

FLOOD RISK ASSESSMENT

Extension to existing equine sand arena

AT

**HAM POLO CLUB, PETERSHAM ROAD, PETERSHAM,
RICHMOND TW10 7AH**

July 2021

Ark Environmental Consultancy Ltd

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If this report has been released electronically, the appendices referred to herein can be found in the annexed zip folder/s as .pdf or .dwg files. If this report has been released in hard copy the appendices will be bound into the back of this report. Plans may be annexed separately as A1 or A0 copies where a bound-in A3 copy is not appropriate.

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1.0 Scope

This report contains the details of a flood risk assessment statement for planning carried out by Ark Environmental Consulting Limited (“ARK Ltd”) for HAM POLO CLUB, PETERSHAM ROAD, PETERSHAM, RICHMOND TW10 7AH, henceforth referred to as “the site” in this report.

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2.0 Introduction

The information source used to undertake this FRA & SUDS / Drainage Strategy has been collected from the following sources:

- British Geological Survey Website;
- EA Website;
- Richmond Strategic Flood Risk Assessment 2021
- DRAIN LONDON Preliminary (Surface Water) Flood Risk Assessment for London Borough of Richmond. (GLA & Environment Agency, June 2011)
- Internet mapping and searches

3.0 Existing Site Status and Environmental Setting

3.1 Site Location and Flood Status

The planning application boundary is c. 0.3ha (3,000m²) in total

The survey site is centred on National Grid Reference TQ 1734 7316. The survey site consists of an equestrian sand arena with timber fencing and approx. 2000m² of improved grass with boundary trees.

The site is wholly in EA FZ3 (with climate change, not FZ2) downstream of the Teddington Lock and hence is in the Tidal reach.

It is also likely within the functional floodplain.

The site is in 100% EA NO risk for surface water flooding.

The area of actual works is in NO hazard in all the EA scenarios.

The site is relatively flat; a full topographic survey is not required based on the nature of the scheme given no comparison of flood heights vs a structure is required for a surface treatment and fenceline in a Tidal flood setting. No flood compensation is required in the tidal zones.

The existing layout is also provided in Appendix A.

3.2 Flood Defence Line & Functional Floodplain

As per the EA mapping, the western boundaries of the site are indicated as being a flood defence line.

In this location the defence line is not a formal hard engineered wall or embankment.

The scheme will have no impact on the defence line.

The scheme is in an extension of a wooden fence line and an extension of the sand surfaced area.

It is not necessary to confirm the exact extents of the 1in100year+NEWcc or the functional floodplain.

This type of scheme would be classified as Water Compatible and this is appropriate in TIDAL Flood Zones 1, 2 and 3 in NPPF terms without the need to pass the Exception Test.

No detailed assessment of the EA's up to date data is required given the type of scheme; these data would not further inform the assessment or the designs and would not alter the recommendations of this report.

3.3 Geology & SPZ's

Based on BGS mapping, surrounding borehole records and the council SFRA, the site is underlain by:

Bedrock: London Clay

Superficial deposits: Langley Silt Member - Clay And Silt

- These strata are not water bearing
- The site is not within a Source Protection Zone

Strata and Flood Risk:

As part of this scheme, there will be no groundwater body displaced and hence there will be no increased risk of flooding from the scheme from groundwater to surrounding areas.

3.4 Existing Drainage

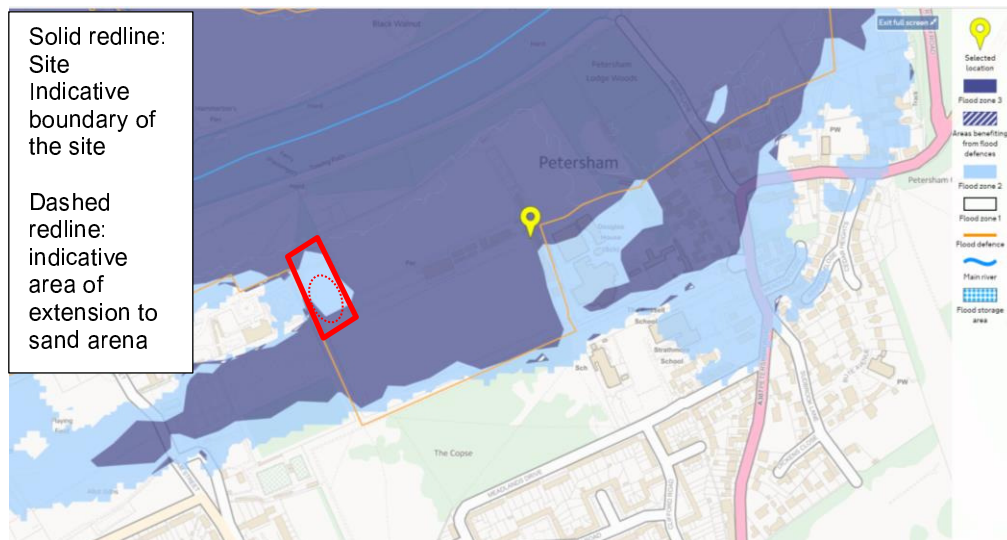
Public sewer records have not been sourced from Thames Water, however, the site is a vacant field and there are no sewers recorded on the site.

