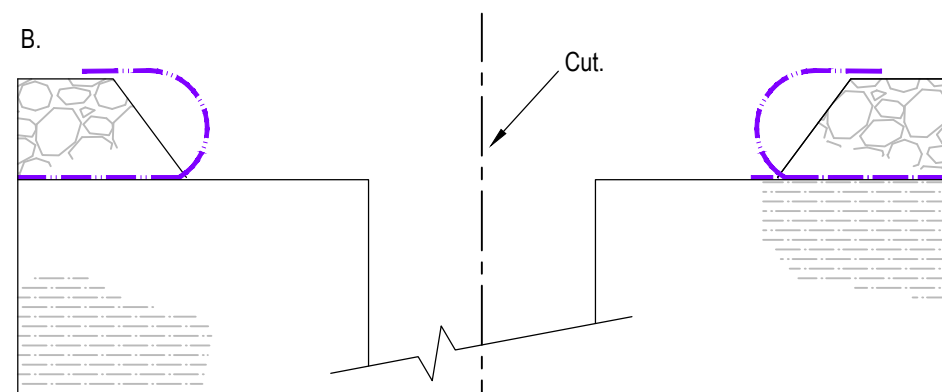
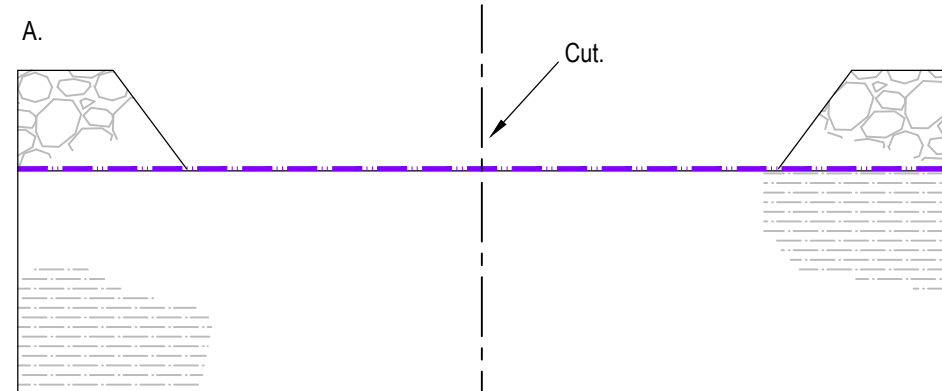
Project Engineer : C.Salt Scale : As Shown @ A1
Project Director : J. Birch Date : February 2019
Status : **CONSTRUCTION**

Drawing No. **M637_15.002** Rev **C3**

GEOGRID REINSTATEMENT NOTES:

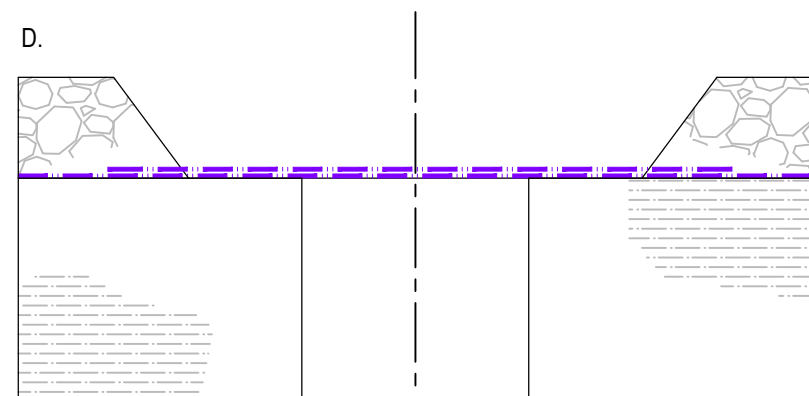
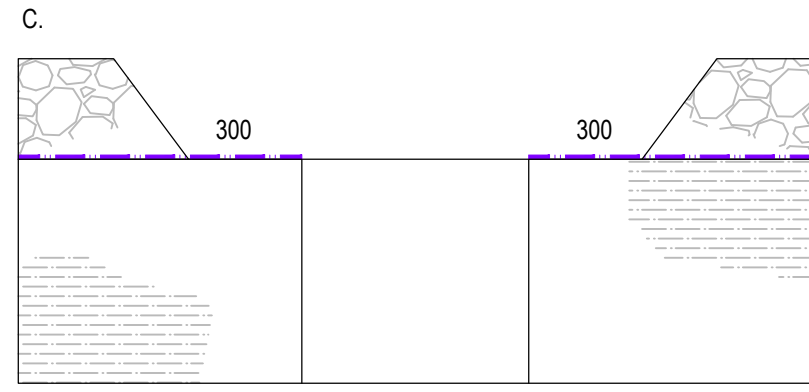
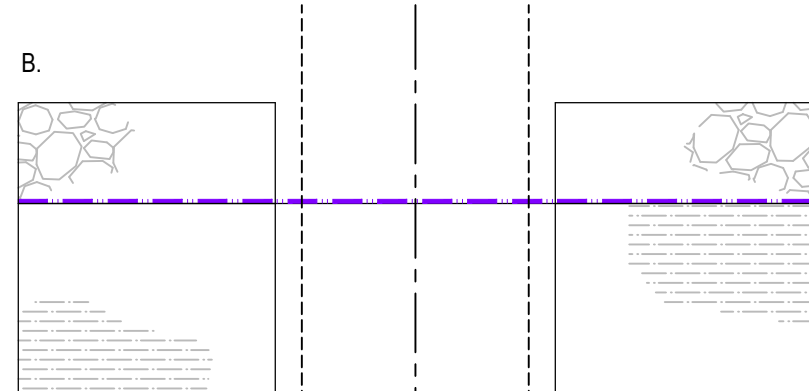
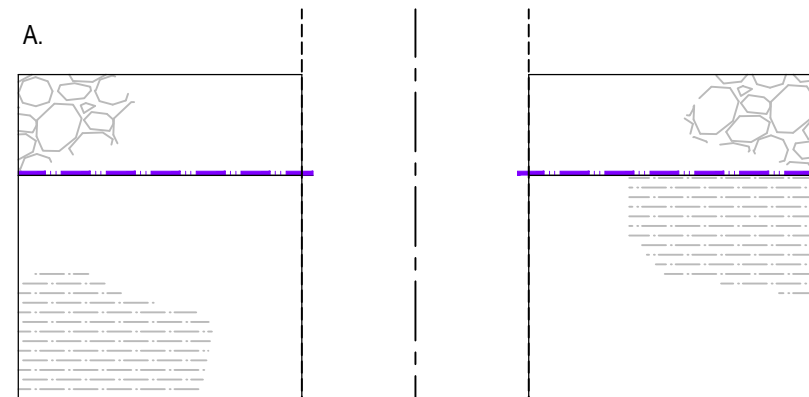
- There are two methods of reinstating Ground Stabilisation geogrids following trench excavation and the final choice of method usually rests with the Contractor.
- Reinstatement of single layer of geogrid shown for information. Where two layers of geogrid are used (e.g. within Mechanically Stabilised Layer), the process to be the same for reinstatement of both layers.
- An extra consideration about the sealing strip is to extend it further and beyond the side wall of the trench excavation. The trench side walls are a location where differential settlement can be predicted and to have the geogrid extending over this interface is a useful extra in the reinstatement process.

METHOD 1 - "Peel back" method.

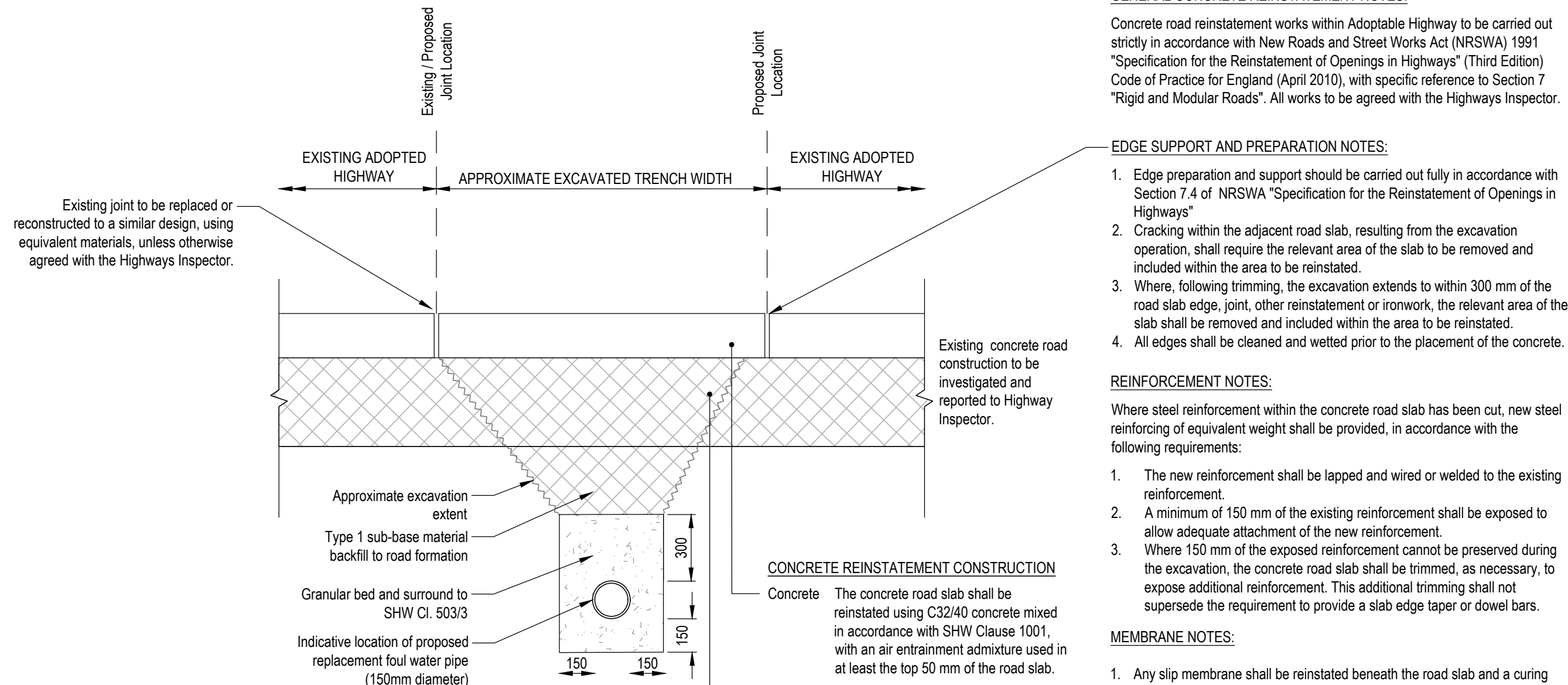


Upon back filling the trench excavation, relocate the geogrids and place a 600mm (min.) sealing strip of geogrid. Replace fill.

METHOD 2 - "Dig through" method.



Pipe centre line

GEOGRID REINSTATEMENT FOLLOWING TRENCH EXCAVATIONS
Scale: N.T.S.CONCRETE REINSTATEMENT CONSTRUCTION DETAIL
Scale 1:20

GENERAL CONCRETE REINSTATEMENT NOTES:

Concrete road reinstatement works within Adoptable Highway to be carried out strictly in accordance with New Roads and Street Works Act (NRSWA) 1991 "Specification for the Reinstatement of Openings in Highways" (Third Edition) Code of Practice for England (April 2010), with specific reference to Section 7 "Rigid and Modular Roads". All works to be agreed with the Highways Inspector.

EDGE SUPPORT AND PREPARATION NOTES:

- Edge preparation and support should be carried out fully in accordance with Section 7.4 of NRSWA "Specification for the Reinstatement of Openings in Highways"
- Cracking within the adjacent road slab, resulting from the excavation operation, shall require the relevant area of the slab to be removed and included within the area to be reinstated.
- Where, following trimming, the excavation extends to within 300 mm of the road slab edge, joint, other reinstatement or ironwork, the relevant area of the slab shall be removed and included within the area to be reinstated.
- All edges shall be cleaned and wetted prior to the placement of the concrete.

