



Taking Britain further

Heathrow's plan for connecting the UK to growth

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Heathrow

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7 Our vision for a world class hub - Daylight



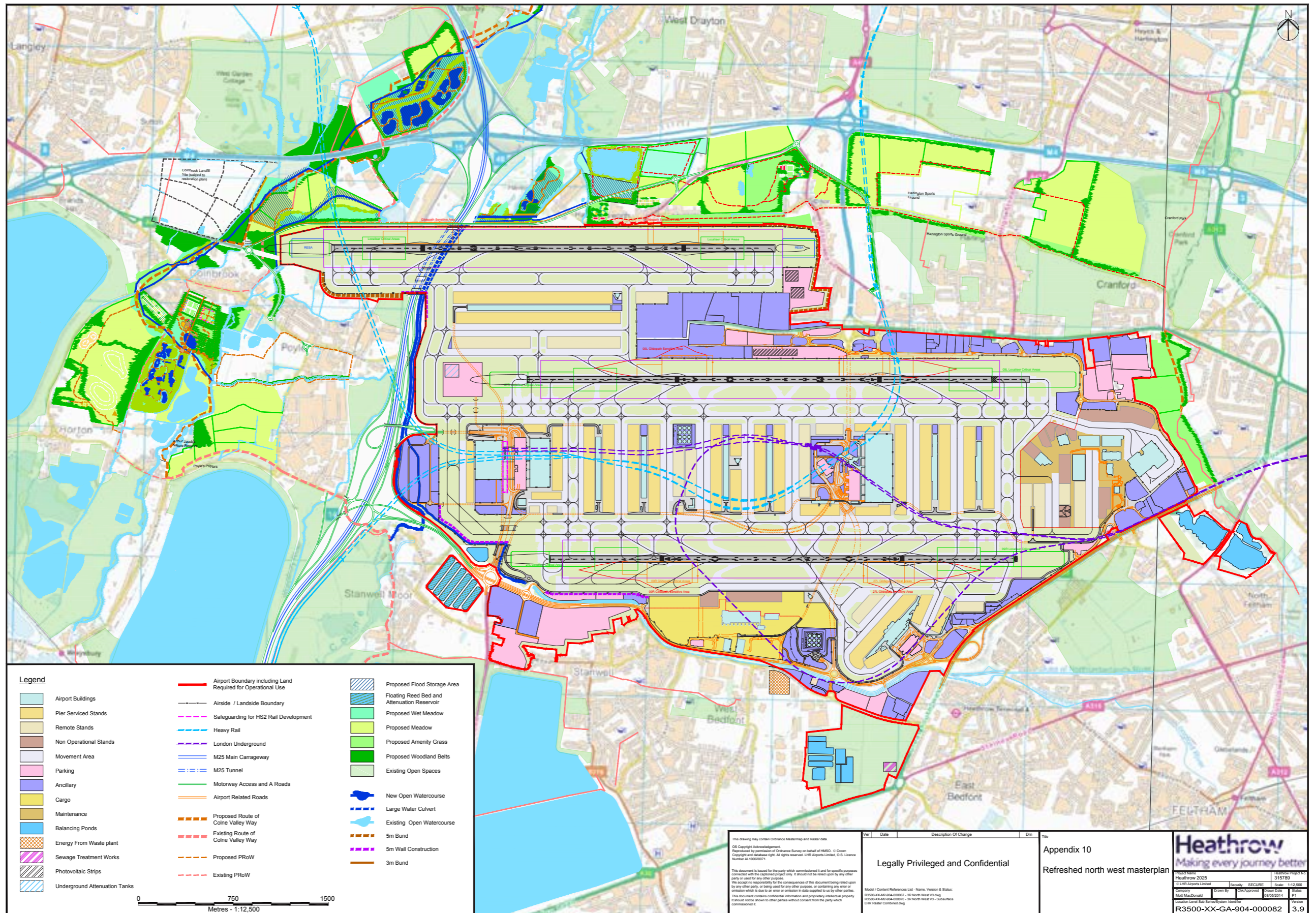
8 Our vision for a world class hub - Dusk



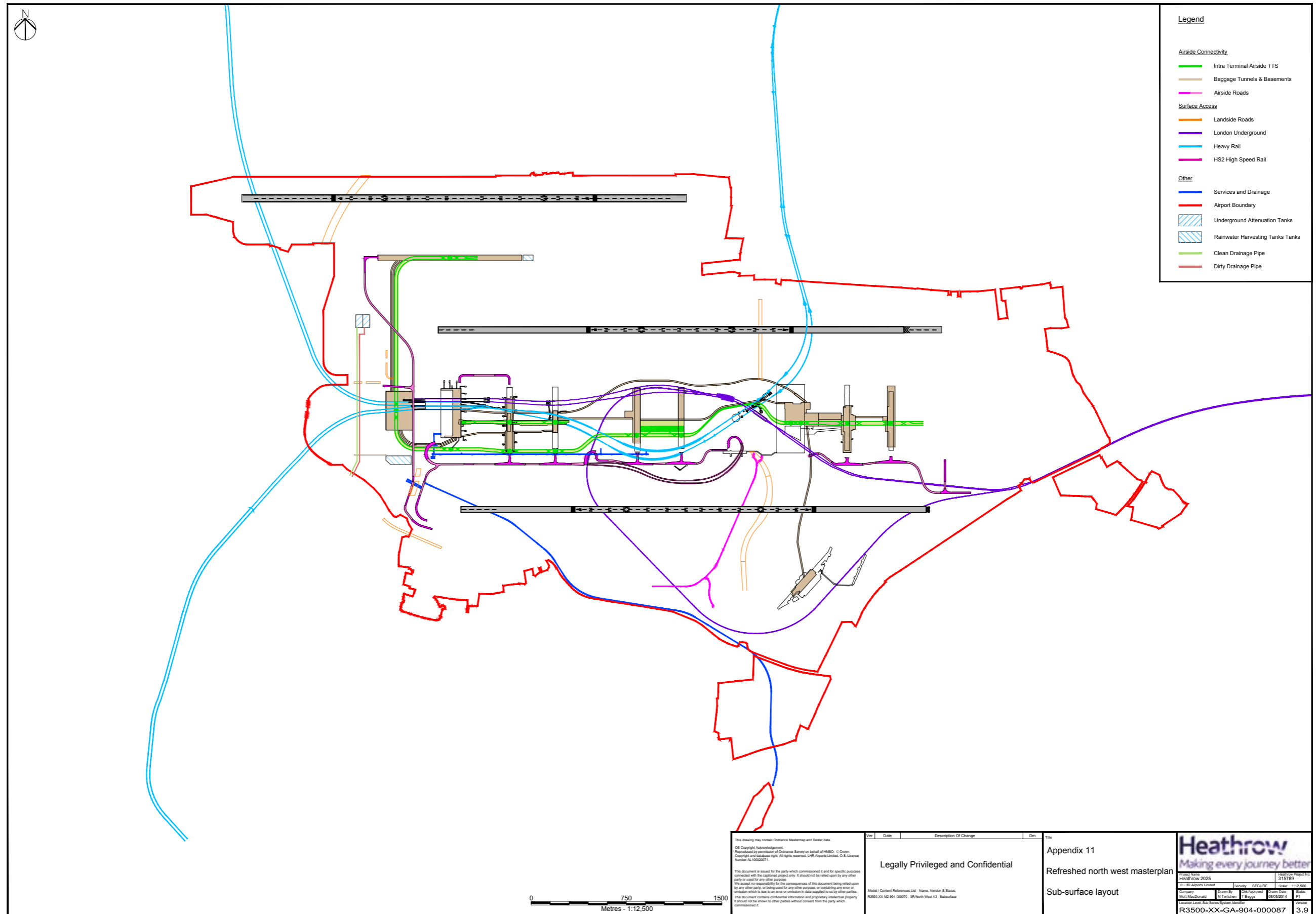
9 Our vision for a world class hub- Integrated Transport hub



10 Refreshed north west masterplan



11 Refreshed north west masterplan: Sub-surface layout



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<p>This drawing may contain Ordnance Mastermap and raster data. <small>© Crown Copyright and database right. All rights reserved. LHR Airports Limited. O.S. Licence Number AL10002071.</small></p> <p>This document is issued for the party which commissioned it and for specific purposes connected with the captioned project only. It should not be relied upon by any other party or used for any other purpose. <small>We accept no responsibility for the consequences of this document being relied upon by any other party, or being used for any other purpose, or containing any error or omission which is due to an error or omission in data supplied to us by other parties. This document contains confidential information and proprietary technical property. It should not be shown to other parties without consent from the party which commissioned it.</small></p>		<table border="1"> <thead> <tr> <th>Ver</th> <th>Date</th> <th>Description Of Change</th> <th>Drn</th> <th>Trn</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;">Legally Privileged and Confidential</td> </tr> </tbody> </table>	Ver	Date	Description Of Change	Drn	Trn	Legally Privileged and Confidential					<p>Appendix 11 Refreshed north west masterplan Sub-surface layout</p>	<table border="1"> <tr> <td>Project Name</td> <td>Heathrow Project No</td> </tr> <tr> <td>Heathrow 2025</td> <td>315789</td> </tr> <tr> <td>© LHR Airports Limited</td> <td>Scale: 1:12,500</td> </tr> <tr> <td>Security: SECURE</td> <td>Drawn By: N. Macdonald</td> </tr> <tr> <td>Checked/Approved: T. Benge</td> <td>Issue Date: 04/09/2014</td> </tr> <tr> <td>Location/Level/Sub-System/System Identifier</td> <td>Revision: P1</td> </tr> <tr> <td>R3500-XX-GA-904-000087</td> <td>Version: 3.9</td> </tr> </table> <p>Document Uncontrolled When Printed ISO A1 Landscape</p>	Project Name	Heathrow Project No	Heathrow 2025	315789	© LHR Airports Limited	Scale: 1:12,500	Security: SECURE	Drawn By: N. Macdonald	Checked/Approved: T. Benge	Issue Date: 04/09/2014	Location/Level/Sub-System/System Identifier	Revision: P1	R3500-XX-GA-904-000087	Version: 3.9
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12a Refreshed north west masterplan: Minimum connection time summary – Intra-terminal

Refreshed north west masterplan: Minimum connection time summary Intra-terminal metrics

Assumptions - Passengers

- Assume all transfer passengers are short connects and arrive and depart on pier-served stands
- Assume passengers are transferring between international services therefore no immigration processes are considered
- No travellers are taken into consideration hence all horizontal transitions within a terminal are assumed to be covered by walking
- The TTS average speed between satellites is assumed to be increased by a factor of 25% due to higher speed and the reduced proportion of acceleration/deceleration times
- Assume Concourse C TTS station includes a transfer security area in the mezzanine corridor (7m height)
- Vertical profiles for T6 terminal/piers are assumed to be the same as in T2 (i.e. TTS at basement level)
- Assumes longest distance between stand of arrival and departure, excluding arrival and departure from same pier

Disembarking	
Overall	6 min
Doors open	3 min
Passengers disembark	3 min
Passenger flow	
Walking speed	1 m/s
Escalator speed (assumed 10m per level)	0.83 min/level
TTS Platform	
Waiting time (worst case scenario)	2 min
Doors open	5 sec
Dwelling time at the platform	0.5 min
Travel time between satellites (same apron, 350m)	1 min
TTS average speed between aprons (+25%)	7.3 m/s
Boarding Card Check	
Boarding Card Queue	1 min
Boarding Card Process	0.1 min
Security Screening	
Security Screening queue	5 min
Security Screening Total Time in Process	2.0 min

>> Assume 30° elevation angle and speed of 0.4 m/s

>> 26.25 km/h

Assumptions - Bags

- Assume all transfer bags are short connects and arrive and depart on pier-served stands
- It is assumed that all core processors and satellites have adequate break-up, make-up and HBS facilities functioning bags
- Assumes all piers and processors have head of stand delivery facilities for short connect and late bags, ex
- All inter-terminal bag transfers go via core processor to core processor
- All short-connect bags travel via automated systems, except around T4
- All short connect bags go through HBS at satellite of departure

Unloading	
Overall	7 min
Cargo Doors open	3 min
ULDs Off-Loaded	4 min
Break-Down	
Time taken to break-down ULD	12 min
In-Process	
HBS and In-System Time	600 secs
Delivery to Aircraft (tug and dolly)	4.2 m/s
Delivery to Aircraft (automation)	10 m/s
Make-Up	
Time taken to make-up ULD	30 secs
Loading	
Overall	7.0 min
ULDs loaded	4 min
Cargo Doors closed	3.0 min

2 mins per ULD. Assumes transfer bed in first ones off

Equates to 15kph
Website states 10 or 14m/s

2 mins per ULD. Assumes transfer bed in last ones on

3R NW - PASSENGERS

T2 Concourse E - Concourse A via Concourse C	Time (s)	Time (min)
Disembarking	360	6.0
Arrival Gate to Conc E TTS Platform (walking)	350 m	5.8
Arrival Gate to Conc E TTS Platform (escalator)	3 levels	150
TTS Wait	120	2.0
TTS Doors opening	5	0.1
TTS Platform dwell	30	0.5
TTS Travel Conc E - Conc D + Platform dwelling	1 piers	90
TTS Travel between Conc D - Conc C	1000 m	137
TTS Platform dwell	30	0.5
TTS Travel Conc C - Conc A + Platform dwelling Conc B	2 piers	150
TTS Doors opening	5	0.1
Conc A TTS Platform to Conc A TTS Security (escalator)	2 levels	100
Conc A TTS Platform to Conc A Security (walking)	50 m	0.8
Conc A Boarding Card queue	60	1.0
Conc A Boarding Card Process	6	0.1
Conc A Security Screening queue	300	5.0
Conc A TTS Security Screening process	120	2.0
Conc A Security to Departure Gate (escalator)	1 levels	50
Conc A Security to Departure Gate (walking)	210 m	3.5
Buffer *	300	5.0
TOTAL		43.7

* Includes 5min buffer between pax reaching gate and checks off.

3R NW - BAGS

T2 Concourse E - Concourse A via Concourse C	Time (s)	Time (min)
Unloading	420	7.0
ULD to break-down area (t + d)	250 m	60
ULD break-down	720	12.0
Bag transfer from Conc E to Conc C (auto)	1500 m	150
Bag transfer from Conc C to Conc A (auto)	650 m	65
HBS and In-System Time	600	10.0
Loading	120	2.0
Buffer *	300	5.0
TOTAL		40.6

* Includes 5min buffer between bags being loaded and checks off.

T4 (V-Pier) - T4 (North Pier)	Time (s)	Time (min)
Disembarking (End of Victor Pier)	360	6.0
Arrival Gate to Security Search (walking)	780 m	7.8
Boarding Card Queue	60	1.0
Boarding Card Process	6	0.1
Security Screening Queue	300	5.0
Security Screening Process	120.0	2.0
Security to Departure Gate (escalator)	1 levels	50
Security to Departure Gate (walking)	490 m	4.9
Buffer *	300	5.0
TOTAL		41.1

T4 (V-Pier) - T4 (North Pier)	Time (s)	Time (min)
Unloading	420	7.0
ULD to break-down area (t + d)	750 m	179
ULD break-down	720	12.0
HBS and In-System Time	600	10.0
Deliver ULD to aircraft (t + d)	500 m	119
Loading	120	2.0
Buffer *	300	5.0
TOTAL		41.0

T5 Concourse F - Concourse H	Time (s)	Time (min)
Disembarking	360	6.0
Arrival Gate to Conc F TTS Platform (walking)	250 m	4.2
Arrival Gate to Conc F TTS Platform (escalator)	2 levels	100
TTS Wait	120	2.0
TTS Doors opening	5	0.1
TTS Platform dwell	30	0.5
TTS Travel between Conc F - Conc H + Platform dwelling	2 piers	150
TTS Doors opening	5	0.1
Conc H TTS Platform to Conc H Security (escalators)	4 levels	200
Conc H TTS Platform to Conc H Security (walking)	50 m	0.8
Boarding Card Queue	60	1.0
Boarding Card Process	6	0.1
Conc H Security Screening queue	300	5.0
Conc H Security Screening process	120	2.0
Conc H Security to Departure Gate (escalator)	1 levels	50
Conc H Security to Departure Gate (walking)	250 m	4.2
Buffer *	300	5.0
TOTAL		39.3

T5 Concourse F - Concourse H	Time (s)	Time (min)
Unloading	420	7.0
ULD to break-down area (t + d)	240 m	57
ULD break-down	720	12.0
Bag transfer from Conc F to Conc H (auto)	750 m	75
HBS and In-System Time	600	10.0
Loading	120	2.0
Buffer *	300	5.0
TOTAL		38.2

