THE NEED CASE FOR A STRATEGIC RAIL FREIGHT INTERCHANGE

TECHNICAL REPORT 4
RAILWAY OPERATIONS AND INFRASTRUCTURE

In respect of

PROPOSED STRATEGIC RAIL FREIGHT INTERCHANGE AT LAND IN AND AROUND THE FORMER AERODROME, NORTH ORBITAL ROAD, UPPER COLNE VALLEY, HERTS

On behalf of

helioslough

Date: March 2009
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1.0 INTRODUCTION

1.1 This report, produced by Intermodality LLP for Helioslough, provides a summary of the rail aspects relating to proposals for a Strategic Rail Freight Interchange (SRFI), on land in and around the former aerodrome adjacent to North Orbital Road, Upper Colne Valley, Hertfordshire.

1.2 Government policy guidance\(^1\) considers that SRFIs are:

“...a form and type of rail interchange without which longer term growth and development of an efficient rail freight distribution network will not be achieved.”

“Strategic RFIs are, therefore, key features of national rail infrastructure necessary to promote a shift from road to rail freight and to achieve the associated sustainability benefits. They represent ‘major gateways’ to the national rail network which allow businesses to move freight for distances appropriate to their particular operations and commercial priorities”

“A network of Strategic RFI is required to support longer term freight growth. Whilst Strategic RFI operate such as to serve regional areas, they are also key components in a national and international network. This network is of strategic importance in facilitating links between UK regions and within a growing EU.”

1.3 The site has the capacity and capability to deliver new SRFI capacity in and around London and the South East as identified in Government policy guidance\(^2\):

“This required capacity would be met by three or four new Strategic RFI in the region, supplemented by smaller locations within the M25 ring. The qualitative criteria to deliver the capacity mean that suitable sites are likely to be located where the key rail and road radials intersect with the M25.”

1.4 The report is structured as follows:

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\(^1\) SRFI Policy, SRA 2004 (adopted as DfT policy guidance 2005), Paragraphs 4.2-4.4
\(^2\) SRFI Policy, SRA 2004 (adopted as DfT policy guidance 2005), Paragraph 6.9
Section 2 reviews the proposed site location, layout and operation of the site, including anticipated rail freight traffic generation;

Section 3 considers the interfaces with the national rail network arising from discussions with Network Rail;

Section 4 provides conclusions.
2.0 SITE LOCATION, LAYOUT AND OPERATION

2.1 Location in region

2.1.1 The former aerodrome site could form one of the three to four SRFI around the M25 with other known sites and proposals (see map overleaf), including:

- **Howbury Park** (ProLogis), Slade Green, London Borough of Bexley: consent granted following Public Inquiry in 2007, for an SRFI with 198,000 m² of rail-linked floorspace and 3.4 Ha intermodal terminal on a 63.8 Ha site; and

- **Slough International Freight Exchange** (Goodmans), Colnbrook, Slough Borough Council: proposals under development for a successor scheme to the previous large London International Freight Exchange proposals (Argent), which were dismissed on Appeal in 2001 following a Public Inquiry.

2.1.2 A proposed scheme for the Redhill Aerodrome site on the south side of London was noted in the Brighton Main Line Route Utilisation Strategy (RUS)³ in 2004, but we are not aware of any progress ever being made with the scheme. This is unsurprising, having regard to the findings of the Howbury Park alternative sites study, which concluded that infrastructure requirements for both road and rail access made it an unrealistic alternative location for an SRFI.

2.1.3 The Radlett Aerodrome site is strategically located adjacent to the Midland Main Line (MML) and the M1/M10/M25 motorways, to serve an area focussed primarily on North West London and extending out beyond the M25 to cover a wider area of the South East and the East of England.

2.2 Location on rail network

*Midland Main Line (MML)*

2.2.1 The site lies adjacent to the Midland Main Line, north of the M25 and west of the MML itself, with the proposed connection point to the national rail network around milepost 17 miles 20 chains. The MML passes the site as a four-track, electrified main line, with maximum line speeds of 80 miles per hour (Slow

³ Brighton Main Line RUS, SRA 2004, paragraph 5.6.3
lines) and 100 mph (Fast lines), W7 loading gauge\(^4\) and RA10 axle loads, with 8 freight trains per weekday each way operated at present.

**Figure 1 Site opportunities for Strategic RFI around the M25**

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**West Coast Main Line (WCML), Watford – St Albans Abbey branch**

2.2.2 The Watford Junction – St Albans Abbey branch line runs close to the western boundary of the site, and is single-track throughout. Historically, a connection existed between the St Albans Abbey branch and the MML, which was used to move railway construction traffic from the former to the latter.