There is no evidence of any existing SUDS. The site currently discharges 100% unattenuated by a combination of natural on site interception from vegetation and soil infiltration and via existing informal field boundaries.

The scheme is for a porous re-surfacing and fencing; no SUDS or drainage strategy are required.

3.5 Summary of other Flood Risks Posed to and From Site and Scheme

Flood Sources	Site Status	Comment on flood risk posed to / from the development
Artificial Sources	Site is within EA general Reservoir Flood Warning area No other artificial sources with likely flood flowpaths that could reach the site	Low Risk
Surface Water / Sewer Flooding	Site is not located in a Critical Drainage Area Condition, depth and location of surrounding infrastructure uncertain EA 2020 surface water flood mapping indicates the whole site is in EA NO hazard for all EA risk scenarios	No additional specific design responses required for re-surfacing or fencing Low Risk
Climate Change	Included in the flood modelling extents 40% used in the SUDS storage calculations	Development will manage the peak flow and volume of discharge from the site Low risk posed to and from the development

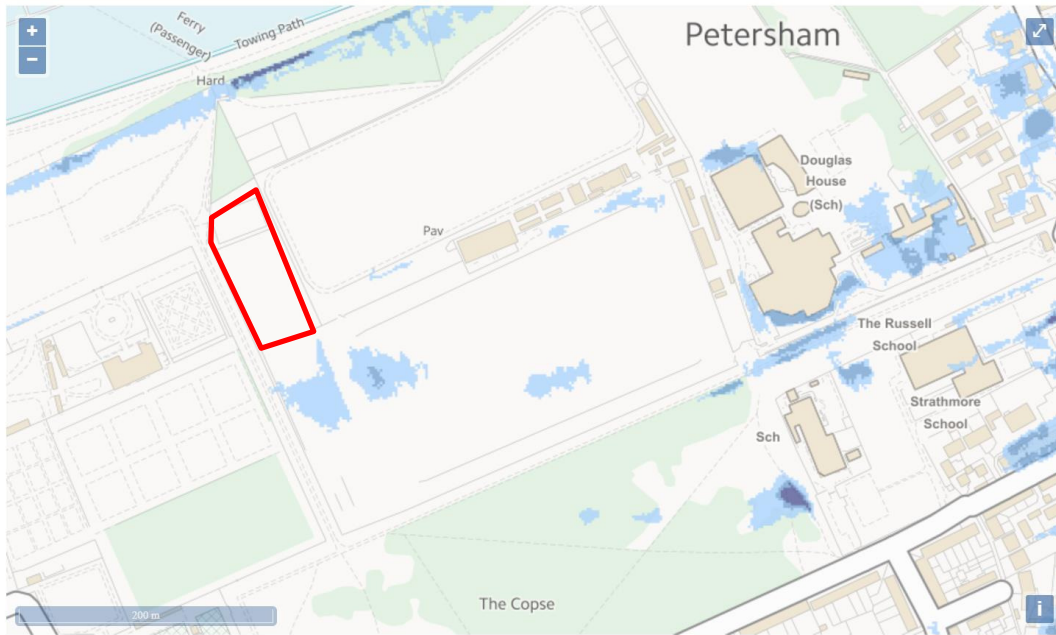


Flood risk

Extent of flooding

Location

TW10 7AH



Extent of flooding from surface water

● High ● Medium ● Low ○ Very low ⊕ Location you selected

4.0 Assessment of Proposed Development

4.1 Proposed Development

The proposed development (Appendix B) comprises:

- Extend existing wooden fencing and sand surfaced area
- Retained all as porous
- **The fencing will not have an impact on the defence line to the west of the site area**
- Fully flood resilient as far as is feasible as all materials are designed to be outdoors / open to the elements

Potential EA concern over status of structures during a flood:

The structures are of a specification that would allow free movement of water.