T6 Concourse K - Concourse J	Time (s)	Time (min)
Disembarking	360	6.0
Arrival Gate to Conc K TTS Platform (walking)	550 m	9.2
Arrival Gate to Conc K TTS Platform (escalator)	2 levels	100
TTS Wait	120	2.0
TTS Doors opening	5	0.1
TTS Platform dwell	30	0.5
TTS Travel Conc K - Conc J	0 piers	0
TTS Travel between Conc K - Conc J	1700 m	233
TTS Doors opening	5	0.1
Conc J TTS Platform to Conc J Security (escalators)	4 levels	200
Conc J TTS Platform to Conc J Security (walking)	100 m	1.7
Boarding Card Queue	60	1.0
Boarding Card Process	6	0.1
Conc J Security Screening queue	300	5.0
Conc J Security Screening process	120	2.0
Conc J Security to Departure Gate (escalator)	1 levels	50
Conc J Security to Departure Gate (walking)	150 m	2.5
Buffer *	300	5.0
TOTAL		44.8

T6 Concourse K - Concourse J	Time (s)	Time (min)
Unloading	420	7.0
ULD to break-down area (t + d)	650 m	155
ULD break-down	720	12.0
Bag transfer from Conc K to Conc J (auto)	1400 m	140
HBS and In-System Time	600	10.0
Loading	120	2.0
Buffer *	300	5.0
TOTAL		40.9

12b Refreshed north west masterplan: Minimum connection time summary – Inter-terminal

Refreshed north west masterplan: Minimum connection time summary

Inter-terminal metrics

Assumptions

- Assume all transfer passengers are short connects and arrive and depart on pier-served stands
- Assume passengers are transferring between international services therefore no immigration processes are considered
- No travellers are taken into consideration hence all horizontal transitions within a terminal are assumed to be covered by walking
- The TTS average speed between satellites is assumed to be increased by a factor of 25% due to higher speed and the reduced proportion of acceleration/deceleration times
- Vertical profiles for T6 are assumed to be the same as in T2 (i.e. TTS at basement level)
- Airside coach maximum speed is 5 mph (8 km/h) in apron roads; 20 mph (32.2 km/h) in airside roads; and 30 mph (48.3 km/h) inside the cargo tunnels
- Assume a factor of -25% to be applied to the maximum coach speed to account for apron circulation, and acceleration/deceleration at intersections and junctions
- Assume airside coach travel only stops at main processors between terminal pairs
- TTS connecting T2 and T5 stops at all concourses

Disembarking		
Overall		6 min
	Doors open	3 min
	Passengers disembark	3 min
Passenger flow		
	Walking speed	1 m/s
	Escalator speed (assumed 10m per level)	0.83 min/level
TTS Platform		
	Waiting time (worst case scenario)	2 min
	Doors open	5 sec
	Dwelling time at the platform	0.5 min
	Travel time between satellites (same apron)	1 min
	TTS average speed between aprons (+25%) T2&T5	7.3 m/s
	TTS average speed between aprons (+50%) T6	8.8 m/s
Airside coach		
	Waiting time (worst case scenario)	10 min
	Boarding	2 min
	Deboarding	1 min
	Average speed (airside roads)	7.2 km/h
	Average speed (tunnels)	10.7 km/h
Boarding Card Presentation.		
	Boarding Card Queue	1 min
	Boarding Card Process	0.1 min
Security Screening		
	Security Screening queue	5 min
	Security Screening process	2.0 min

>> Assume 30° elevation angle and speed of 0.4 m/s

>> 26.25 km/h

>> 25.8kph

>> 38.6kph

3R NW PASSENGERS

T2 - T5 (Concourse A - Concourse H via Concourse C)	Time (s)	Time (min)
Disembarking	360	6.0
Arrival Gate to T2C TTS Platform (walking)	230 m	230
Arrival Gate to T2C TTS Platform (escalator)	3 levels	150
TTS Wait	120	2.0
TTS Doors opening	5	0.1
TTS Platform dwell	30	0.5
TTS Travel Conc A - Conc C + Platform dwelling	2 piers	180
TTS Travel between Conc C - Conc D + Platform dwelling	1000 m	167
TTS Travel between Conc D - Conc E + Platform dwelling	1 piers	90
TTS Travel between Conc E - Conc F + Platform dwelling	650 m	119
TTS Travel Conc F - Conc H + Platform dwelling	2 piers	150
TTS Doors opening	5	0.1
Conc H TTS Platform to Conc H Security (escalator)	4 levels	200
Conc H TTS Platform to Conc H Security (walking)	200 m	200
Conc H Boarding Card Queue	60	1.0
Conc H Boarding Card Process	6	0.1
Conc H Security Screening queue	300	5.0
Conc H Security Screening process	120	2.0
Conc H Security to Conc H Departure Gate (escalator)	1 levels	50
Conc H Security to Conc H Departure Gate (walking)	250 m	250
Buffer *	300	5.0
TOTAL		51.5

* Includes 5min buffer between pax reaching gate and checks off.

3R NW BAGS

T2 - T5 (Concourse A - Concourse H via Concourse C)	Time (s)	Time (min)
Unloading	420	7.0
ULD to break-down area (t + d)	230 m	55
ULD break-down	720	12.0
Bag transfer from Conc A to Conc C (auto)	650 m	65
Bag transfer from Conc C to Conc H (auto)	2900 m	290
HBS and In-System Time	600	10.0
Loading	120	2.0
Buffer *	300	5.0
TOTAL		42.8

* Includes 5min buffer between bags being loaded and checks off.

Assumptions - Bags

- Assume all transfer bags are short connects and arrive and depart on pier-served stands
- It is assumed that all core processors and satellites have adequate break-up, make-up and HBS facilities for short connecting bags
- Assumes all piers and processors have head of stand delivery facilities for short connect and late bags, except T4
- All inter-terminal bag transfers go via core processor to core processor
- All short-connect bags travel via automated systems, except around T4
- All short connect bags go through HBS at satellite of departure

Unloading	
Overall	7 min
	Cargo Doors open
	ULDs Off-Loaded
Break-Down	
	Time taken to break-down ULD
In-Process	
	HBS and In-System Time
	Delivery to Aircraft (tug and dolly)
	Delivery to Aircraft (automation)
Make-Up	
	Time taken to make-up ULD
Loading	
Overall	7.0 min
	ULDs loaded
	Cargo Doors closed

2 mins per ULD. Assumes transfer bags contained in first ones off

Equates to 15kph

Website states 10 or 14m/s

2 mins per ULD. Assumes transfer bags contained in last ones on

T2 - T6 (Conc A - Conc K via Conc C, Conc H and Conc J)	Time (s)	Time (min)
Disembarking	360	6.0
Arrival Gate to Conc A TTS Platform (walking)	230 m	230
Arrival Gate to Conc A TTS Platform (escalator)	3 levels	150
TTS Wait	120	2.0
TTS Doors opening	5	0.1
TTS Platform dwell	30	0.5
TTS Travel Conc A - Conc C + Platform dwelling	2 piers	180
TTS Travel between Conc C - Conc D + Platform dwelling	1000 m	167
TTS Travel between Conc D - Conc E + Platform dwelling	1 piers	90
TTS Travel between Conc E - Conc F + Platform dwelling	650 m	119
TTS Travel Conc F - Conc H + Platform dwelling	2 piers	180
TTS Travel between Conc H - Conc J + Platform dwelling	700 m	126
TTS Travel between Conc J - Conc K	1700 m	194
TTS Doors opening	5	0.1
Conc K TTS Platform to Conc K Security (escalator)	2 levels	100
Conc K TTS Platform to Conc K Security (walking)	50 m	50
Conc K Boarding Card Queue	60	1.0
Conc K Boarding Card Process	6	0.1
Conc K Security Screening queue	300	5.0
Conc K Security Screening process	120	2.0
Conc K Security to Conc K Departure Gate (escalator)	1 levels	50
Conc K Security to Conc K Departure Gate (walking)	650 m	650
Buffer *	300	5.0
TOTAL		59.9

T5 - T6 (Conc F - Conc K via Conc H and Conc J)	Time (s)	Time (min)
Disembarking	360	6.0
Arrival Gate to Conc F TTS Platform (walking)	450 m	450
Arrival Gate to Conc F TTS Platform (escalator)	3 levels	150
TTS Wait	120	2.0
TTS Doors opening	5	0.1
TTS Platform dwell	30	0.5
TTS Travel between Conc F - Conc H + Platform dwelling	2 piers	180
TTS Travel between Conc H - Conc J + Platform dwelling	700 m	126
TTS Travel between Conc J - Conc K	1700 m	194
TTS Doors opening	5	0.1
Conc K TTS Platform to Conc K Security (escalator)	2 levels	100
Conc K TTS Platform to Conc K Security (walking)	50 m	50
Conc K Boarding Card Queue	60	1.0
Conc K Boarding Card Process	6	0.1
Conc K Security Screening queue	300	5.0
Conc K Security Screening process	120	2.0
Conc K Security to Departure Gate (escalator)	1 levels	50
Conc K Security to Departure Gate (walking)	650 m	650
Buffer *	300	5.0
TOTAL		54.3

T2 - T6 (Conc A - Conc K via Conc C, Conc H and Conc J)	Time (s)	Time (min)
Unloading	420	7.0
ULD to break-down area (t + d)	230 m	55
ULD break-down	720	12.0
Bag transfer from Conc A to Conc C (auto)	650 m	65
Bag transfer from Conc C to Conc H (auto)	2900 m	290
Bag transfer from Conc H to Conc J (auto)	650 m	65
Bag transfer from Conc J to Conc K (auto)	1600 m	160
HBS and In-System Time	600	10.0
Loading	120	2.0
Buffer *	300	5.0
TOTAL		46.6

T5 - T6 (Conc F - Conc K via Conc H and Conc J)	Time (s)	Time (min)
Unloading	420	7.0
ULD to break-down area (t + d)	450 m	107
ULD break-down	720	12.0
Bag transfer from Conc F to Conc H (auto)	750 m	75
Bag transfer from Conc H to Conc J (auto)	850 m	85
Bag transfer from Conc J to Conc K (auto)	1600 m	160
HBS and In-System Time	600	10.0
Loading	120	2.0
Buffer *	300	5.0
TOTAL		43.1

13 Refreshed north west masterplan: Terminal and apron sizing summary

Refreshed north west masterplan terminal and apron sizing - 3R MAX Schedule

Terminal size limits (pax)

	Peak below the minimum value
	Peak between minimum and maximum values
	Peak above maximum value

T4	Existing	
Total Size (No. of bays)	Min	Max*
Departures Hourly Capacity	1650	2350
Arrivals Hourly Capacity	1800	2500

* Maximum limit is the upper referral value as in "ACL LHR Start of Season Report - Winter 2012"

T5	Existing	Expanded Terminal Building									
		27		29		30		31		32	
Total Size (No. of bays)	21**	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max*
Departures Hourly Capacity	5700	6800	7800	7200	8300	7500	8600	7700	8900	8000	10100
Arrivals Hourly Capacity	4500	6000	9500	6500	11500	7000	12500	7000	13500	7500	14500

* Maximum limit is +15% of minimum as it considers potential technology advancements (e.g. check-in, security, etc.)

** A 10% discomfort factor is added to the maximum departures value as the departures peak exceeds capacity for less than 1h. In case the peak exceeds capacity for more than 1 hour, the discomfort factor would be 5%.

T2	Existing	Expanded Terminal Building									
		35		45		55		60 (O1)*		67 (O2)*	
Total Size (No. of bays)	21	Min	Max	Min	Max	Min	Max	Min	Max**	Min	Max**
Departures Hourly Capacity	3350	5300	6100	7100	7200	8700	8900	10200	11700	10800	12400
Arrivals Hourly Capacity	3400	4900		7300	9700	9700	14600	10700		12600	

* OPTION 1 - Maximum T2 expansion is 60 bays; OPTION 2 - Maximum T2 expansion is 67 bays

** Maximum limit is +15% of minimum as it considers potential technology advancements (e.g. check-in, security, etc.) For arrivals the minimum capacity is assumed as the only reference value

T6	Existing	
Total Size (No. of bays)	35	
Departures Hourly Capacity	5300	6100
Arrivals Hourly Capacity	4900	

Model Output	
--------------	--

(current run)	
Max Departures Hourly Peak	1,855
Max Arrivals Hourly Peak	2,155

Model Output	
--------------	--

(current run)	
Max Departures Hourly Peak	5,603
Max Arrivals Hourly Peak	3,860

Model Output	
--------------	--

(current run)		
O1	Max Departures Hourly Peak	9,816
O2	Max Departures Hourly Peak	
O1	Max Arrivals Hourly Peak	9,153
O2	Max Arrivals Hourly Peak	

Model Output	
--------------	--

(current run)	
Max Departures Hourly Peak	5,633
Max Arrivals Hourly Peak	5,851

Model Output	
--------------	--

(current run)	
A4 - Stand Frontage Demand	1,286
A5 - Stand Frontage Demand	4,630
A2 - Stand Frontage Demand	9,084
A6 - Stand Frontage Demand	4,425

* Stand demand frontage includes +10% added to the baseline (lubrication) and +5% (equipment)

Apron size limits

Stand frontage measurements from available CAD drawings

3R NW v3	Measured stand frontage	
A4	1768	
A5	5149	4630
A2	8517	9036
A6	5220	

* T2 and T5 are assumed to share the bank of remote stands

MPPA per terminal

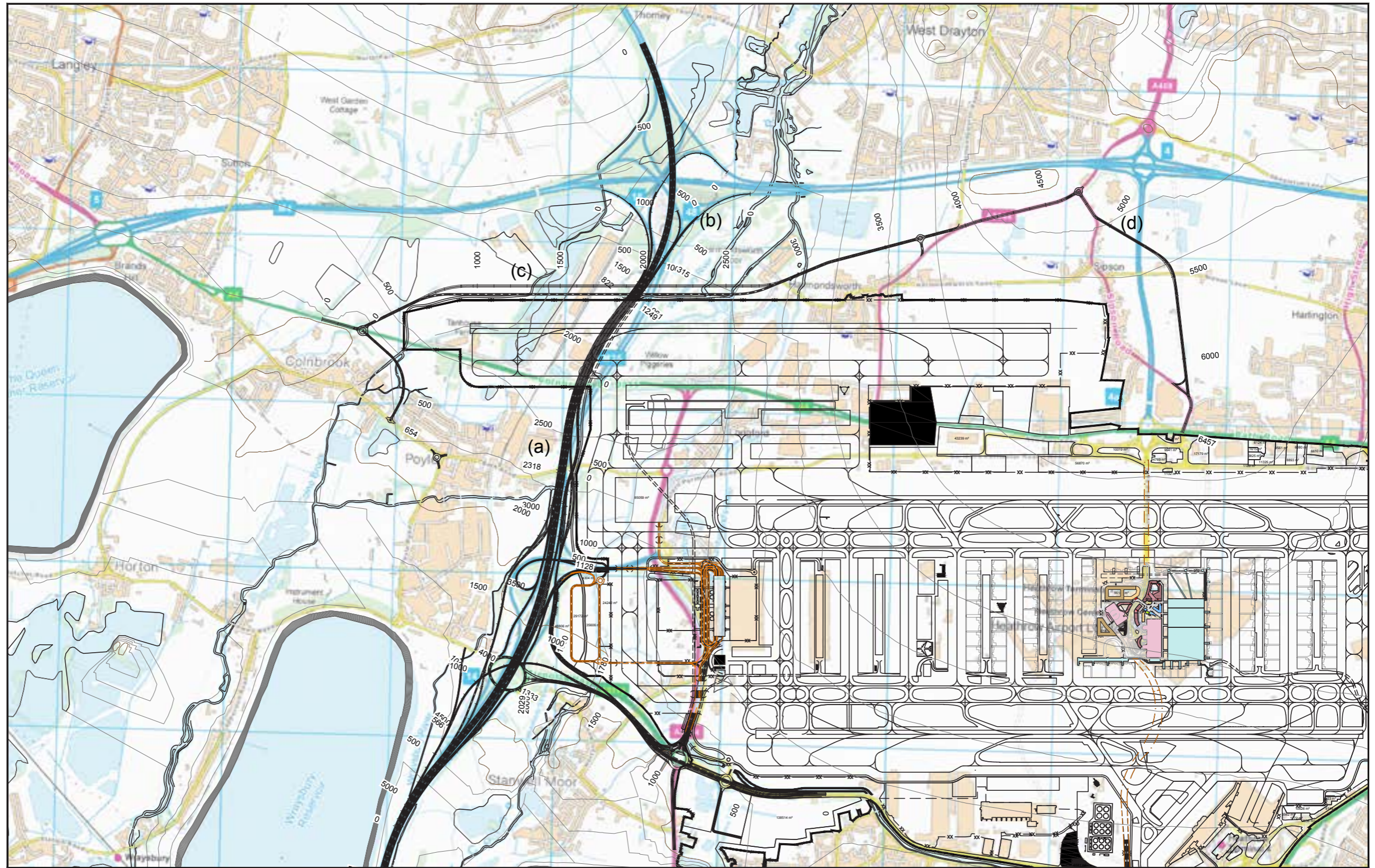
3R NW v3	MPPA Model Output*	MPPA Expected
T2	59.90	55
T4	8.90	10
T5	27.12	30
T6	34.28	35

* For each terminal, daily passenger volumes are multiplied by a ratio of 345 to obtain the annual throughput then reduced by 9.1% to relate it to a baseline scenario (130 MPPA)

