

## SPECIFICATION RELATING TO WORKS TO IMPROVE DRAINAGE ON THE NATURAL TURF PITCHES AT PARISH PLAYING FIELD, GREAT SANKEY, CHESHIRE.

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**SPECIFICATION**

The Preliminaries, Specification Document and the Schedule of Rates should be read in conjunction with the Design Drawings .

The main elements of the Works required will consist of the following: -

Locate underground services and carry out test digs to prove depth to the services where new drains will be installed over these services. Mark out development area within the site. Install a piped drainage system, detention basin and connection to existing outfall chamber / stream. Remove arisings to the easement area and shape. Supply and spread sports sand top- dressing material. Seeding, establishment, reinstate haul route and easement areas and seed, maintenance to handover including temporary irrigation. Install sand grooves the following summer.

**The site is located off Lingley Green Avenue, Great Sankey, Cheshire, WA5 3AA. Grid Reference 355823, 389460, what3words Pass.Patio.Planet.**

# Item 1.0 Summary of preliminaries.

The full preliminaries should be read in conjunction with this specification. Where any ambiguities may occur between the preliminary summary in the specification and the full preliminaries, the full preliminaries take precedence.

The contractor must, before quoting, ascertain the nature of the site, the extent and nature of the types of work required and all local conditions and restrictions likely to affect the execution of the work.

The contractor should ensure an assessment is made of any vehicle size limitations, which may affect access to the site or operation within the site to deliver materials, plant and equipment or limit in any way the execution of the works. The contractor is to take account of this assessment when submitting the Tender. The entrance to the site is off Lingley Green Avenue. The site is adjacent to a school and though there is no shared access deliveries must avoid school drop off and collection times and lunchtimes. **The site entrance has a width restriction of 3.8 m with no height restriction.**

The contractor must satisfy himself as to the accuracy of all dimensions, levels and measurements contained within the contractors’ documents and any variation be forwarded to the CA before any works commence or any plant is placed on site.

No claims or increases in cost will be considered on the grounds of lack of knowledge of site conditions, site access, and the nature of the site, the required construction works and risks to property, workforce and general public.

## Important Notes: The development area and site compound must be secured using Heras fencing to prevent public access. The access route will need to be located and secured to minimise any conflicts with other site users. The site is semi-secure but still carries a risk of vandalism.

### Item 1.1 General

The Contractor shall provide all labour, plant, tools, vehicles and materials necessary to complete the execution of the works, which shall conform to this specification and the design drawings provided by the CA and any subsequent revisions notified by the CA. **This must include specialist drainage plant including rotary and / or continuous chain trenchers.**

The site shall not be used for any purpose other than carrying out the works. There will be no advertising boards allowed near to, or on site that may attract vandals or other unwanted visitors.

Any vandalism or malicious damage to contractor’s plant or equipment will be covered by the contractor’s own insurance.

The site will need to be fenced off from all public access using HERAS or similar fencing.

### Item 1.2 Nuisance

The contractor is expected to show due consideration to the school staff and students and other site users, neighbours and general public at all times.

The contractor will take all necessary precautions to protect against noise, dust, rubbish and pollution. All waste material will be removed off site on completion of the works to the satisfaction of the CA and there will be no burning of any residues on site.

### Item 1.3 Protection

The contractor and its suppliers shall protect against damage to existing boundaries including fencing, gates, gate posts, trees, road and car park surfaces and hedge lines. Particular attention should be paid to the site access route and car park. Damage to existing kerbs and surfacing shall be made good by the contractor to the satisfaction of the CA. Where tracked plant is likely to permanently mark existing surfaces or iron work the contractor is, at their own expense, to use protection boards and or road plates to protect the surfaces either permanently for the duration of the works or for temporary access periods as required.

Where plant crosses roadways within the site, the roadways must be protected and crossing points well fenced. Any damage to the roadways, car park area, turning areas, passing bays, hedges, fencing or trees shall be made good by the contractor to the satisfaction of the Client.

Any site damage however caused by the contractor or its suppliers will be rectified at the contractors’ own expense to the satisfaction of the Client. Access must be agreed with the client and be in accordance with all the site requirements.

