

Whitehaven Rugby Club - Car Park Extension

Summary Report to the Extension of Whitehaven RUFC Car Park

Whitehaven Playground Association

19th March 2021

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Client signoff

Client	Whitehaven Playground Association on behalf of WRUFC/WCC
Project	Whitehaven Rugby Club - Car Park Extension
Job number	5164639
Client signature/date	

Executive Summary

This report presents and details three options for the extension to the car park at Whitehaven Rugby Union Football Club and Whitehaven Cricket Club. The recommended option is “70° Parking 1” as the preferred layout based on the Client’s requirements (see Figure 1-1 - Option 1 – 70° Parking 1 (see Appendix A1 for larger sketch)). This option presents a central bin of 70° bay parking with additional spaces as appropriate, meeting the required capacity of 50 No. parking bays exactly.

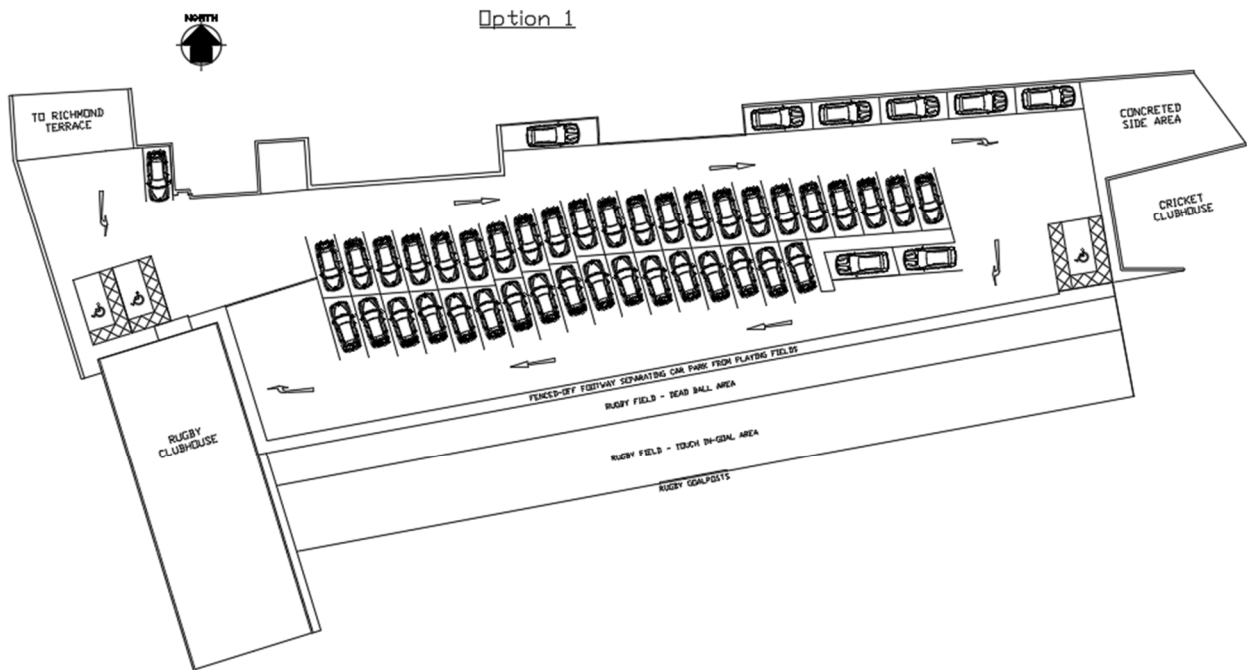


Figure 1-1 - Option 1 – 70° Parking 1 (see Appendix A1 for larger sketch)

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References

[1] J. Hill, *Car Park Designers' Handbook*, London: Thomas Telford Publishing, 2005.

1. Introduction

This report has been produced to develop three car park layout options based on the space available at Whitehaven Rugby Union Football Club and Whitehaven Cricket Club, and the client's own requirements. Three options will be provided for the client at the end of this document, while one will be recommended out of the three options and the end of this document.

2. Background

The Client has specified an extension of the existing car park that serves the recreation grounds and clubhouses of both Whitehaven RUFC and Whitehaven Cricket Club (Whitehaven CC).

The site is located just south of Whitehaven town centre, down a residential street named Richmond Terrace. Parking beyond this terrace is on private land, limited to permission on behalf of the two sports clubs. The current car park is bound to the north by private housing and a public road; to the south by playing fields; to the east by the cricket clubhouse and yard; and to the west by the rugby clubhouse and an Iceland superstore.

The current car park layout mainly comprises a single bin of perpendicular bays with limited manoeuvring room (see Figure 2-1 and Figure 2-2). Five further parallel parking bays are situated to the site's north-eastern edge, with other paved areas to the site's east and west being variously hatched and used regularly by vehicles in more informal arrangements.

Weekday parking permits are issued by Whitehaven Playground Association (WPA), existing hatched areas are for casual parking by members of each club. The new arrangement will allow 4 bays to be allocated for Whitehaven RUFC parkers keeping the area North of the Rugby Clubhouse clear for Brewery/Waste Collection vehicle access and 1 disabled parking bay. On weekend match days, the new arrangement will ease congestion.

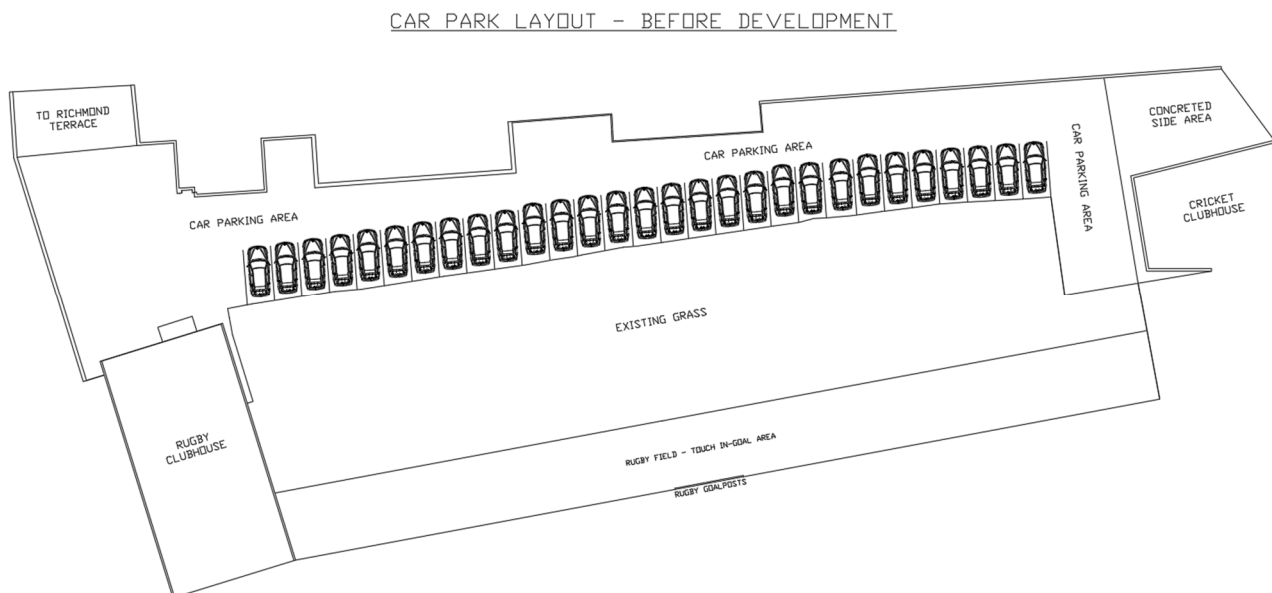


Figure 2-1 - Car park - existing layout, drafted (see Appendix A2 for larger sketch)

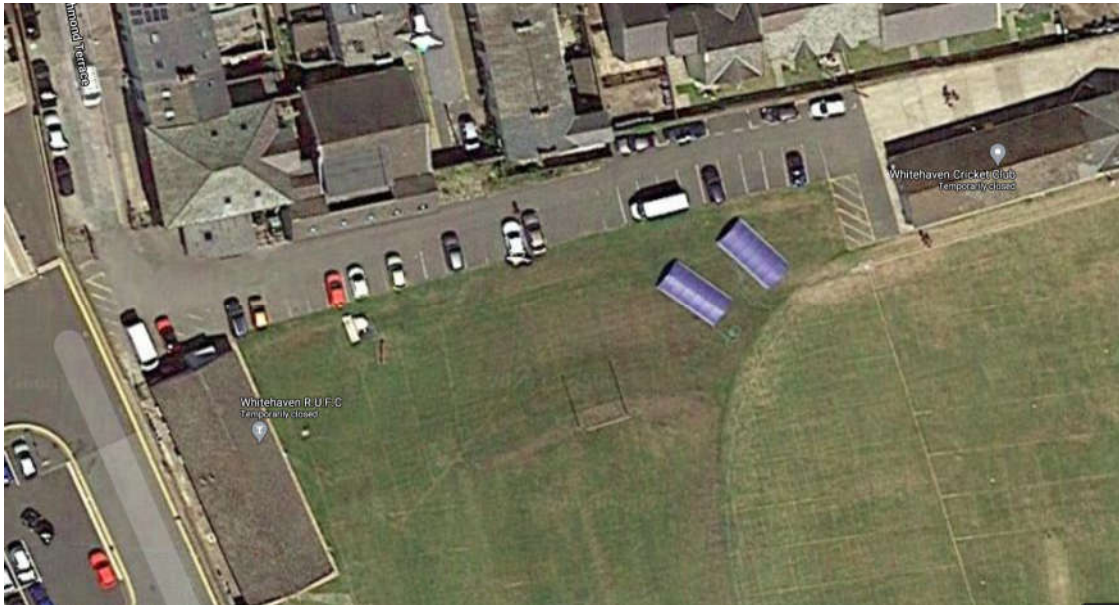


Figure 2-2 - Car park - existing layout, satellite view (Google Maps)

3. Client Requirements

There are a few requirements to be fulfilled as per client request. Atkins will incorporate these requirements into all the design layout options shown later in this document. The requirements of the works are stated as follows:

- An extension of the existing car park to a minimum total of 50 No. parking bays, with 3 No. disabled spaces to be provided in keeping with Car Park Designers' Handbook [1]
- Direction of traffic is to be one-way by design;
- A forward parking system is to be designed;
- Suitable fencing is to be installed separating the car park from the playing fields, at least 3m from the rugby pitch's dead ball line.

Reprofiling of the car park and an updated drainage system are not in consideration at current stage. These will be further clarified in detail design phase of this project.

4. Design Assumptions and Site Limitations

All the design layout options share the same design assumptions, site constraint and limitations. Design assumptions as follows:

- All vehicles using the car park are assumed to fully observe the car park markings and signage, e.g. one-way system, parking bays according to size, give way junction and disabled bays.
- Pedestrians are to navigate car park at their own risk and direction, keeping where possible to the footway on the southern border
- Car park must be accessible for a certain range of vehicles (See Appendix A4), including Standard Design Vehicles (SDVs), mini-buses, emergency services and refuse vehicles.

Site constraint and limitation is as follows:

- Large bus or similar scale vehicle (e.g. Plaxton Panther) are not accessible due to spatial constraints that prohibit a turning radius above 8.5m.
- The space available for the car park expansion extends to a limit of 3m from the existing rugby pitch. No development encroaches onto the rugby pitch closer than 3m from its existing dead ball line (see Appendix A3 for indication of available area).
- Pitch layout must not be moved or rotated.
- There is a small refueling compound to the northwest of the site.
- To the north of the cricket clubhouse is a concrete-paved yard, which is not considered to be within the car parking envelope.