The nature of the tidal flooding at the site would be gradual given it is not in an area protected by defences (it is within the defence line).

4.2 Flood compensation: EA Letters from other applications at the site

The site is within the principal Tidal flooding extents.

No like for like or volume for flood compensation is required because there is no flood compensation required for tidal settings.

There is no requirement to further quantify any volumes as no assessment of flood compensation is required in accordance with EA guidance for tidal settings.

Following EA guidance, despite what the EA's letter has stated, there should be no objections with regards flood compensation.

5.0 Summary

Fully flood resilient.

No increase in impermeable areas.

Water compatible in Flood Zone 1, 2 or 3 is appropriate in NPPF terms without the need for the Exception Test to be passed.

No detailed assessment of the EA's up to date data are required given the type of scheme; these data would not further inform the assessment or the designs and would not alter the recommendations of this report.

No flood compensation is required in the tidal flood setting.

Based on the likely flooding risk, it is considered that the proposed development can be constructed and operated safely in flood risk terms, without increasing flood risk elsewhere and is therefore appropriate development in accordance with the NPPF/PPG.

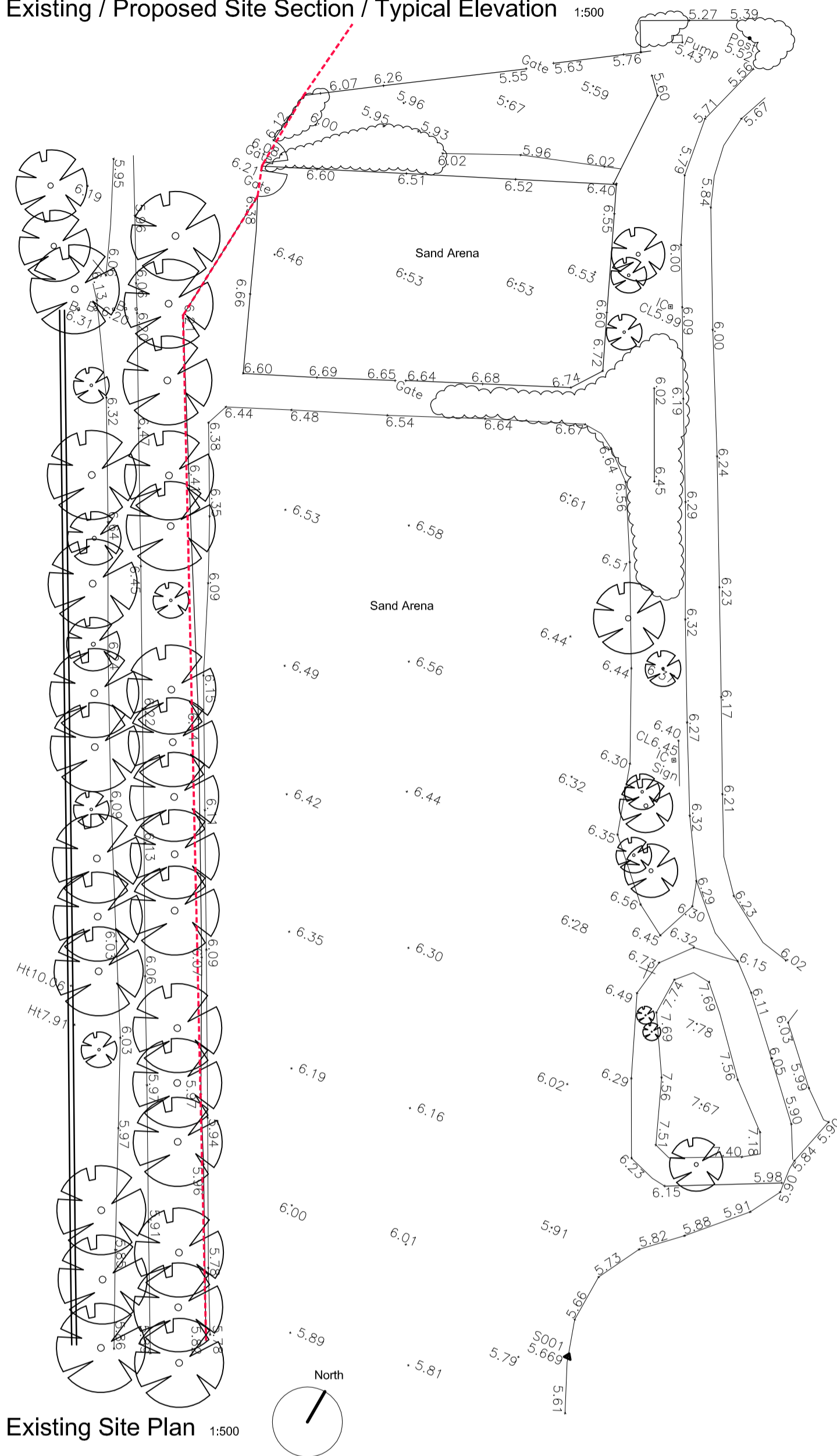
APPENDICES

APPENDIX A

APPENDIX B

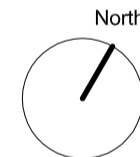
Red dashed line denotes 1800mm high arena perimeter fence to be removed
 Blue dashed line denotes existing ground level. Finished level of sand arena calculated to ensure zero loss of flood storage capacity
 Hatched area denotes existing sand arena perimeter fence to be removed
 New Hedgerow planting to foreground not shown for clarity

1. Existing / Proposed Site Section / Typical Elevation 1:500

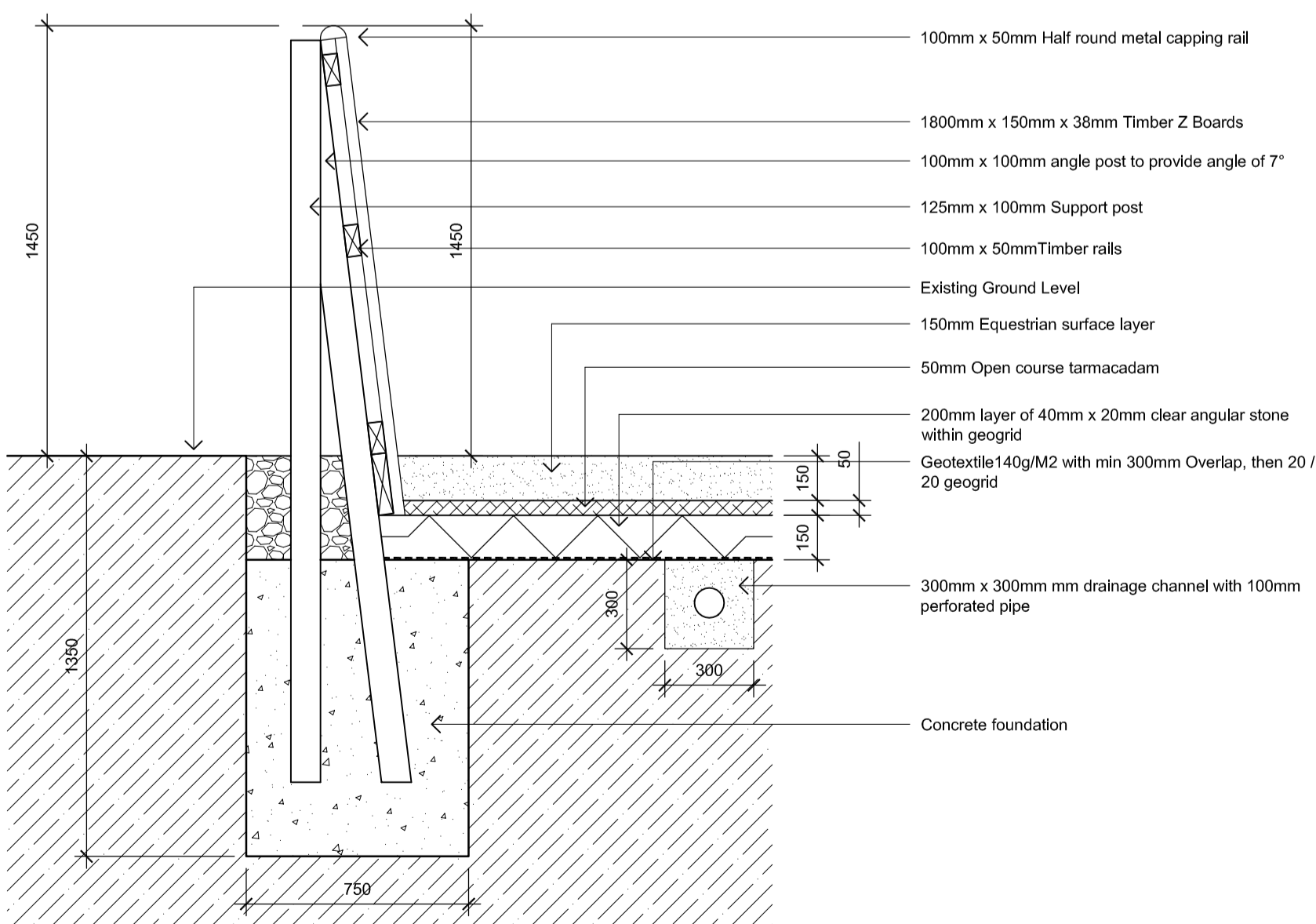
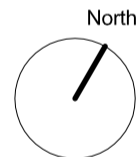