2.2.3 Initial investigations were made by Railtrack (when the company was itself considering development of a rail freight interchange on the site) and subsequently by Helioslough into the feasibility of reinstating this connection, to permit access to the WCML (W10 gauge) at Watford Junction, and possibly to link the WCML across the site to the MML itself. This option was not pursued for the following reasons:

- The St Albans Abbey branch would be likely to need considerable investment in track, signalling, loading gauge and axle loadings, to provide sufficient capacity for freight train movements above and beyond the existing passenger service;

\(^4\) Maximum height and width of railway vehicles and loads, see section 3.7
The track layout at Watford Junction is such that any freight train leaving the branch to head north up the WCML would have to travel south to Wembley / Willesden to run round, and as such would offer little real benefit over the route from the MML;

The former rail access into the site runs through a Conservation Area, with a large number of properties and a school backing onto the former trackbed, and it is likely that there would be strong opposition to reinstatement of the link and operating freight trains across it;

Initial discussions with Hertfordshire County Council regarding scope to use the line for freight traffic from the proposed development raised concerns about the potential impact of freight train operations on the existing (and proposed) pattern of passenger rail services along the branch line. There was also no support from the Council for using the link to form a connection between the WCML and MML for passenger or freight services.

2.3 Type and volume of freight trains

2.3.1 In designing the rail infrastructure element of the scheme proposals, it is important to adopt a suitably holistic approach, which reflects the desire of Government policy guidance on SRFI\(^5\) that such schemes should support rail freight growth into the long term.

2.3.2 As such, the scheme has been designed to accommodate a significant quantum of rail freight traffic (see below), as well as cater for trains up to the maximum length of 775m as an industry aspiration. In this regard, it should be noted that, with the exception of lighter car-carrying trains, most intermodal and conventional wagon rail services rarely exceed 540-640 metres length, due to constraints on existing terminals, signalling and locomotive traction power.

2.3.3 Two principal types of rail freight service are anticipated to operate from the site, namely:

- Intermodal: movement of deepsea containers and other intermodal

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\(^5\) SRFI Policy, SRA 2004 (adopted as DfT policy guidance 2005) paragraph 4.2
units (e.g. swap bodies) on flat wagons, for transfer at the site to storage areas or onward movement by road to distribution buildings on site and/or for eventual delivery to the surrounding hinterland;

- Conventional: movement of goods within enclosed wagons, for transfer at the site by forklift truck into distribution buildings on site, for eventual delivery to the surrounding hinterland by road.

2.3.4 The site has been designed to be capable, at a mature stage of development, of accommodating up to 12 trains per day (i.e. 12 in and 12 out), with train lengths of up to 775m.

2.3.5 This estimate is in line with the experience at DIRFT, which has around 320,000 m² of floorspace developed on site, and has latterly handled up to 12 trains per day.

2.3.6 In practice, the number, type, length and weight of any freight trains will depend on the requirements of occupiers and end users, and the capacity of the on-site rail infrastructure, the adjacent MML and connecting routes.

2.3.7 In this regard, it should be stressed that the site would be expected to initially commence operations with a relatively small number of ‘pilot’ services, as the initial users and occupiers become familiarised with using rail to and from the site. From this, users, occupiers and/or rail freight operating companies would then seek additional services and main line paths as required in successive years, up to the maximum capacity of the main line and/or on-site infrastructure. Experience at DIRFT suggests that such levels would not be expected for at least the first 10-15 years following opening, with DIRFT now operating (February 2009) at around 12 trains in and out of the site after 12 years of operation.

2.4 Main line access

2.4.1 A new main line connection would be created from the ‘Slow’ lines north of the existing MML bridge over the M25 motorway, around milepost 17 miles 20 chains. Trains to the site to and from the London direction (anticipated to be the majority of those operated) would have direct access, whilst any trains operating to and from the Bedford direction would pass the site and use existing stabling sidings further south (e.g. Cricklewood) to ‘run round’ and
head north to the site.

2.4.2 Market research with prospective occupiers and end users and freight modelling (see section 3.2) indicates that most trains would be expected to travel to and from the London direction, but provision has been made in the design for a future direct main line connection from the north if required. This would link into the proposed arrival / departure line, using this as a headshunt into which trains arriving from the north would be berthed, with the on-site pilot locomotive then attaching to the rear of an inbound train and drawing the train through the underbridge into the site.

2.4.3 Network Rail made the following initial comments in 2004 on the design and signalling of the main line connection [technical terms defined in square parenthesis]:

"The proposed layout will require 6 new point ends on the network, plus 2 sets of traps [points to protect the main line against any train attempting to leave the site without signal clearance]. It is recommended that access to the Fast Lines is gained at the existing ladders [crossovers] at Radlett Junction and Harpenden Junction, in order to minimise costs. Fast Line freight paths would not be available for conventional freight services. Freight services may use the Fast Lines during engineering works to the Slow Lines. It is likely that the embankment supporting the main line will need to be built out at the point where the two connections are made. A series of major possessions, (probably a mixture of 54 and 72 hours possessions blocking two of the four lines) will be required.