14 Cost Plan Summary

Description	Total £
Environmental	679,000,000
Ecology	13,700,000
Landscape	154,800,000
Habitat Reprovision	29,700,000
Landscape	125,100,000
Surface Water Flood Mitigation (Includes Previous Ponds)	305,100,000
Surface Water Flood Mitigation (Includes Previous Ponds)	134,700,000
Culverts	31,900,000
Waterways	85,800,000
De Icing Pads	32,900,000
Sundries	19,800,000
Listed Building Decants / Relocations	51,000,000
Listed Building Decants / Relocations	24,000,000
Archaeology	27,000,000
Energy / Water / Waste (Sustainability)	43,900,000
Noise Mitigation	110,500,000
Noise Bunds	86,600,000
Local Road Resurfacing	16,200,000
Acoustic fence	7,700,000
Community	2,883,700,000
Residential Property Compulsory Purchase	300,000,000
Commercial Property Compulsory Purchase	1,740,000,000
Noise insulation provisions	250,000,000
Noise compensation provisions	incl above
CIL	59,700,000
Land Purchase	455,000,000
Other Community	79,000,000
Surface Access	891,550,000
Roads / Highways	350,800,000
Roads / Highways / Collector & Distributor roads	216,400,000
Western airport access road tunnels	134,400,000
Motorways	480,000,000
Motorways	283,000,000
Tunnels	194,000,000
Sundries	3,000,000
Rail Scheme Contributions	60,750,000
West Station Fit Out	60,750,000
Southern Rail Connection	-
Airport Infrastructure	11,138,000,000
Decants / Demolitions	341,000,000
Site Clearance	121,000,000
Decants / Demolitions	220,000,000
Enabling Works	221,000,000
Earthworks	46,000,000
Site Levelling and Soil Remediation / Stabilisation	175,000,000
Terminals and Satellites	4,663,000,000
Terminal Basement	320,000,000
Terminal Superstructure	603,000,000
Terminal Fit Out	1,143,000,000
Satellite Basement	176,000,000
Satellite Superstructure	533,000,000
Satellite Fit Out	368,000,000
VCC, Airbridge, PCA, nodes and fixed links to new stands	294,000,000
Western Campus; TTS Stations T5A, B & C	287,000,000
T2E Satellite	939,000,000
Baggage and TTS	2,617,000,000
Baggage Tunnels Civils	158,000,000
Baggage Equipment Terminal	386,000,000
Baggage Equipment Satellite	555,000,000
Baggage Tunnels Fit Out	377,000,000
TTS Tunnels Civils	470,000,000
TTS Station Fit Out	139,000,000
TTS Tunnels Fit Out & Rolling Stock	180,000,000
TTS Maintenance Base Substructure	133,000,000
TTS Maintenance Base Fit Out	42,000,000
T2E baggage	177,000,000
Airfield	1,979,000,000
Runways and Taxiways	591,000,000
Stands and Aprons	17,000,000
Contact Stands to satellites	127,000,000
Remote Stands	102,000,000
Airside Roads & Tunnels	429,000,000
Balancing Ponds	168,000,000
Land Use Plan	125,000,000
Fuel Farms	136,000,000
Control Tower	102,000,000
Navigational Equipment / Lighting	64,000,000
Airfield Noise Mitigation	93,000,000
Site Security Fence	7,000,000
Control Posts	18,000,000
Landside Infrastructure	1,112,000,000
Car Parking	645,000,000
Energy and Infrastructure	120,000,000
Utilities	222,000,000
Landside connectivity systems	125,000,000
Development Process Costs	205,000,000
Consents	175,000,000
Operational Readiness	25,000,000
Aerodrome Manual	5,000,000
Grand Total	£15,592,000,000

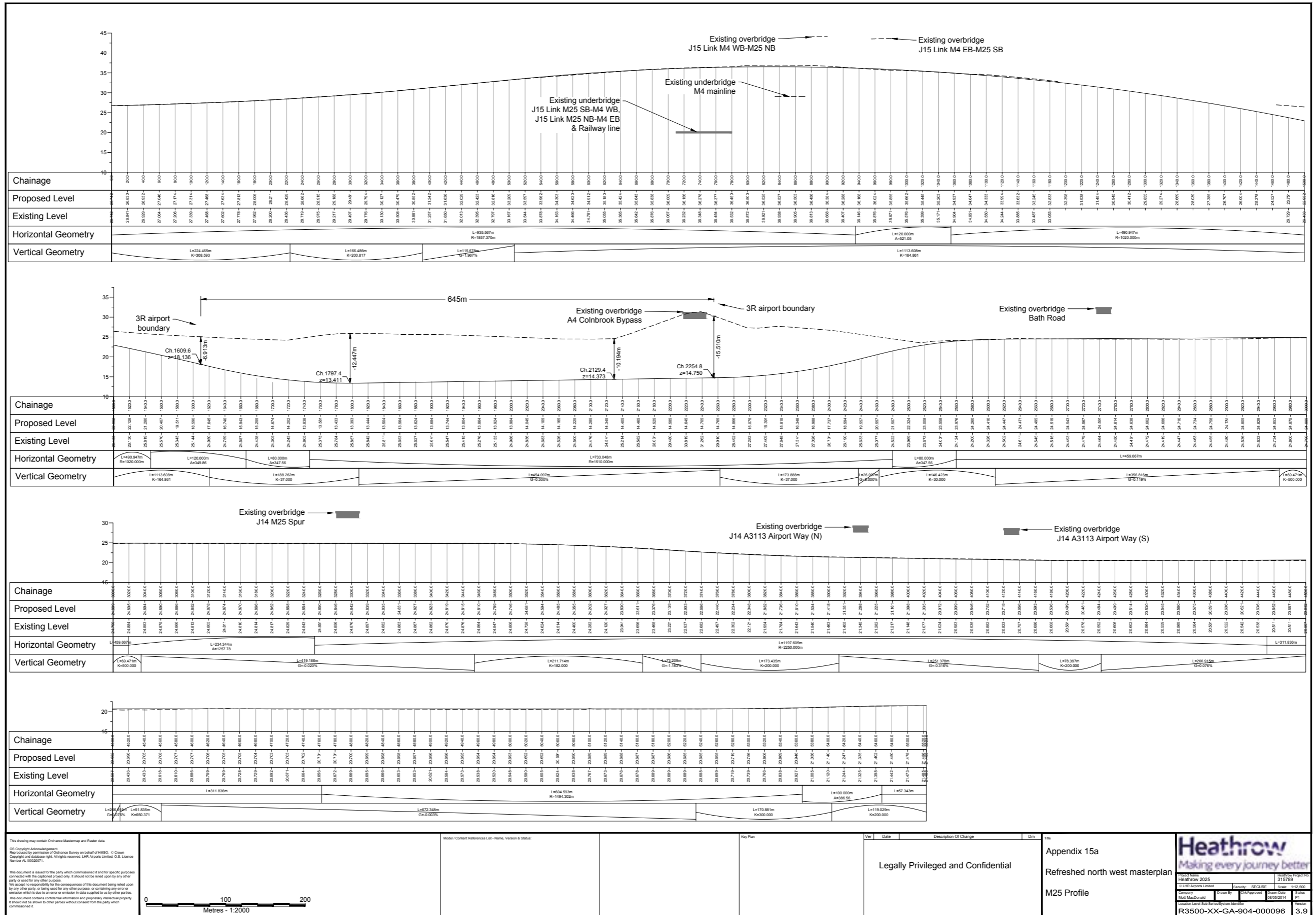
15 Refreshed north west masterplan: M25 Junction 14/14a/15 Layout



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Ver	Date	Description Of Change	Drn											

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15a Refreshed north west masterplan: M25 profile



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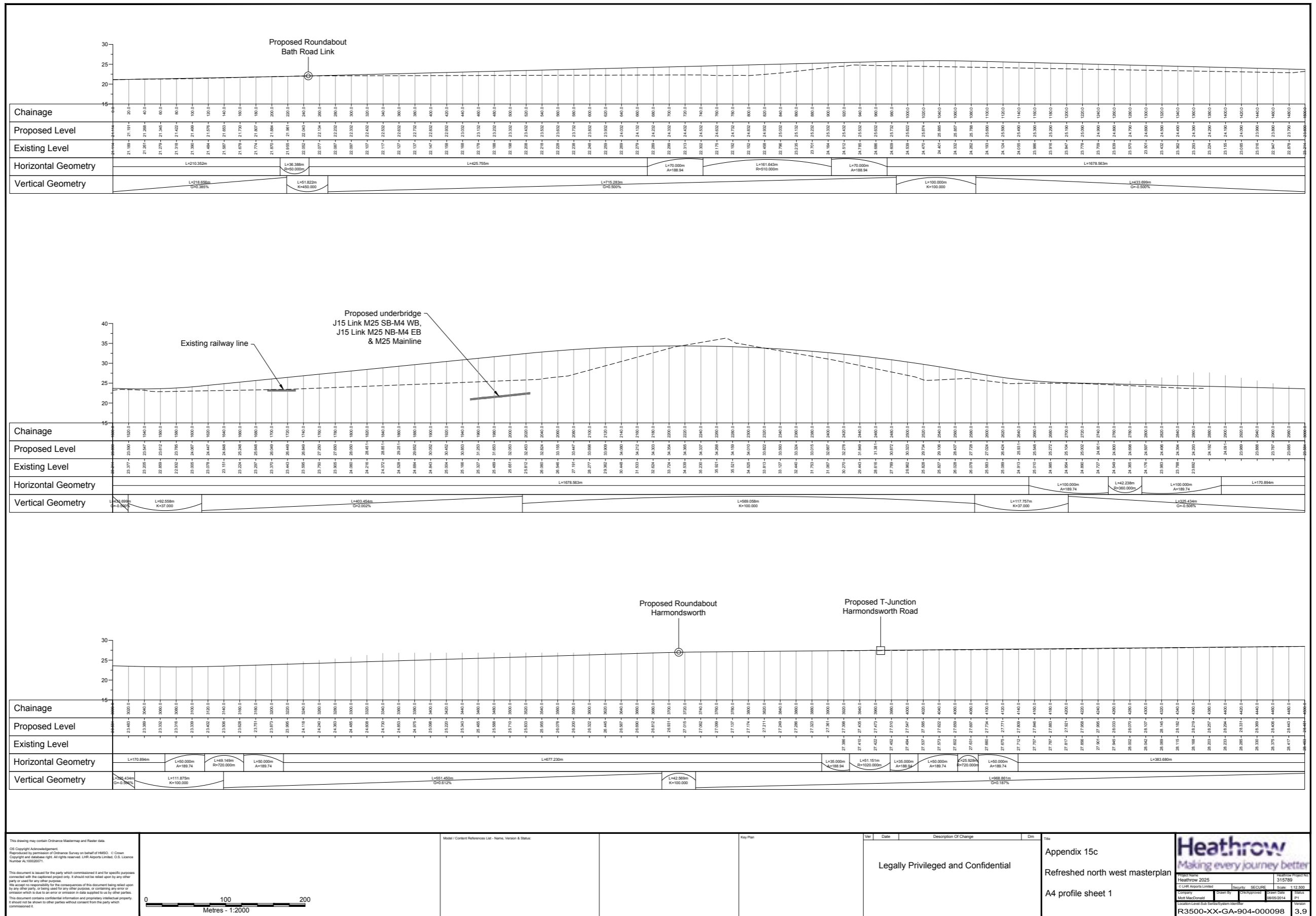
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Appendix 15a
Refreshed north west masterplan
M25 Profile

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Heathrow 2025
LHR Airports Limited
R3500-XX-GA-904-000096
3.9

15c Refreshed north west masterplan: A4 profile sheet 1



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Appendix 15c
Refreshed north west masterplan
A4 profile sheet 1

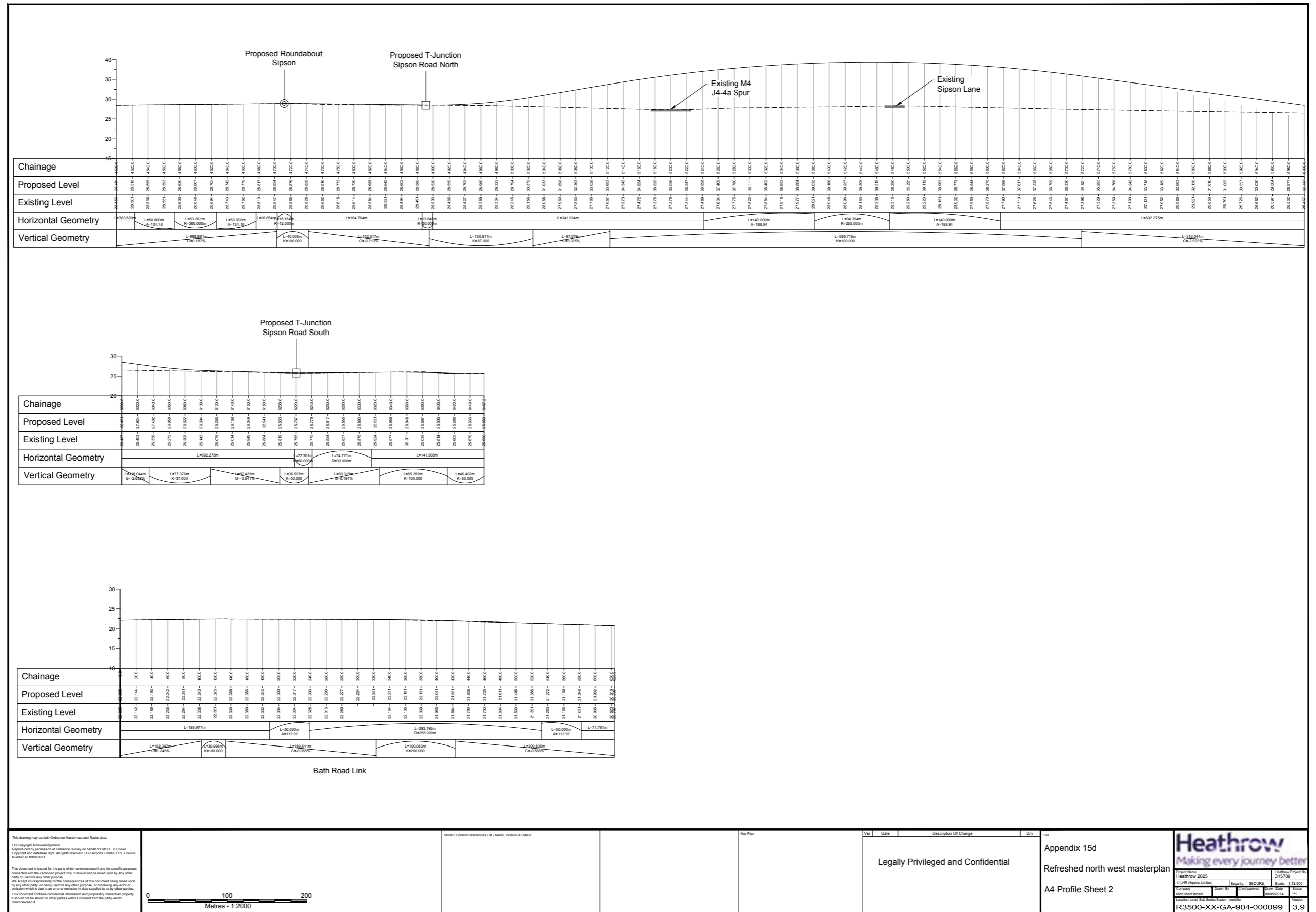
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Heathrow 2025
LHR Airports Limited
Mick Macdonald
R3500-XX-GA-904-000098

315789
Scale: 1:12,500
Date: 03/05/2014
Version: P1
3.9

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15d Refreshed north west masterplan: A4 profile sheet 2



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Ver.	Date	Description Of Change	Dim	File