REINFORCEMENT NOTES:

Where steel reinforcement within the concrete road slab has been cut, new steel reinforcing of equivalent weight shall be provided, in accordance with the following requirements:

- The new reinforcement shall be lapped and wired or welded to the existing reinforcement.
- A minimum of 150 mm of the existing reinforcement shall be exposed to allow adequate attachment of the new reinforcement.
- Where 150 mm of the exposed reinforcement cannot be preserved during the excavation, the concrete road slab shall be trimmed, as necessary, to expose additional reinforcement. This additional trimming shall not supersede the requirement to provide a slab edge taper or dowel bars.

MEMBRANE NOTES:

- Any slip membrane shall be reinstated beneath the road slab and a curing membrane shall be used above the road slab.
- Impermeable polythene or similar sheeting may be used for both the slip and curing membranes.
- Sprayed plastic film may be used as a curing membrane by agreement.

TEXTURE DEPTH NOTES:

- For small excavations, narrow trenches and other openings less than 1.0m wide, reference shall be made to Section S2.6.1(2) and Table S2.5 of NRSWA "Specification for the Reinstatement of Openings in Highways".
- For all other excavations the Highway Authority shall be consulted and a method agreed. The finished surface shall comply with Table S2.5 as per Note 1.
- Texture depth should be between 0.6mm and 1.25mm in accordance with Table S2.5 as per Note 1.

CONCRETE SPECIFICATION NOTES:

- Where concrete is mixed off site, Quality Assurance Certificates detailing the Specifications against which the concrete has been ordered and supplied should be obtained by the Undertaker for confirmation of material quality. Where possible, the concrete should be obtained from a plant which holds a valid Quality Assurance Certificate.
- In the case of small excavations, a site-batched equivalent to C32/40 concrete may be used.
- The cured road slab shall be opened to traffic as soon as a crushing strength of 25N/mm² is achieved.

NOTES:

- This drawing to be read in conjunction with all relevant documents and specifications.
- Dimensions not to be scaled.
- All capping materials should meet the requirement of either 6F4 or 6F5 of Table 6/1 of the Specification for Highway Works Series 600. Capping material shall be used as part of the Tensar mechanically stabilised layer as shown on the details. For tanked porous paved roads capping material is placed beneath the impervious liner (tanking membrane) and shall not be used as an alternative to Type 3, or to reduce the depth of the Type 3 sub-base above the impervious liner (tanking membrane).
- 150mm wide (or as shown on Surface Finishes Layout) pea shingle strip to all abutments with buildings, fences and garden walls.

GEOGRID NOTES:

- Tensar Triax to be installed in strict accordance with manufacturer's recommendations.
- For details of geogrid placement at manholes, gullies and other feature locations, refer to Drainage Construction Details (M637_15.004, 15.005, 15.006).
- Where geogrids are excavated following placement, reinstatement of the geogrid to be undertaken in strict accordance with Tensar guidance (Reference: IBTr/Excav/27.08.11). Refer to Engineering Details Sheet 3 of 3 (M637_15.003).

C1	Construction Issue.	15.08.19 MLM	CS
Rev.	Description	Date	Chkd



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Client :