The East Midlands Resignalling Project is scheduled to cover this route section in approximately 10 years time when West Hampstead Signal Box will "migrate" into a new Derby Integrated Electronic Control Centre, (IECC). This proposed site is in the very heart of a large auto[mated signalling] section on all lines. Many of the signals would have to be converted to controlled signals to protect the crossovers and junctions. The proposed site is on the divide between the Radlett and St Albans Interlockings. These interlockings are geographical, and it is unlikely that either of the
relay rooms will have the suitable additional capacity.

The proposed solution is to design a new interlocking, and this could be either 'free wired' or 'Solid State Interlocking' (SSI). SSI could easily migrate into the new Derby IECC. Free wired would be cheaper in terms of the costs attributable to this project, and it would be for the Resignalling Project to manage the migration to Derby. The costings assume 'free wired' and this would require:

- A new REB [Re-locatable Equipment Building];
- 2 x S2 TDMs [Time Division Multiplexer];
- 8 x 4-aspect signals to convert to automatic;
- 12 track circuits;
- 8 point machines;
- 2 new junction indicators;
- New 3 aspect entry and exit signals;
- 20 block joints;
- West Hampstead panel and circuits will be significantly altered;
- 1 new TEW [manufacturer] emergency panel in the new REB;
- 13 new telephones;
- A troughing route to allow for 0.5 mile of new troughing;
- 2 x under track crossings;

The scheme may affect the strike-in point [point on the main line where a train triggers the lights / barriers on a level crossing] on the Down Slow Line for St Albans Barrow Crossing.”

2.5 Rail and terminal infrastructure layout

2.5.1 The rail infrastructure has been designed around the shape and topography of the site relative to the MML, which is on a rising gradient towards the north relative to the site itself. Working from the main line connection into the site, the key features of the layout are as follows (see also Figure below):

- **Arrival / departure line** (Network Rail has initially indicated that a single track chord should suffice, but provision has been made for a double-track formation if required in future), running parallel to MML then passing beneath the MML through a new underbridge into;
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Former Aerodrome, North Orbital Road,
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Upper Colne Valley, Herts
Helioslough Ltd

- **Reception sidings**, located between the distribution units, including 3 centre stabling / loco release sidings (standage up to 775m) and crossovers, providing access to the parallel sidings fronting the 5 distribution units, and the intermodal terminal to the north;

- **Intermodal terminal**, with up to 6 x handling sidings (standage on each ranging from 375m to 550m), with sidings worked by mobile reachstackers (mobile container handling cranes) and/or overhead gantry cranes as required by traffic type and volumes, with phased development possible;

- **Cripple/stabling sidings**, at the outer ends of the reception sidings and distribution unit sidings to stable locomotives, or to stable any ‘crippled’ wagons awaiting repair;

- **Railway control centre**, located between the reception sidings and the intermodal terminal to provide views up and down the main rail ‘spine’ and across to the main line connection into the site.

2.5.2 This layout should allow for the equivalent of 8 x 775m trains to be stabled within the intermodal terminal and warehouse handling sidings at any one time, and enable a full-length train to be moved either on or off the site at roughly hourly intervals (subject to main line pathing). The rail infrastructure layout has been subject to further design refinement by Scott Wilson Railways for Helioslough.

2.5.3 Railway Group Standards have been used to determine the geometric constraints of the rail infrastructure on site, and ensure suitable horizontal and vertical clearances between tracks and between tracks and adjacent or overline structures. In this regard, the MML diveunder bridge and other overline structures are being designed to permit future electrification, as well as a taller loading gauge. Appropriate walking routes and trackside lighting will be provided to ensure safety of rail operations staff on site.
Figure 2 Schematic site layout (not to scale)
3.0 INTERFACES WITH THE NATIONAL RAIL NETWORK

3.1 Current rail traffic

3.1.1 Midland Mainline and First Capital Connect operate an intensive service approaching 200 trains per day each way during the week (i.e. 8 per hour each way), comprising Midland Mainline diesel trains (Class 43 HSTs and Class 222 Meridian DMUs) and Thameslink electric trains (Class 319 EMUs).

3.1.2 Timetable data (see Appendix A) indicates between an average of 8 freight trains per weekday travel in each direction along the Midland Main Line past Radlett, across daytime and night-time hours, with traffic including:

- Bulk construction products (aggregates and cement) from the East Midlands, Peak District and Hope Valley;
- Petroleum products from refineries on Humberside;
- Infrastructure maintenance traffic (e.g. ballast, track and sleepers).