Model / Content Reference List - Name, Version & Status

Key Plan

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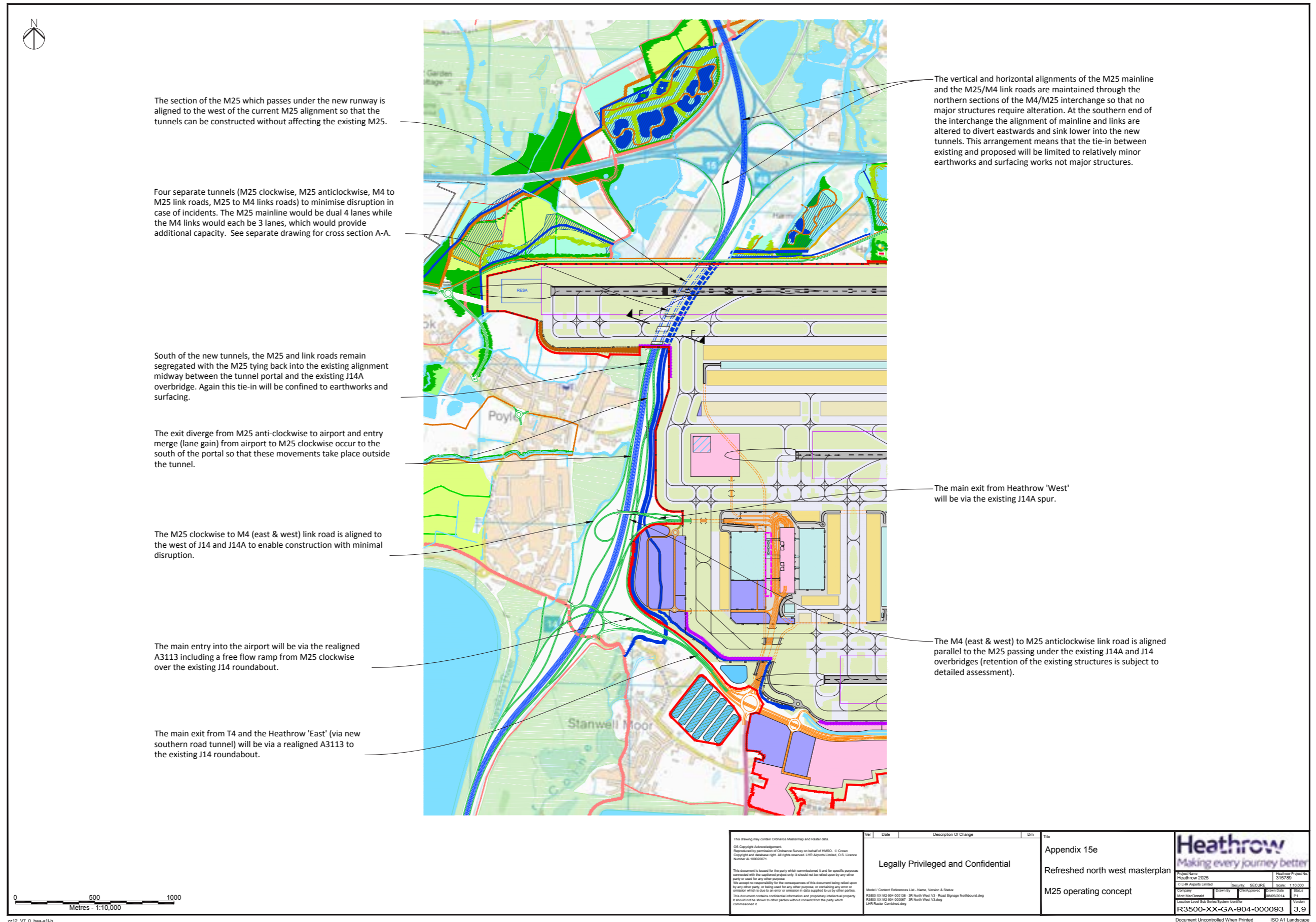
Appendix 15d
Refreshed north west masterplan
A4 Profile Sheet 2

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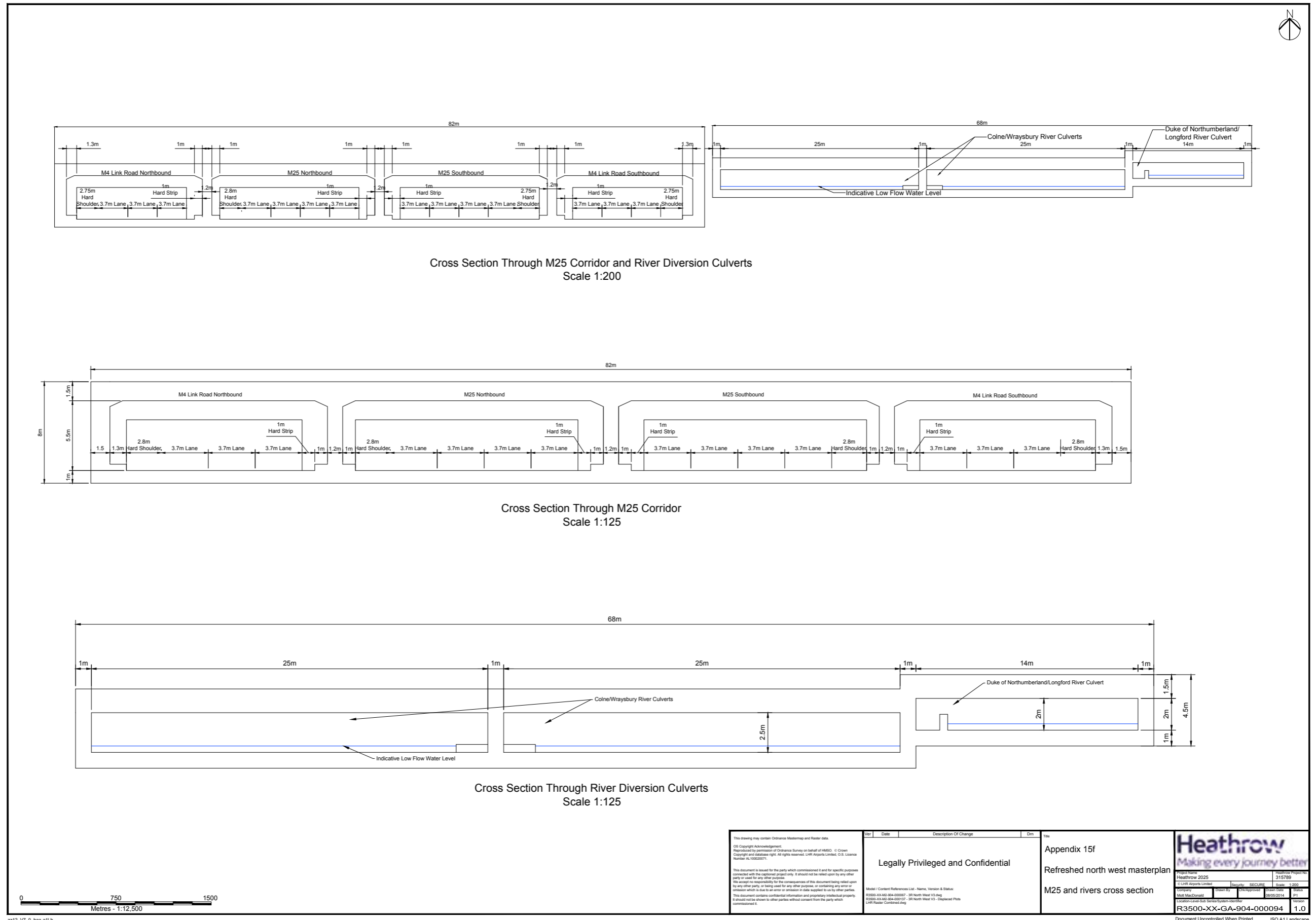
Project Name	Heathrow 2025	Project No.	315789
Client	LHR Airport Limited	Security	SECURE
Author	Mark MacDonald	Issue No.	08/05/2014
Location	Level Sub-System: Standard	Version	01
Reference	R3500-XX-GA-904-000099	Scale	1:2,000

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15e Refreshed north west masterplan: M25 operating concept



15f Refreshed north west masterplan: M25 and rivers cross sections

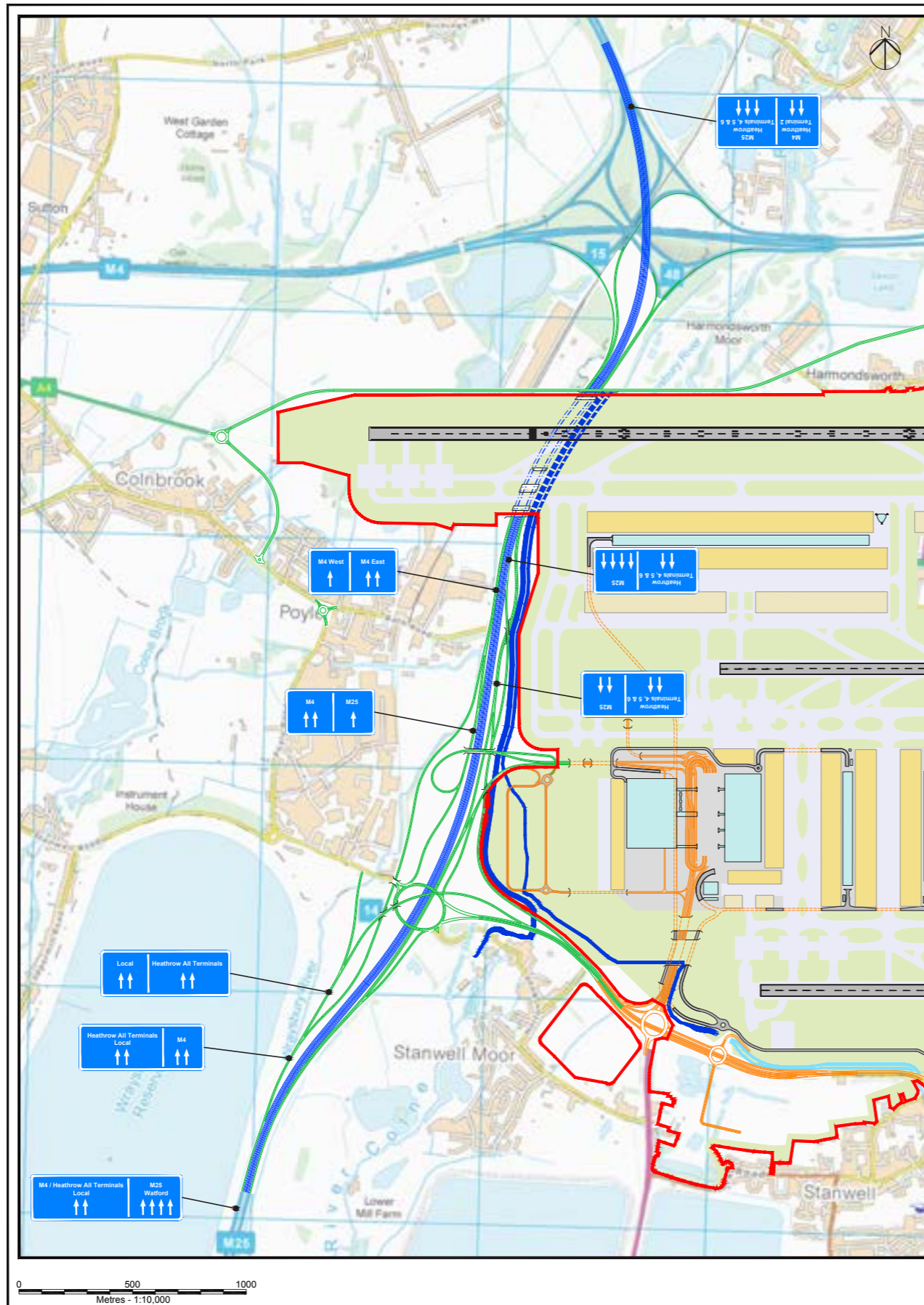


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	<p>Legally Privileged and Confidential</p> <p>Model / Content Reference List - Name, Version & Status: R3500-XX-M2-304-000007 - 30 North West V3.dwg R3500-XX-M2-304-000121 - 30 North West V3 - Output Plot LRR Radar Combined.dwg</p>			<p>Appendix 15f</p> <p>Refreshed north west masterplan</p> <p>M25 and rivers cross section</p>	
<p>Project Name: Heathrow 2025 LRR Airports Limited Project No: 315789 Scale: 1:200 Author: M2 MacDonald Created By: M2 MacDonald Created Date: 28/05/2014 Revision: P1 R3500-XX-GA-904-000094 1.0</p>					

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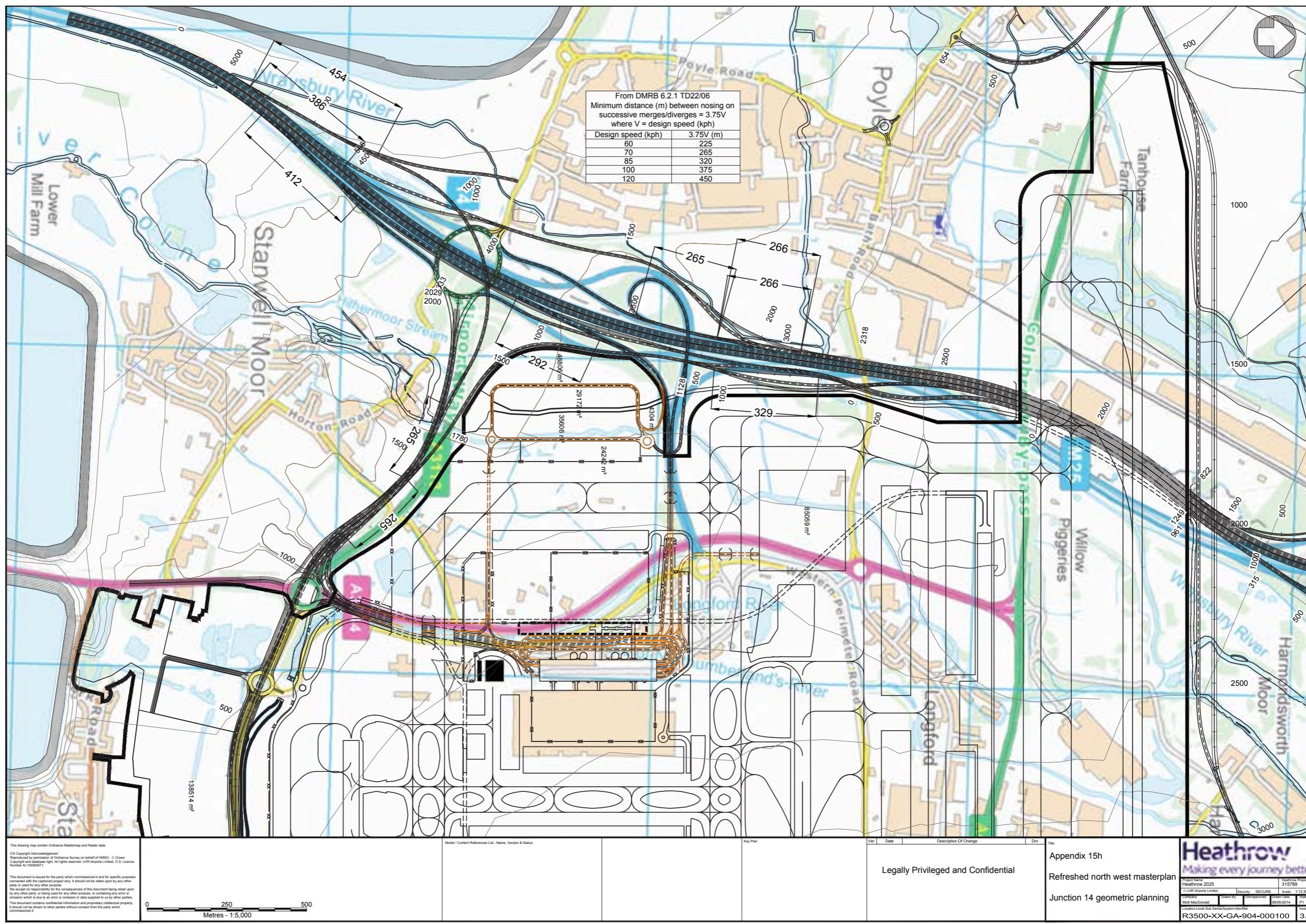
15g Refreshed north west masterplan: M25 signage proposals