THAKEHAM

Project :
Cornfield Close,
Littlehampton

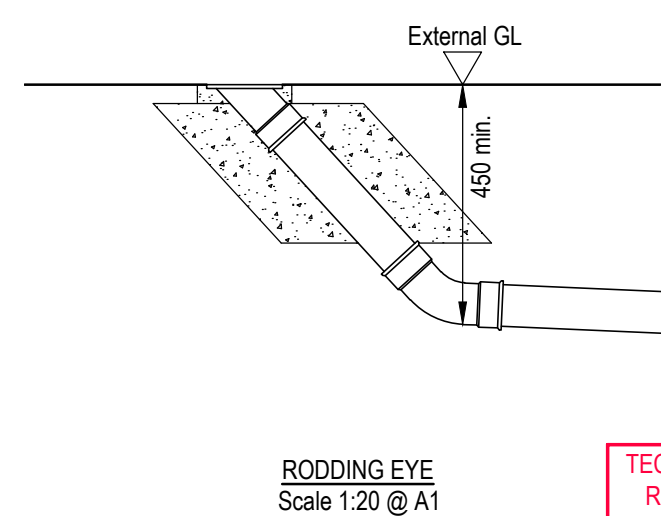
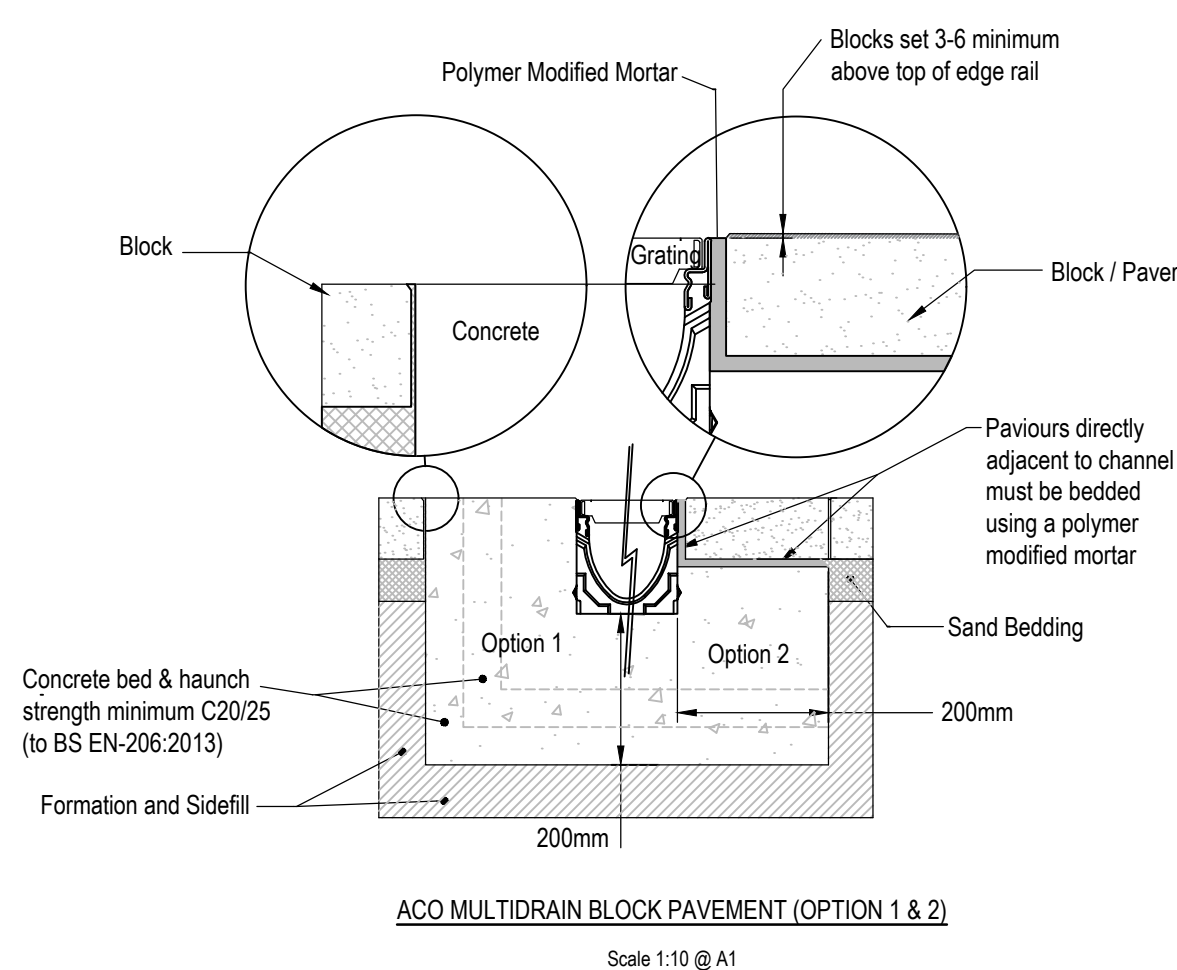
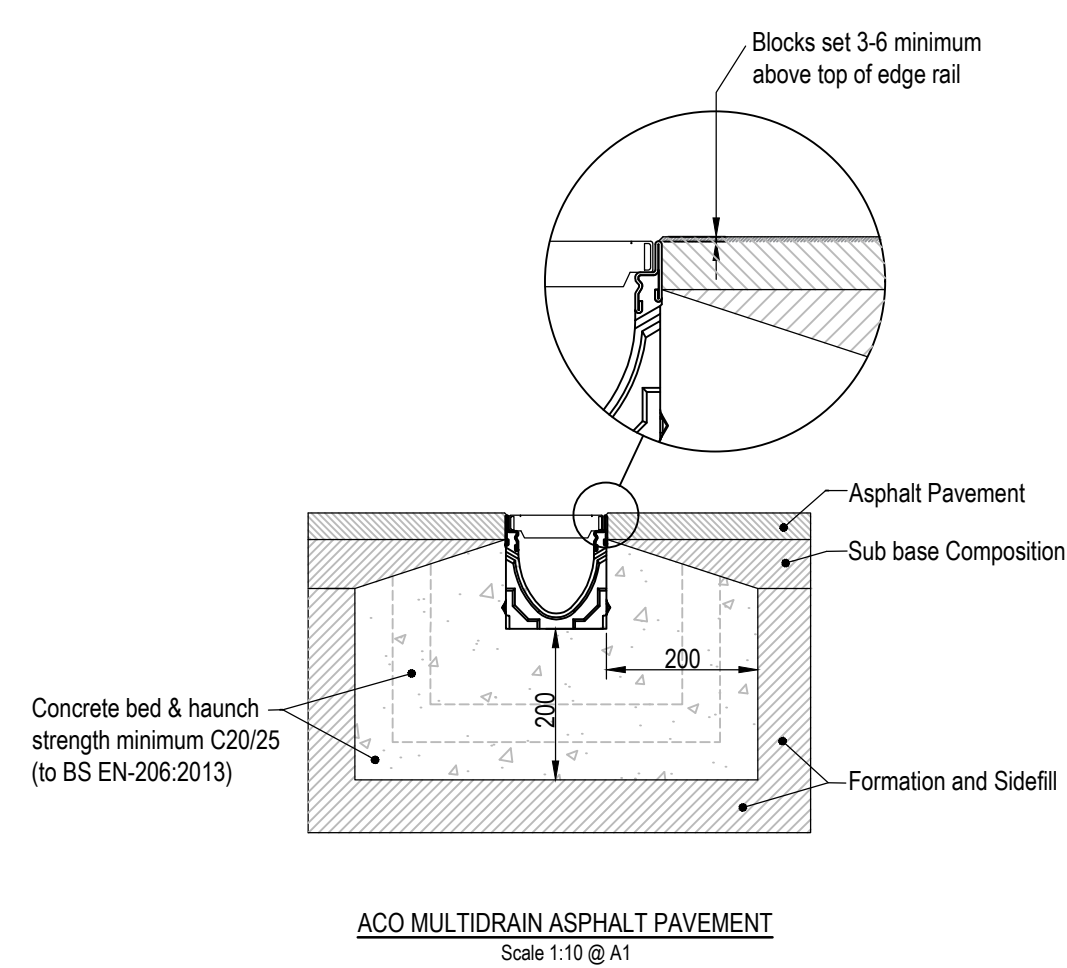
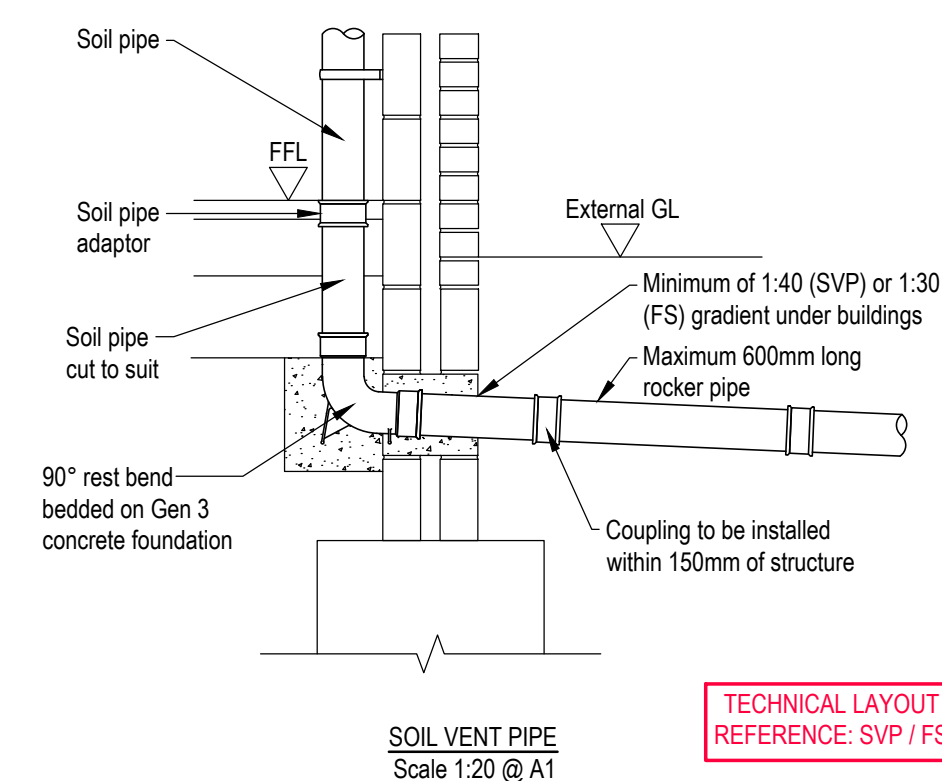
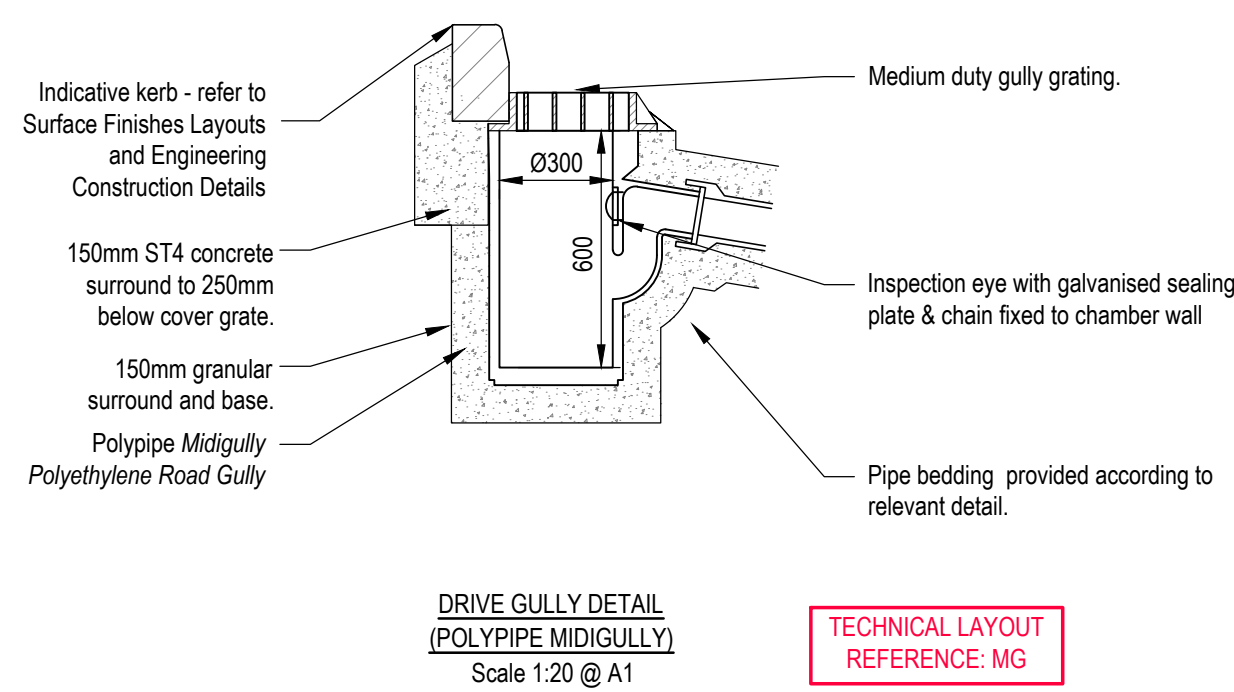
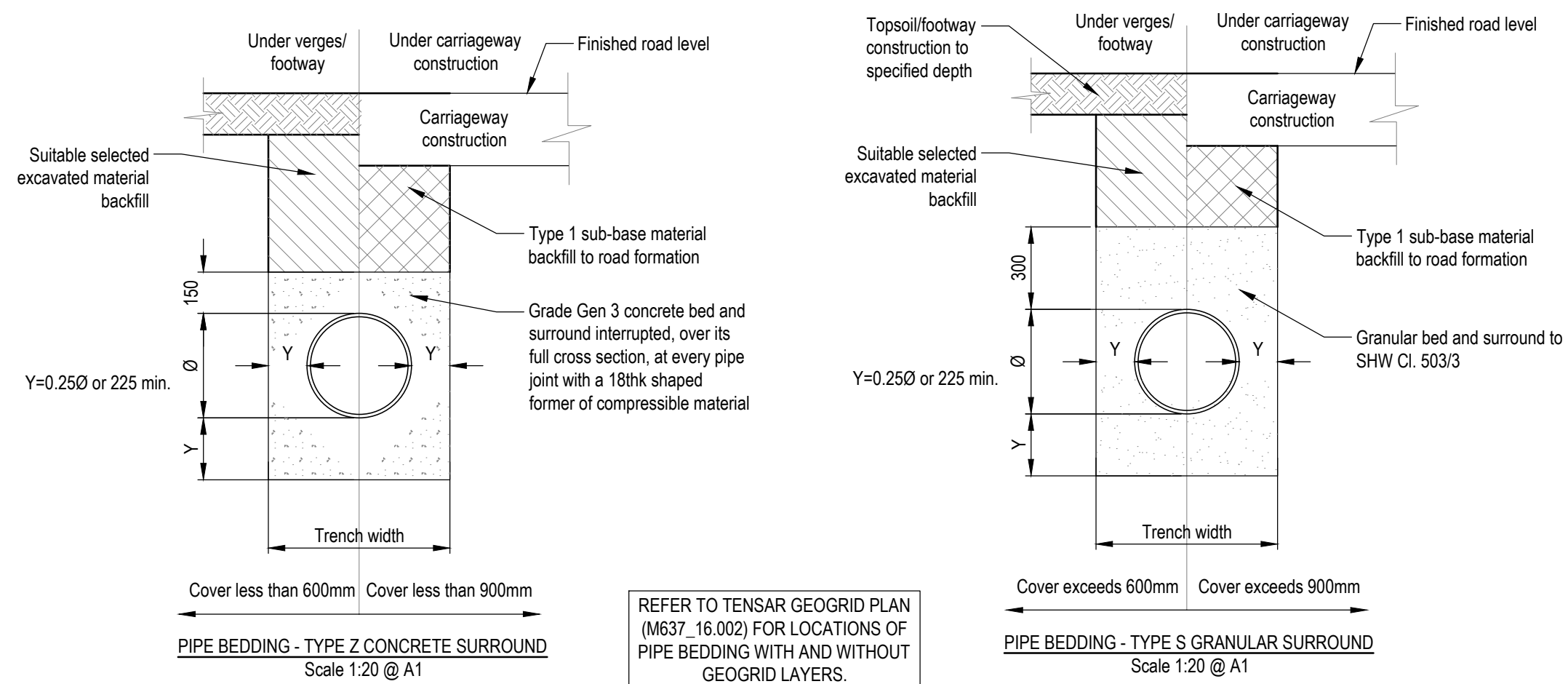
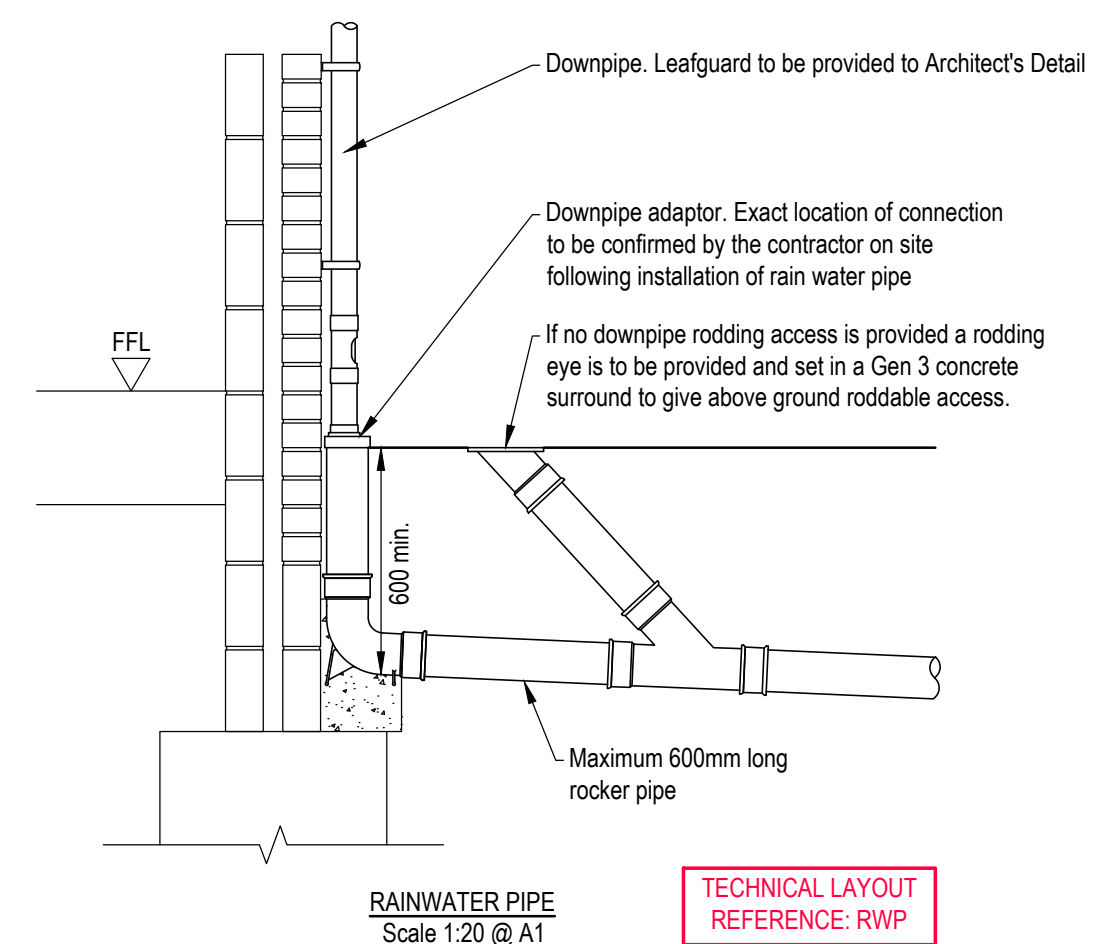
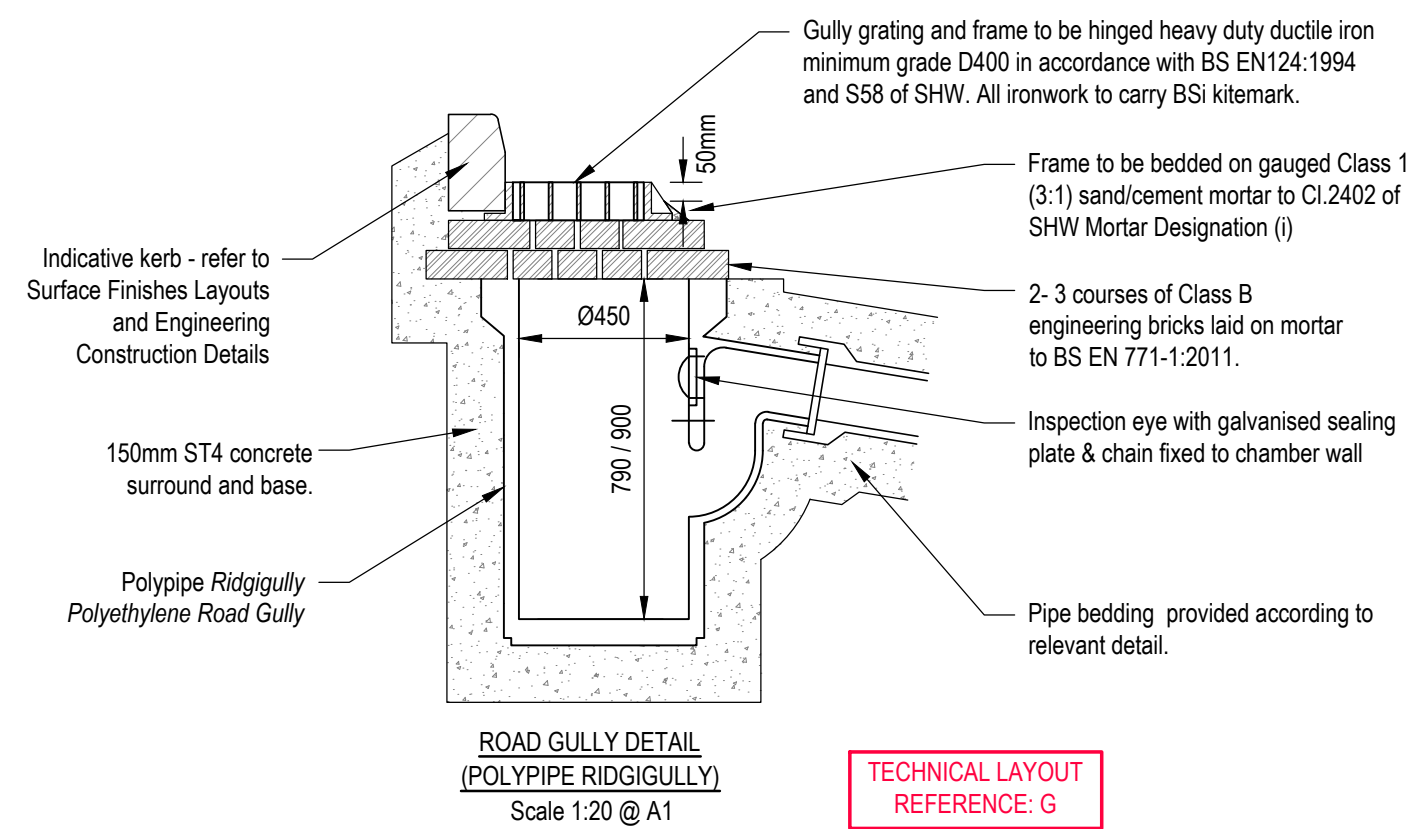
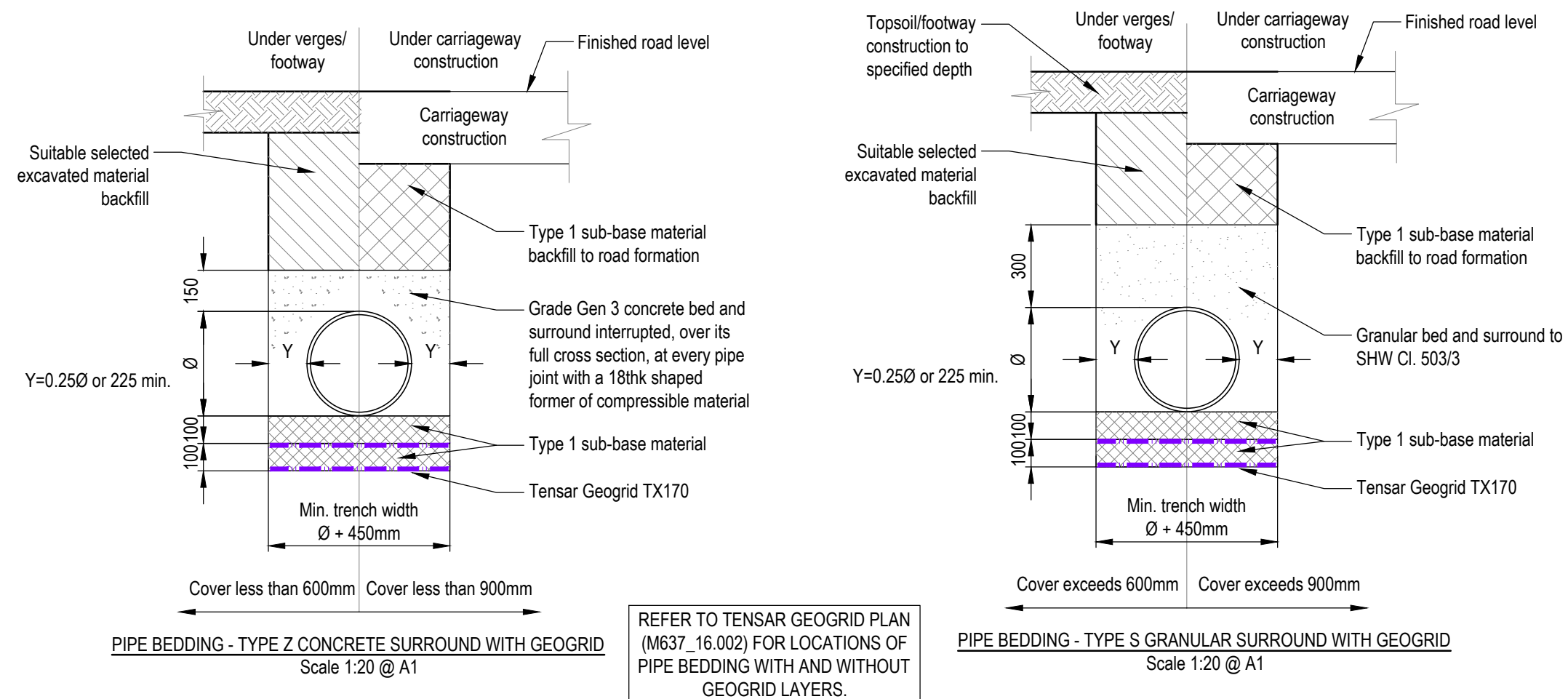
Title :
Engineering Details
Sheet 3 of 3