Works should be done in dry conditions with works stopped should the soil become too wet to handle without it smearing.

### Item 1.4 Temporary Works and Services

Permanent paths and roads near the site are to be used provided that they are adequately maintained as thoroughfares with any nuisance or site clearance restrictions applied. Provision of alternative routes into and out of the site, including turning restrictions onto and off Lingley Green Avenue is to be in accordance with Chapter 8 of the Road Traffic Signs Manual or otherwise agreed with the CA.

The contractor shall thoroughly clean and make good all roads and paths after use and leave in an unimpaired condition at the end of each working day.

The contractor is to liaise with the council staff, the client and the CA on an appropriate basis with regards to vehicular movement on site to avoid clashes with peak traffic periods into and out of the estate.

No deliveries or plant movement is to be made before 7.30 am or after 6.00 pm Mon to Fri and before 9.00 am or after 4.00 pm on Saturday. No deliveries shall be made between 8.00 and

9.00 am, 12.30 and 1.30 pm and 3.00 and 4.00 pm. There shall be no working or deliveries on Sundays.

The Contractor shall, at their own expense, be responsible for the erection and maintenance of fencing to secure the works in accordance with CDM regulations. The Contractor has responsibility to ensure that all groundworks are protected from the public using suitable safety fencing approved by the CA.

### Item 1.5 Site Clearance

The contractor is responsible for the clear up and removal from site, on a day-to-day basis and at the end of the contract of all debris and excavated material not forming part of the works, leaving the area around the works clean and safe at the end of each working day.

No mud should be left on ANY footpaths or roads within the proximity of the development area with particular attention given to the car park, access road and Lingley Green Avenue. The contractor shall at his own expense provide a road sweeper to maintain a clean site access route and adjoining roads if requested to do so by the CA.

### Item 1.6 Utility Services

In the event of damage to any utility services during the course and execution of the works, the Contractor is to notify the CA and the appropriate Service Authority immediately and make arrangements for the damage to be repaired and made good without delay to the satisfaction of the Service Authority.

There is a surface water drain running across the playing field with a chamber in the centre of the site. There may be other services under the site and **it remains the responsibility of the contractor to identify and locate all services within the works area ahead of works commencing and where useful, mark the location of the services and depth to the service on the ground.** An allowance had been made in the preliminaries to cover this cost. **The contractor shall carry out hand digs over the services to prove the depth of the services ahead of digging over them.**

### Item 1.7 Setting out

The working area shall be clearly marked on site using suitable temporary markers such as posts, tape and temporary spray paints. Access routes onto and off the site shall be clearly marked and fenced and sensitive working areas close to hedges, retained trees, buildings and fencing shall be marked as appropriate and fenced to protect them. The marked out works area shall be approved by the CA and Client ahead of works commencing.

# Works

**Item 2.0 Site clearance and preparation**

### Item 2.1 General clearance

The Contractor shall collect and remove to the Contractor’s tip off site all rubbish, debris, rubble, fly-tipped material from the site. Any cleared vegetation produced during part of the works must also be disposed of off-site at a suitably licensed waste facility.

Before starting work the Contractor shall verify with the CA, which site features are to be removed that will include but not be limited to:

* The scrub around the final outfall chamber and along the route to the stream.

The development area shall be marked out and agreed ahead of works starting.

# Item 3 .0 Drainage

## Any existing pipes hit during these works shall be connected into the new system.

***Item 3.1 Installation of new 160 mm Collector drains (Drawing Number GMA 0930.34-1 Drainage Design)***

## Item 3.1.1 Trenching and pipe laying

The trench shall be cut at an even grade and depth as specified. The trench shall be evenly cut with space in the base such that pipes can be evenly laid. The pipe shall be 160 mm diameter perforated plastic pipe. The pipe shall comply with BS4962. The pipe shall be a minimum of 600 mm deep and shall be laid at the natural grade of the land. The falls shall be approximately as follows:

Point A invert around 14.78 m – Point C invert around 14.3 m.

Point B (outflow) invert around 14.9m – Point C invert around 14.3 m.

## Item 3.1.2 Connections

Pipes shall be joined using purpose-made, proprietary junctions. In no case shall pipes be let unsecured into other pipes, chambers or headwalls.