- New area of permeable grasscrete to arena entrances, to ensure consistency of surface for access all year round and to avoid injuries to horses.
- Existing arena fence removed
- Existing 5 bar metal gate to be retained
- Existing 5 bar timber gate to be removed, and new timber fence infill to match existing adjacent boundary fence
- Access gates at either end to double up as goats once closed
- Existing arena fence removed
- All existing trees to Melancholy walk to be protected throughout the duration of the works, see accompanying arboricultural method statement for details
- Thick red dashed line denotes site boundary
- New planted hedgerow to landscape architects specification
- Existing foliage removed
- Existing trees removed as shown, replacement planting to landscape architects design
- Finished ground level of sand arena as per section/elevation shown above in detail 1, to ensure no net increase in ground level to maintain flood storage capacity
- Levels shown in red denote proposed new levels.
- Dashed lines denote drainage channels with 100mm perforated pipe, to attenuate storm water, and to soakaway beneath the playing surface. Located for away from root protection areas of existing trees, to avoid damage to roots.
- New planted hedgerow to landscape architects specification
- Proposed replacement and enlargement of existing sand arena, with new surface, new drainage and new perimeter timber fence
- Levels shown in red denote proposed new levels.
- Access gates at either end to double up as goats once closed
- New area of permeable grasscrete to arena entrances, to ensure consistency of surface for access all year round and to avoid injuries to horses.
- Thick red dashed line denotes site boundary