3.1.3 The proposals for the site could in future deliver up to 12 extra trains per day each way of non-bulk traffic (e.g. fast-moving consumer goods) onto this section of the MML, the majority of which are expected to operate to and from the south towards London (see below). The implications of this are discussed in subsequent sections of this report.

3.2 Train origins/destinations and routes

3.2.1 To address the potential distribution of this traffic across the surrounding rail network, we have taken account of the observed traffic profile amongst existing inland rail freight interchanges, the current distribution of freight by road to and from the region, discussions with potential occupiers and end users, and the output from the GB Freight Model (GBFM), the latter used to inform national and regional freight policy.

3.2.2 The GBFM output suggested key origins/destinations for the surrounding catchment area (in descending order of priority) as:

- 41% Mainland Europe;
- 40% Deepsea Ports;
- 16% Midlands / N England / Scotland;
- 2% South West / Wales.
3.2.3 The assumptions on traffic distribution are shown in the Table below:

**Table 1 Working assumptions on Radlett rail traffic at maturity**

<table>
<thead>
<tr>
<th>Service type / route corridor</th>
<th>Trains per day each way</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Intermodal</td>
</tr>
<tr>
<td>Channel Tunnel</td>
<td>2</td>
</tr>
<tr>
<td>Haven / Thames Ports</td>
<td>3</td>
</tr>
<tr>
<td>Solent Ports</td>
<td>2</td>
</tr>
<tr>
<td>UK regions</td>
<td>1</td>
</tr>
</tbody>
</table>

3.2.4 A number of connecting routes are available to and from Radlett to the above destinations, as shown in the Figure below:

**Figure 3 Map of connecting rail routes (not to scale)**
3.3 **Trailing weight and length**

3.3.1 Freight trains operating to and from the site will typically carry intermodal units (e.g. containers or swap bodies) and/or non-bulk goods (e.g. fast-moving consumer goods), with trailing weights of up to 1,200 tonnes and trailing lengths of up to 775m (up to 640m at present).

3.3.2 Network Rail has provided the following information:

**Table 2 Trailing weights and lengths**

<table>
<thead>
<tr>
<th>Route Section</th>
<th>Tonnes</th>
<th>Metres</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Northbound</td>
<td>Southbound</td>
</tr>
<tr>
<td>Carlton Road Junction – Junction Road Junction</td>
<td>2,200</td>
<td>1,410</td>
</tr>
<tr>
<td>Carlton Road Junction – Brent Curve Junction</td>
<td>1,380</td>
<td>2,080</td>
</tr>
<tr>
<td>Brent Curve Junction – Bedford</td>
<td>1,870</td>
<td>2,020</td>
</tr>
<tr>
<td>Bedford – Toton</td>
<td>1,600</td>
<td>1,660</td>
</tr>
</tbody>
</table>

3.3.3 The Midland Main Line Route Utilisation Strategy\(^6\) suggests an indicative trailing weight of 2,500 tonnes and trailing length of 576m applies for a single diesel locomotive (typically Class 60 or 66) operating at 60 mph.

3.3.4 Network Rail has noted that it is likely that the above figures are based on current / historic practice rather than infrastructure restrictions, and suggest that alternative methods of working may be available which would enable longer trains to operate.

3.4 **Hours of operation and main line access**

3.4.1 It is envisaged that the site itself will operate on a 24/7 basis, and paths to and from the main line will be sought throughout the 24-hour period, noting that paths will be limited or unavailable during peak passenger train movements, which normally take precedence over freight train movements. Reflecting operating practice for freight trains on the MML passing Radlett, and at other SRFI such as DIRFT, an even spread of paths across the day

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\(^6\) Midland Main Line / East Midlands Route Utilisation Strategy, SRA 2004, Appendix D
would be sought where possible, to help avoid “bunching” of freight train movements to and from the site.

3.5 Method of working

3.5.1 The site would expected to be operated by a third-party terminal management company, acting independently of the rail Freight Operating Companies (FOCs), to ensure “Open Access” operations can be provided. A small fleet of pilot locomotives would be based on site to undertake shunting movements as required beyond those carried out by the FOCs themselves.

3.5.2 Network Rail noted the following in its initial assessment (GRIP Stage 1 Output Definition) of the proposals in 2005:

“It is assumed that there will not be any major issues with regards to the future Method of Working as services from the south would gain direct access to/from the proposed site.”

3.6 Route capacity

3.6.1 The Midland Main Line RUS has provided the current context for the route, stating:

“The Midland Main Line route runs closest to its practical capacity from London to Bedford and between Leicester and Nottingham. It is in these areas that train running performance is at its worst. The most heavily-loaded trains on the route are those on London-bound peak services south of Bedford, whereas some of the least well used trains are on services between Leicester and Nottingham. In common with the national pattern set out in the Network Utilisation Strategy (NUS), in recent years increases in the number of long-distance trains on the route have exceeded growth in patronage (although this is in part due to the introduction of shorter trains). In contrast, the increase in the usage of Thameslink [now First Capital Connect] commuter trains has exceeded the rate at which extra capacity has been provided. All of these major factors influenced the conclusions of our work.