Project Engineer : C.Salt Scale : As Shown @ A1
Project Director : J. Birch Date : April 2019
Status : CONSTRUCTION

Drawing No. M637_15.003 Rev C1

Appendix D

Drainage Construction Details



NOTES

- This drawing is to be read in conjunction with all other relevant documents and specifications.
- Do not scale from this drawing.
- Buried concrete to be Design Sulphate Class DS-2 and ACEC AC-2 within Made Ground, and DS-1 and AC-1 within River Terrace Deposits or Chalk Bedrock.
- Any discrepancies between this drawing and any other engineering drawings should be reported to the Project Engineer immediately.
- Unless specifically noted otherwise, clauses and tables refer to the Specification for Highway works (SHW) Volume 1 of the Manual for Contract Documents for Highway Works.

Drawing reference no.

M637_11.001 - 11.005

M637_12.001

M637_13.001/13.002/13.003/13.004

M637_14.001/14.002/14.003/14.004

M637_15.001/15.002/15.003

M637_15.004/15.005/15.006/15.007

M637_16.001

M637_16.002

M637_17.001/17.002

M637_18.001/18.002/18.003/18.004

THA21635-03A

GY14624/1/001A

Drawing Title

- Setting Out

- Longitudinal Sections

- Technical Layout

- Surface Finishes Layout

- Engineering Details

- Drainage Details

- Cut and Fill

- Tensar Geogrid Plan

- S278 Agreement Plans

- Combined Services

- Tree Protection Plan, 2018.08.11

ACD Environmental.

- Topographical Survey, 2017.11.27

Sunshine Survey Ltd.

T4	Drawing title updated.	30.08.19	MLM	CS
T3	Concrete catchpit and backdrop detail removed. Pipe bedding detail updated.	04.04.19	MLM	CS
T2	Concrete Catchpit detail, leafguard and note added.	14.03.19	MLM	CS
T1	Tender Issue.	25.02.19	MLM	CS
Rev.	Description	Date	Chkd	

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Client :