2. Existing Site Plan 1:500



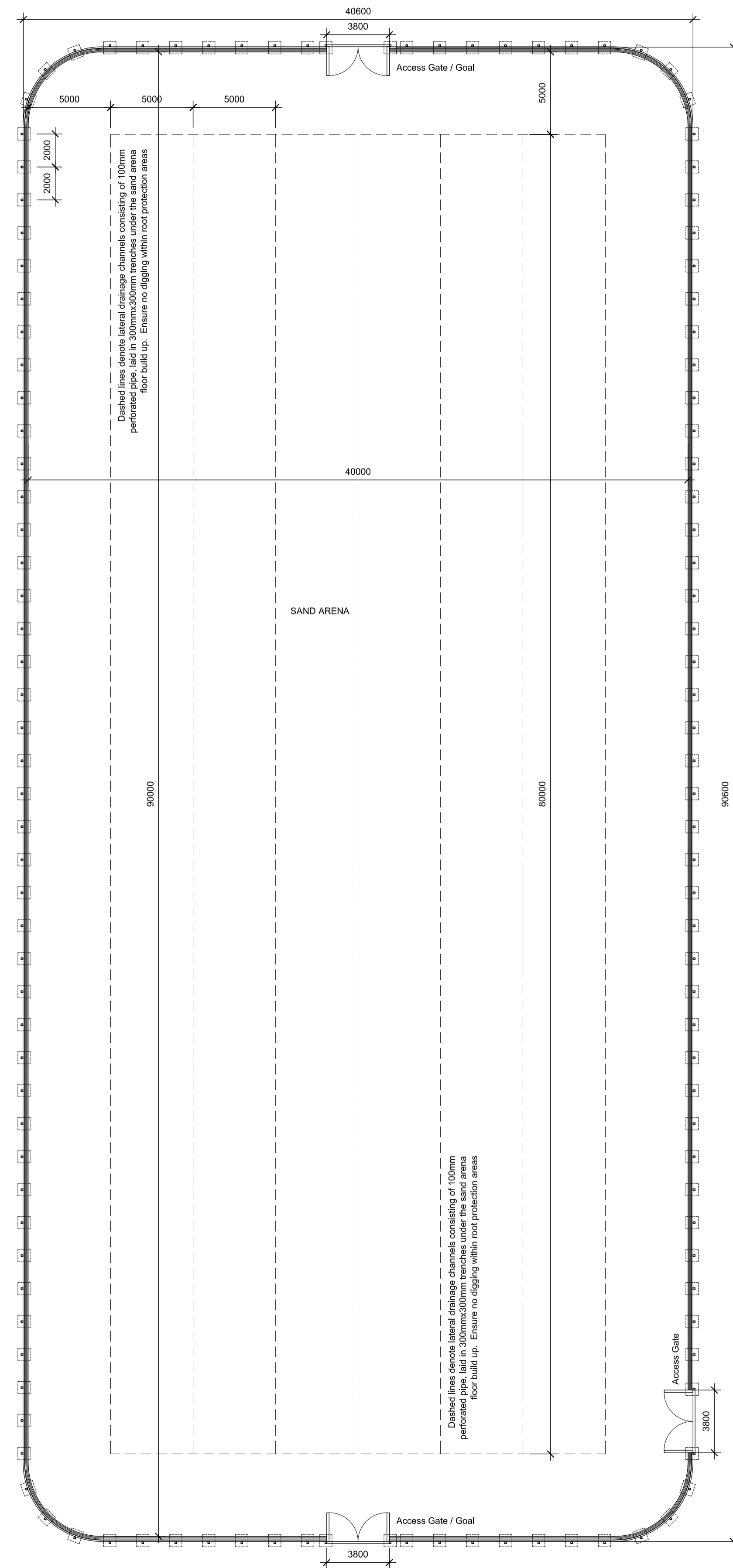
3. Proposed Site Plan 1:500



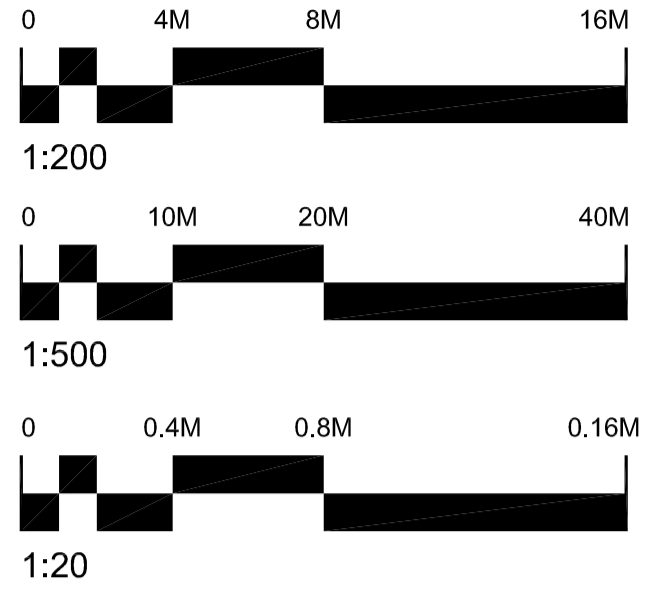
4. Fence / Arena Floor Detail 1:20

- 100mm x 50mm Half round metal capping rail
- 1800mm x 150mm x 38mm Timber Z Boards
- 100mm x 100mm angle post to provide angle of 7°
- 125mm x 100mm Support post
- 100mm x 50mm Timber rails
- Existing Ground Level
- 150mm Equestrian surface layer
- 50mm Open course tarmacadam
- 200mm layer of 40mm x 20mm clear angular stone within geogrid
- Geotextile 140g/M2 with min 300mm Overlap, then 20/20 geogrid
- 300mm x 300mm mm drainage channel with 100mm perforated pipe
- Concrete foundation

5. Proposed Arena Plan 1:200



1. All boundaries, dimensions and levels are to be checked on site before construction and any discrepancies are to be reported to the Architect. 2. Drawings may be scaled from for planning purposes. 3. Drawings not supplied in paper format by Will Aust Architecture may not be to the scale indicated in the size box. 4. This drawing is copyright and may not be reproduced or used for any purpose other than that intended without the prior written agreement of the Architect. 5. Any parts of the drawing based on Ordnance Survey maps are executed with the sanction of the controller of H.M. Stationery Office - Crown Copyright Reserved.



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PLANNING