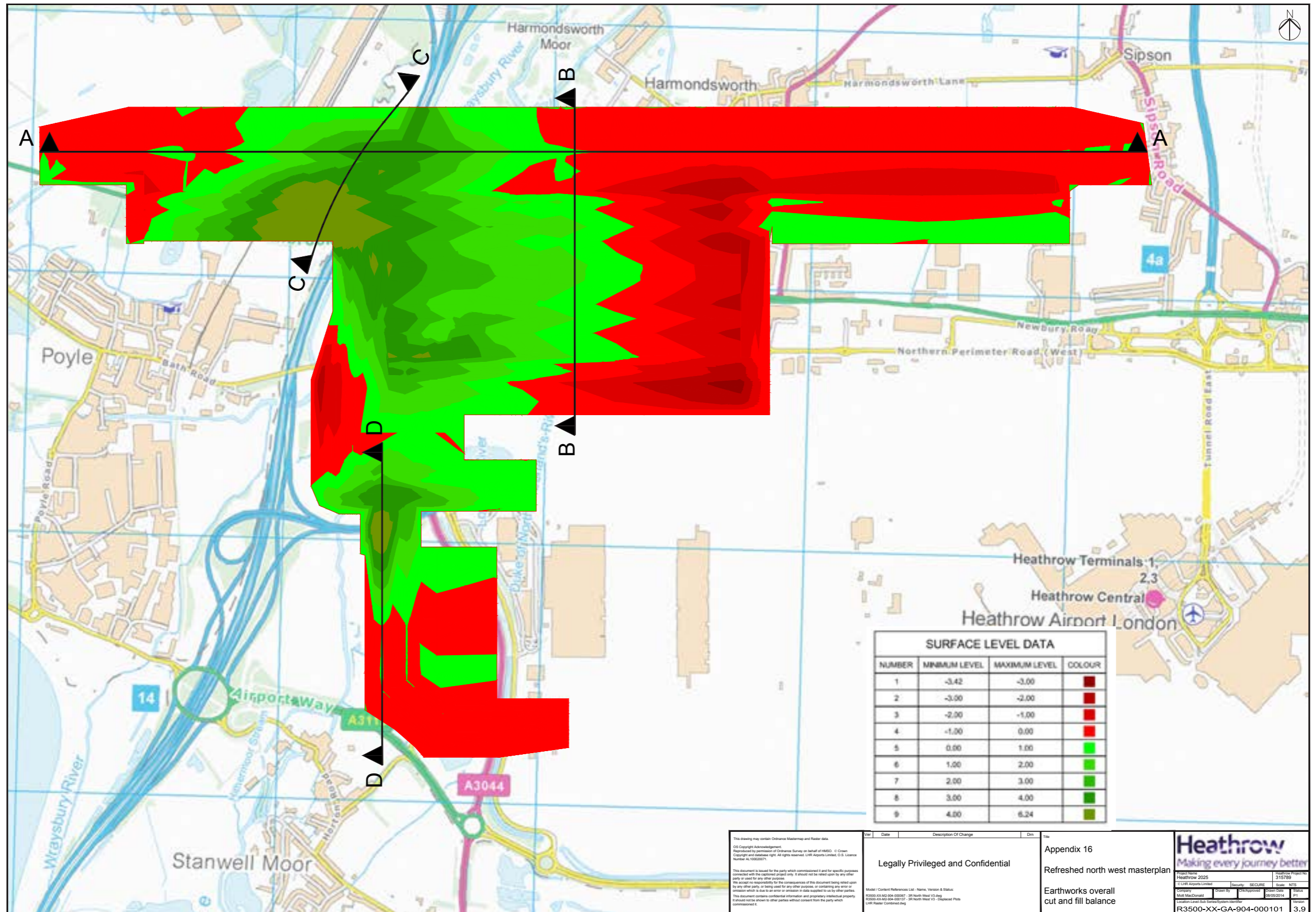
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	<p>Legally Privileged and Confidential</p>				
<p>Model / Content References List - Name, Version & Status</p> <p>R3500-XX-162-004-000138 - 3R North West V3 - Road Signage Northbound.dwg R3500-XX-162-004-000067 - 3R North West V3.dwg LHR Raster Combined.dwg</p>					
<p>Project Name: Heathrow 2025</p> <p>Project Number: 315789</p> <p>© LHR Airports Limited Security: SECURE Scale: 1:10,000</p> <p>Author: Mark MacDonald Approved: 28/05/2014 P1</p> <p>Location: Level 330, System: Standard</p> <p>R3500-XX-GA-904-000092 Version: 3.9</p>				<p>Document Uncontrolled When Printed ISO A1 Landscape</p>	

15h Refreshed north west masterplan: Junction 14 geometric planning



16 Refreshed north west masterplan: Earthworks overall cut and fill balance



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Ver	Date	Description Of Change	Drn	Trn

Model / Content References List - Name, Version & Status:
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 R3500-XX-402-004-000127 - SR North West V2 - Cleared Plots
 LHR Master Combined.dwg

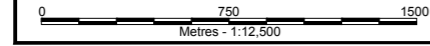
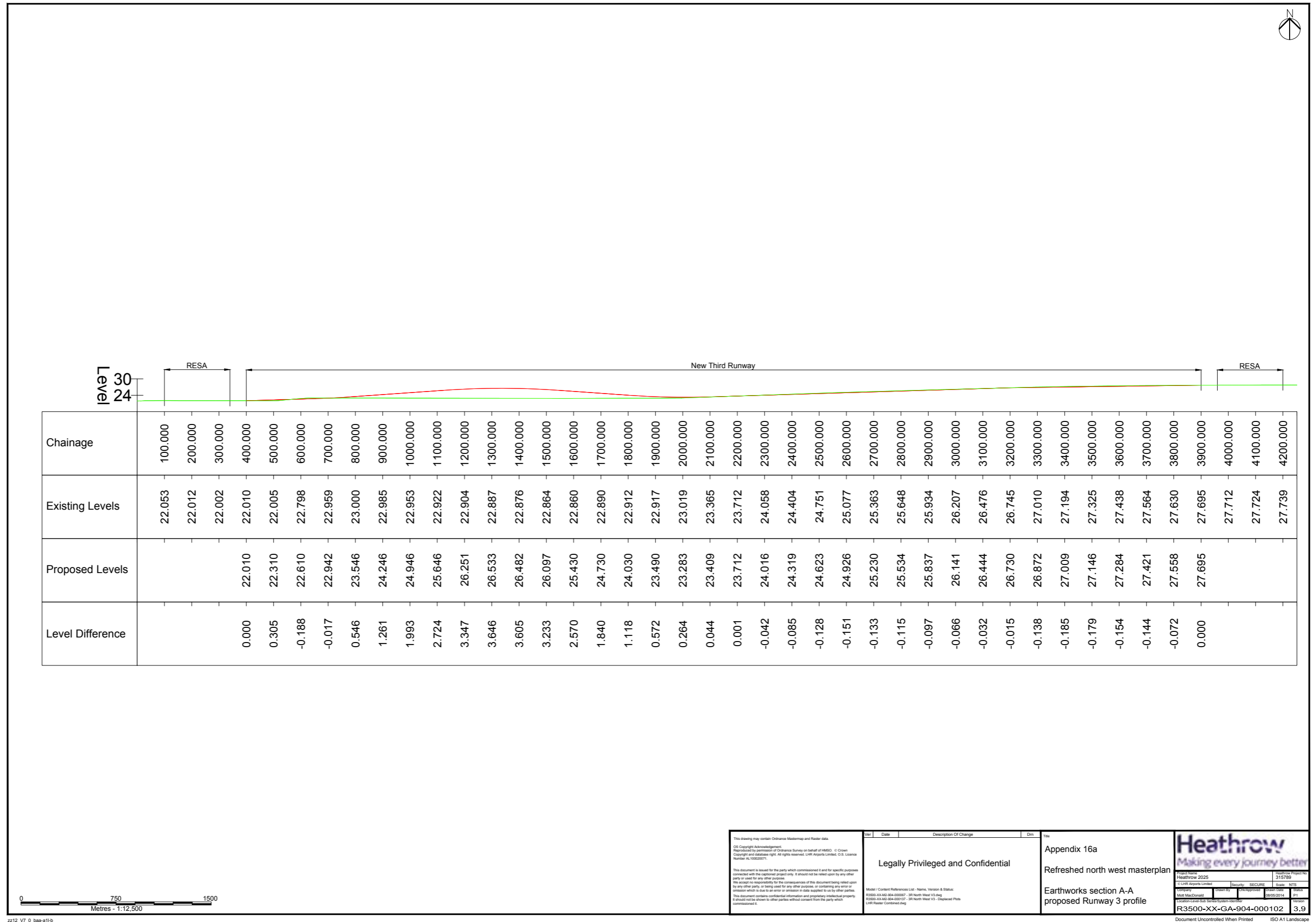
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Appendix 16
 Refreshed north west masterplan
 Earthworks overall cut and fill balance

Project Name: Heathrow 2025		Heathrow Project No: 315789	
Client: LHR Airports Limited	Security: SECURE	Scale: 1:10	Status: P1
Company: Mott MacDonald	Drawn by: Mott MacDonald	Draw Date: 28/05/2014	Version: P1
Drawing Reference: R3500-XX-GA-904-000101		Revision: 3.9	

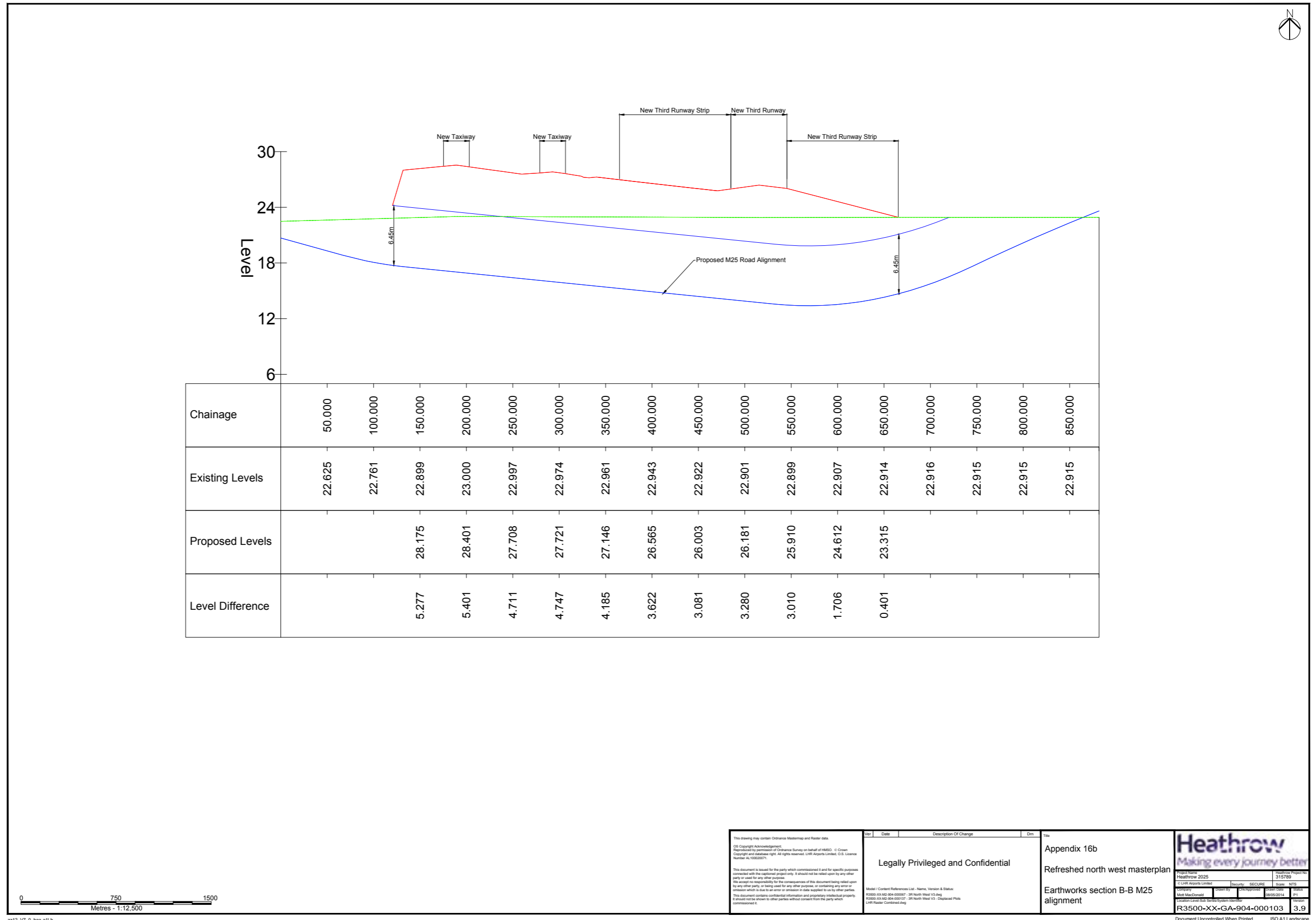
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16a Refreshed north west masterplan: Earthworks section A-A proposed Runway 3 profile

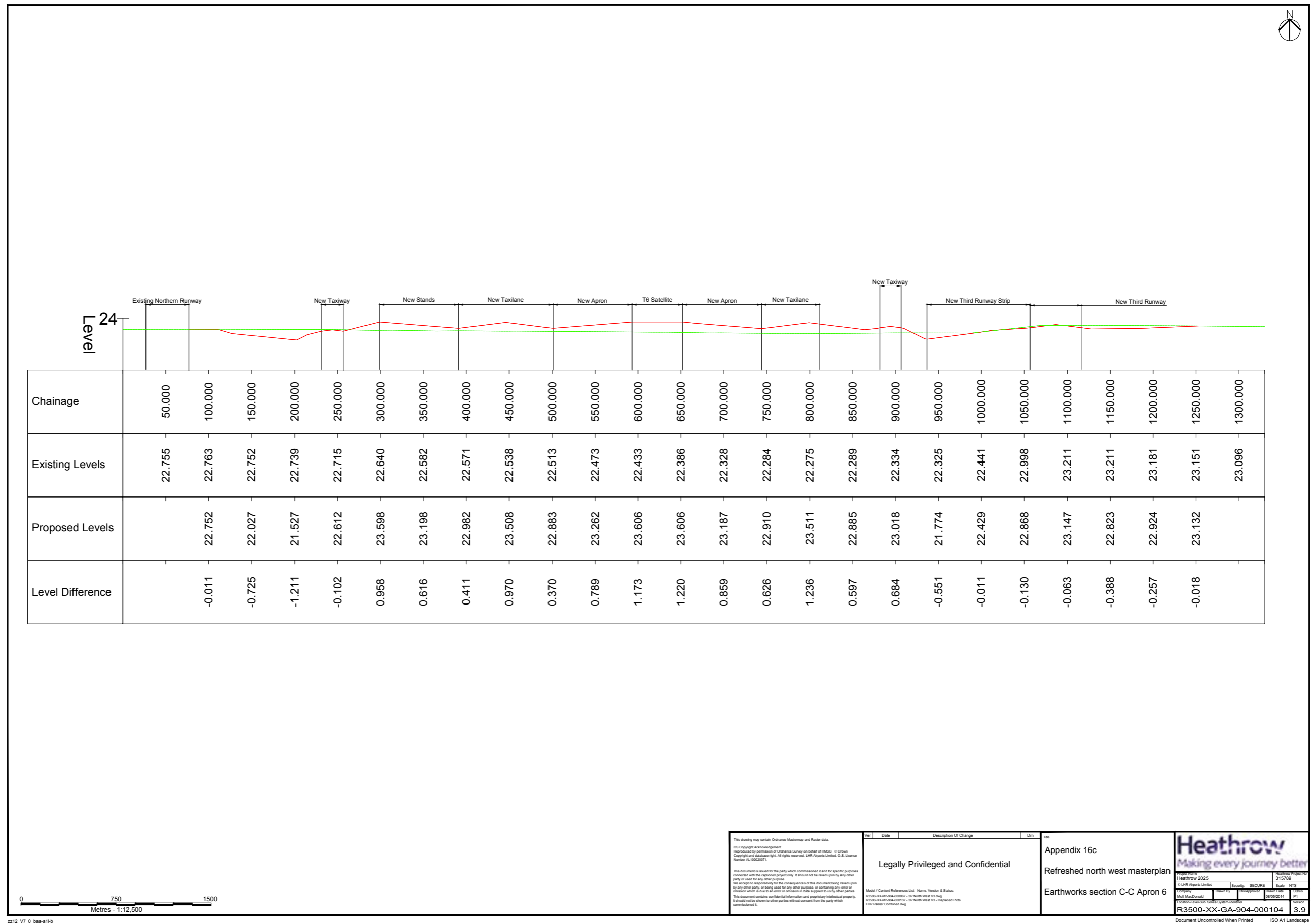


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	<p>Legally Privileged and Confidential</p>			<p>Appendix 16a Refreshed north west masterplan</p>	
<p>Project Name: Heathrow 2025 Heathrow Project No: 315789</p>					
<p>Company: Heathrow Limited Project: R3500-XX-GA-904-000102 Date: 28/05/2014 Version: P1</p>					
<p>Model / Content Reference List - Name, Version & Status: R3500-XX-GA-904-000102 - 3M North West V3.dwg R3500-XX-GA-904-000102 - 3M North West V3 - Original Plot LRR Raster Combined.dwg</p>					
<p>Document Uncontrolled When Printed ISO A1 Landscape</p>					