## Item 3.1.3 Backfill (gravel)

The trench shall be filled over the pipes as specified on Drawing Number GMA 0930.34-1 with gravel over the pipe to a nominal depth of 200 mm below final ground level. The gravel used shall be clean 2 – 6 mm chert / flint gravel. It shall not contain limestone or other bioclastic rock.

## Item 3.1.4 Backfill (topsoil)

The trench shall then be filled level with the surface, compacted and topped up with site-won topsoil. Allowance should be made for two topping up operations. There should be no stones larger than 25 mm in the upper 50 mm of the topsoil backfilled drains.

## Item 3.1.5 Reinstatement of drain runs

The drain runs shall be reinstated by overseeding with the same seed mix as used in Item 4.3 at a rate of 45 g m2. Prior to re-seeding the drain runs shall be fertilised with a 9:7:7 controlled release fertiliser at 30 g m2.

## Item 3.1.6 Arisings

Arisings shall be disposed of within the easement area / borrow pit as directed by the client.

***Item 3.2 Installation of new 225 mm carrier drain between Points C and D (GMA 0930.34-1 Drainage Design)***

## Item 3.2.1 Trenching and pipe laying

The trenches shall be cut at an even grade and depth as specified. The trenches shall be evenly cut with space in the base such that pipes can be evenly laid. The pipe shall be 225 mm diameter solid, twin wall plastic pipe. The pipe shall comply with HPAS. The pipe shall have the following approximate inverts:

Point C outflow invert around 14.3m to Point D at 14.2m.

Point E outflow from the basin around 14.1m to Point F (Hydrobrake) at 14.0m

The pipe shall be secured in the side of the detention basin using a pre-cast GRP headwall.

## Item 3.2.2 Connections

Pipes shall be joined using purpose-made, proprietary junctions. In no case shall pipes be let unsecured into other pipes, chambers or headwalls.

## Item 3.2.3 Backfill (site-won material)

The trench shall be filled over the pipe as specified on Drawing Number GMA 0930.34-1with site-won topsoil material. There should be no stones larger than 25 mm in the upper 50 mm of the topsoil backfilled drains.

Allowance should be made for two topping up operations.

## Item 3.2.4 Arisings

Arisings shall be disposed of in the easement area as directed by the client.

## Item 3.2.5 Reinstatement of drain runs

The drain runs shall be reinstated by overseeding with the same seed mix as used in Item 4.3 at a rate of 45 g m2. Prior to re-seeding the drain runs shall be fertilised with a 9:7:7 controlled release fertiliser at 30 g m2.

***Item 3.3 Installation of new 80 mm lateral drains (GMA 0930.34-1 Drainage Design)***

## Item 3.3.1 Trenching and pipe laying

The trenches shall be cut at an even grade and depth as specified. The trenches shall be evenly cut with space in the base such that pipes can be evenly laid. The pipe shall be 80 mm diameter perforated plastic pipe laid evenly in the base of the trenches. The spacing shall be at 6 m. The pipe shall comply with BS4962. The drains shall be a minimum of 500 mm deep. The grade shall be at the natural grade of the land.

## Item 3.3.2 Connections

Pipes shall be joined using purpose-made, proprietary junctions. In no case shall pipes be let, unsecured, into other pipes.

## Item 3.3.3 Backfill (gravel)

The trenches shall be filled over the pipes as specified on Drawing Number GMA 0930.34-1 Drainage Design with gravel over the pipe to a depth of 150 mm below final ground level. The gravel used shall be clean 2 – 6 mm chert / flint gravel. It shall not contain limestone chippings.

## Item 3.3.4 Backfill (Rootzone)

The trench shall then be filled level with the surface, compacted and topped up with British Sugar Sports and Turf rootzone.

Allowance should be made for two further topping up operations.

## Item 3.3.5 Reinstatement of drain runs

The drain runs shall be reinstated by overseeding with the same seed mix as used in Item 4.3 at a rate of 45 g m2. Prior to re-seeding the drain runs shall be fertilised with a 9:7:7 controlled release fertiliser at 30 g m2.

## Item 3.3.6 Arisings

Arisings shall be disposed of in the easement area as directed by the client.