Project : Cornfield Close, Littlehampton

Title : Drainage Details Sheet 1 of 4

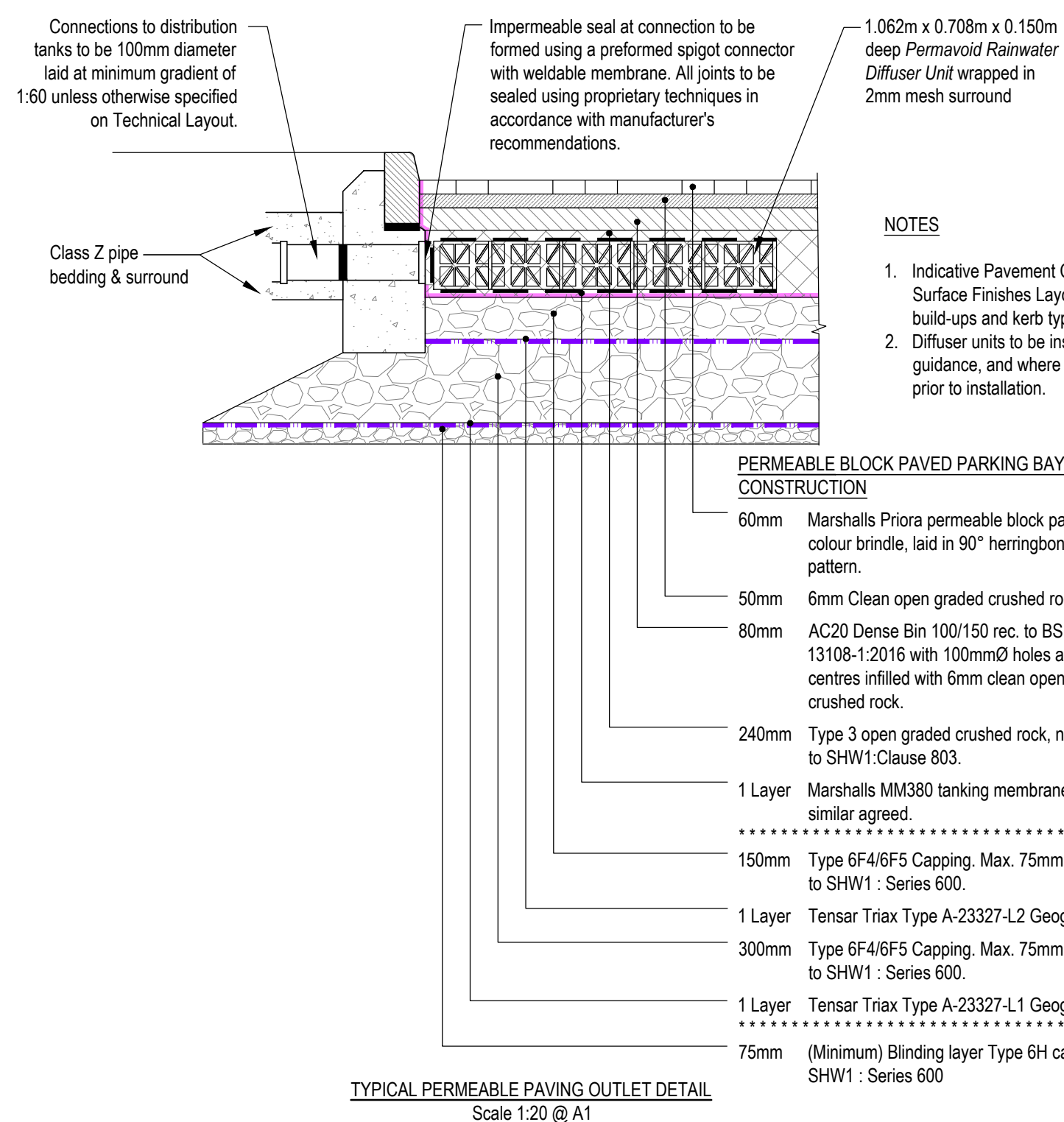
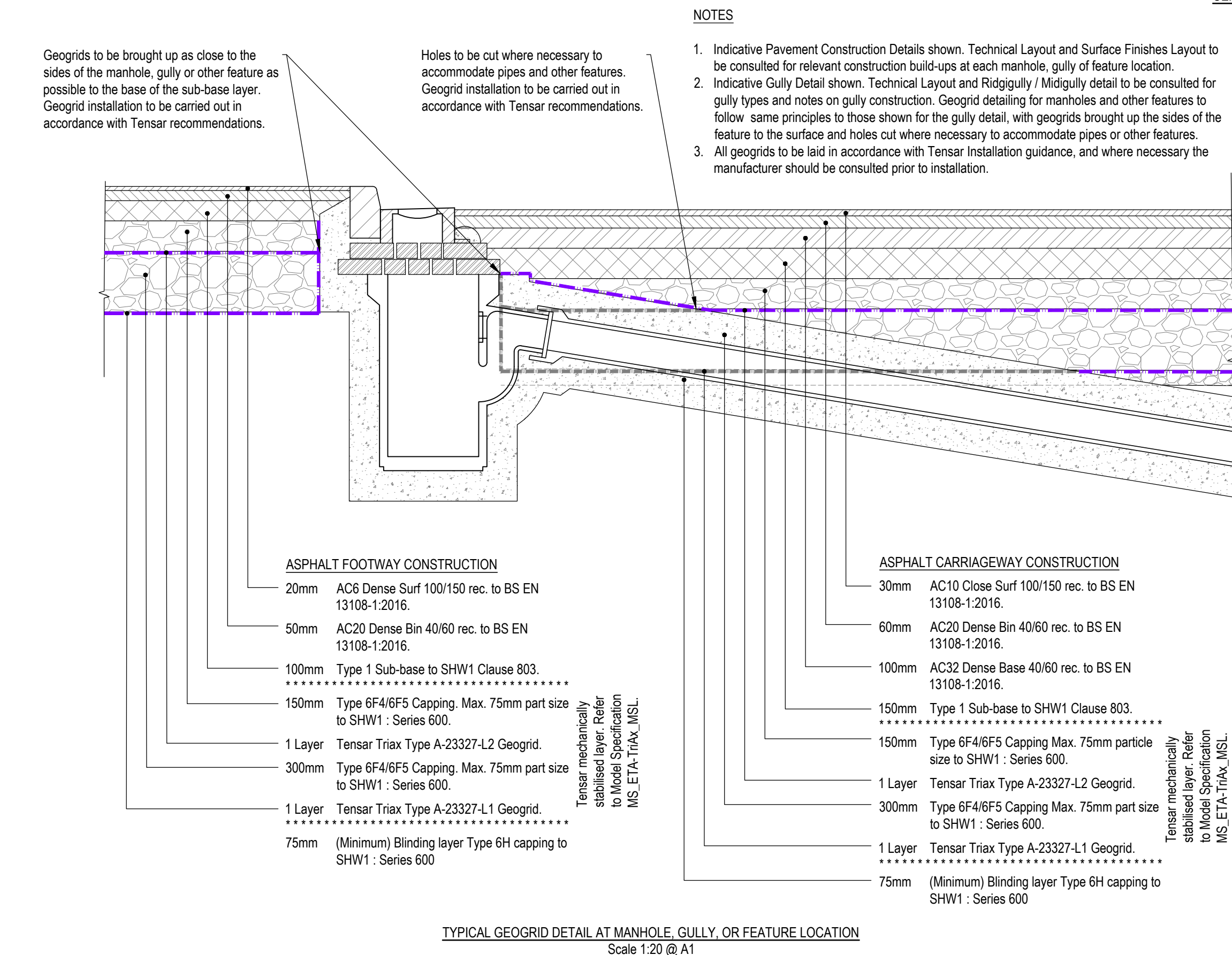
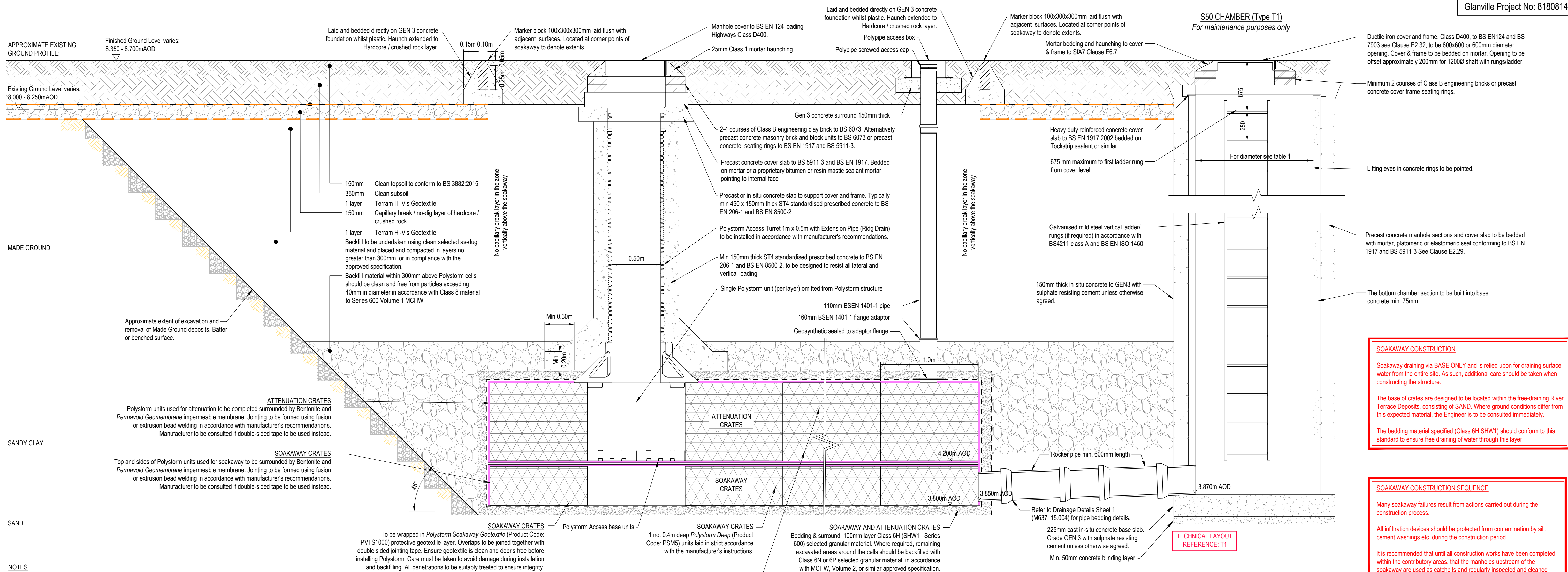
Project Engineer : C.Salt Scale : As Shown @ A1

Project Director : J.Birch Date : February 2019

Status : TENDER

Drawing No. M637_15.004

Rev T4



NOTES

- This drawing is to be read in conjunction with all other relevant documents and specifications.
- Do not scale from this drawing.
- Buried concrete to be Design Sulphate Class DS-2 and ACEC AC-2 within Made Ground, and DS-1 and AC-1 within River Terrace Deposits or Chalk Bedrock.
- Any discrepancies between this drawing and any other engineering drawings should be reported to the Project Engineer immediately.
- Unless specifically noted otherwise, clauses and tables refer to the Specification for Highway works (SHW) Volume 1 of the Manual for Contract Documents for Highway Works.

Drawing reference no.

M637_11.001 - 11.005
M637_12.001
M637_13.001/13.002/13.003/13.004
M637_14.001/14.002/14.003/14.004
M637_15.001/15.002/15.003
M637_15.004/15.005/15.006/15.007
M637_16.001
M637_16.002
M637_17.001/17.002
M637_18.001/18.002/18.003/18.004
THA21635-03A

Drawing Title

- Setting Out
- Longitudinal Sections
- Technical Layout
- Surface Finishes Layout
- Engineering Details
- Drainage Details
- Cut and Fill
- Tensar Geogrid Plan
- S278 Agreement Plans
- Combined Services
- Tree Protection Plan, 2018.08.11
- ACD Environmental.
- Topographical Survey, 2017.11.27
- Sunshine Survey Ltd.

GY46241/001A

T6	S50 Chamber (T1-CP) type changed to S50 Chamber (T1) & crate schedule updated.	10.09.19	CS
T5	S50 detail added to soakaway / attenuation section. Permeable paving detail amended.	28.08.19	JB
T4	Central Soakaway detail revised.	15.08.19	JB
T3	Soakaway maintenance / catchpit detail & levels, and pavement construction updated.	04.04.19	CS
T2	Notes to Polystorm updated and note and construction note added.	14.03.19	CS
T1	Tender Issue.	25.02.19	CS
Rev.	Description	Date	Chkd

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Client : 	
Project : Cornfield Close, Littlehampton	
Title : Drainage Details Sheet 2 of 4	
Project Engineer : C.Salt	Scale : As Shown @ A1
Project Director : J.Birch	Date : February 2019
Status : TENDER	
Drawing No. M637_15.005	Rev T6

Table 1	
Nominal internal diameter of largest pipe in manhole (mm)	Minimum nominal internal dimension of manhole (mm)
Less than 375	1200
375-450	1350
500-700	1500
750-900	1800
Greater than 900	Pipe diameter + 900

Table 2	
Pipe Diameter (mm)	Effective Length of rocker pipe (m)
150 to 600	0.6
601 to 750	1.0
Over 750	1.25