5. General Design Details/Decisions

Based on the outlined design requirements and constraints/limitations, the following have been applied across all the considered car park layout options.

- The standard parking bays are a minimum of 4.8m long by 2.4m wide [1].
- Disabled parking bays have additional 1.2m width either side.
- Parallel parking bays are a minimum 6m long.
- One-way system employed on all layouts to minimise lane width.
- Disabled parking bays are located close to both clubhouses.
- A 1.1m wide footpath is provided adjacent to the dead ball line of the rugby pitch to provide safe pedestrian access between clubhouses.
- The overall width of the carpark is maximised without encroaching on the rugby pitch, this provides a minimum width of 19m from the North to South boundaries of the car park.
- Vehicle movements within the proposed car park layouts have been assessed using Autodesk Autotrack Software, for the swept path analysis see Appendix A4.
- Maintenance access to the pitch will be from the east corner of the carpark adjacent to the cricket club and disabled parking bay.

The different car park layouts that follow the above design decisions are outlined below with advantages and disadvantages of each one. These are based on the swept path analysis to form the basis of a preferred car park layout.

5.1. Option 1 – 70° Parking 1

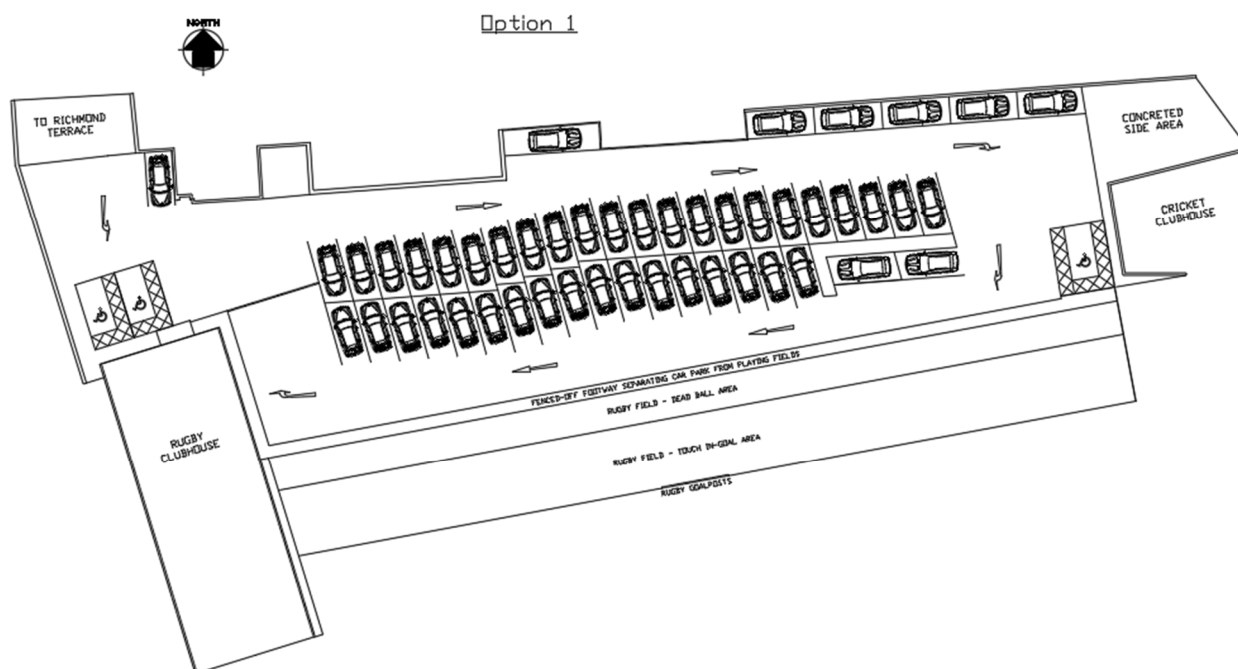


Figure 5-1 - Option 1 – 70° Parking 1 (see Appendix A1 for larger sketch)

Option 1 (Figure 5-1) has a central bin comprising 41 No. stalls of mostly 70° bay parking. 50 No. parking spaces is achieved through an additional 3 No. disabled parking bays on far corners of site connected by footways; 1 No. existing perpendicular bay by the entrance of the site; and 5 No. parallel parking bays to the northeast of the site.

5.1.1. Option 1 Advantages

- 70° parking allows for manoeuvring on narrower aisles.[1]
- Wider gangway/buffer area at east of site to ease manoeuvrability of larger vehicles. (as shown in Appendix A5).
- Safe walking lane/footway has been provided at the east of the central bin.
- Consistent aisle width, generally of 4–5m berth.

5.1.2. Option 1 Disadvantages

- Minimum width of 3.7m on southern aisle more difficult for tracking and parking (refer Appendix A4).
- Minimum width of 4.8m at ingress/egress two-lane intersection (as showed in Appendix A5).
- Requires more manoeuvring for the parking bay located at the bottom southwest corner, but still achievable (refer to Appendix A4).

5.2. Option 2 – 70° Parking 2

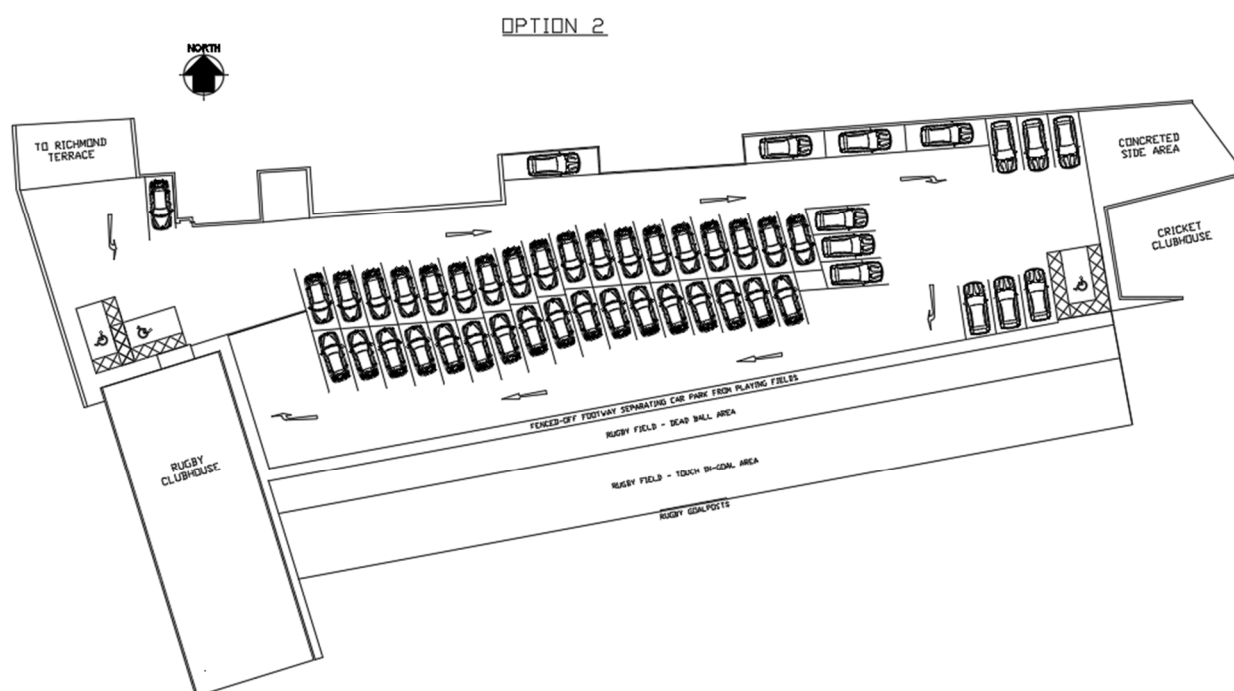


Figure 5-2 - Option 2 – 70° Parking 2 (see Appendix A1 for larger sketch)

Option 2 (Figure 5-2) has a central bin comprising 37 No. stalls of mostly 70° bay parking, situated slightly eastward in relation to Option 1. A perpendicular parking arrangement to the east of the site helps it reach the 50 No. capacity, comprising 2 × 3 No. perpendicular bays at its eastern edges and 3 No. of the existing parallel parking bays. Disabled parking and the existing perpendicular bay at the northwest of the site are as in Option 1.

5.2.1. Option 2 Advantages

- 70° parking allows for manoeuvring on narrower aisles. [1]
- Larger aisle width of over 6m at access/egress two lane intersection (as showed in Appendix A5).
- Longer parallel parking bays to assist manoeuvrability.

5.2.2. Option 2 Disadvantages

- Minimum southern aisle width of 3.5m more difficult for tracking and parking (refer Appendix A4).
- Parking bays located beside disabled bay at east of the site require complex vehicle manoeuvring.
- Perpendicular parking at east of site restricts access to concreted area.
- Requires more manoeuvring for the parking bay located at the bottom southwest corner, but still achievable (refer Appendix A4).

5.3. Option 3 – Perpendicular Parking

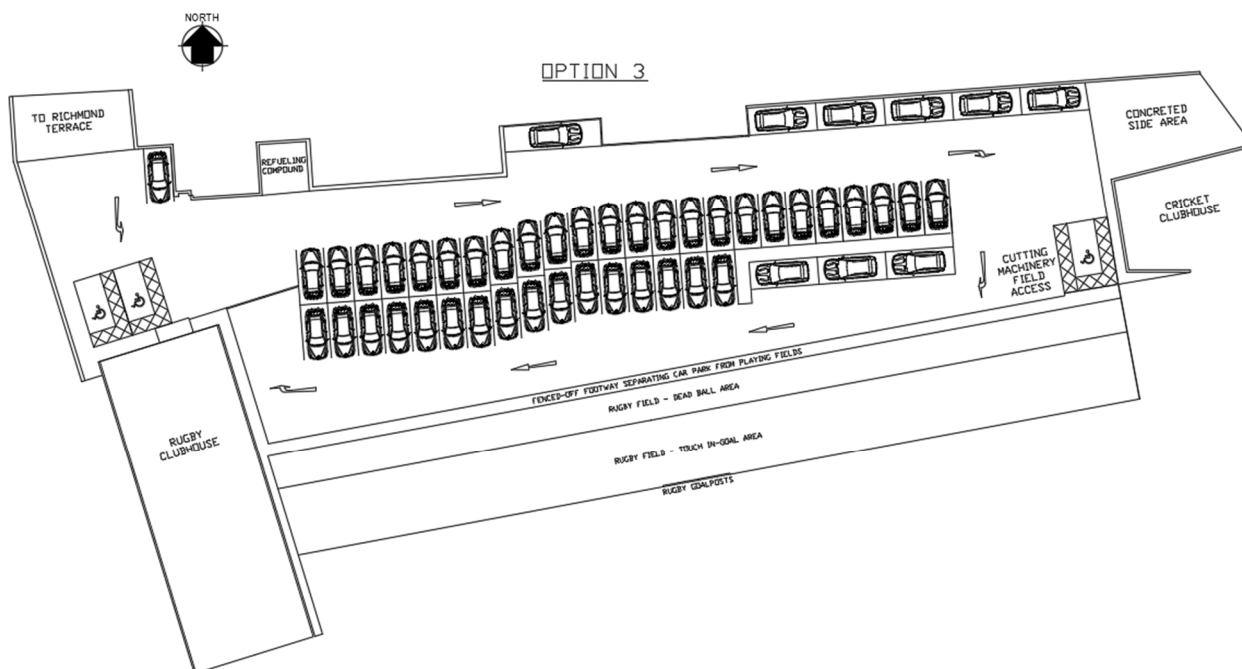


Figure 5-3 - Option 3 – Perpendicular Parking (see Appendix A1 for larger sketch)

Option 3 (Figure 5-3) has a central bin comprising 43 No. stalls of mostly perpendicular bay parking. 52 No. parking spaces is achieved through an additional 3 No. disabled parking bays on far corners of site connected by footways; 1 No. existing perpendicular bay by the entrance of the site; and 5 No. parallel parking bays to the northeast of the site.