Much of the route has a capacity utilisation index (CUI) of 70% or
more, which means that the number and mix of trains is such that performance problems can be expected. The route from London to Bedford and around Leicester has a CUI of greater than 90%. Analysis of the current performance and usage confirms that significant segments of the route are close to practical capacity, owing to the current mix of train paths.”

3.6.2 In terms of freight train movements, the RUS process has noted that around one-third of current booked freight paths between London and Leicester are not used, for a variety of operational and commercial reasons, and that these paths can “provide the ability to cater for growth”.

3.6.3 The RUS has also indicated that, in advance of the Strategic RFI proposal at the site, rail freight traffic on the London to Leicester section is forecast to rise from 18-20 trains per day each way to 26 per day each way by 2011.

3.6.4 Against this background, the RUS has proposed a range of improvements designed to deliver, inter alia:

“Growth of freight on rail supported by more paths across key junctions in the Leicester area;

Allowing some slower freight services currently using the East Coast Main Line (ECML) to use some less congested sections of the MML;

Sufficient paths for freight growth (especially in aggregates) into London and the South East.”

3.6.5 The planning assumptions in the RUS have indicated that 2 standard freight paths will be provided per hour between London and Leicester in each direction during daytime and evening off-peak periods, and it is anticipated that Network Rail will seek to provide capacity for more freight traffic along the Midland Main Line to balance use of parallel routes such as the East Coast Main Line.

3.6.6 The site is designed to cater for up to 12 trains per day each way of new non-bulk freight traffic, most of which would be anticipated to operate to and from the south towards London, albeit noting that such levels of traffic might not be
reached for several years after opening. These trains would be mainly expected to operate under Class 4 (more than 60mph) or Class 6 (up to 60mph) timings.

3.6.7 The RUS has acknowledged the existence of the scheme, noting:

“A major strategic freight interchange site has been identified on the site of the former aerodrome that has the potential to develop within 5-10 years and will feature in the SRA’s Freight Interchange Policy.”

The RUS goes on to state:

“It can be seen from tabulations of freight paths elsewhere in this document that new freight terminals are not significantly constrained on this route by the availability of paths.”

3.6.8 An initial desktop study was undertaken at an early stage for Helioslough by Atkins Rail (on advice from Network Rail), to determine whether the overall level of capacity on the adjacent stretch of the Midland Main Line into London could handle a minimum of six trains per day in and out of the site, as one of the key tests (along with the feasibility of the main line connection and loading gauge enhancement to London). The Atkins study concluded that:

“At first glance there are paths available that can handle a standard container freight train from Brent Curve Junction to the proposed freight facility. It would definitely be possible to run freight trains in the early morning and in the late evening, it seems that it would also be possible to run trains regularly throughout the day pending a fit with the current timetable operating philosophy, in terms of leaving space for possible service recovery.”

3.6.9 Network Rail then indicated the following in its initial assessment of the proposals:

“The site connects into the Brent Curve Junction – Bedford route section of the Midland Main Line, and has at present approximately 19 Working Timetable Freight paths in each
direction, per weekday. If the terminal were to reach anything like its maximum potential, it is likely that a second hourly freight path would be required, certainly to the south of Radlett. It is recommended that a detailed timetable assessment is undertaken as a priority within the next stage of development. The timetable development work should be undertaken by Network Rail’s Strategic Access Planning (SAP) Team so that the study could also consider capacity issues on other routes to/from likely origins/destinations. The study may also consider other known aspirations that may come in.”

3.6.10 As recommended by Network Rail, a further more detailed timetable study was then undertaken by Interfleet Technology using a remit agreed with Network Rail. The Interfleet study concluded that:

“The proposed site is able to accommodate the necessary freight paths envisaged when the SRFI first opens and then reaches its full potential. This conclusion is based on a study of the 2005 Summer timetable only, as post-June 2006 information is still awaited. However, the number of freight paths exceeds the maximum likely requirement for 12 each way per day and offers an amount of flexibility in accommodating a modest increase in passenger services. All the notional freight paths identified come from the south via the MML. We chose to concentrate on daylight hours, as this is when the timetable is most extensive. It follows that during the night with reduced passenger services, the same level of opportunities would be available to accommodate additional trains.”