16b Refreshed north west masterplan: Earthworks section B-B M25 alignment



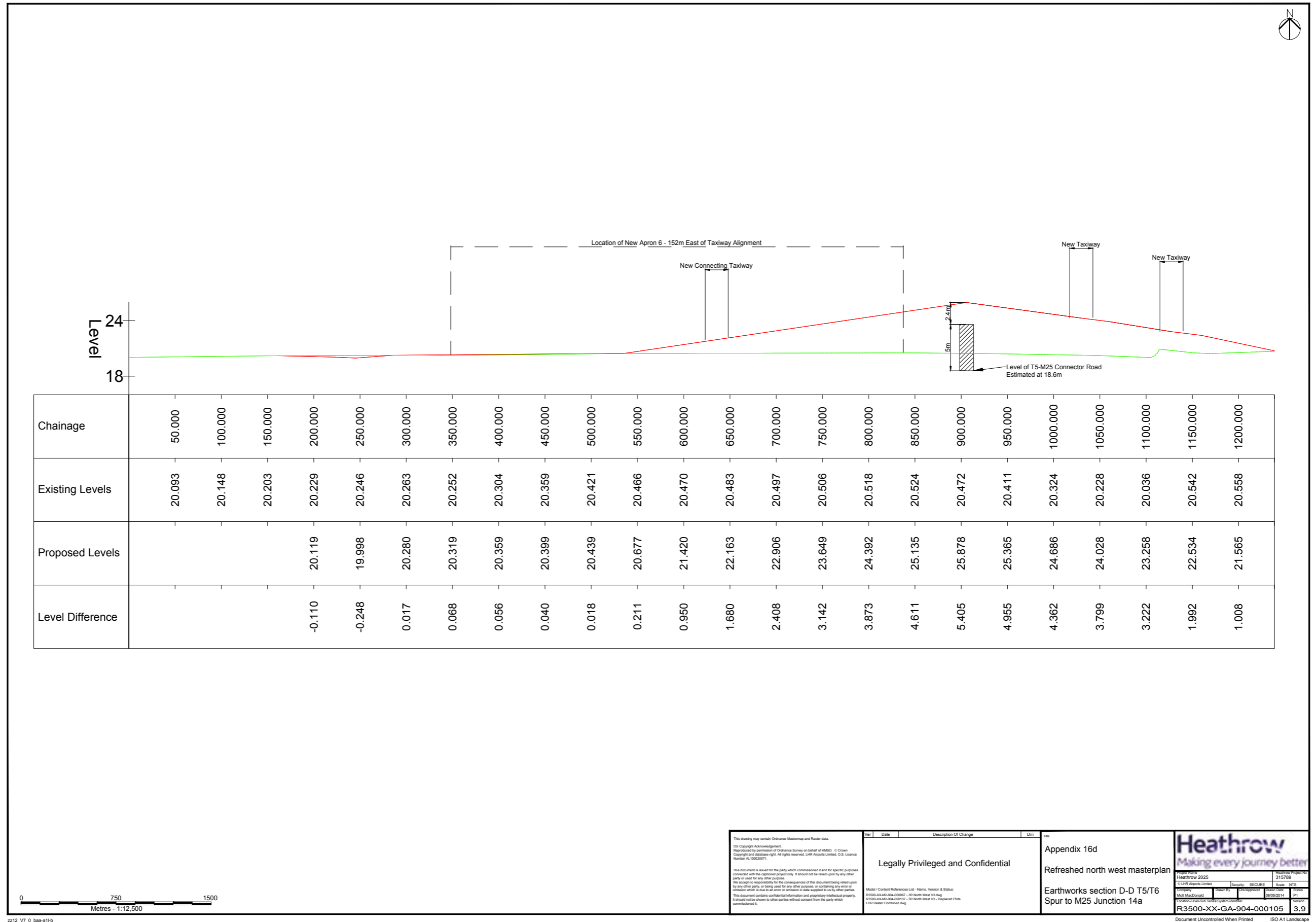
16c Refreshed north west masterplan: Earthworks section C-C Apron 6



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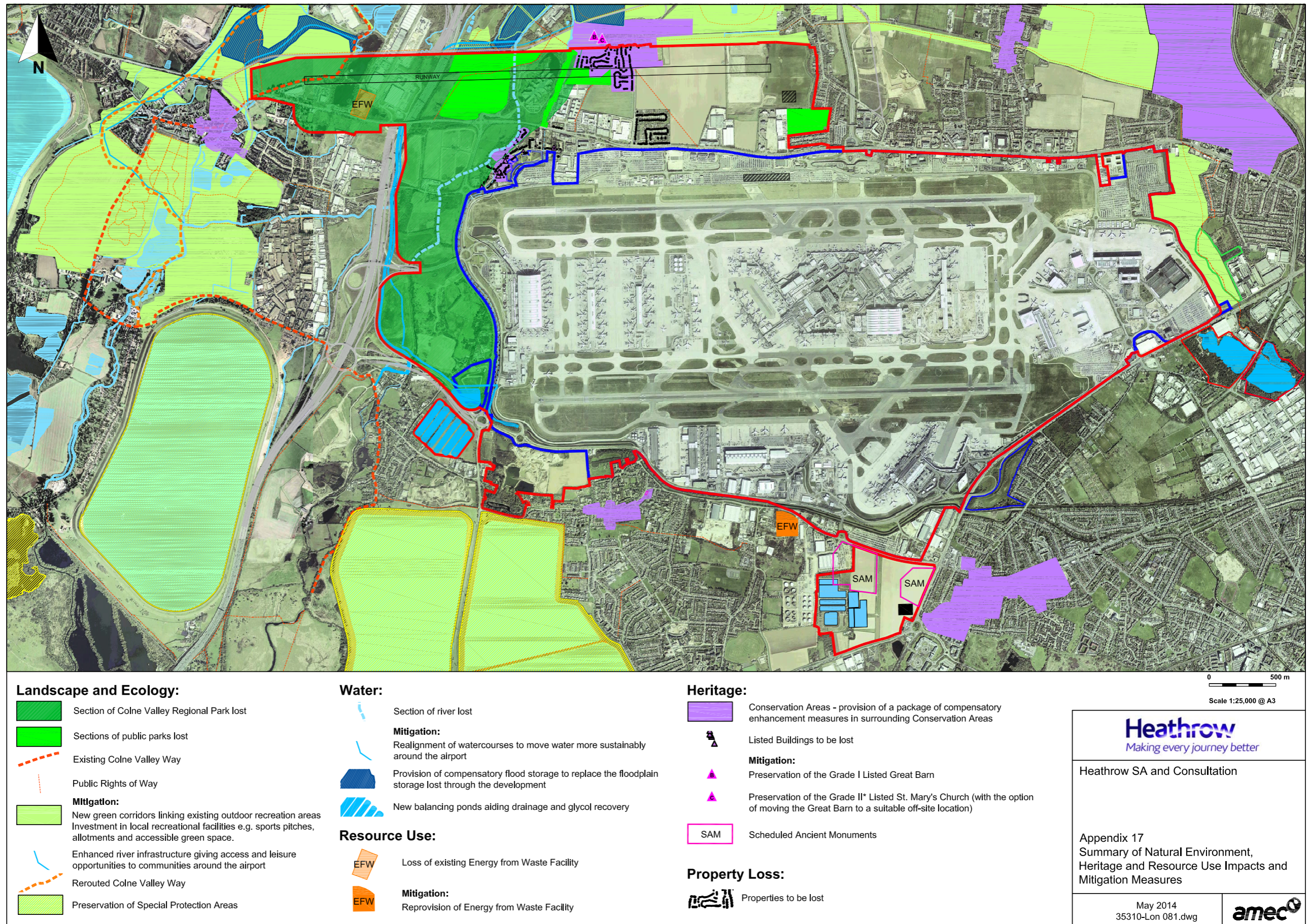
16d Refreshed north west masterplan: Earthworks section D-D T5/T6 Spur to M25 Junction 14a



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Year	Date	Description Of Change	Drawn	Trn																										
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Client	LHR Airports Limited	Security	SECURE																											
Author	Neil MacDonald	Created	28/05/2014																											
Location/Level/Sub-System/Identifier	R3500-XX-GA-904-000105	Version	3.9																											

17 Summary of key mitigation measures



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Making every journey better

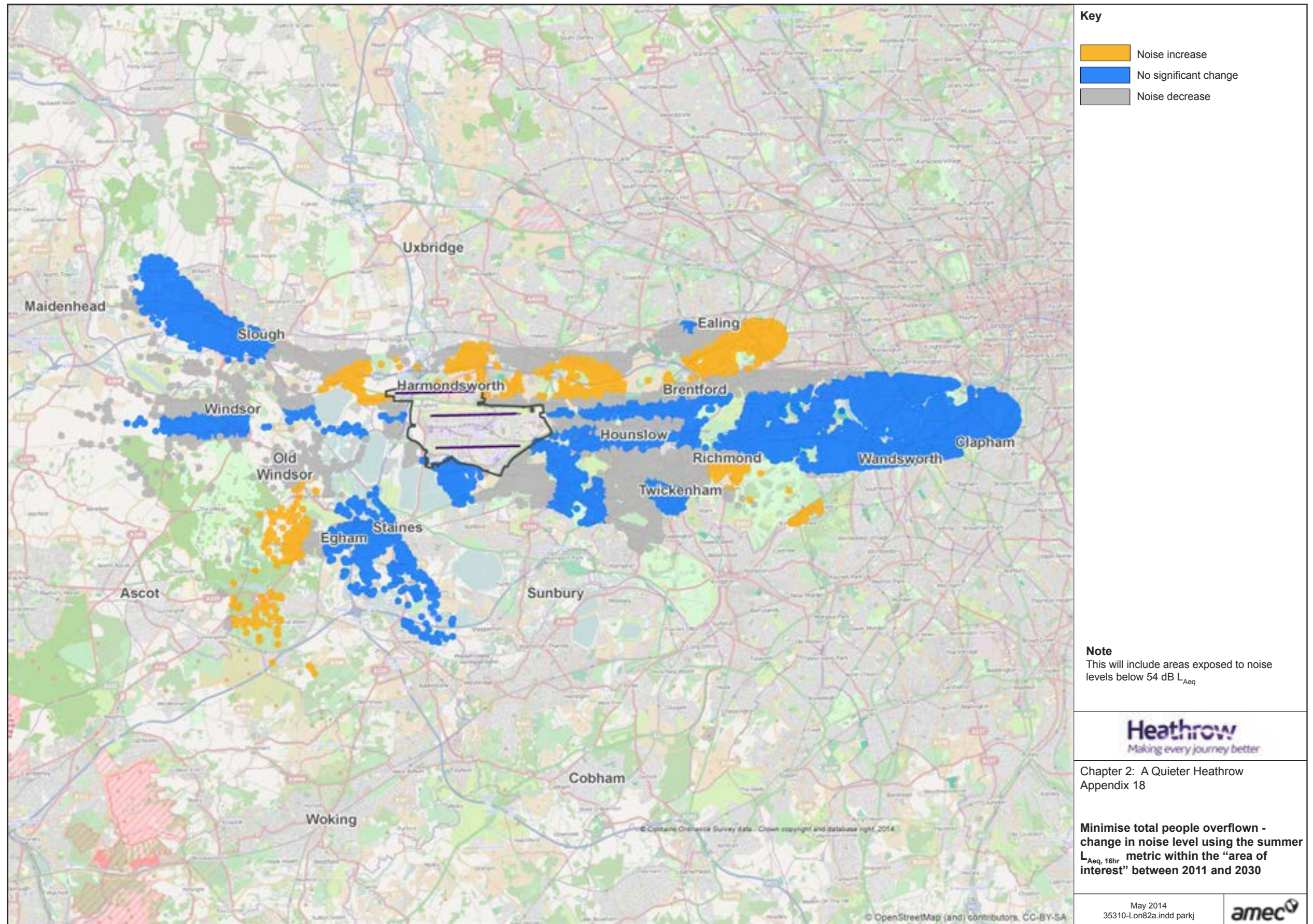
Heathrow SA and Consultation

Appendix 17
Summary of Natural Environment,
Heritage and Resource Use Impacts and
Mitigation Measures

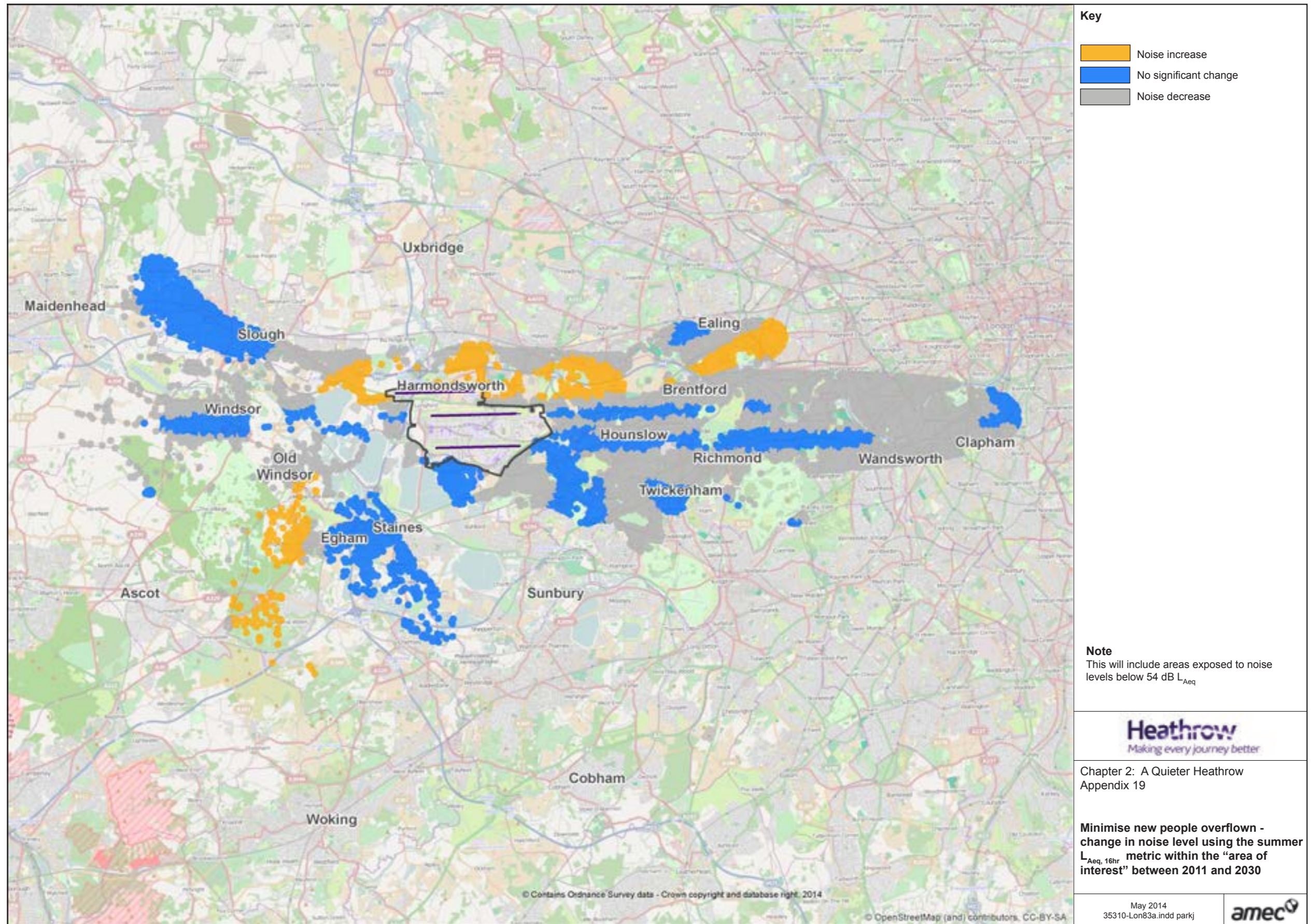
May 2014
35310-Lon 081.dwg



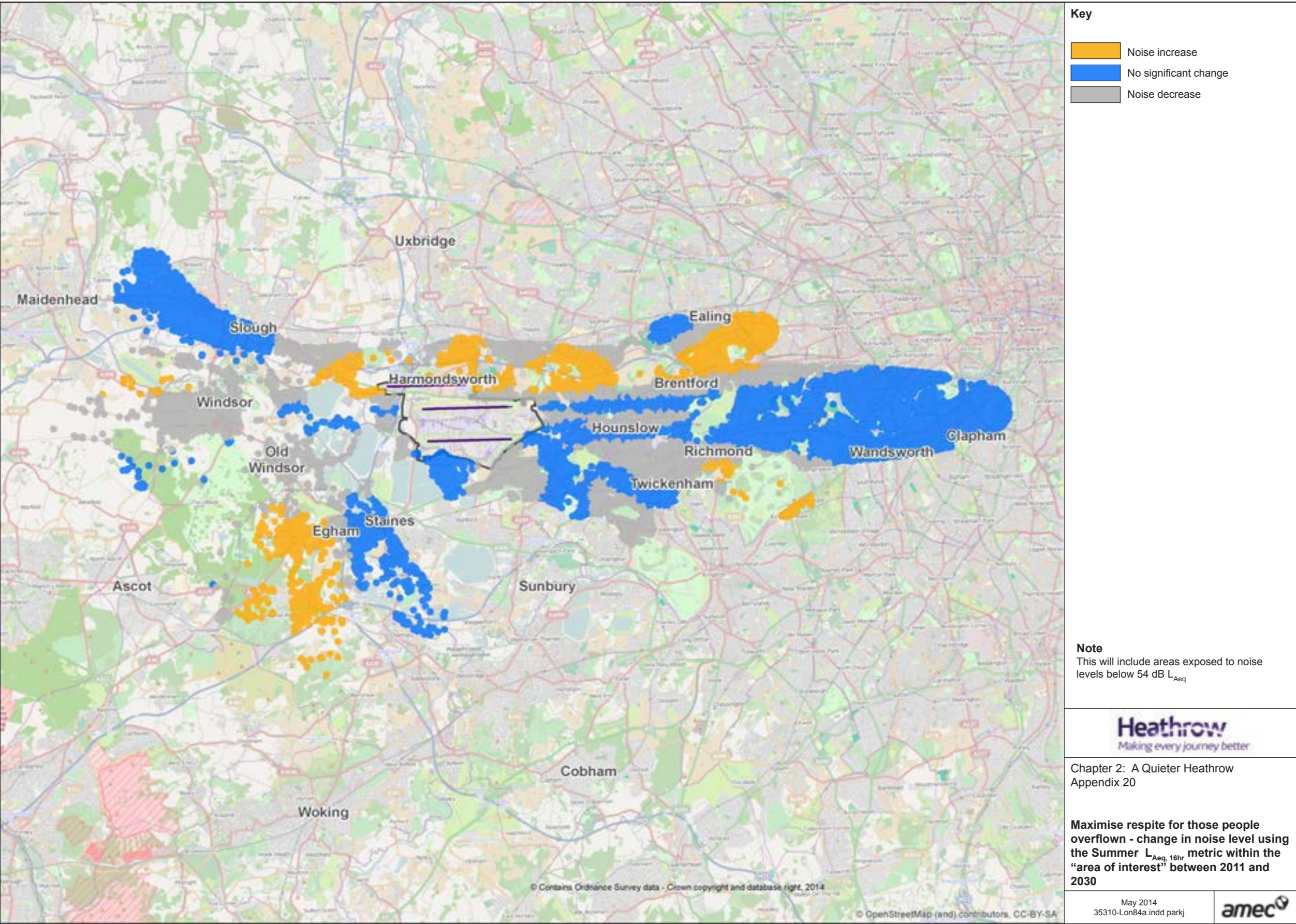
18 Minimise total people overflown - change in noise level using the summer LAeq, 16hr metric within the "area of interest" between 2011 and 2030