5.3.1. Option 3 Advantages

- Safe gangway/buffer area at east of site for turning (refer Appendix A4).
- Perpendicular parking more spatially efficient, giving 52 No. spaces.
- Safe walking lane/footway has been provided at the east of the central bin.
- Less manoeuvring required for parking bay located at bottom southwest corner compared to Option 1&2 (refer to Appendix A4).

5.3.2. Option 3 Disadvantages

- Perpendicular parking requires more space for manoeuvring, according to the Car Park Designer's Handbook [1].
- Minimum aisle width of 3.6m on southern aisle more difficult for tracking and parking (refer Appendix A4).
- Minimum width of 4.8m at ingress/egress two-lane intersection (as showed in Appendix A5).

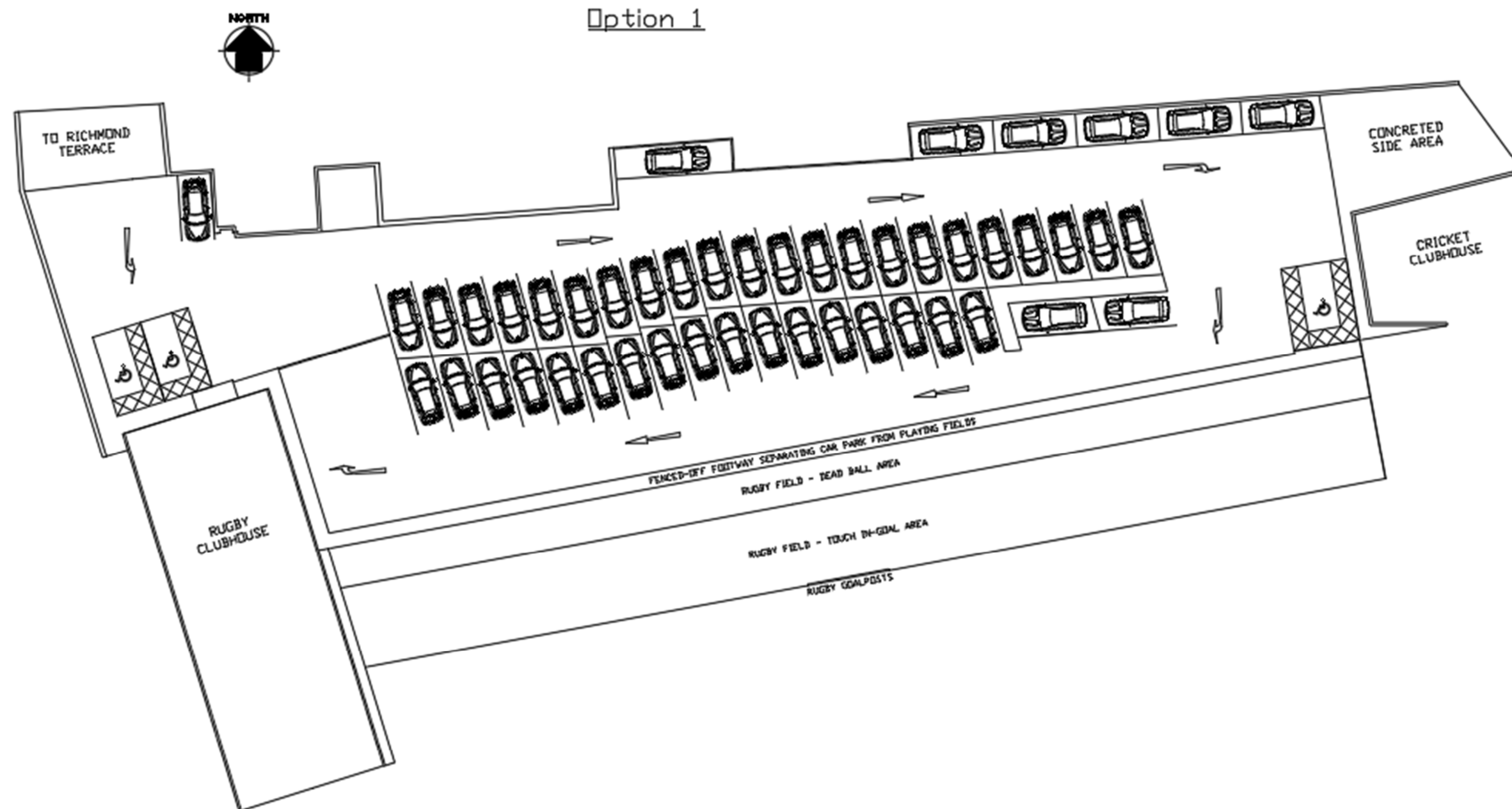
6. Conclusions

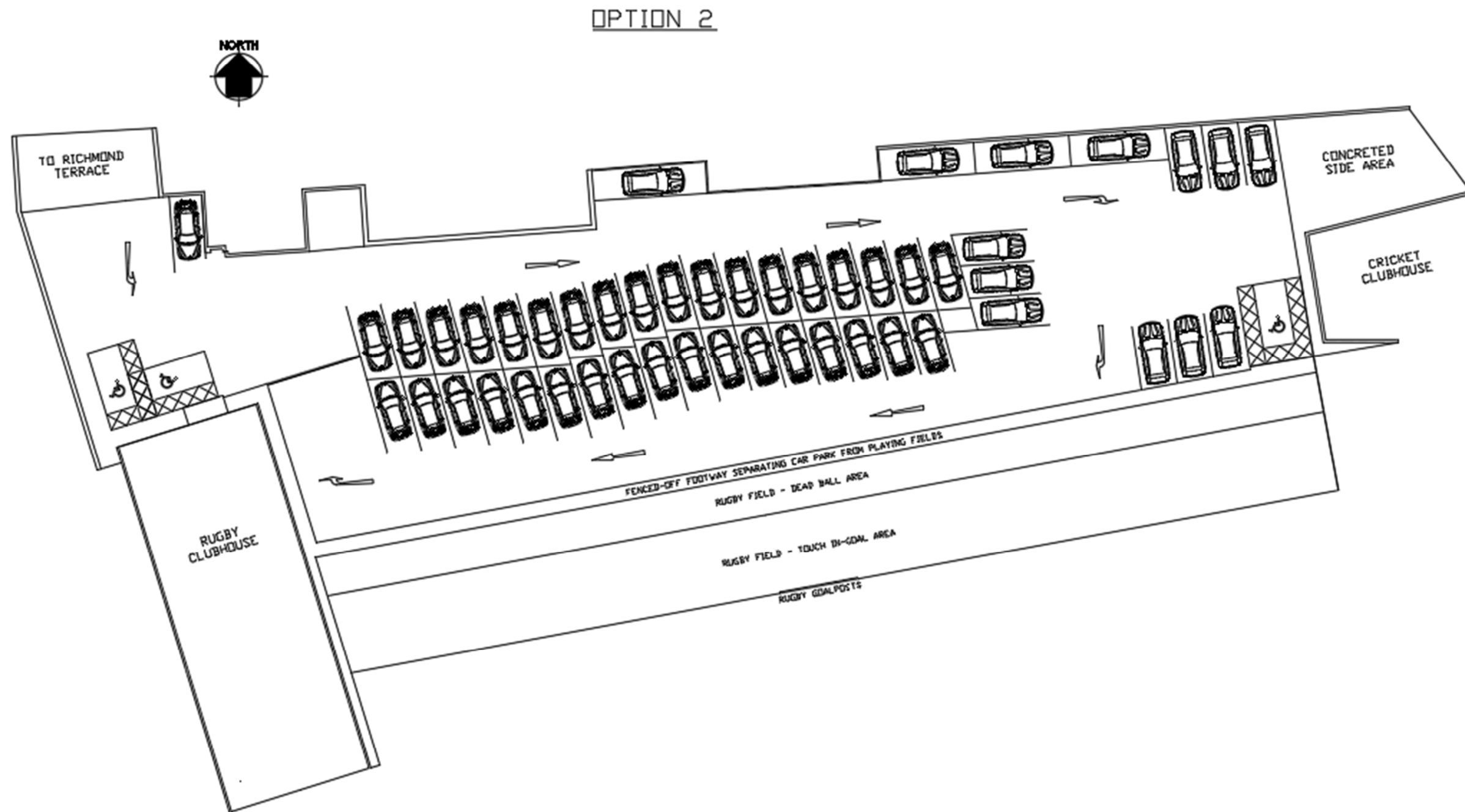
It is recommended that “70° Parking 1” is taken forward as the design for the car park, based on the following:

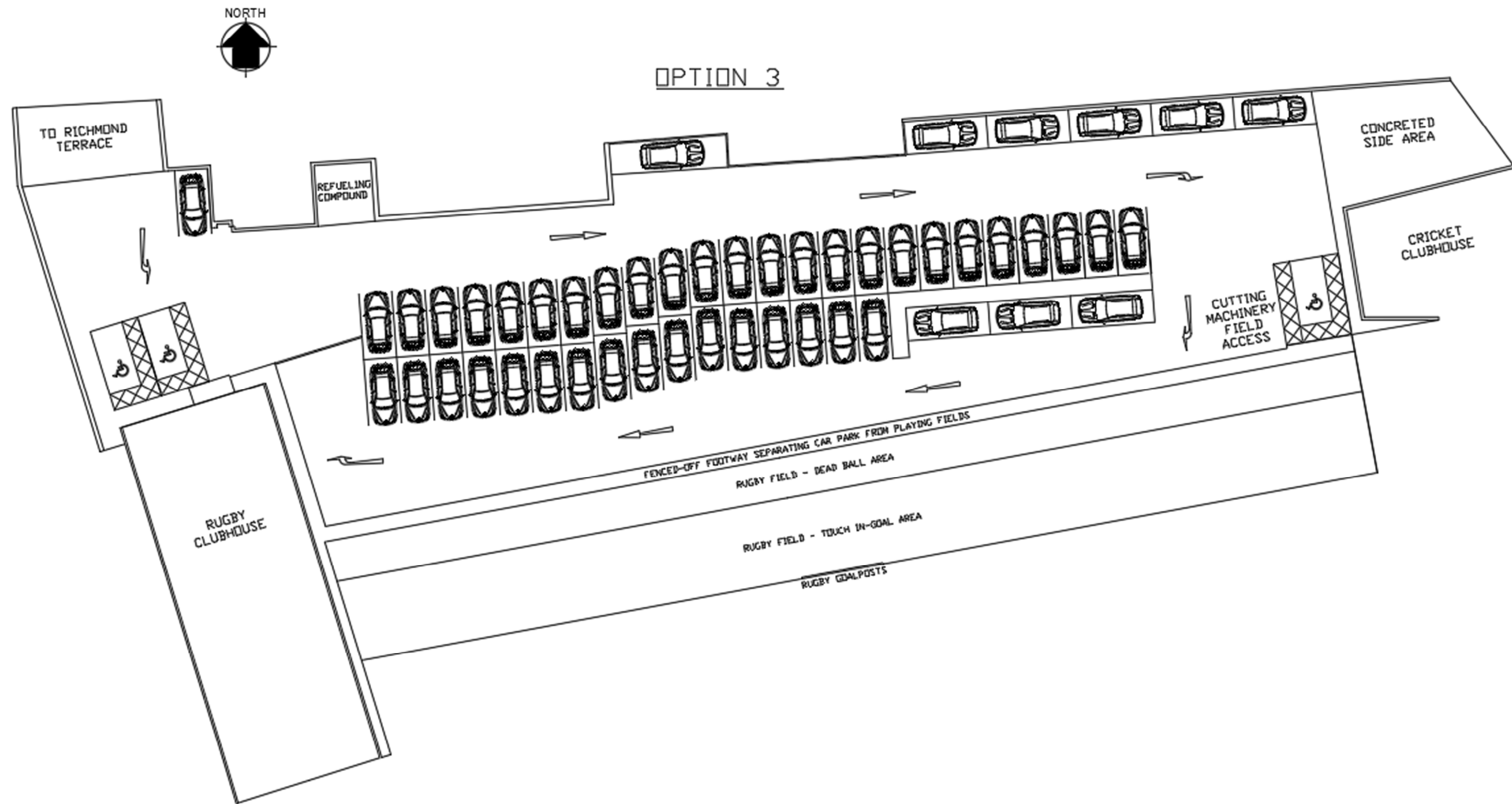
- 50 No. parking spaces have been met;
- The overall layout is simple, therefore less complicated to negotiate, minimising risk;
- There is a safe gangway/buffer area to the east of the site for better vehicle manoeuvrability;
- Aisle widths are relatively consistent, at 4–5m, and are less narrow, aiding manoeuvrability.