3.6.11 Should the scheme proceed, the timetable would then be further refined with Network Rail, to identify suitable opportunities for the initial rail freight services which might be expected from the commencement of operations from the site. Future increases in traffic towards the maximum notional capacity of the site itself, would be secured through the normal short-term and permanent timetable planning process, where bids from various train operating companies are considered against the level of network capacity available at that time, and subject to any future routing/enhancement proposals for the wider rail network (see next section).
3.7  **Loading gauge**

3.7.1  The loading gauge defines the maximum height and width of a railway vehicle and its load. The Midland Main Line from London to Leicester is currently cleared to W7 loading gauge (see Figure below). The RUS notes that "The loading gauge of the route does, however, without significant enhancement work, preclude larger freight vehicles from using the line."

3.7.2  The current W7 loading gauge does permit 9'6" (2896mm) high containers to be carried by rail using low-platform ‘pocket’ wagons (KTA), although these are in relatively short supply and have lower payload capabilities than standard wagons.

3.7.3  The proposed planning conditions for the SRFI proposals therefore make provision for development to be staged to reflect loading gauge availability to and from London (see below). Consultants Laser Rail\(^7\) (as recommended by Network Rail) carried out an initial desktop survey of the MML from St Albans to Acton Wells Junction on the Dudding Hill route, against an enhanced loading gauge profile.

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\(^7\) Now part of Balfour Beatty Rail Technologies
3.7.4 Electrification of the Midland Main Line to Bedford in the 1980’s provided a degree of loading gauge enhancement, to allow for the overhead catenary (wires) to be installed, and this has been reflected in the results of the desktop survey, which suggested that an enhanced loading gauge could be achieved in the short term along the MML between St Albans and Cricklewood and the Dudding Hill freight-only route to Acton.

3.7.5 North of the site on the section from St Albans to Wigston Junction, the desktop analysis by Laser Rail suggested over 30 structures exist where an enhanced loading gauge could not be achieved. In view of the considerable cost and disruption of loading gauge enhancement over such a length of route, this option is not being progressed at present, but to reiterate, the MML north of St Albans would still permit operation of all conventional wagon services, and containers of up to 9’6” height in KTA pocket wagons, without requiring gauge enhancement.

3.7.6 Laser Rail then carried out further survey work on site to improve the

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**Figure 4 current loading gauge profiles**

![Diagram showing current loading gauge profiles]
accuracy of the clearance assessment from +/- 30mm to +/- 10mm, and the survey was extended to include the routes to both Acton Wells and Carlton Road Junctions.

3.7.7 Network Rail, in its evidence to the 2007 Public Inquiry on the Radlett scheme proposals, considered that gauge enhancement works into London could be achieved before the site became operational. Should the scheme proceed, further discussions will be progressed with Network Rail and DfT in the context of the Strategic Freight Network programme (see below), to determine how gauge enhancement can be achieved within existing enhancement proposals and maintenance possessions (e.g. the Thameslink upgrade).

3.7.8 In this regard, a recent DfT publication\(^8\) notes the Government’s current development of the Strategic Freight Network (SFN) of routes for rail freight, in which it is stated that (our highlighting):

"The Government is also investing in a Strategic Freight Network to promote rail freight. This will comprise a core network of enhanced trunk rail routes, linking key freight origins and destinations, including major ports, freight terminals and distribution depots. These strategic routes will be capable of accommodating more and longer freight trains, with the objective of providing through-running, 7 day/24 hour network capability. They will have the ability to handle greater loading gauge, including ‘high cube’ container traffic from key ports and larger European loading gauge wagons on a route from the Channel Tunnel to the Midlands. The Strategic Freight Network will also promote increased use of electric freight traction."

3.7.9 Further information is awaited from DfT and Network Rail, to clarify the extent to which the Midland Main Line will be enhanced in order to provide such a capability.

3.8 Route availability

3.8.1 The MML passing Radlett carries primarily bulk freight trains, some up to

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\(^8\) Britain’s Transport Infrastructure, High Speed Two, DfT January 2009, paragraph 20
2,000 tonnes in weight, and this is reflected in the maximum RA10 axle load classification along the MML.

3.8.2 The generally lighter intermodal and conventional wagon trains using the site are unlikely to achieve axle loads of more than RA9, and route availability is therefore not seen as a constraint.

3.9 **Electrification**

3.9.1 The MML is electrified with 25kV ac overhead catenary between London and Bedford. None of the connecting freight routes via Dudding Hill, Junction Road Junction or Leicester are electrified, therefore the SRFI proposals do not include electrification of the site or arrival/departure lines.

3.9.2 However, structural clearances on the site are being designed to permit future electrification if required, noting recent DfT statements seeking to promote greater use of electric traction for freight traffic (see above).

3.10 **Gradients**

3.10.1 The MML is on a 1 in 176 rising gradient from the M25 bridge north past the site, such the main line is at sufficient height above ground level at the point where the main line connection crosses under the MML, enabling the connection to remain at a relatively shallow gradient throughout. This will help to minimise noise from braking on arrival, and noise from acceleration on departure, as well as assisting departing trains in acceleration towards line speed over the main line connection, reducing delays to following trains heading south.