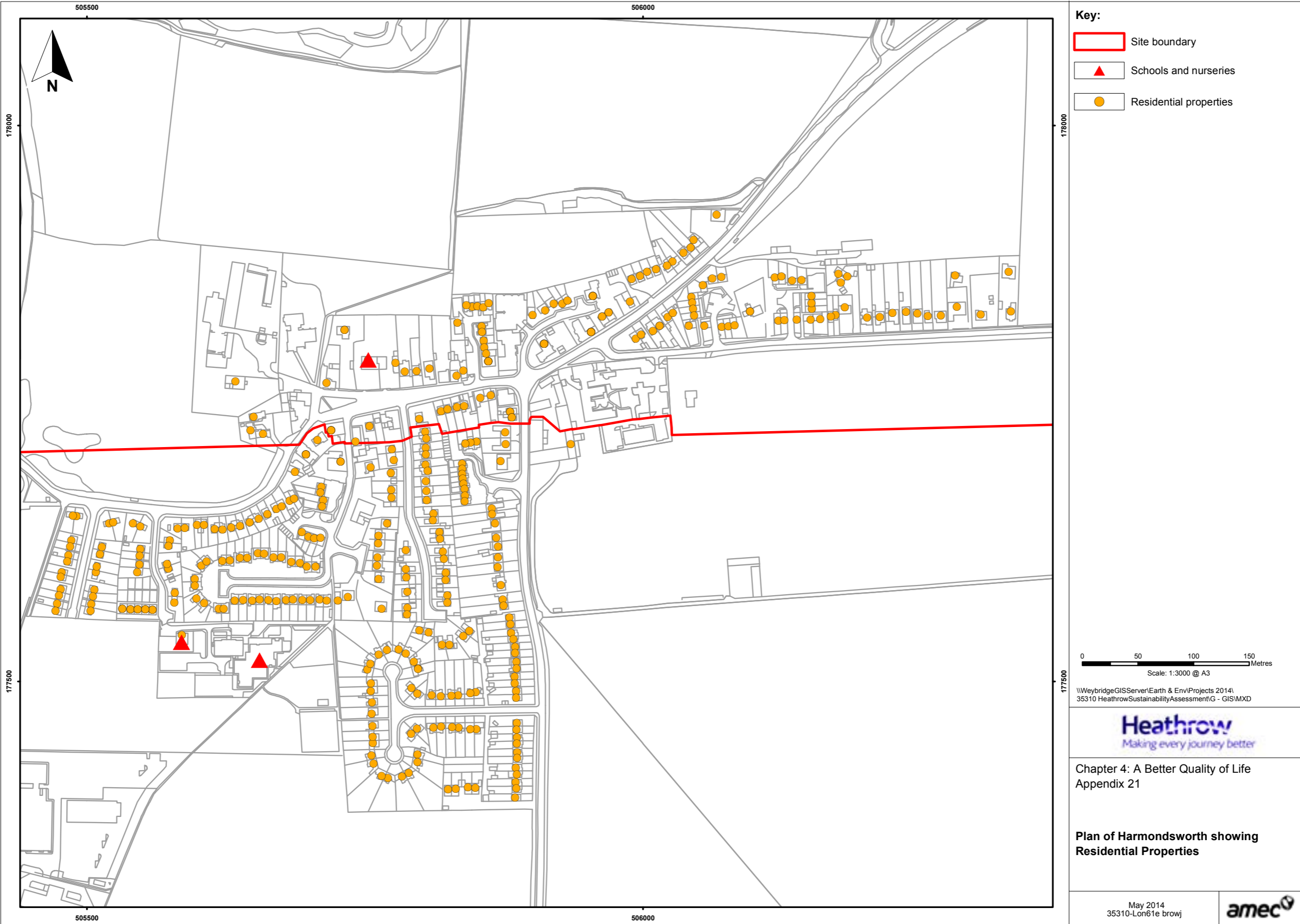
19 Minimise new people overflown - change in noise level using the summer LAeq, 16hr metric within the "area of interest" between 2011 and 2030



20 Maximise respite for those people overflowed - change in noise level using the Summer LAeq, 16hr metric within the "area of interest" between 2011 and 2030

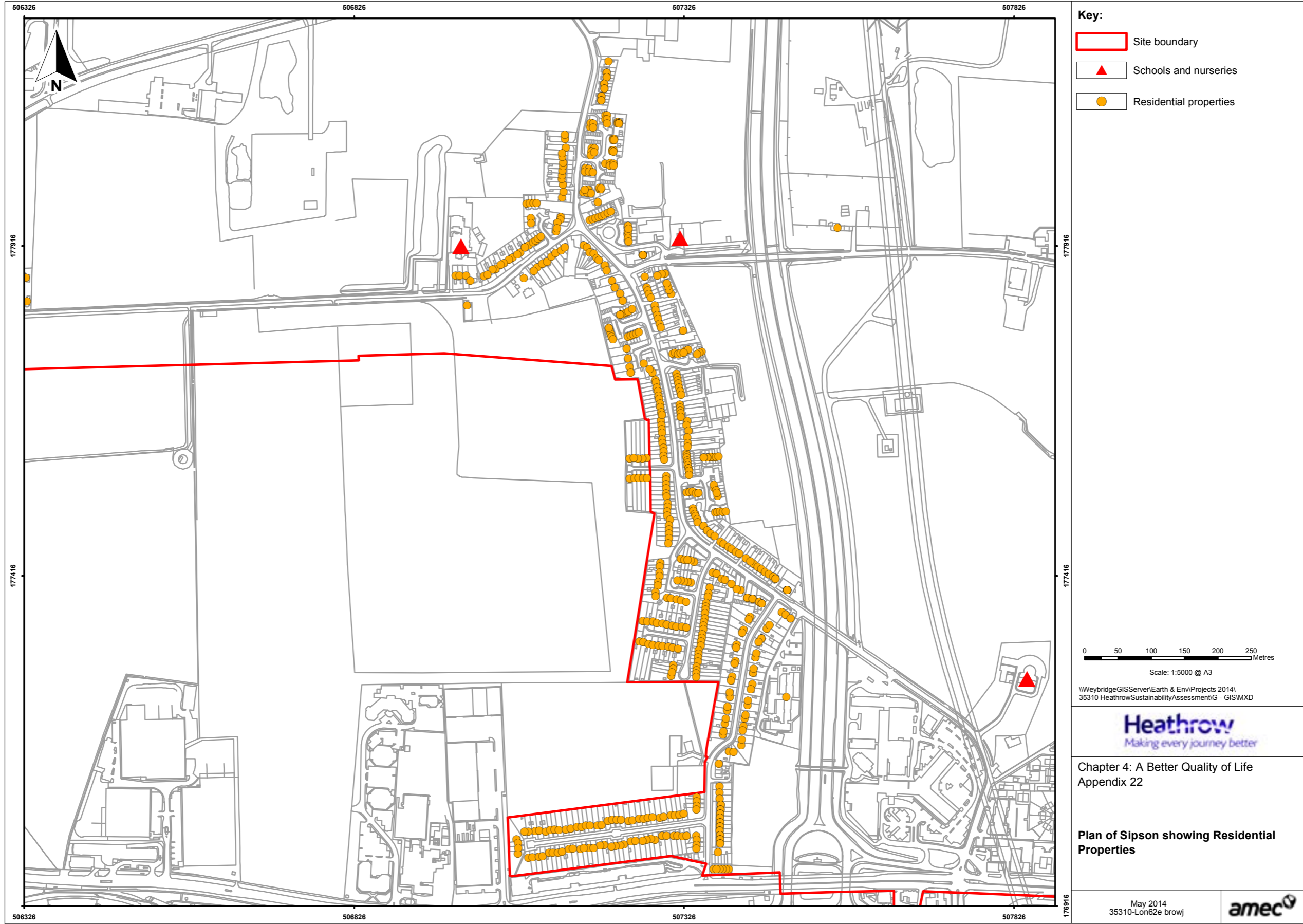


21 Plan of Harmondsworth showing Residential Properties



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22 Plan of Sipson showing Residential Properties



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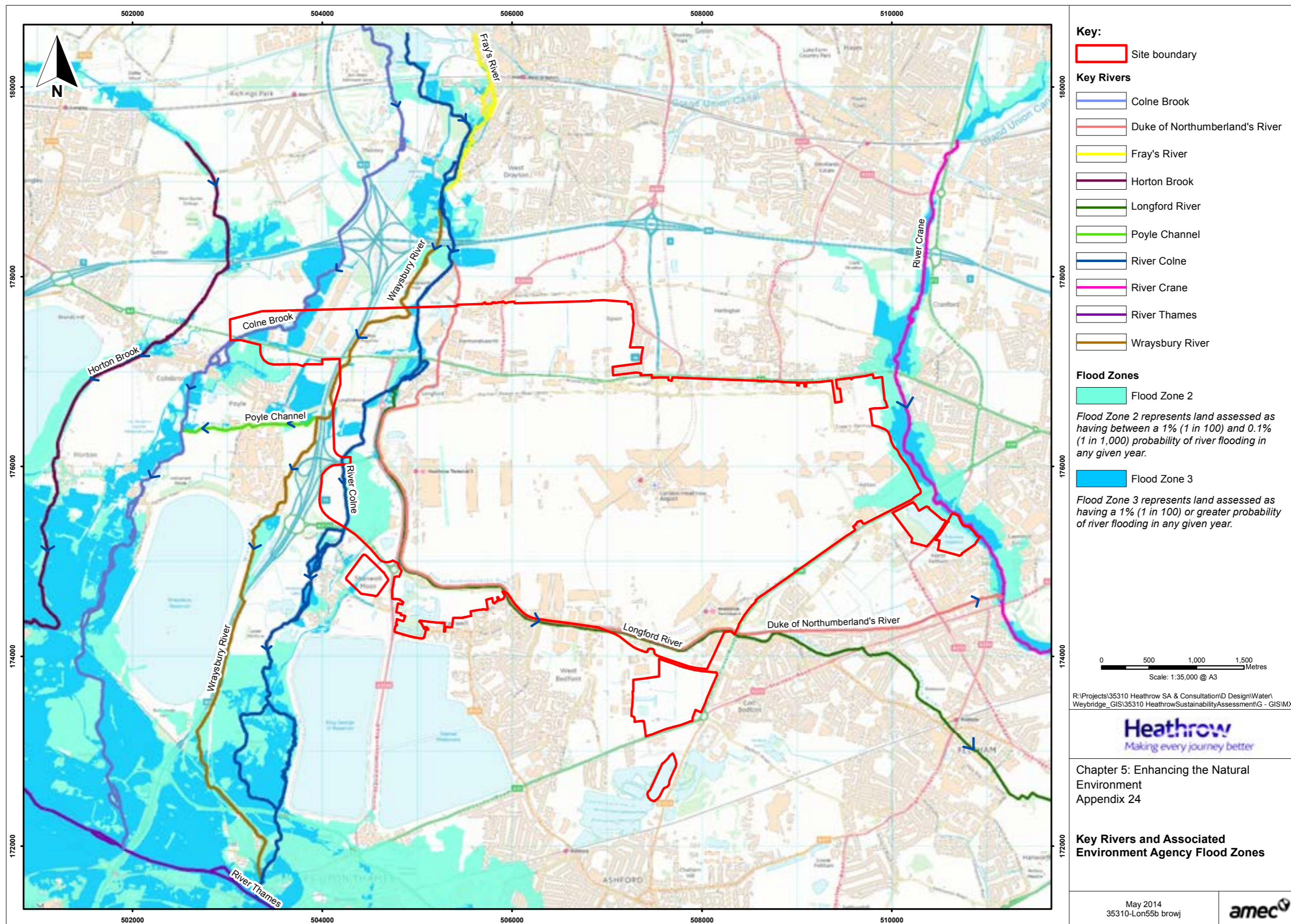
23 Illustrative Landscape Masterplan



<p>Key</p> <p> Site boundary</p> <p>1 Drawing notes (see below)</p>		<p>9. Landforms, pasture and hedgerows.</p> <p>10. Wildlife ponds and wetland habitats with educational visitor centre, boardwalks and dipping platforms.</p> <p>11. Natural swimming pond.</p> <p>12. Enhanced Poyle Channel with new riverside planting and footpath.</p> <p>13. Riding stables and cross country course through meadows.</p> <p>14. Flood storage area with ponds, wetland and boardwalks for public access.</p> <p>15. Flood storage area with wet meadow habitat.</p> <p>16. Children's play area.</p> <p>17. Allotments.</p> <p>18. Community centre, sports pitches, play area and formal gardens at Sipson.</p> <p>19. New footpaths and biodiversity enhancements.</p> <p>20. River Crane corridor access and biodiversity enhancements.</p>	
<p>1. Diverted river channel with waterside planting.</p> <p>2. Flood storage area managed for biodiversity. Footpaths provide public access.</p> <p>3. Diverted river and Colne Valley Way through enhanced existing woodland.</p> <p>4. Flood storage area with wet meadow and footpath access.</p> <p>5. New river channel and park enhancements.</p> <p>6. Food growing area and allotments.</p> <p>7. Visitor centre, sports pitches, play areas and formal gardens.</p> <p>8. Mountain bike trail.</p>		<p>Heathrow Making every journey better</p> <p>Chapter 5: Enhancing the Natural Environment Appendix 23</p> <p>Illustrative Landscape Masterplan</p>	
<p>May 2014 35310-Lon63-D.indd colsh</p>			

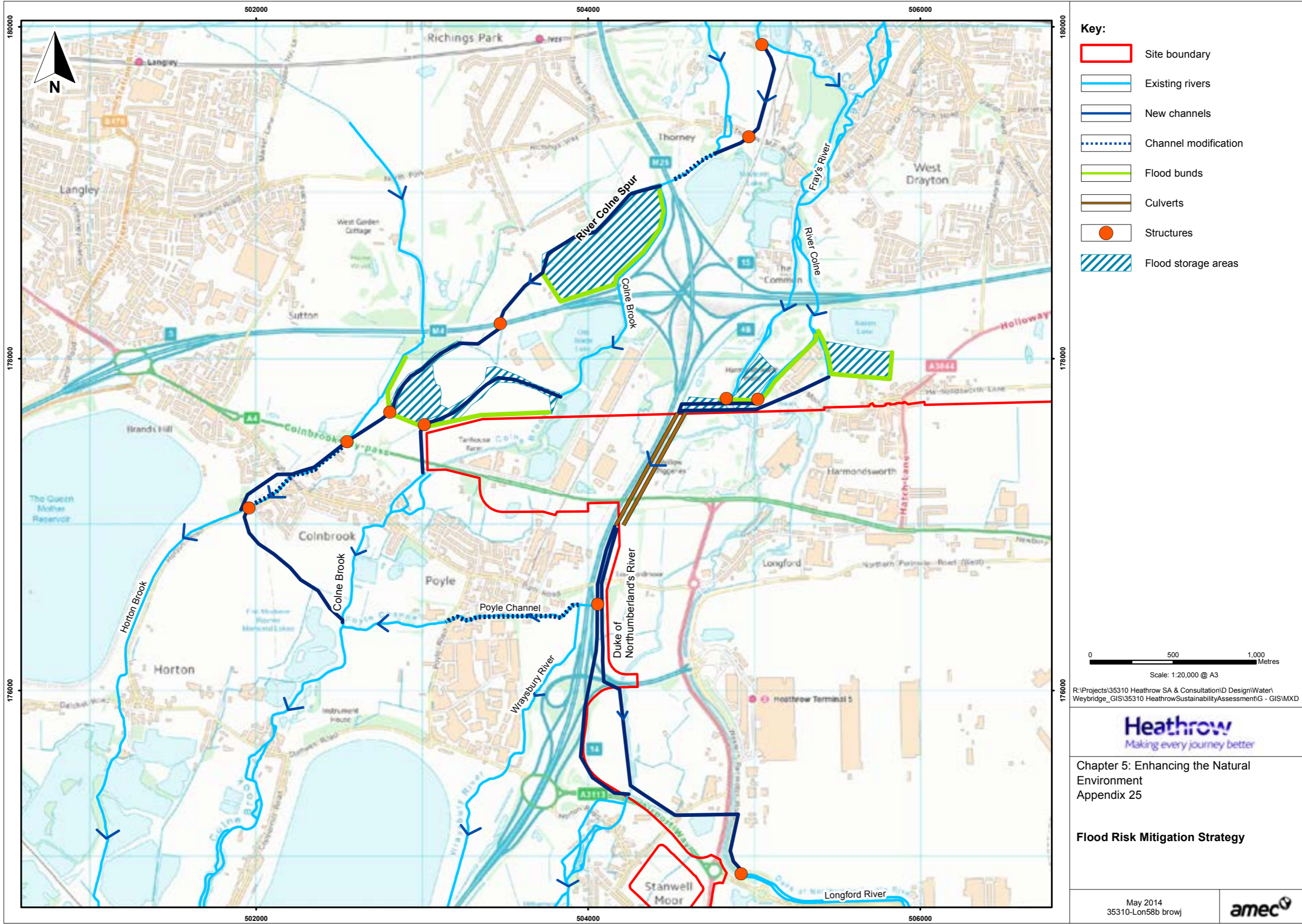
@Getmapping plc

24 Key Rivers and Associated Environment Agency Flood Zones



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25 Flood Risk Mitigation Strategy