Appendix

A.1. Car Park Layout Options

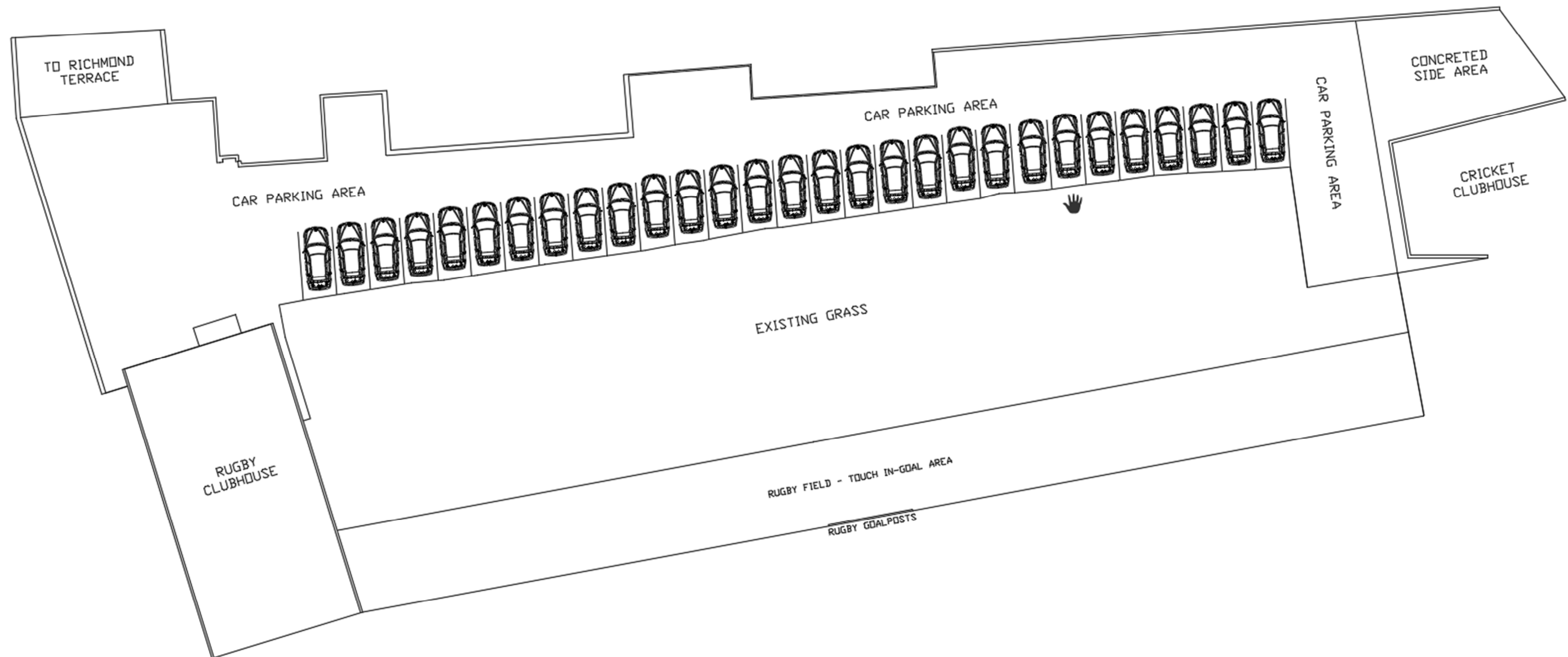






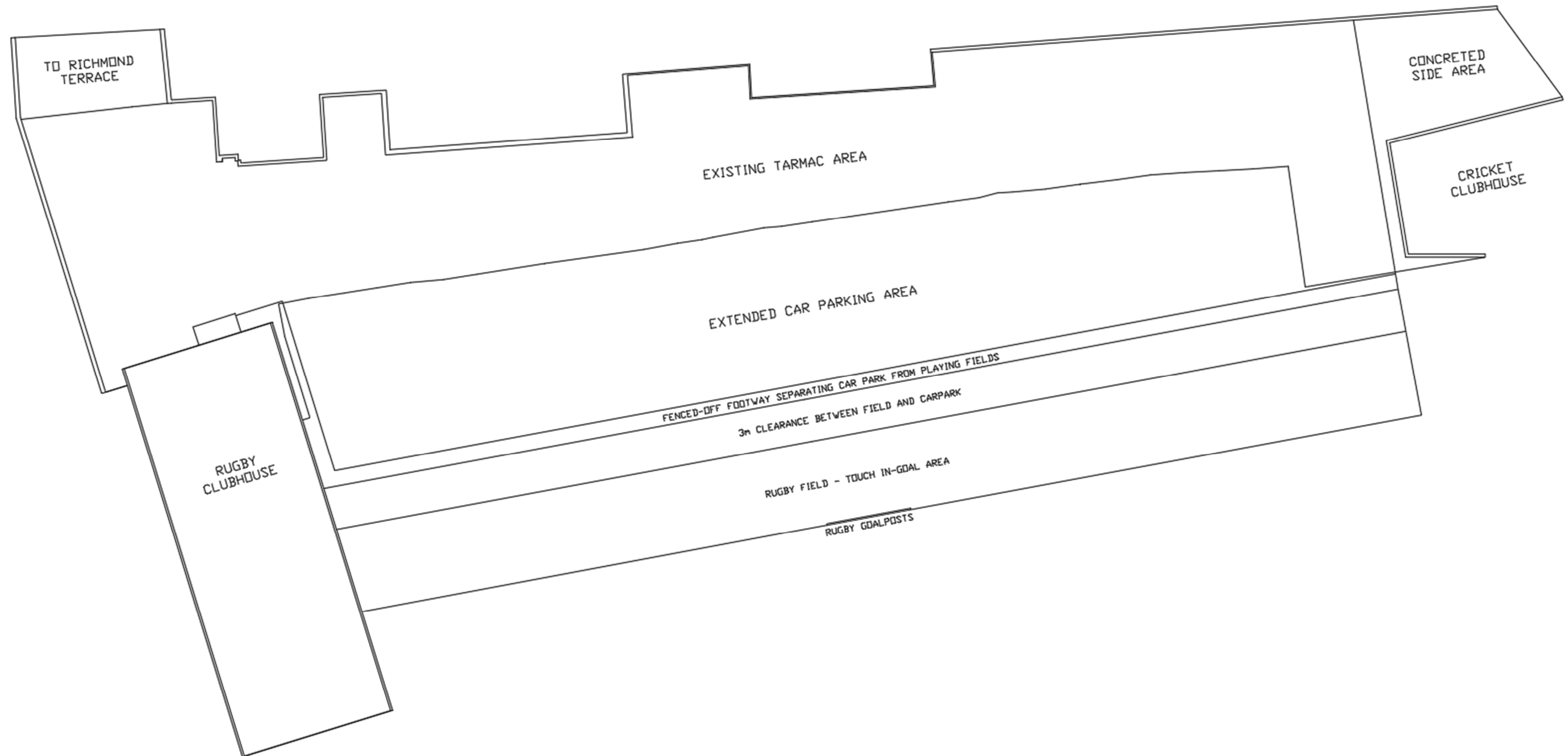
A.2. Existing Car Parking Envelope

CAR PARK LAYOUT - BEFORE DEVELOPMENT



A.3. Overall Expanded Car Parking Envelope

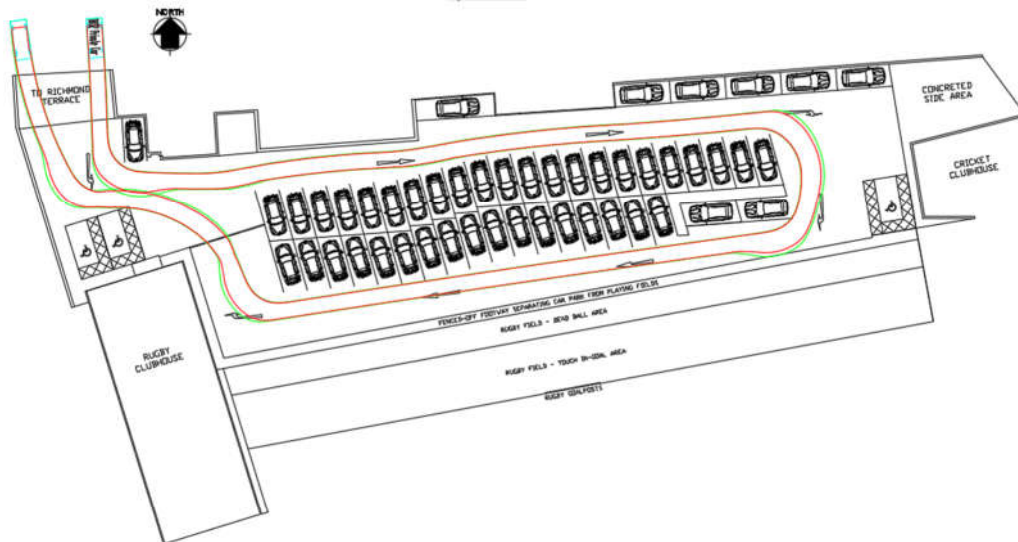
CAR PARK LAYOUT - AFTER DEVELOPMENT



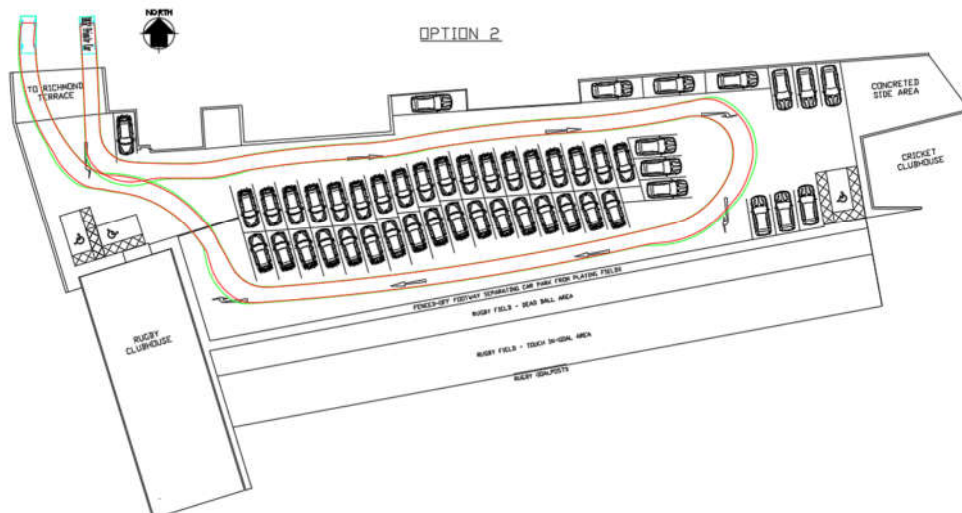
A.4. Vehicle Tracking and Parking