3.10.2 The layout of the main site itself has been designed to facilitate flat or shallow gradients to be maintained, no steeper than 1 in 300. Trap points will be fitted as required to provide flank protection against any runaway trains reaching the main line.

3.11 **Line speeds**

3.11.1 The site will connect into the MML Slow Lines, which have a maximum linespeed of 80 mph along this section. Trains to and from the site would be expected to operate under Class 4 (more than 60mph) or Class 6 (up to
60mph) timings. The line speed is therefore not a constraint on freight operations, and the detailed design of the main line connections and arrival/departure lines will seek to permit trains to make maximum advantage of their permitted linespeed as far as possible.

3.12 Signalling

3.12.1 Signalling issues related to the main line connection are discussed earlier in this document at paragraph 2.4.3.

3.12.2 On-site signalling and train control arrangements would be developed at the detailed design stage following completion of the Method of Working, but would typically consist of ground signals and manual or power-operated points controlled from a central control building, to be located on site. Suitable control and communications links will be provided between the control building and Network Rail signalling staff, as at other SRFI such as DIRFT and Hams Hall.

3.13 Main line connection

3.13.1 The main line connection is discussed earlier in this document at section 2.4.

3.14 Relationship to other rail scheme proposals

3.14.1 The Midland Main Line RUS provides a framework for the route, and whilst the immediate emphasis in the proposals is on changes to the timetable, rather than to the physical infrastructure, the recent DfT statement (see above) suggests that infrastructure enhancement is also under consideration, to enable continental-gauge freight wagons to travel between the Channel Tunnel and the Midlands.

3.14.2 The detailed design of the SRFI proposals and the associated works programme will seek to tie in major engineering works (not least construction of the underbridge through the MML embankment, the main line connections, and loading gauge enhancement) with other planned possessions and blockades.

3.14.3 Loading gauge enhancement between St Albans and Acton Wells/Carlton Road Junction could create an additional route for high-cube container traffic
between Southampton (W8)/Channel Tunnel (W9) and the ECML (W9/10), GEML (W10) and LTS (W10), using the Tottenham & Hampstead Line (W9) rather than the North London Line (W10) between Acton Wells Junction and Stratford Central Junction. Loading gauge enhancement could also benefit the proposals for enhanced rail freight facilities at Cricklewood.

3.14.4 Beyond the significant contribution that the proposed development would make to supporting Government policy and providing third-party investment into the national rail network, it is recognised that a number of other Strategic RFI schemes are currently being proposed or developed in the South East and East of England.

3.14.5 Forecasts (see Need Case report) suggest sufficient demand exists to both fill the existing RFI to capacity (assuming these can provide suitably attractive locations and facilities for the modern market), as well as enable a number of new schemes to co-exist successfully in the market place, in the same way as a number of similar developments co-exist in the Midlands (e.g. DIRFT, Hams Hall, Lawley Street, Birch Coppice, ProLogis Park Coventry).

3.15 Consultation

3.15.1 The SRFI proposals have been subject to a series of consultations with key stakeholder groups over the last five years, including Network Rail, FOCs, TOCs, SRA/DfT, TfL, ORR and HMRI, as well as prospective end users/occupiers, regional and local authorities and the local community.

3.15.2 A Basic Services Agreement (BSA) has been in place with Network Rail since 2005, and the scheme has been placed on the Single List of Enhancements as a Blue category Blue (3rd party funded) scheme (Reference 1426).
4.0 CONCLUSIONS

4.1 The assessment of railway technical issues has not identified any major issues which would otherwise prevent the site from providing occupiers and the wider region with 24-hour, Open Access to a range of rail freight services and end destinations.

4.2 The site is capable of handling some of the largest freight trains, in terms of length, weight and loading gauge, designed with capacity for longer-term growth in rail freight traffic, in line with Government policy.

4.3 The locational strengths of the site for a rail freight interchange were acknowledged by Railtrack in its earlier consideration of the site for such a development. The more recent Helioslough proposals have, in turn, been submitted to Railtrack’s successor organisation, Network Rail, for scrutiny.