***Item 3.4 Installation of 150 mm carrier drain (Drawing Number GMA 0930.34-1 Drainage Design)***

## Item 3.4.1 Trenching and pipe laying

The trench shall be cut at an even grade. The trench shall be evenly cut with space in the base such that pipes can be evenly laid. The pipe shall be 150 mm diameter twin wall solid pipe. The pipe shall comply with HPAS. The pipe shall be laid at the following approximate falls:

Point F (hydrobrake) at around 14.0m – Point G (headwall in stream) invert at around 13.9m

The pipe shall be securely caulked into the side of the hydrobrake chamber and the receiving chamber.

## Item 3.4.2 Connections

Pipes shall be joined using purpose-made, proprietary junctions. In no case shall pipes be let, unsecured into other pipes.

## Item 3.4.3 Backfill (gravel)

The trenches shall be filled over the pipes as specified on Drawing Number GMA 0930.34-1 Drainage Design with gravel over the pipe to a nominal depth of 200 mm below final ground level. The gravel used shall be clean 2 – 6 mm chert / flint gravel. It shall not contain limestone chippings.

## Item 3.4.4 Backfill (topsoil)

The trench shall then be filled level with the formation surface, compacted and topped up with site won topsoil. There should be no stones larger than 25 mm in the upper 50 mm of the topsoil backfilled drains.

Allowance should be made for two further topping up operations.

## Item 3.4.5 Reinstatement of drain runs

The drain runs shall be reinstated by overseeding with the same seed mix as used in Item 4.5 at a rate of 45 g m2. Prior to re-seeding the drain runs shall be fertilised with a 9:7:7 controlled release fertiliser at 30 g m2.

## Item 3.4.6 Arisings

Surplus arisings shall be disposed of in the easement area / borrow pit as directed by the client.

### Item 3.5 Inspection chambers

The inspection chambers shall be in accordance with the generic drawing on Drawing Number GMA 0930.34-1 Drainage Design with pipe inlets and outlets adjusted to the local depths. The pipes must be let into the chamber and sealed to prevent water leaking from around the sides by caulking the joint using waterproof or granolithic cement. The chambers shall be concrete and should be sectional precast either rectangular or circular and all precast components should comply to BS 5911-3:2002. Plastic chambers shall not be used.

The chambers shall be set on pre-cast slabs laid on 100 mm depth of dry mix concrete. In all cases the lid should be secured on a steel frame that is secured in concrete mix ST4 and comply with BS EN 124:1994 Class B125. In all cases the lids should be heavy enough to prevent casual lifting without keys.

The final finished level of the chamber lid and surrounds should be no less than 10 mm below the existing sward surface to allow mowing over the top of the chamber and no deeper than 20 mm such that a trip hazard is avoided.

The areas around each chamber must be reinstated using the same seed and fertiliser as detailed in Items 4.2 and 4.3 and meet the handover requirements as detailed in Item 7.

### Item 3.6 Headwalls

The 225 mm carrier drains must be let into suitable pre-cast concrete headwalls which shall be secured into detention basin sides. The headwalls should be large enough to securely sit within the surrounding land being able to resist flow scour during high flow flood events. The base of the headwalls shall be seated on a 100 mm thick bed of dry mix concrete.

The pipe shall be caulked into the headwalls to effect a water-tight seal using water-proof or granolithic cement.

The outflow headwall from the swale to the hydrobrake chamber shall be fitted with a trash guard to protect the pipe from blockage from debris.

### Item 3.7 Hydrobrake / restricted orifice chamber

A suitable pre-cast concrete hydrobrake or restricted orifice chamber fitted with a vortex type hydrobrake or restricted orifice device to limit peak flow to 5.1 l sec shall be installed as shown in Drawing Number GMA 0930.34-1. Plastic chambers shall not be used. The chamber should be installed in full accordance with the manufacturer’s instructions.

In all cases the lid should be secured on a steel frame that is secured in concrete mix ST4 and comply with BS EN 124:1994 Class B125. In all cases the lids should be heavy enough to prevent casual lifting without keys.

The final finished level of the chamber lid and surrounds should be no less than 10 mm below the existing sward surface to allow mowing over the top of the chamber and no deeper than 20 mm such that a trip hazard is avoided.