DB32 Private Car

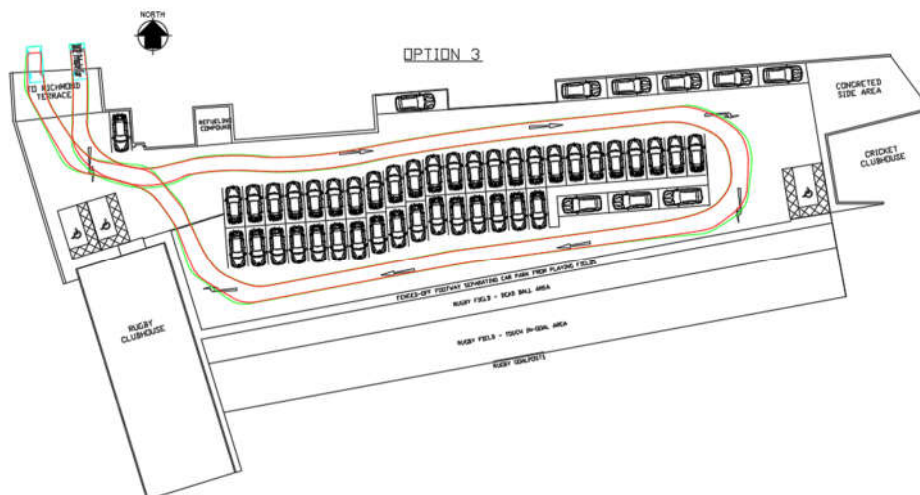
Option 1



OPTION 2

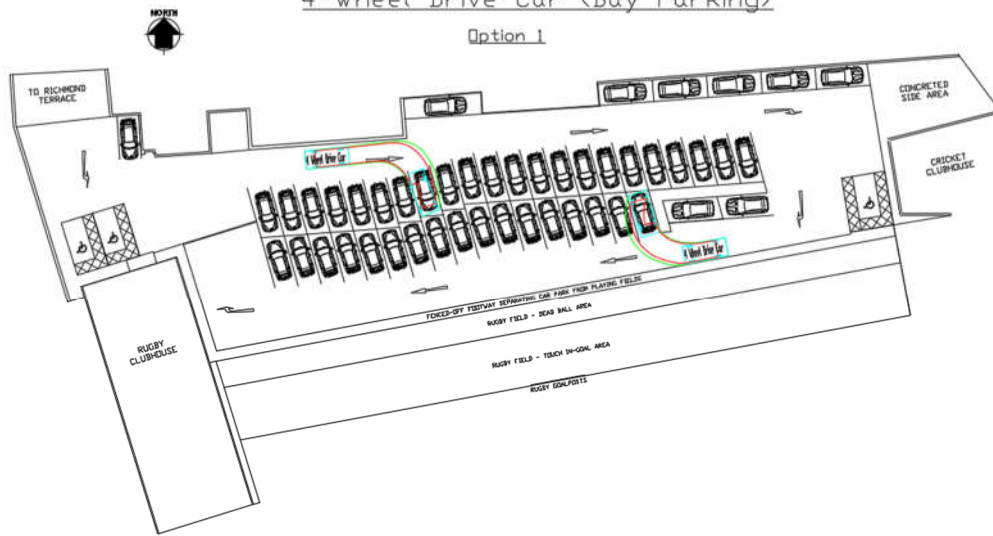


OPTION 3

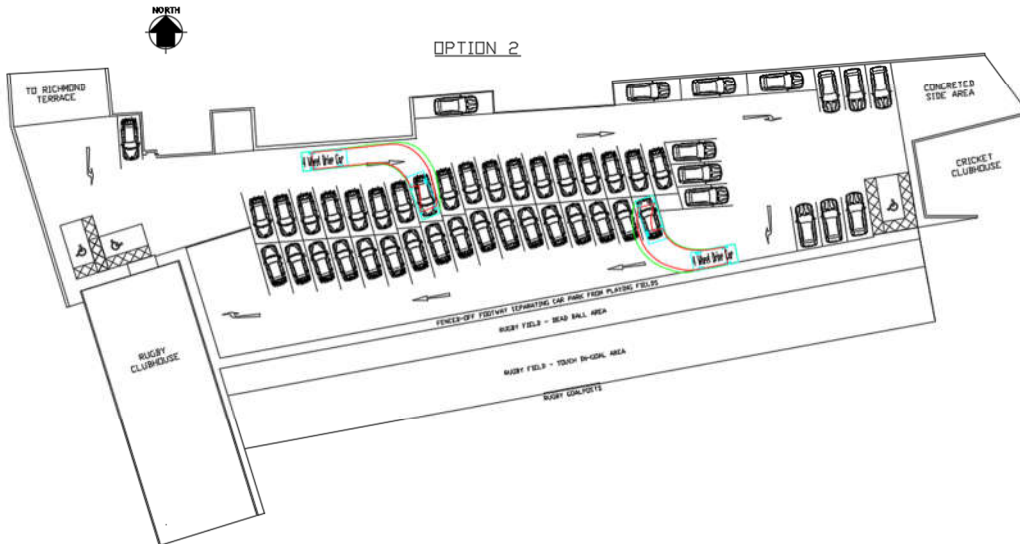


4-Wheel Drive Car (Bay Parking)

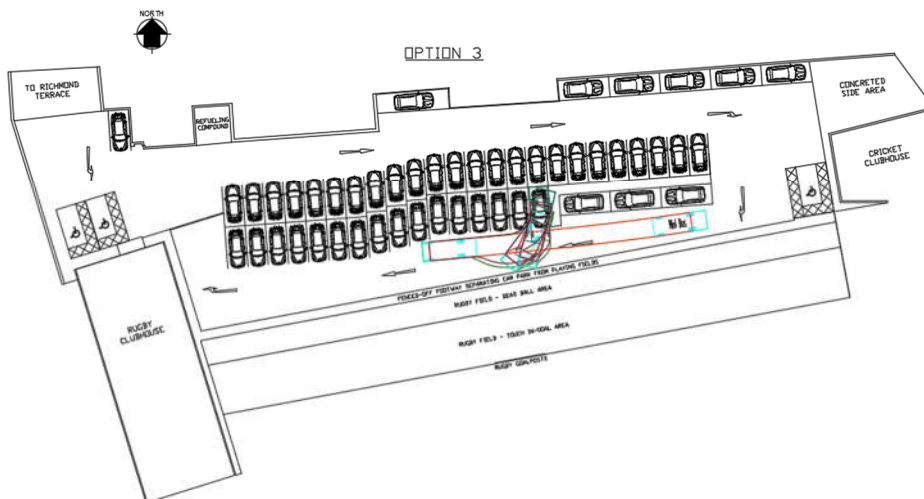
Option 1



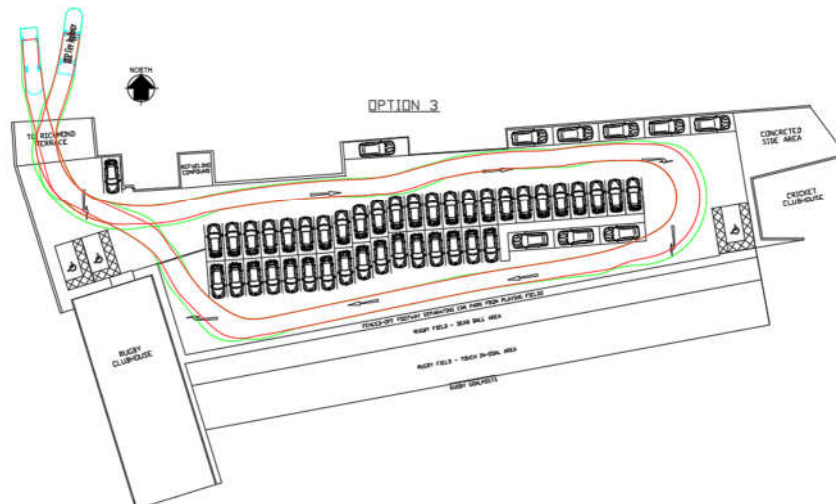
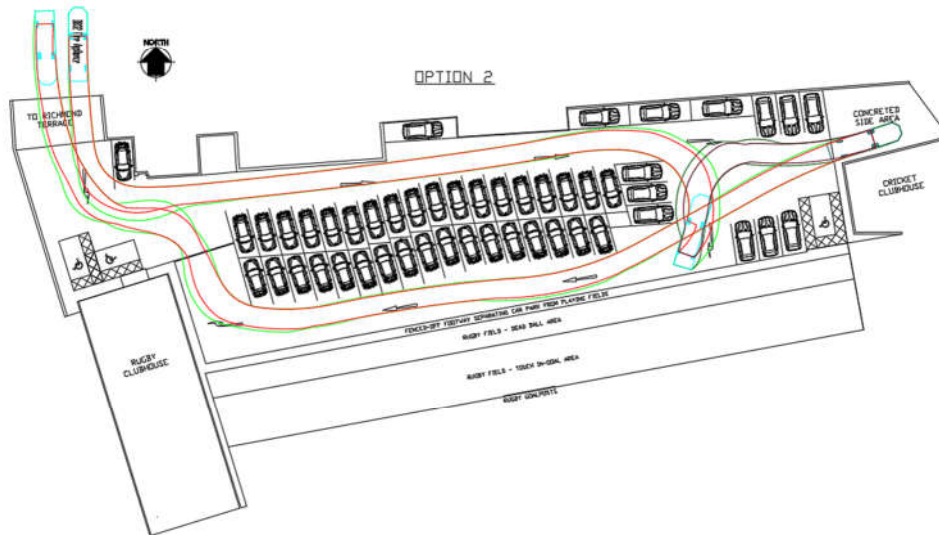
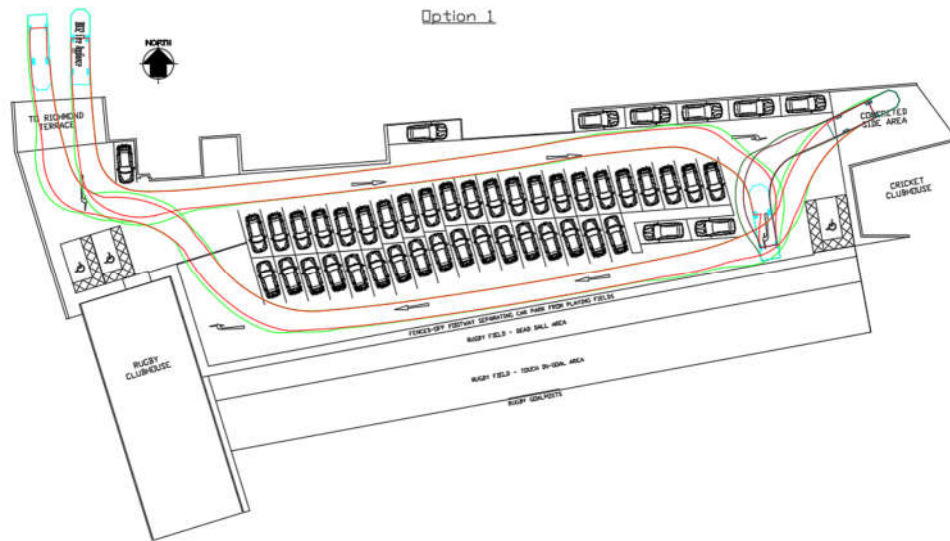
OPTION 2