4.4 As the body responsible for the management of the national rail network, Network Rail has successfully progressed the scheme proposals through a series of internal scrutiny processes. Having satisfied itself that the scheme is suitable for further development, Network Rail has entered into a formal agreement with Helioslough to progress the rail aspects of the scheme in more detail.
## Appendix A. Current rail freight services passing Radlett

<table>
<thead>
<tr>
<th>Headcode</th>
<th>Operator</th>
<th>Service</th>
<th>Traffic</th>
<th>Direction</th>
<th>Estimated passing time, Radlett</th>
<th>Days operated per week (Mon-Friday)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6D33</td>
<td>DB Schenker</td>
<td>Radlett to Mountsorrel</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>01:45</td>
<td>2</td>
</tr>
<tr>
<td>6O59</td>
<td>Freightliner</td>
<td>Bardon Hill to Angerstein</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>00:22</td>
<td>3</td>
</tr>
<tr>
<td>6V91</td>
<td>Freightliner</td>
<td>Earles sidings to Theale</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>00:17</td>
<td>5</td>
</tr>
<tr>
<td>6L88</td>
<td>Freightliner</td>
<td>Lindsey to Colnbrook</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>00:08</td>
<td>4</td>
</tr>
<tr>
<td>6V76</td>
<td>DB Schenker</td>
<td>Stud Farm to Hayes</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>00:14</td>
<td>5</td>
</tr>
<tr>
<td>6V70</td>
<td>Freightliner</td>
<td>Croft to Neasden</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>00:06</td>
<td>4</td>
</tr>
<tr>
<td>6V71</td>
<td>DB Schenker</td>
<td>Bardon Hill to Thorney Mill</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>00:01</td>
<td>3</td>
</tr>
<tr>
<td>6V75</td>
<td>Freightliner</td>
<td>Earles to West Thurrock</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>00:08</td>
<td>5</td>
</tr>
<tr>
<td>6M25</td>
<td>DB Schenker</td>
<td>Croft to Neasden</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>02:08</td>
<td>1</td>
</tr>
<tr>
<td>6V48</td>
<td>Freightliner</td>
<td>Earles sidings to Theale</td>
<td>Loaded aggregate wagons</td>
<td>S</td>
<td>02:02</td>
<td>5</td>
</tr>
<tr>
<td>6M09</td>
<td>GB Rf</td>
<td>Ferme Park to Wellingborough</td>
<td>Infrastructure maintenance wagons</td>
<td>N</td>
<td>01:40</td>
<td>1</td>
</tr>
<tr>
<td>6M47</td>
<td>Freightliner</td>
<td>Thorney Mill to Bardon Hill</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>02:30</td>
<td>4</td>
</tr>
<tr>
<td>6M54</td>
<td>Freightliner</td>
<td>Theale to Earles</td>
<td>Empty cement wagons</td>
<td>N</td>
<td>02:45</td>
<td>5</td>
</tr>
<tr>
<td>6M79</td>
<td>Freightliner</td>
<td>Angerstein to Bardon Hill</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>03:05</td>
<td>3</td>
</tr>
<tr>
<td>6M91</td>
<td>Freightliner</td>
<td>West Thurrock to Earles</td>
<td>Empty cement wagons</td>
<td>N</td>
<td>03:10</td>
<td>5</td>
</tr>
<tr>
<td>6E93/6F93</td>
<td>DB Schenker</td>
<td>St.Pancras to Peterborough yard</td>
<td>Empty cement wagons</td>
<td>N</td>
<td>03:15</td>
<td>1</td>
</tr>
<tr>
<td>6M92</td>
<td>Freightliner</td>
<td>Wellingborough yard to Ferme Park</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>04:05</td>
<td>2</td>
</tr>
<tr>
<td>6M15</td>
<td>DB Schenker</td>
<td>Acton yard to Stud Farm</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>07:45</td>
<td>1</td>
</tr>
<tr>
<td>6M68</td>
<td>DB Schenker</td>
<td>Hayes to Stud Farm</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>09:15</td>
<td>3</td>
</tr>
<tr>
<td>6M37</td>
<td>DB Schenker</td>
<td>Earles to Humberstone Road</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>09:45</td>
<td>1</td>
</tr>
<tr>
<td>6C33</td>
<td>DB Schenker</td>
<td>Mountsorrel to Radlett</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>11:15</td>
<td>5</td>
</tr>
<tr>
<td>6Z97</td>
<td>Freightliner</td>
<td>West Thurrock to Earles</td>
<td>Empty cement wagons</td>
<td>N</td>
<td>12:20</td>
<td>3</td>
</tr>
<tr>
<td>6E38</td>
<td>DB Schenker</td>
<td>Colnbrook to Lindsey</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>18:30</td>
<td>1</td>
</tr>
<tr>
<td>6Z97</td>
<td>Freightliner</td>
<td>West Thurrock to Earles</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>20:45</td>
<td>2</td>
</tr>
<tr>
<td>6M84</td>
<td>Freightliner</td>
<td>Bow Olympic to Bardon Hill</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>21:15</td>
<td>3</td>
</tr>
<tr>
<td>6M15</td>
<td>DB Schenker</td>
<td>Acton Yard to Humberstone Road</td>
<td>Empty aggregate wagons</td>
<td>N</td>
<td>22:15</td>
<td>5</td>
</tr>
</tbody>
</table>