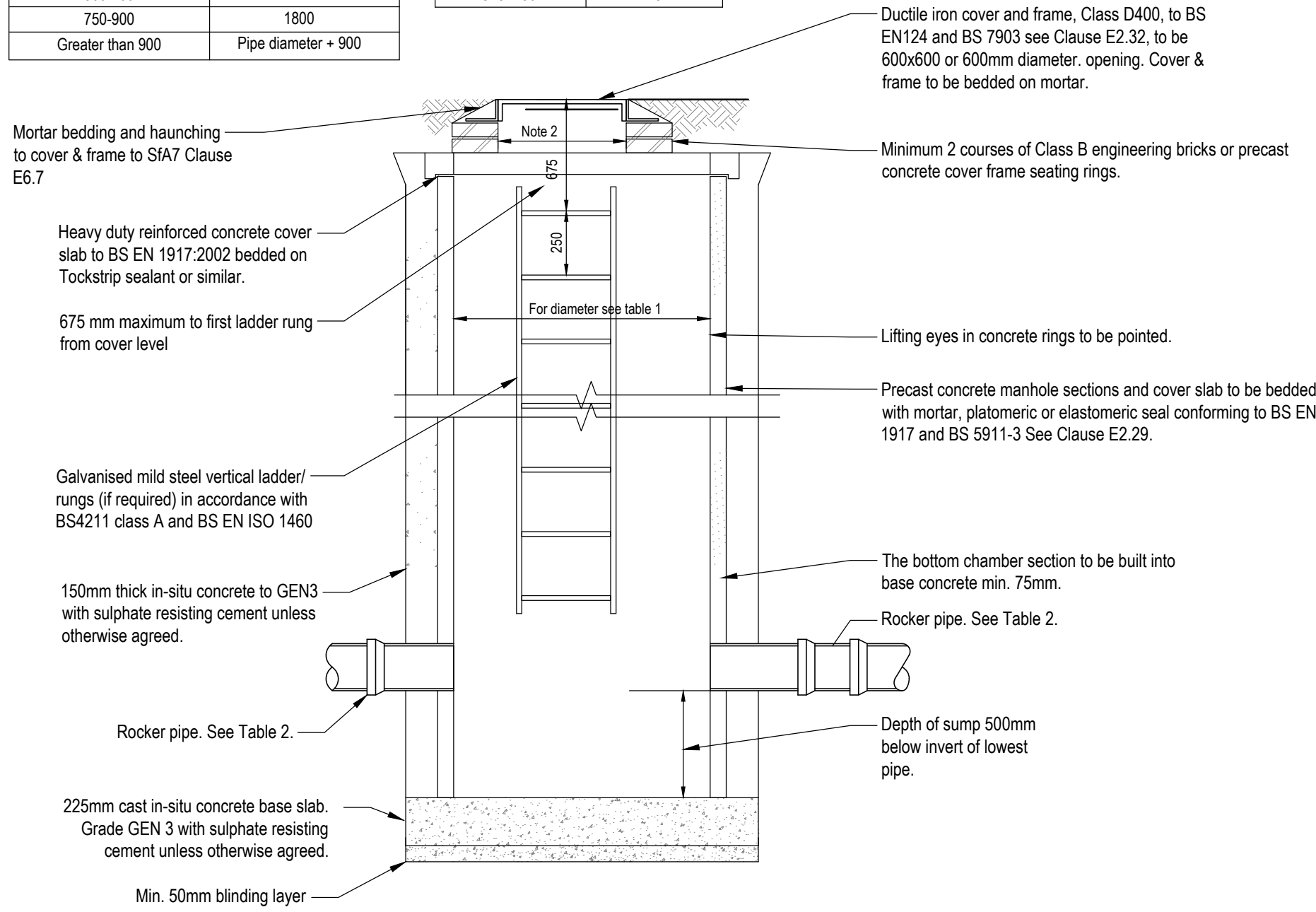


TABLE A: POLYPIPE CATCHPIT AND SILT TRAP DIMENSIONS AND SPECIFICATION					
	POLYSTORM CATCHPIT	RIDGISTORM SILT TRAP: MINI	RIDGISTORM SILT TRAP: BASIC	RIDGISTORM SILT TRAP: ADVANCED	RIDGISTORM CATCHPIT
Chamber Diameter (mm)	600	320	460	460	450 - 3000
Precast Chamber Depth (mm)	1500	600	1220	830	To suit*
Extender Unit Depth (mm)	-	215	215	215	-
Pipe Diameters (mm)	150/225/300	110	160	160	100 - 3000
Sump Depth (mm)	300	250	420	280	To suit (min. 500mm)

* Steps to be provided at depths >1.5m (refer to RAM detail). Ladder to be provided at depths >3m (refer to T1-CP detail).

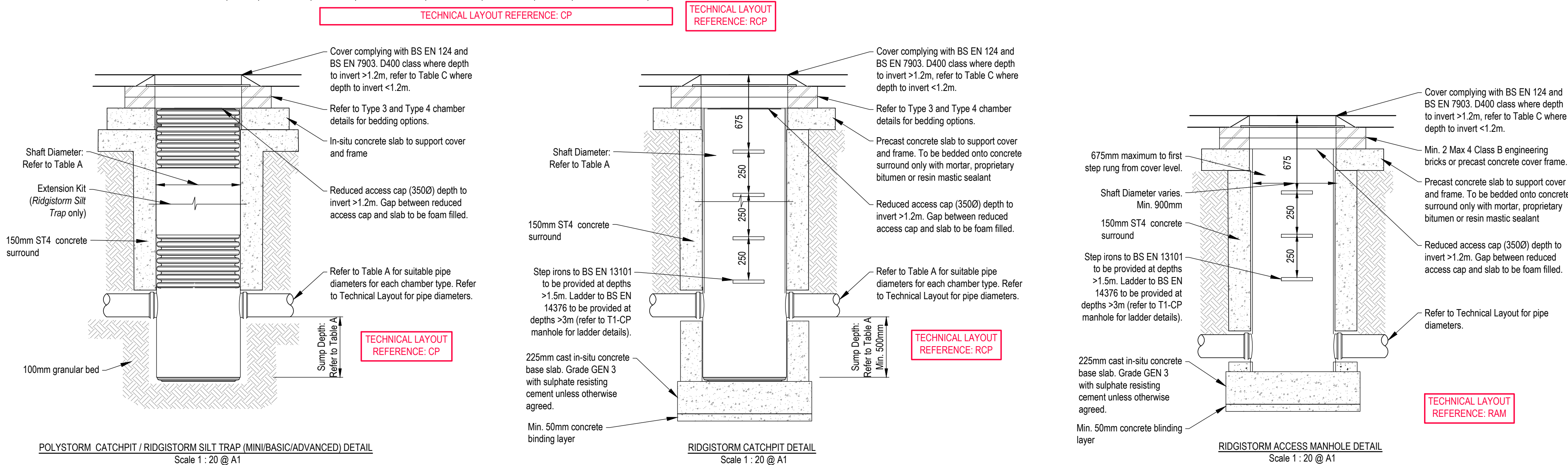
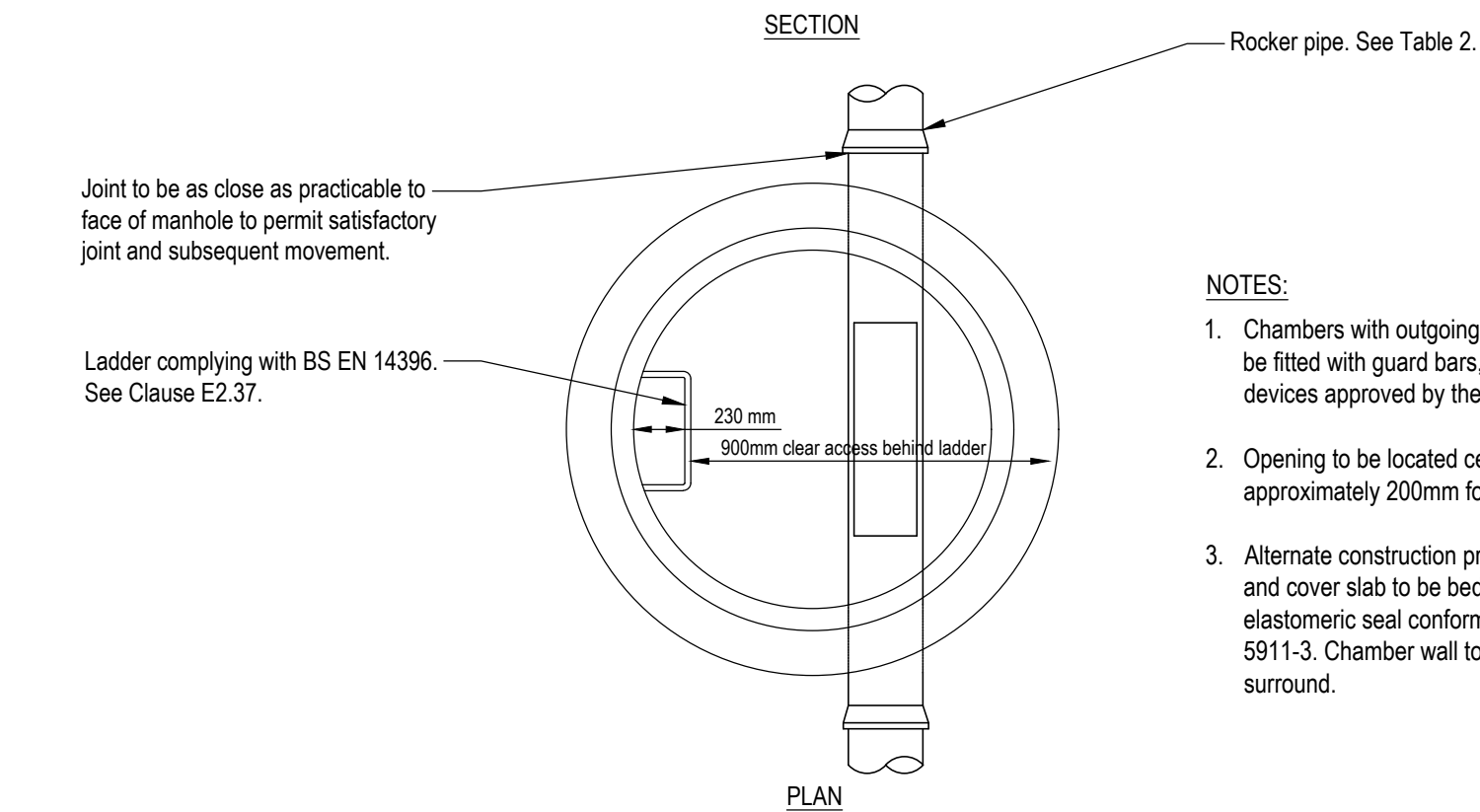


TABLE B: MINIMUM DIMENSIONS FOR MANHOLES					
TYPE OF ACCESS	SIZE OF LARGEST PIPE (DN)	MINIMUM INTERNAL DIMENSIONS (1)		MINIMUM CLEAR OPENING SIZE (1)	
		RECTANGULAR LENGTH x WIDTH (mm x mm)	CIRCULAR DIAMETER (mm)	RECTANGULAR LENGTH x WIDTH (mm x mm)	CIRCULAR DIAMETER (mm)
MANHOLE LESS THAN 1.5m DEEP TO SOFFIT	LESS THAN OR EQUAL TO 150	750 x 675 (7)	1000 (7)	750 x 675 (2)	N/A (3)
	225	1200 x 675	1200	1200 x 675 (2)	
	300	1200 x 750	1200		
MANHOLE GREATER THAN 1.5m DEEP TO SOFFIT	GREATER THAN 300	1800 x (DN+450)	THE LARGER OF 1800 or (DN+450)		
	LESS THAN OR EQUAL TO 225	1200 x 1000	1200	600 x 600	600
	300	1200 x 1075	1200		
	375-450	1350 x 1225	1200		
MANHOLE SHAFT (4) GREATER THAN 3.0m DEEP TO SOFFIT OF PIPE	GREATER THAN 450	1800 x (DN+775)	THE LARGER OF 1800 or (DN+775)	600 x 600	600
	STEPS (5)	1050 x 800	1050		
	LADDER (5)	1200 x 800	1200		
	WINCH (6)	900 x 800	900		

NOTES:
(1) LARGER SIZES MAY BE REQUIRED FOR MANHOLES ON BENDS OR WHERE THERE ARE JUNCTIONS.
(2) MAY BE REDUCED TO 600x600mm WHERE REQUIRED BY HIGHWAY LOADING CONSIDERATIONS, SUBJECT TO A SAFE SYSTEM OF WORK BEING SPECIFIED.
(3) NOT APPLICABLE DUE TO WORKING SPACE NEEDED.
(4) MINIMUM HEIGHT OF CHAMBER IN SHAFTED MANHOLE 2m FROM BENCHING TO UNDERSIDE OF REDUCING SLAB.
(5) MINIMUM CLEAR SPACE BETWEEN LADDER OR STEPS AND THE OPPOSITE FACE OF THE SHAFT SHOULD BE APPROXIMATELY 900mm.
(6) WINCH ONLY - NO STEPS OR LADDERS, PERMANENT OR REMOVABLE.
(7) THE MINIMUM SIZE OF ANY MANHOLE SERVING A SEWER (i.e. ANY DRAIN SERVING MORE THAN ONE PROPERTY) SHOULD BE 1200x750mm RECTANGULAR OR 1200mm DIAMETER.

TABLE C: PRIVATE MANHOLE/INSPECTION CHAMBER COVER GRADES AND AREAS OF USE		
FACTA CLASS	COVER GRADE TO BS EN: 124	LOCATION
D	D400	FOR USE IN INDUSTRIAL ROADS AND PARKING AREAS ACCESSIBLE TO ALL TYPES OF ROAD VEHICLES INCLUDING HGV'S. FOR USE WHERE DEPTH TO SOFFIT >1.2m
C	C250*	FOR USE IN PRIVATE ROADS OR PARKING AREAS eg. CAR PARKS AND MINOR PRIVATE ROADS ACCESSIBLE TO REFUSE VEHICLES, FIRE APPLIANCES ETC WITH POSSIBLE OCCASIONAL HGV USE. FOR USE ONLY WHERE DEPTH TO SOFFIT <1.2m
B	B125	FOR USE IN FOOTWAYS, PEDESTRIAN AREAS, DRIVEWAYS AND CAR PARKS ACCESSIBLE BY LIGHT VEHICLES ONLY. FOR USE ONLY WHERE DEPTH TO SOFFIT <1.2m
AAA	A15	FOR USE IN AREAS WHICH CAN ONLY BE USED BY PEDESTRIANS AND CYCLISTS. FOR USE ONLY WHERE DEPTH TO SOFFIT <1.2m
* D400 MAY BE USED IN LIEU OF C250 IF PREFERRED.		