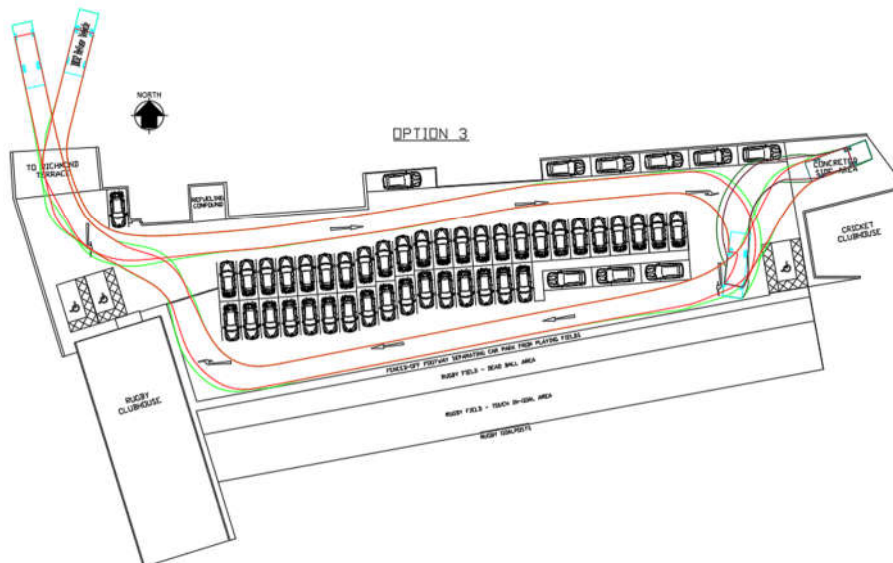
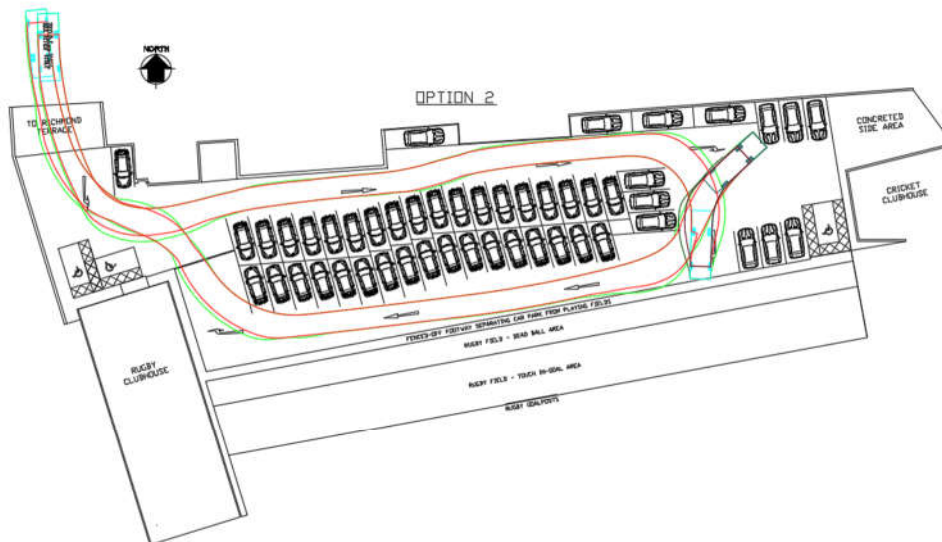
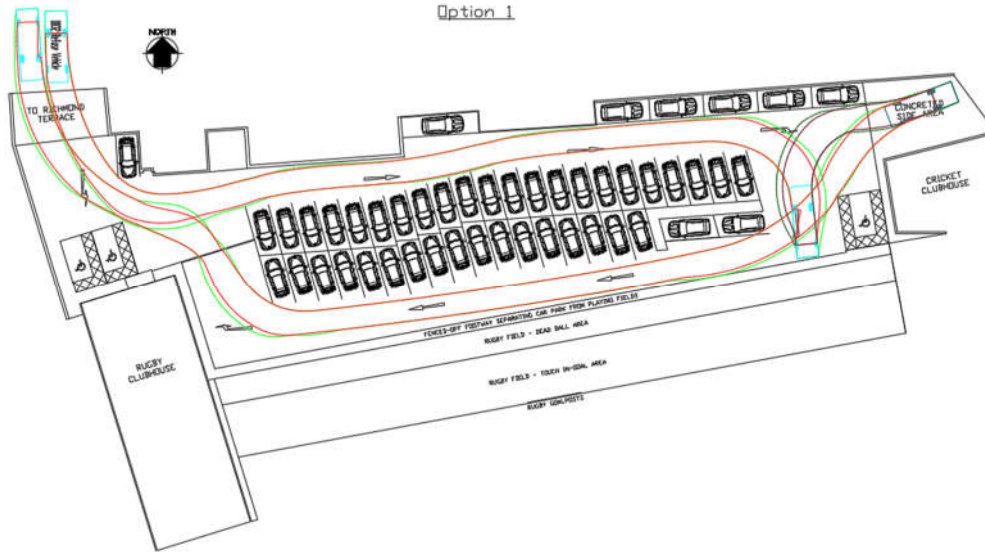
OPTION 3



DB32 Fire Appliance

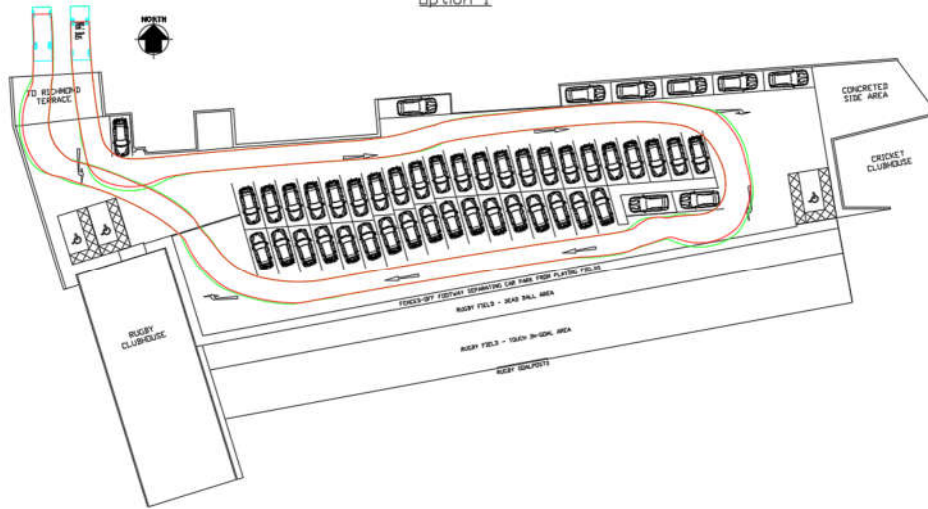


Option 1

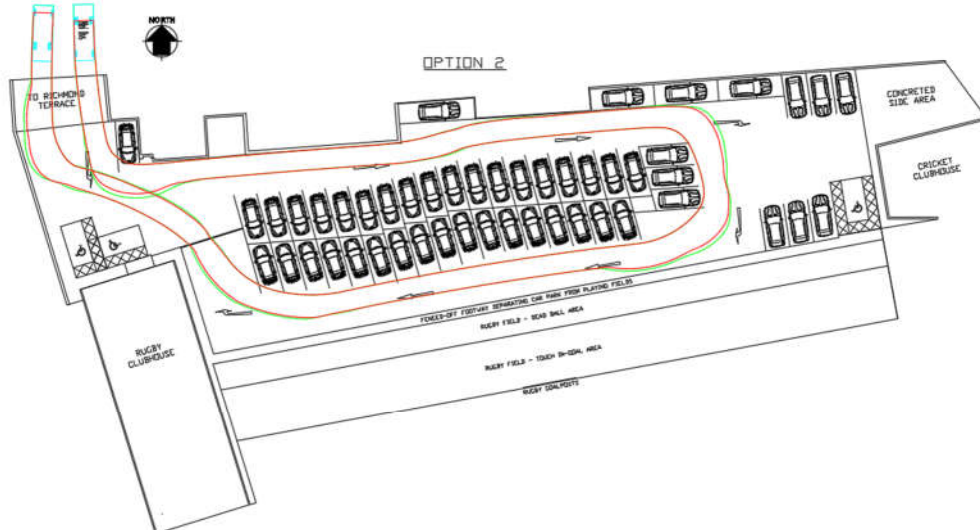


Mini Bus (Europe)