The areas around each chamber must be reinstated using the same seed and fertiliser as detailed in Items 4.2 and 4.3 and meet the handover requirements as detailed in Item 7.

### Item 3.8 Detention basin

A detention basin shall be constructed as shown in Drawing Number GMA 0930.34-1 Drainage Design sized to store 135 m3 of water (around 160 m3 of cut). The basin shall be created by excavating the ground to no deeper than 1.0m (once the topsoil has been replaced). The topsoil shall be stripped to a depth of 150 mm ahead of excavation and placed back over the excavated subsoil. The surface shall then be fertilised and seeded with the same grass seed as detailed in Item 4.3 at a rate of 45 g m2.

### Item 3.9 Installation of sand slits

Sand slits shall be installed using a Koro Top-Drain or similar machine, spaced at 0.5 mm centres and cut to a depth of no less than 250 mm as shown in Drawing Number GMA 0930.34-1 Drainage Design. The grooves should be backfilled with the following sand:

* The same sand as used in the lateral drains or coarser.
* The sand should have a minimum infiltration rate of 300 mm hr when at maximum compaction.
* The sand material shall have a minimum 15% air-filled porosity when tested at 20 cm tension and maximum compaction.

# Item 4.0 Supply and spread certified, specified, sand with seeding and reinstatement

### Item 4.1 Sand supply and spread

The surface shall be checked and any debris or stones over 25 mm in size shall be removed. Sports sand complying to the following specification shall be supplied and spread over the formation layer sufficient to ensure there is a minimum of 5 mm cover over any part of the surface. The sand shall be:

* A sub-rounded silica sports sand.
* The sand should have a minimum infiltration rate of 300 mm hr when at maximum compaction.
* The sand shall have a minimum 15% air-filled porosity when tested at 20 cm tension and maximum compaction.
* It should be the same material as that used in the sand grooves.

The sand shall be spread evenly with no point having less than 5 mm depth over it. The sand shall be spread such that it runs evenly onto surrounding boundaries leaving no step or change in levels between existing boundaries and the development area greater than 5 mm under a 3 m straight edge. The final surface shall be level such that there is no deviation greater than 25mm under a 2 m straight edge anywhere on the development area.

### Item 4.2 Pre-seeding fertiliser

Ahead of seeding the area should be fertilised with a suitable pre-seeding fertiliser at the manufacturers recommended rate. This should be applied evenly over the area.

### Item 4.3 Seeding

The area shall be drilled in three directions using a suitable high-quality dwarf ryegrass seed mix designed for winter sports pitches. This should include high ranking cultivars for wear tolerance and sward density. The overall seeding rate should be 45 g m2. The contractor should send details of the seed to be used ahead of the works commencing for approval by the CA. The seed mix shall have a germination certification of over 95% and certified purity of not less than 98%.

### Item 4.4 Loosening and decompaction works

The surface should be loosened by decompaction using a tine-type machine such as a Vertidrain or Terra Spike or similar. This should be done as deeply as possible, with heave and carried out slowly to maximise heave and decompaction.

# Item 5.0 Easement area

### Item 5.1 Easement

The arisings shall be placed in an easement which shall be placed on an area agreed with the client with the topsoil stripped off first and placed back over the arisings post infilling. The likely total arisings from these works are estimated to be approximately 1000 m3.

# Item 6.0 Temporary irrigation

### Item 6.1 Supply and use temporary irrigation

If water supply allows, supply and use a temporary irrigation system to establish grass on the drained area.

# Item 7.0 Maintenance and minimum standards necessary for handover

**Allow to maintain for 6 months post practical completion though if the pitch meets handover requirements before this time it can be handed over as soon as those requirements are met, with the item sum adjusted accordingly.**