- NOTES:
- Chambers with outgoing pipes 525mm Ø or greater shall be fitted with guard bars, safety chains or other safety devices approved by the engineer.
 - Opening to be located centrally over 900Ø shaft and offset approximately 200mm for 1200Ø shaft with rungs/ladder
 - Alternate construction precast concrete manhole sections and cover slab to be bedded with mortar, plastomeric or elastomeric seal conforming to BS EN 1917 and BS 5911-3. Chamber wall to be 125mm thick with no concrete surround.

TECHNICAL LAYOUT REFERENCE: T1-CP

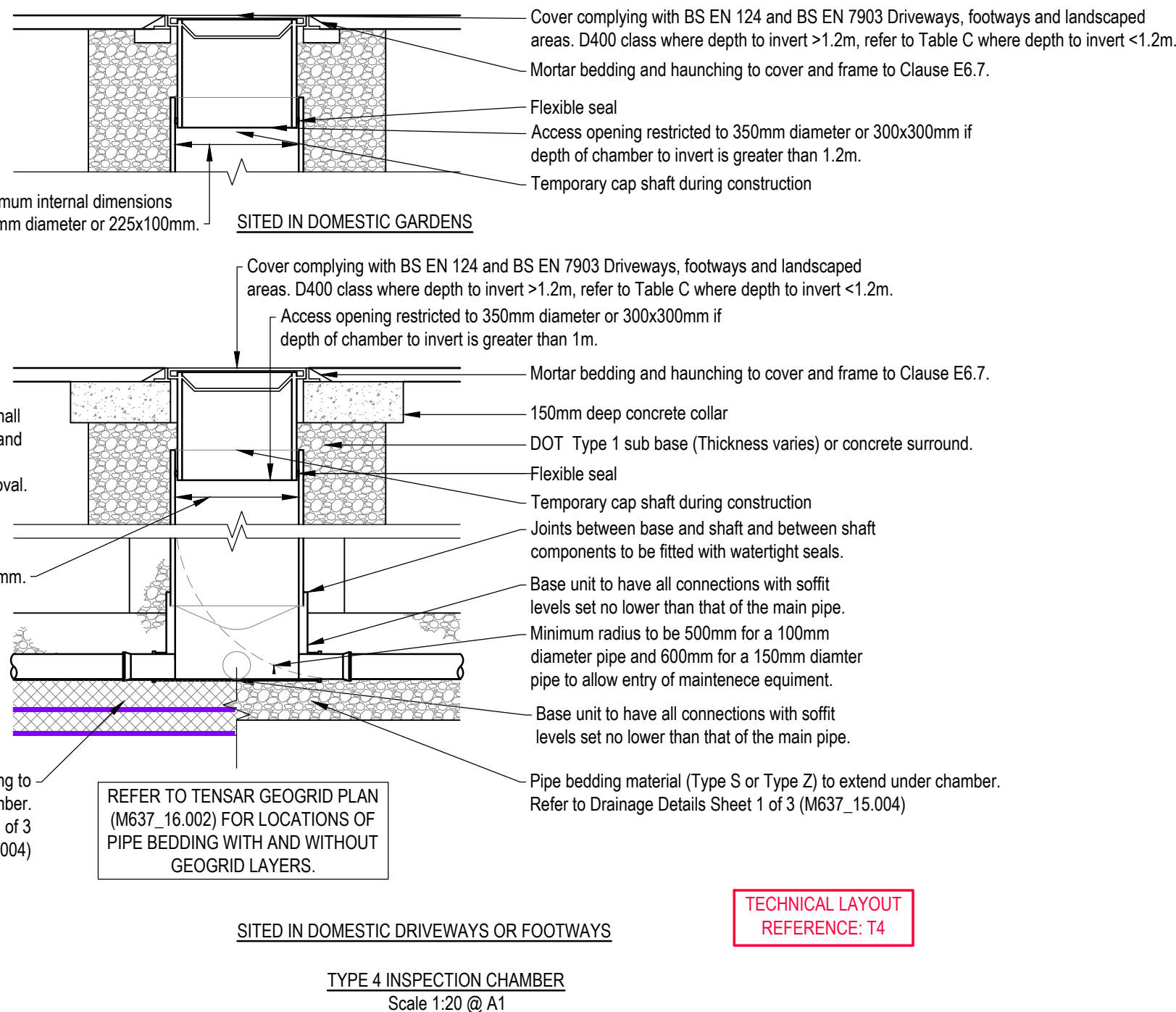
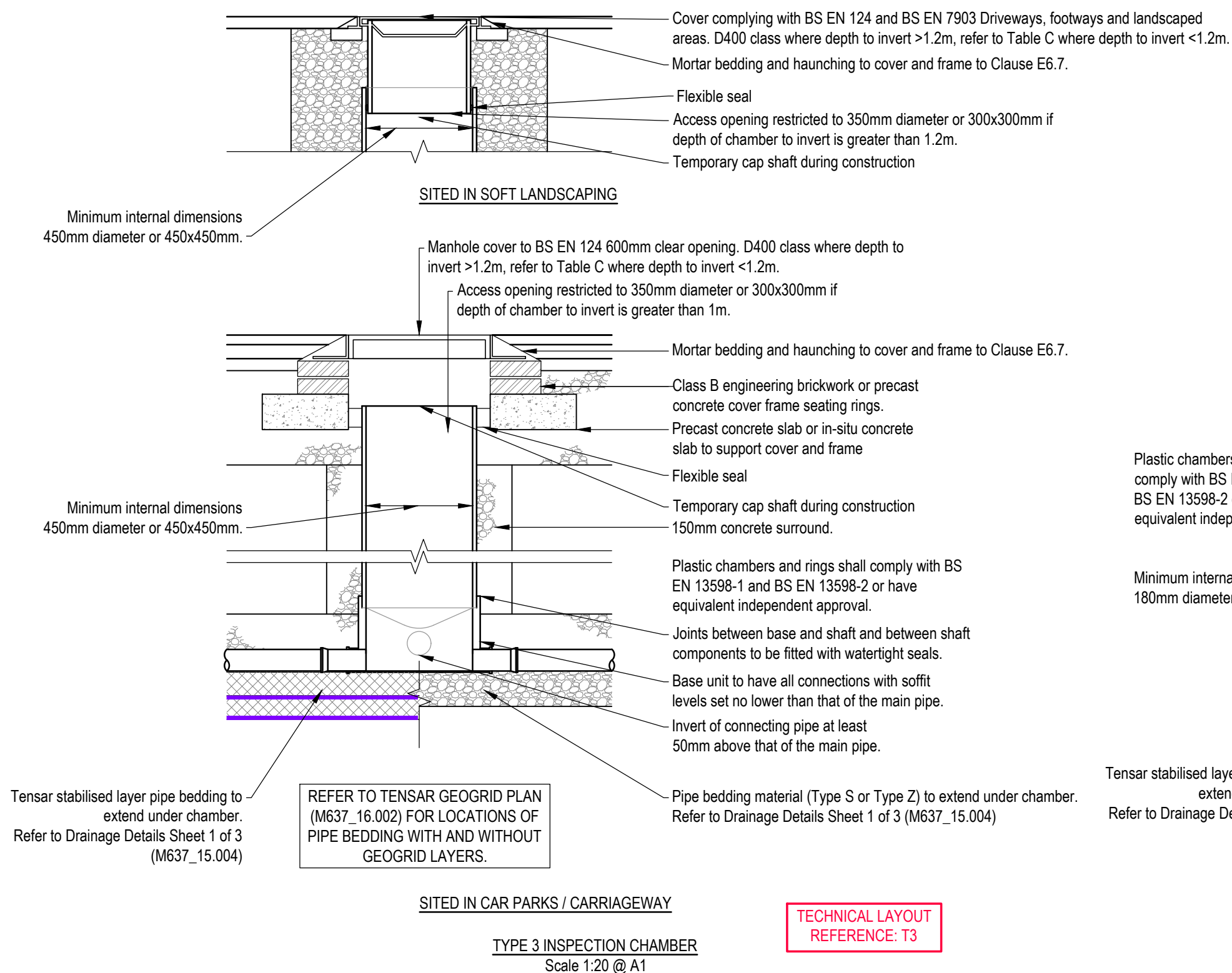


TABLE D: MINIMUM DIMENSIONS FOR ACCESS FITTINGS AND INSPECTION CHAMBERS					
TYPE OF ACCESS	DEPTH TO INVERT FROM COVER LEVEL (m)	MINIMUM INTERNAL DIMENSIONS (1)		MINIMUM CLEAR OPENING SIZE (1)	
		LENGTH x WIDTH (mm x mm)	CIRCULAR (mm)	LENGTH x WIDTH (mm x mm)	CIRCULAR (mm)
RODDING EYE	-	AS DRAIN BUT MINIMUM 100mm	-	-	SAME SIZE AS PIPEWORK
ACCESS FITTING SMALL 150mm DIA. SMALL 150x100mm LARGE 225x100mm	0.6m OR LESS EXCEPT WHERE SITUATED IN A CHAMBER	150 x 100 225 x 100	150 225	150 x 100 (1) 225 x 100 (1)	SAME SIZE AS ACCESS FITTING
INSPECTION CHAMBER					
SHALLOW	0.6m OR LESS	225 x 100	190 (2)		190 (1)
MEDIUM	1.2m OR LESS	450 x 450	450	MIN 430 x 430	430
DEEP	GREATER THAN 1.2m	450 x 450	450	MAX 300 x 300 (3)	ACCESS RESTRICTED TO MAX 350 (3)

NOTES:
(1) THE CLEAR OPENING MAY BE REDUCED BY 20mm IN ORDER TO PROVIDE PROPER SUPPORT FOR THE COVER AND FRAME.
(2) DRAINS UPTO 150mm DIAMETER.
(3) A LARGER CLEAR OPENING COVER MAY BE USED IN CONJUNCTION WITH A RESTRICTED ACCESS. THE SIZE IS RESTRICTED FOR HEALTH AND SAFETY REASONS TO DETER ENTRY.

NOTES		Drawing reference no.	Drawing Title
1. This drawing is to be read in conjunction with all other relevant documents and specifications. 2. Do not scale from this drawing. 3. Buried concrete to be Design Sulphate Class DS-2 and ACEC AC-2 within Made Ground, and DS-1 and AC-1 within River Terrace Deposits or Chalk Bedrock. 4. Any discrepancies between this drawing and any other engineering drawings should be reported to the Project Engineer immediately. 5. Unless specifically noted otherwise, clauses and tables refer to the Specification for Highway works (SHW) Volume 1 of the Manual for Contract Documents for Highway Works.	GY4624/1001A	M637_11.001 - 11.005 M637_12.001 M637_13.001/13.002/13.003/13.004 M637_14.001/14.002/14.003/14.004 M637_15.001/15.002/15.003 M637_15.004/15.005/15.006/15.007 M637_16.001 M637_16.002 M637_17.001/17.002 M637_18.001/18.002/18.003/18.004 THA21635-03A	- Setting Out - Longitudinal Sections - Technical Layout - Surface Finishes Layout - Engineering Details - Drainage Details - Cut and Fill - Tensar Geogrid Plan - S278 Agreement Plans - Combined Services - Tree Protection Plan, 2018.08.11 - ACD Environmental. - Topographical Survey, 2017.11.27 - Sunshine Survey Ltd.