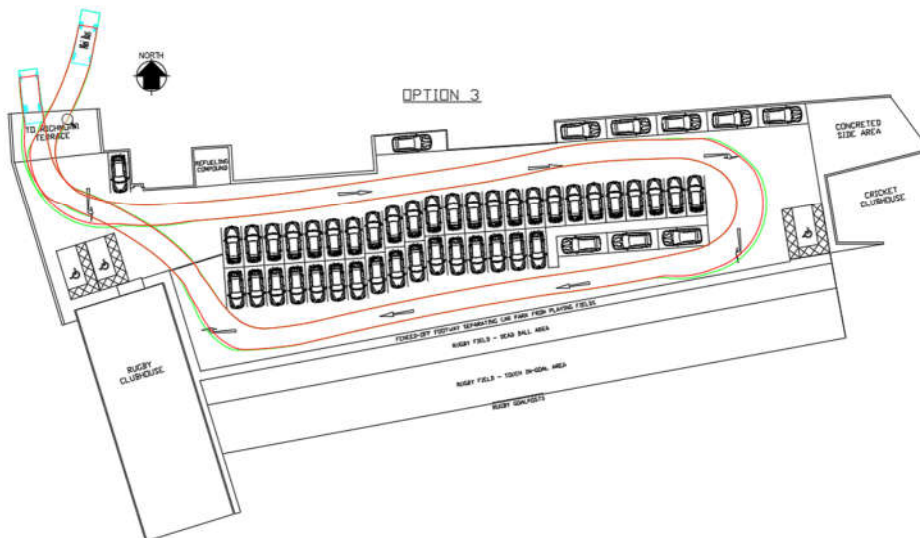
Option 1



OPTION 2

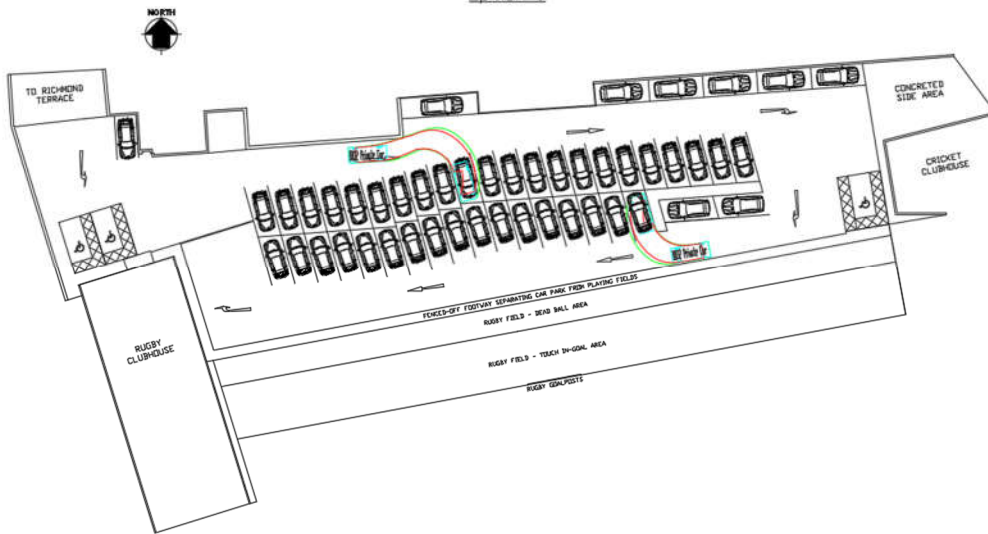


OPTION 3

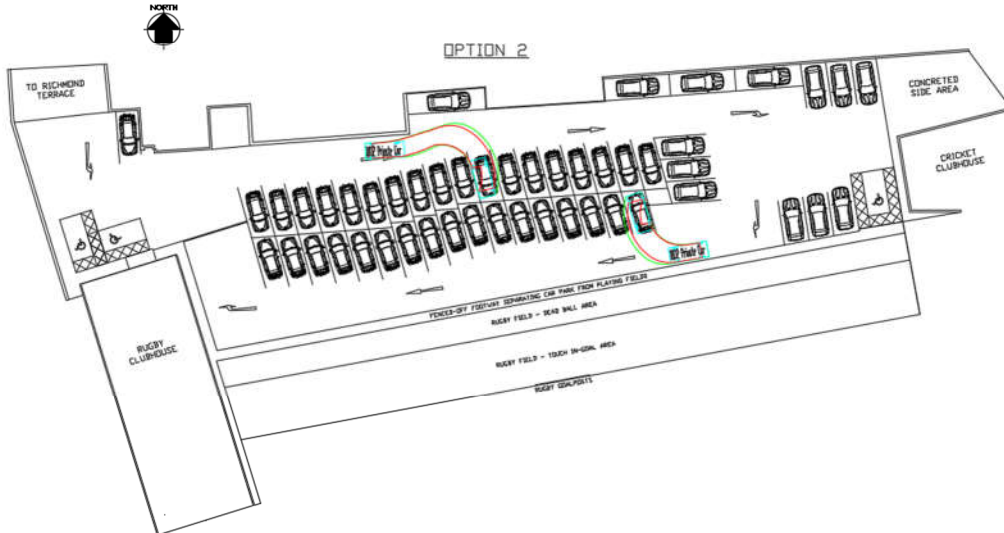


DB32 Private Car (Bay Parking)

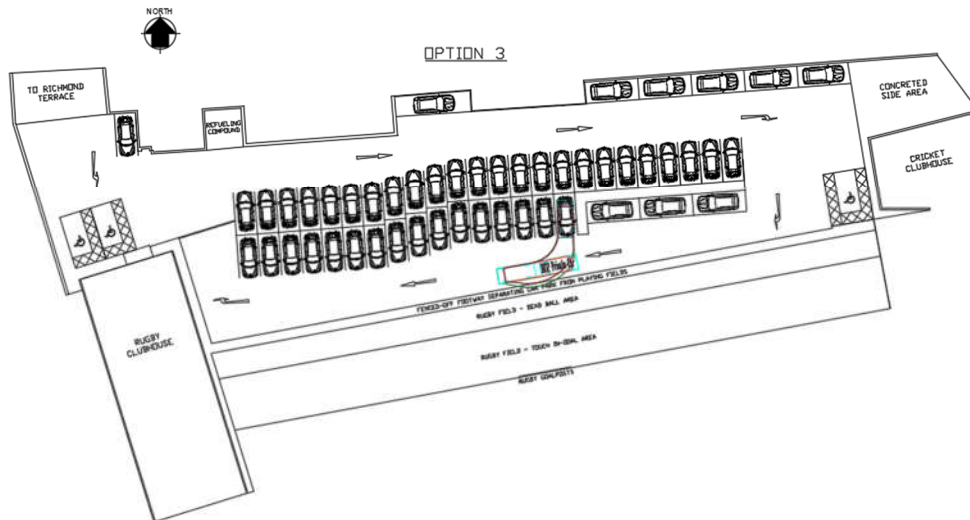
Option 1



OPTION 2

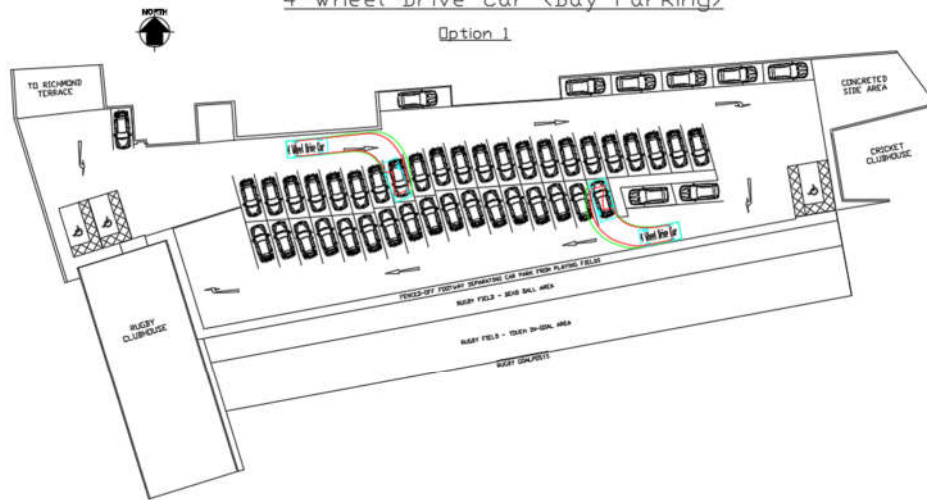


OPTION 3

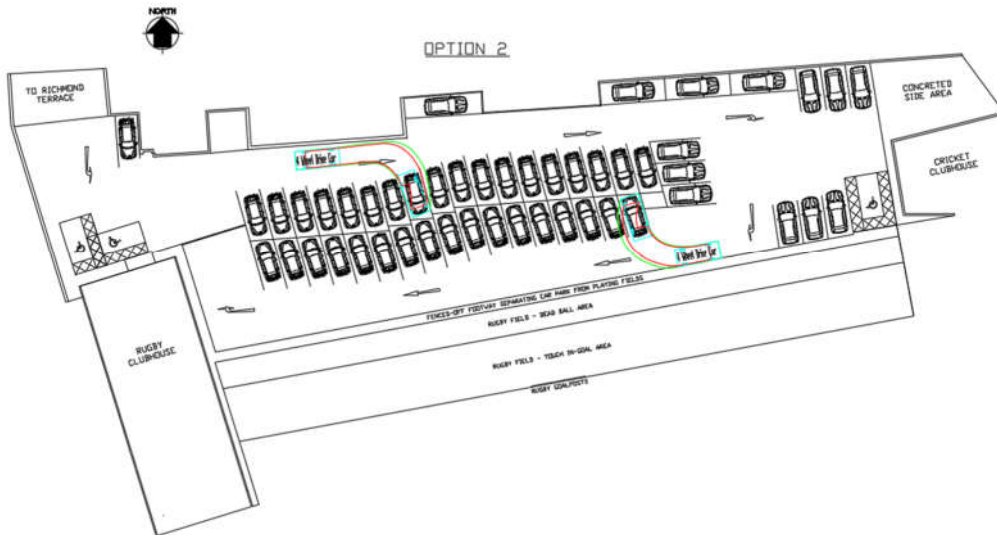


4-Wheel Drive Car (Bay Parking)