The contractor shall maintain the surface until handover is expected. At the point of handover, the pitch shall comply with the following minimum performance quality standards as measured at 6 points within each pitch:

|  |  |
| --- | --- |
| **Criteria** | **Basic Value** |
| Length of sward | 25 - 40mm |
| Bare area | Max. 10% |
| Total ground cover | Min. 90% |
| Desirable grass species | Min. 95% |
| Annual Meadow Grass content | Max. 5% |
| Weeds | Max. 5% |
| Root depth | Min. 100 mm |
| Thatch depth | Max. 5 mm |
| Infiltration rate | Min. 5 mm / hr |
| Evenness using a 2m straight edge | Not in excess of 20mm |
| Hardness | Between 35 and 200 g measured with a 2.5 kg Clegg Hammer |
| Stone content | No stone larger than 25 mm in any dimension in the upper 50 mm |

As a minimum this shall allow for enough cuts to maintain the grass between 30 and 40 mm through the grow in. It shall also allow for 2 controlled release fertilisation applications (autumn and spring plus any additional applications the contractor may feel necessary). Sufficient selective herbicide applications to meet the handover standard should also be allowed, at least 2 decompaction operations, one of which should be linear aeration, and any other operations the contractor requires to meet the handover requirements.

# Completion / O and M

At completion, the contractor shall provide a complete set of as-built drawings to the client in both PDF and DWG format. In addition, the contractor shall supply a detailed Operation and Maintenance plan for the works carried out.

1. **Schedule of rates**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Description** | **Unit** | **Number** | **£/unit** | **Cost (£)** |
| 1.0 | Mobilisation, security fencing and setting out | Item | 1.00 |  |  |
| 1.0 | Services search | Item | 1.00 |  |  |
| **2.0** | **Site clearance and preparation** |  |  |  |  |
| 2.1 | Clear scrub around outfall | Item | 1.00 |  |  |
| **3.0** | **Installation of drains** |  |  |  |  |
| 3.1 | Supply and install 160 mm collector drain including backfill at 600 mm nominal depth | Lin. m | 142.00 |  |  |
| 3.2 | Supply and install 225 mm carrier drain | Lin. m | 36.00 |  |  |
| 3.3 | Supply and install 80 mm lateral drains including backfill at 500 mm nominal depth at 6m centres | Lin. m | 3,389.00 |  |  |
| 3.4 | Supply and install 150 mm solid carrier drain | Lin. m | 67.00 |  |  |
| 3.5 | Supply and install pre-cast inspection chamber Class B ductile lid (600 x 450 and 1.0m deep) | No | 1.00 |  |  |
| 3.6 | Supply and install precast GRC / pre-cast headwalls and install in basin sides and river side | No | 3.00 |  |  |
| 3.7 | Supply and install a hydrobrake / restricted orifice chamber restricted to 5.1 l sec | No | 1.00 |  |  |
| 3.8 | Excavate and shape a detention basin of approx 135 m3 (160 m3 cut) | No | 1.00 |  |  |
| 3.9 | Install sand slits at 0.5m centres and 250 mm deep. | m2 | 19,996.00 |  |  |
| 3.1-3.4 | Drain junctions | No | 45.00 |  |  |
| **4.0** | **Agronomic works** |  |  |  |  |
| 4.1 | Supply and spread 5 mm depth specified sand material | t | 180.00 |  |  |
| 4.2 | Supply and apply specified fertiliser | m2 | 19,996.00 |  |  |
| 4.3 | Supply and drill specified seed | m2 | 19,996.00 |  |  |
| 4.4 | Decompaction and loosening works | m2 | 19,996.00 |  |  |
| **5.0** | **Easement** |  |  |  |  |
| 6.1 | Strip topsoil to temporary pile | m3 | 180.00 |  |  |
| 6.2 | Place arisings | m3 | 1,000.00 |  |  |
| 6.3 | Replace topsoil | m3 | 180.00 |  |  |
| 8.4 | Reinstatement including fertilisation and seeding | m2 | 1,200.00 |  |  |
| **6.0** | **Temporary irrigation** |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 6.1 | Supply and use temporary irrigation to establish grass cover | Item | 1.00 |  |  |
| **7.0** | **Maintenance to handover** |  |  |  |  |
| 7 | Maintain to achieve minimum standard at handover | Item | 1.00 |  |  |
| **8.0** | **Completion** |  |  |  |  |
| 8 | As built plans | Item | 1.00 |  |  |
| **Sub total** | | | | |  |
| **10% contingency** | | | | |  |
| **Total cost of contract** | | | | |  |