T5	Drawing title updated.	30.08.19 MLM	CS
T4	Tensar stabilised layer added to Type 3 and 4 chambers.	03.06.19 MLM	CS
T3	Cover grades notes and table updated. T1-C detail amended. RAM detail added.	04.04.19 MLM	CS
T2	Table C updated and note added.	14.03.19 MLM	CS
T1	Tender Issue.	25.02.19 MLM	CS
Rev.	Description	Date	Chkd

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Client :

Project : Cornfield Close, Littlehampton

Title : Drainage Details Sheet 3 of 4

Project Engineer : C.Salt Scale : As Shown @ A1

Project Director : J.Birch Date : February 2019

Status : TENDER

Drawing No. M637_15.006 Rev T5

Soakaway draining via BASE ONLY and is relied upon for draining surface water from the entire site. As such, additional care should be taken when constructing the structure.

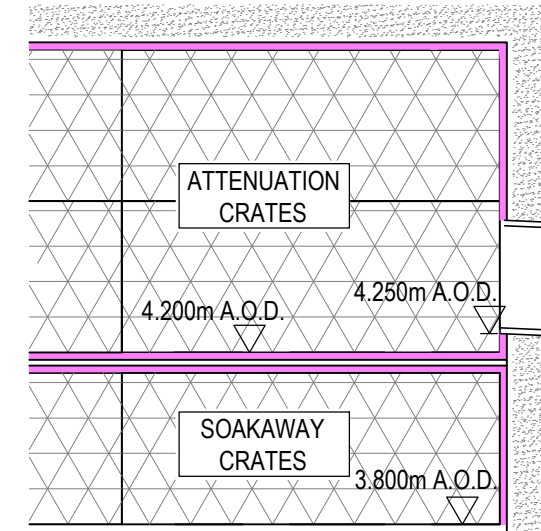
The base of crates are designed to be located within the free-draining River Terrace Deposits, consisting of SAND. Where ground conditions differ from this expected material, the Engineer is to be consulted immediately.

The bedding material specified (Class 6H SHW1) should conform to this standard to ensure free draining of water through this layer.

Many soakaway failures result from actions carried out during the construction process.

All infiltration devices should be protected from contamination by silt, cement washings etc. during the construction period.

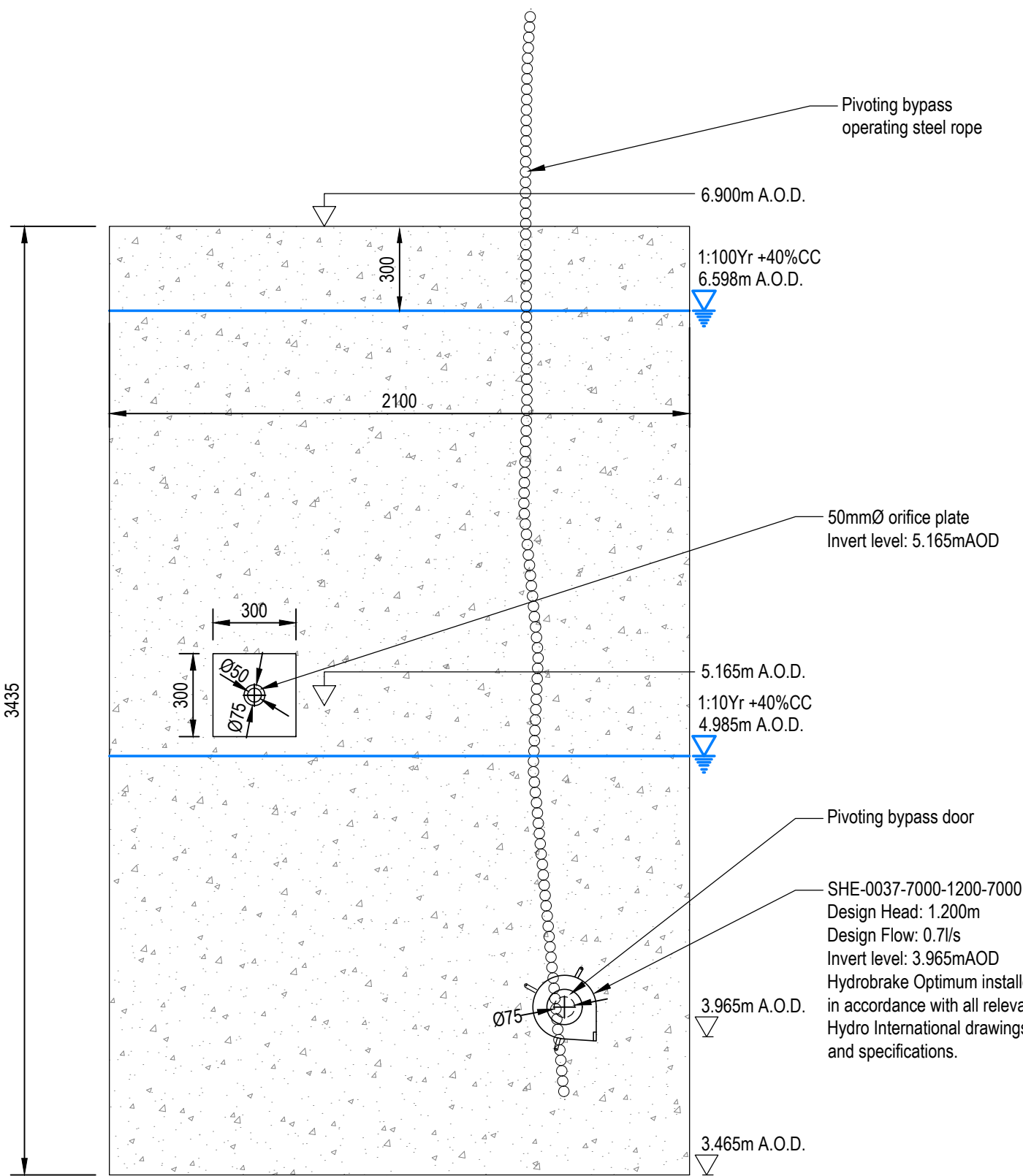
It is recommended that until all construction works have been completed within the contributory areas, that the manholes upstream of the soakaway are used as catchpits and regularly inspected and cleaned throughout the construction process.



Refer to Drainage Details Sheet 2 of 4 (M637_15.005)
for crate construction details and notes

Refer to Technical Layout (M637_13.001/13.002/13.003/13.004 for chamber references and locations.

- S50 (LOWER CRATE INLET), REFER TO DRAINAGE DETAILS SHEET 2 (M637_15.005)
- S1, S10, S20 AND S30 (UPPER CRATE INLETS) TO FOLLOW S50 T1-CP DETAIL, EXCEPTING INLET CONNECTION TO BE MADE INTO UPPER ATTENUATION CRATES.
- S40 (UPPER CRATE OUTLET), REFER TO DRAINAGE DETAILS SHEET 4 (M637_15.007).
- S41 (LOWER CRATE INLET), REFER TO DRAINAGE DETAILS SHEET 4 (M637_15.007).



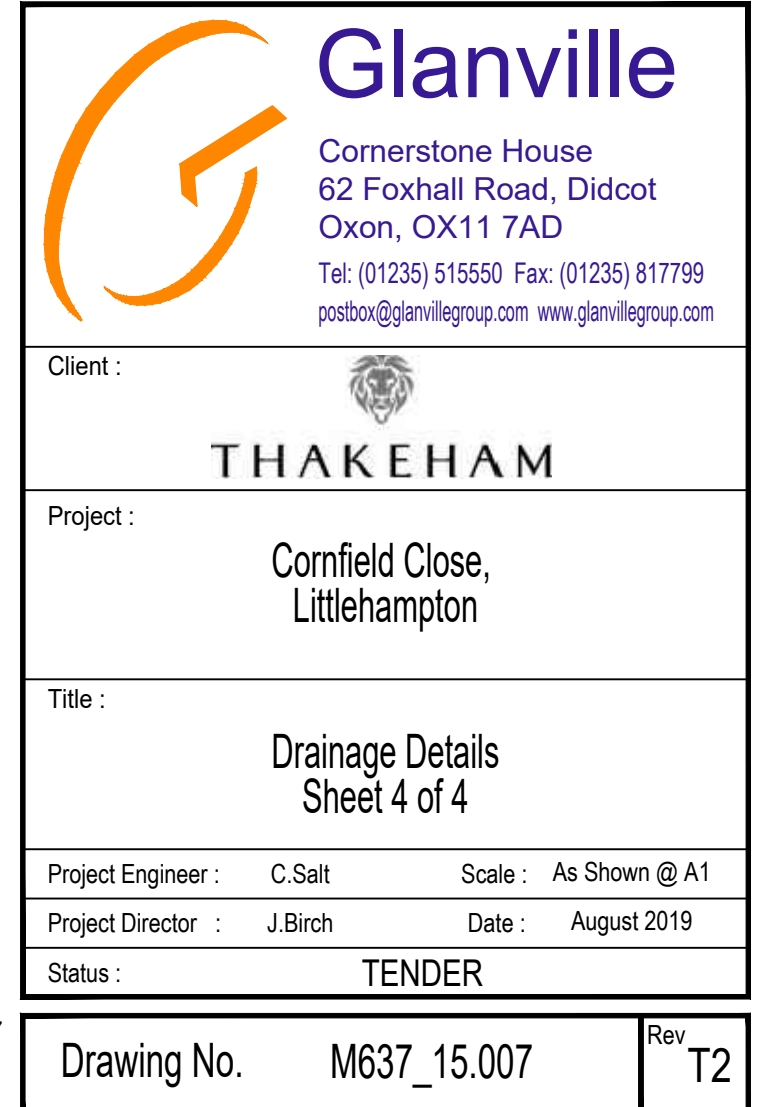
WEIR WALL ELEVATION
Scale 1:20

REFER TO SECTION A-A FOR DETAILS OF MANHOLES
AND PIPES. REFER TO DRAINAGE DETAILS SHEET 2
(M637_15.005) FOR DETAILS OF CRATES.

1. This drawing is to be read in conjunction with all other relevant documents and specifications.
2. Do not scale from this drawing.
3. Buried concrete to be Design Sulphate Class DS-2 and ACEC AC-2 within Made Ground, and DS-1 and AC-1 within River Terrace Deposits or Chalk Bedrock.
4. Any discrepancies between this drawing and any other engineering drawings should be reported to the Project Engineer immediately.
5. Unless specifically noted otherwise, clauses and tables refer to the Specification for Highway works (SHW) Volume 1 of the Manual for Contract Documents for Highway Works.

Drawing reference no.	Drawing Title
M637_11.001_11.005	- Setting Out
M637_12.001	- Longitudinal Sections
M637_13.001/13.002/13.003/13.004	- Technical Layout
M637_14.001/14.002/14.003/14.004	- Surface Finishes Layout
M637_15.001/15.002/15.003	- Engineering Details
M637_15.004/15.005/15.006/15.007	- Drainage Details
M637_16.001	- Cut and Fill
M637_16.002	- Tensar Geogrid Plan
M637_17.001/17.002	- S278 Agreement Plans
M637_18.001/18.002/18.003/18.004	- Tree Protection Plan, 2018.08.11
THA21635-03A	- ACD Environmental.
GY4624/1001A	- Topographical Survey, 2017.11.27 Sunshine Survey Ltd.

T2	Weir wall level raised. Notes added.	28.08.19 MLM	CS
T1	Tender Issue.	15.08.19 MLM / CS	JB
Rev.	Description	Date	Chkd



Appendix E
Exceedance Plan



- KEY**
- SSL 7.500 Proposed structural slab level
 - FFL 7.400 Proposed finished floor level
 - Proposed contour (0.05m band)
 - Proposed contour (0.50m band)
 - Site Boundary
 - HP Road High Point
 - Exceedance Flow Route
- NOTES**
- This drawing is to be read in conjunction with all other drawings and specifications.
 - Any discrepancies found between information shown on this or any other drawing shall be reported to the Engineer immediately and prior to works commencing on site.
 - Dimensions not to be scaled for construction purposes.

A1	First Issue	15.08.19 MB	CS
Rev.	Description	Date	Chkd



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Client : 
THAKEHAM

Project :
Cornfield Close, Littlehampton

Title :
Exceedance Flow
Routes Plan

Project Engineer :	C. Salt	Scale :	1:1000 @ A3
Project Director :	J. Birch	Date :	Aug 2019
Status :	APPROVAL		

Drawing No.	M637/16.003	Rev	A1
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Glanville Project No: 8180814