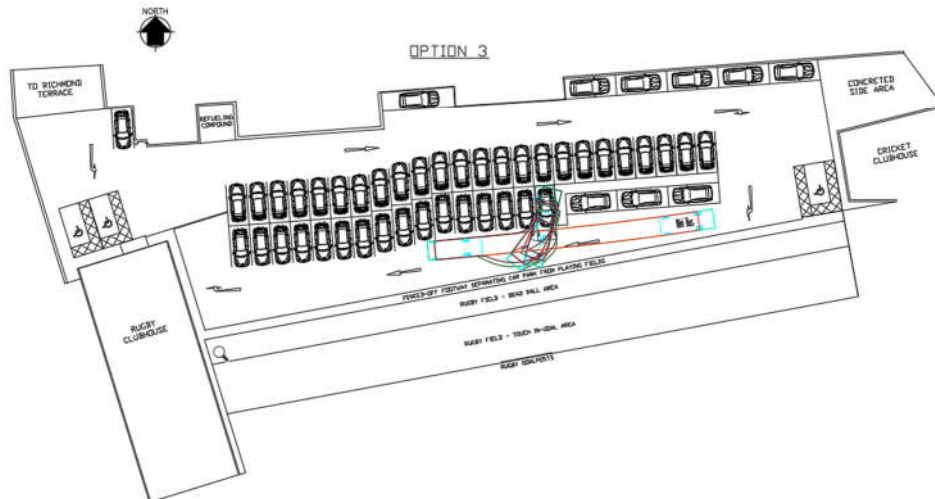
Option 1



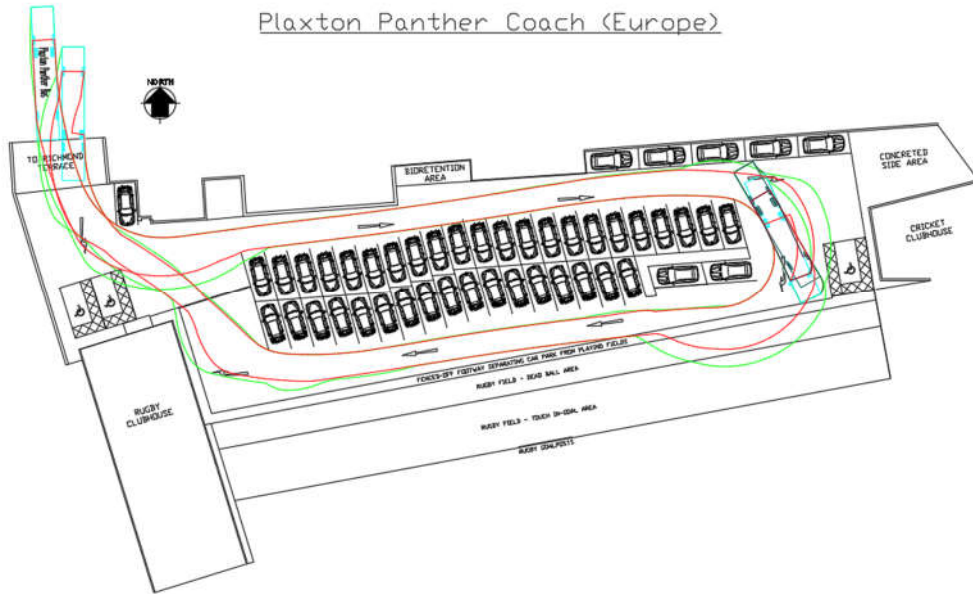
OPTION 2



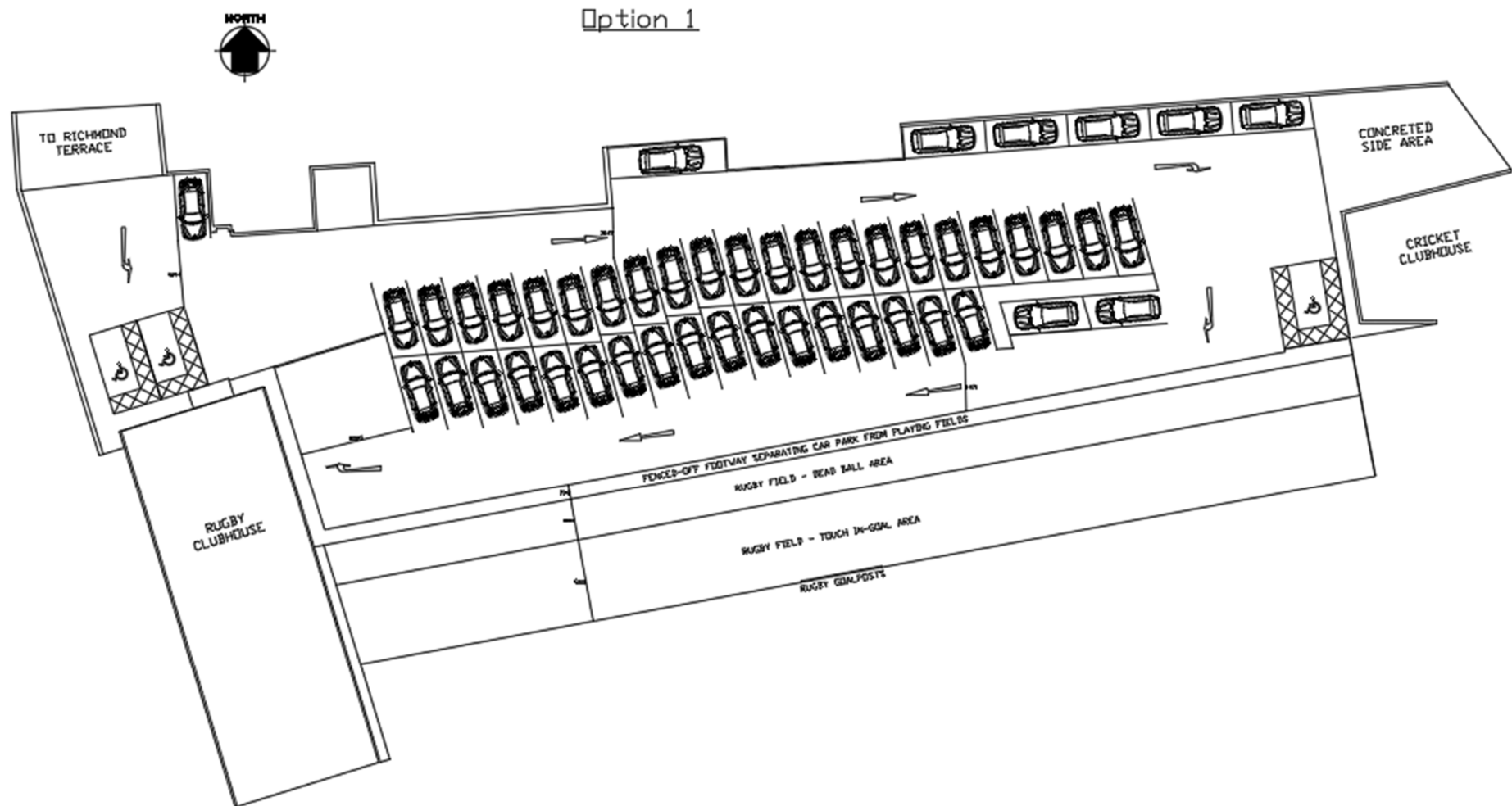
OPTION 3

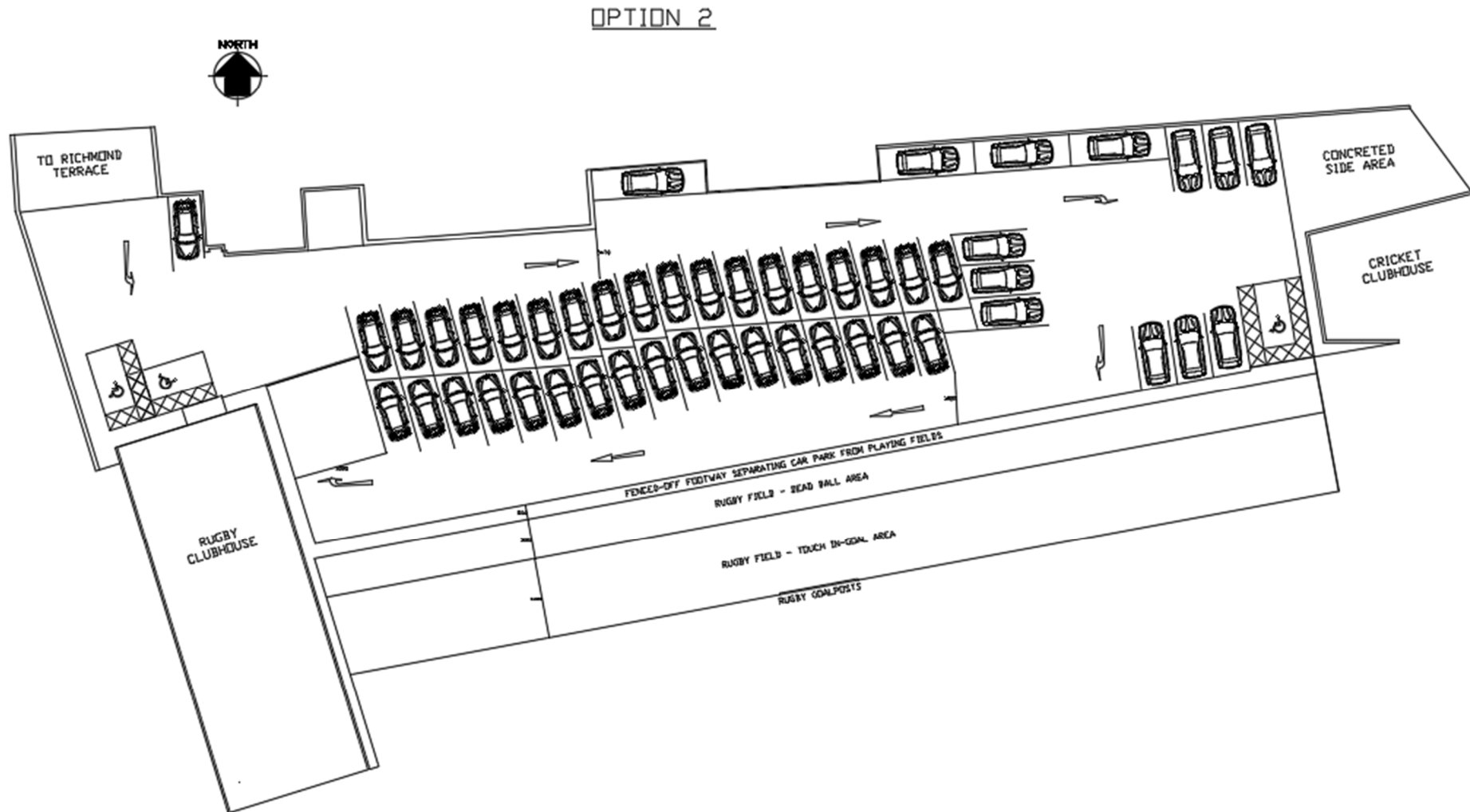


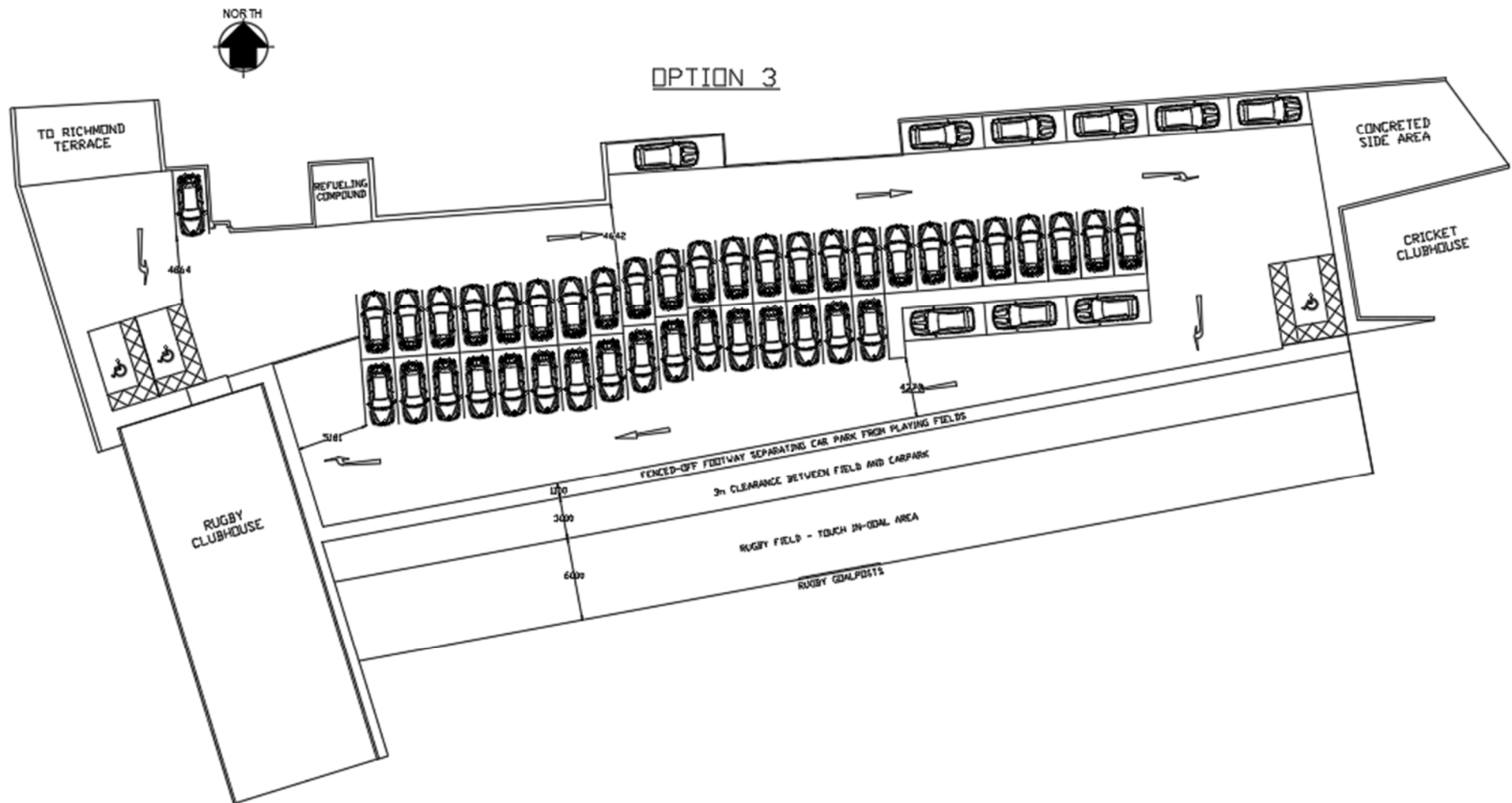
Plaxton Panther Coach (Europe)



A.5. Car Park Layout Options with Dimensions







Kenneth Kong
SNC-Lavalin
Rutherford House
Westlakes Science & Technology Park
Moor Row
Cumbria
CA24 3JZ