Key:

- Site boundary
- Existing rivers
- New channels
- Channel modification
- Flood bunds
- Culverts
- Structures
- Flood storage areas

0 500 1,000 Metres
 Scale: 1:20,000 @ A3
 R:\Projects\35310 Heathrow SA & Consultation\Design\Water\Weybridge_GIS\35310 HeathrowSustainabilityAssessment\G - GIS\MXD



Chapter 5: Enhancing the Natural Environment
 Appendix 25

Flood Risk Mitigation Strategy

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26 Illustrative Sections through Enhanced New Areas of Colne Valley Park



Heathrow
Making every journey better

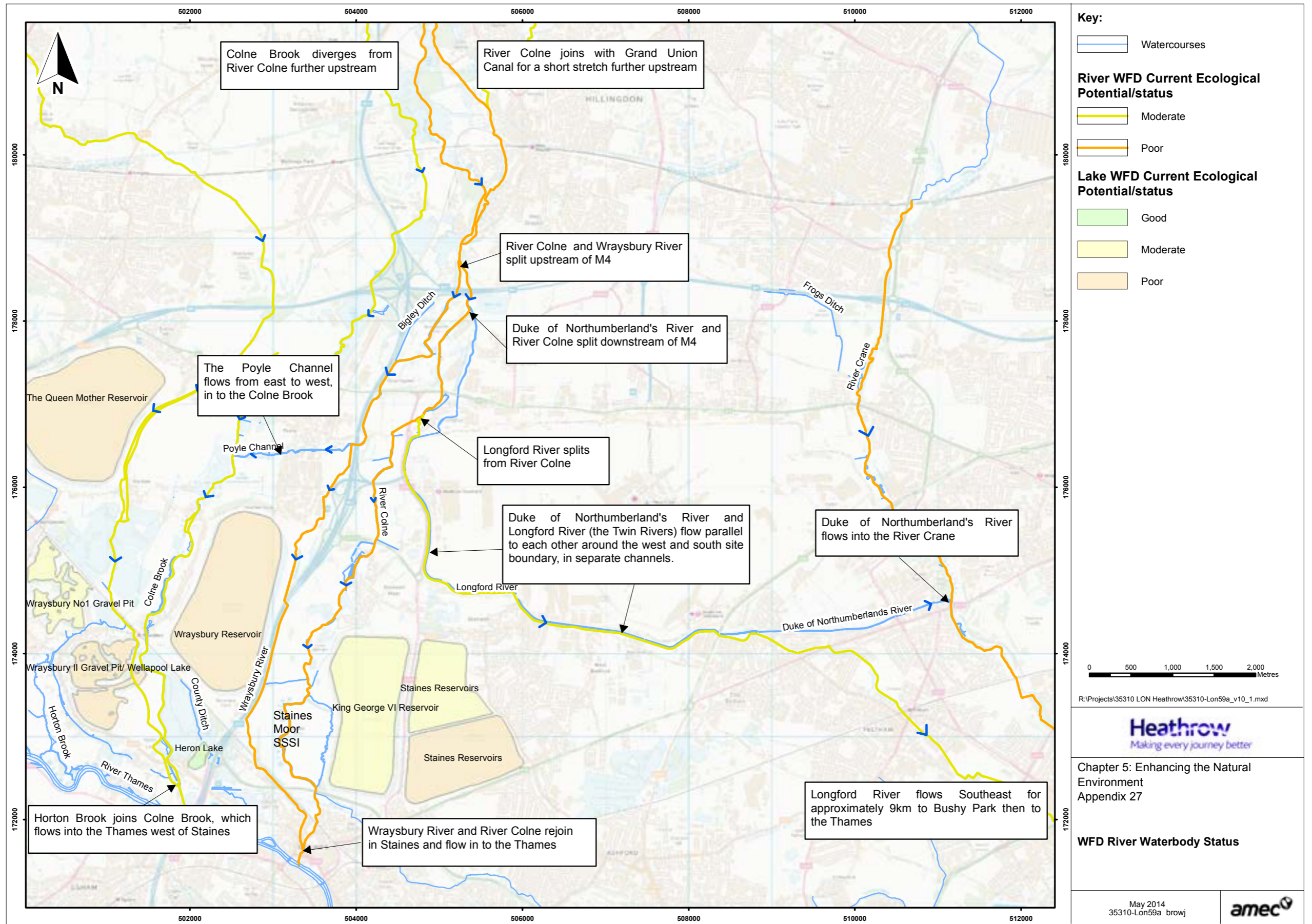
Chapter 5: Enhancing the Natural Environment
Appendix 26

Illustrative Sections through Enhanced New Areas of Colne Valley Park

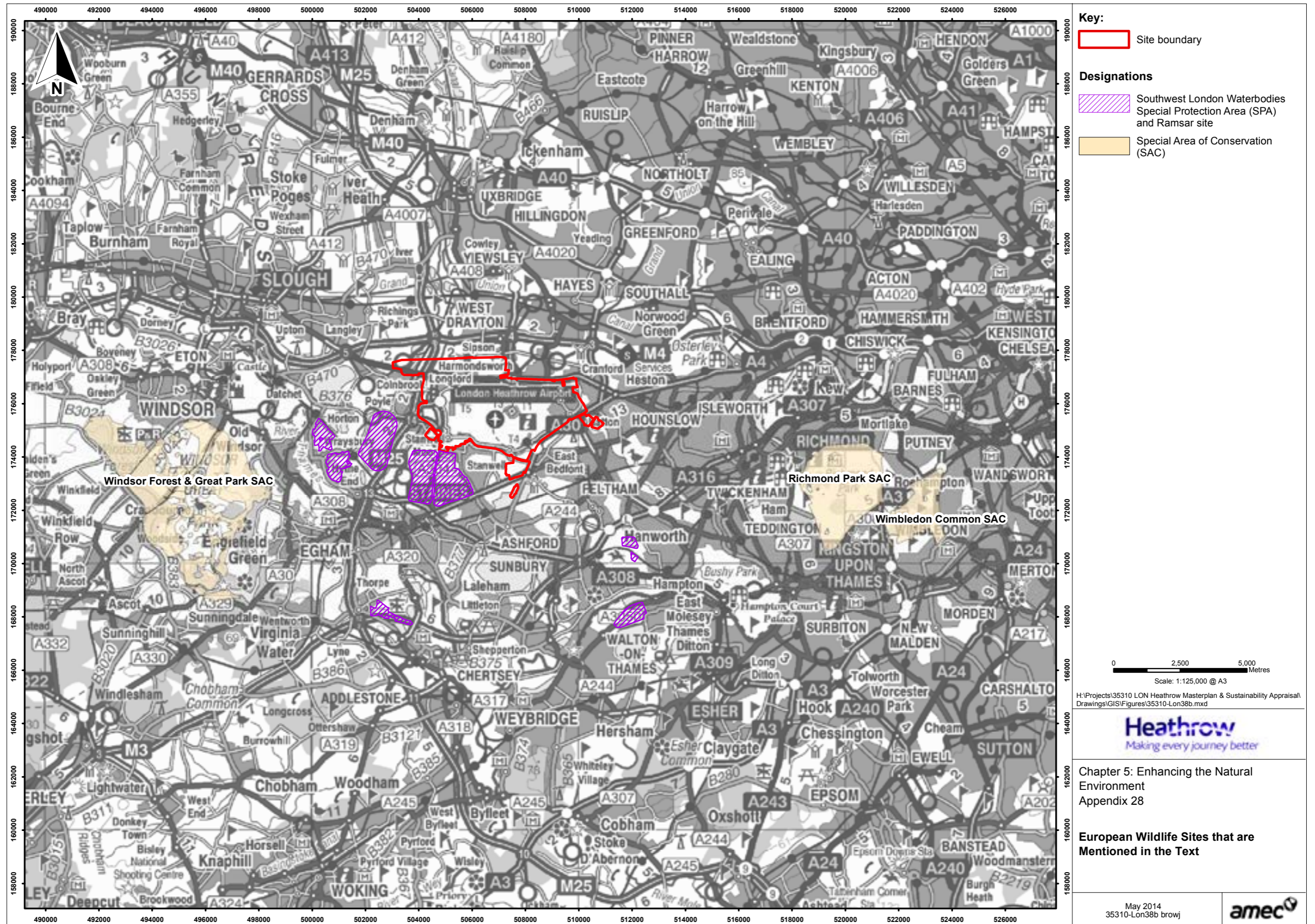
May 2014
35310-Lon70a.indd parkj



27 WFD River Waterbody Status

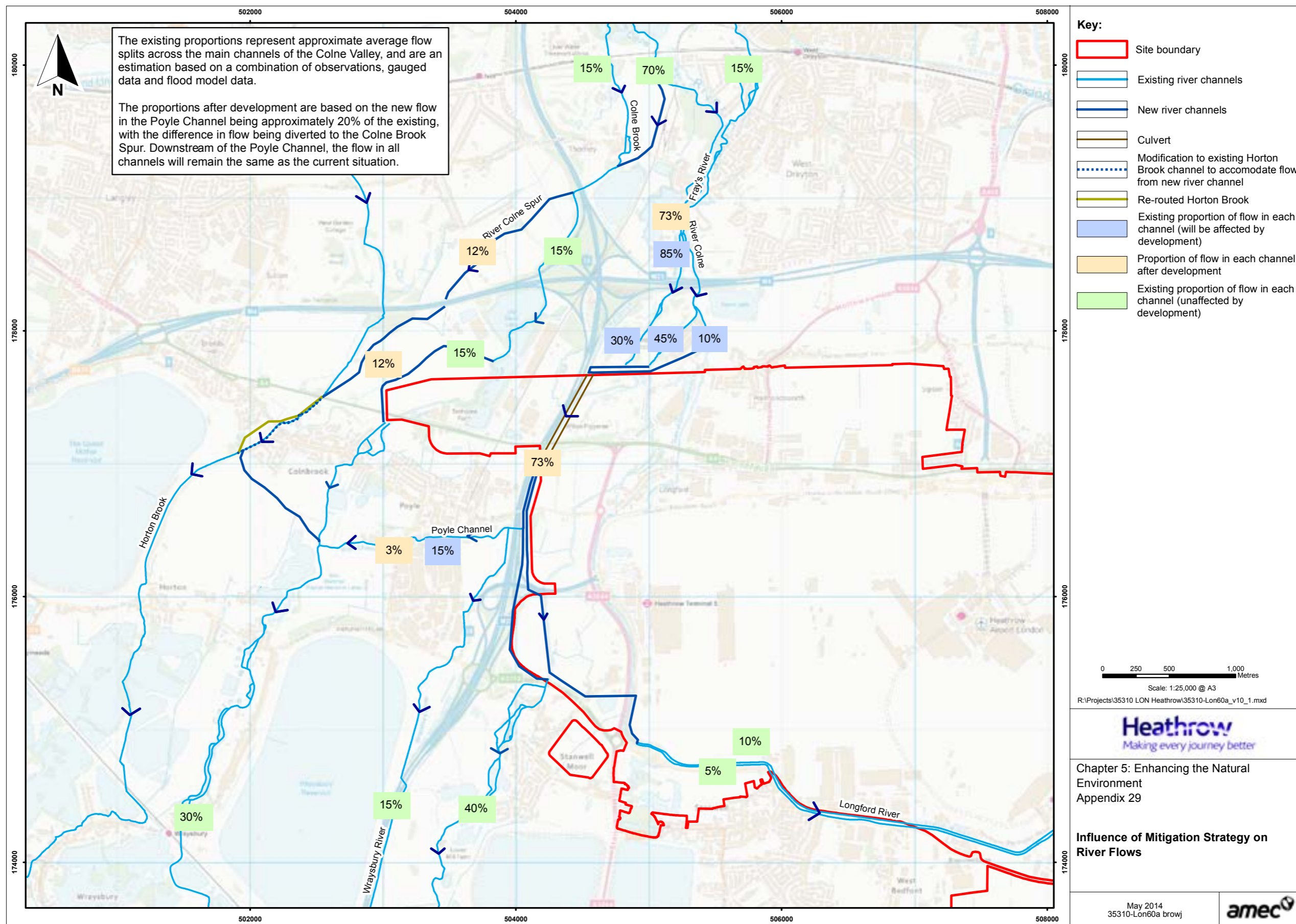


28 European Wildlife Sites



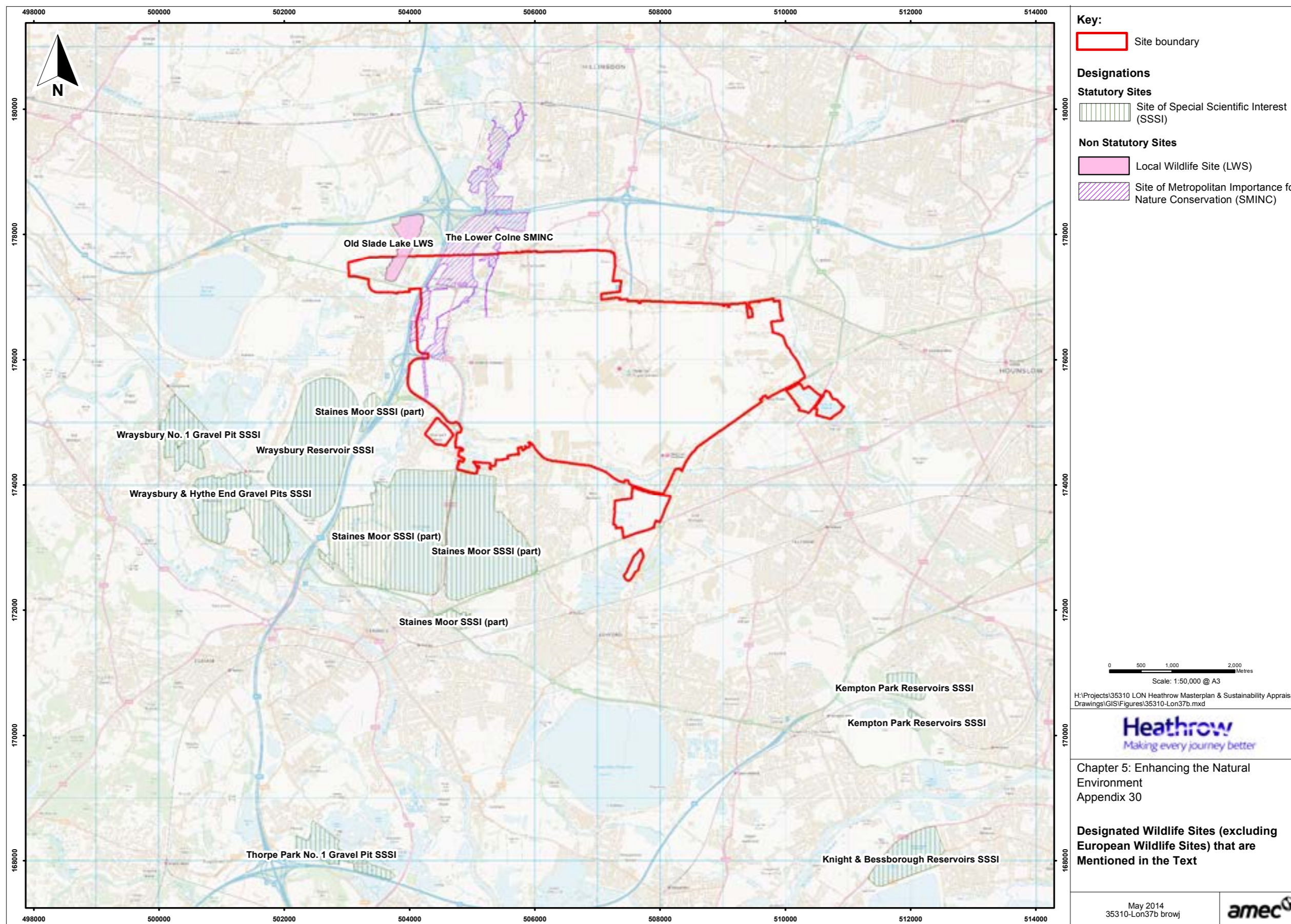
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29 Influence of Mitigation Strategy on River Flows



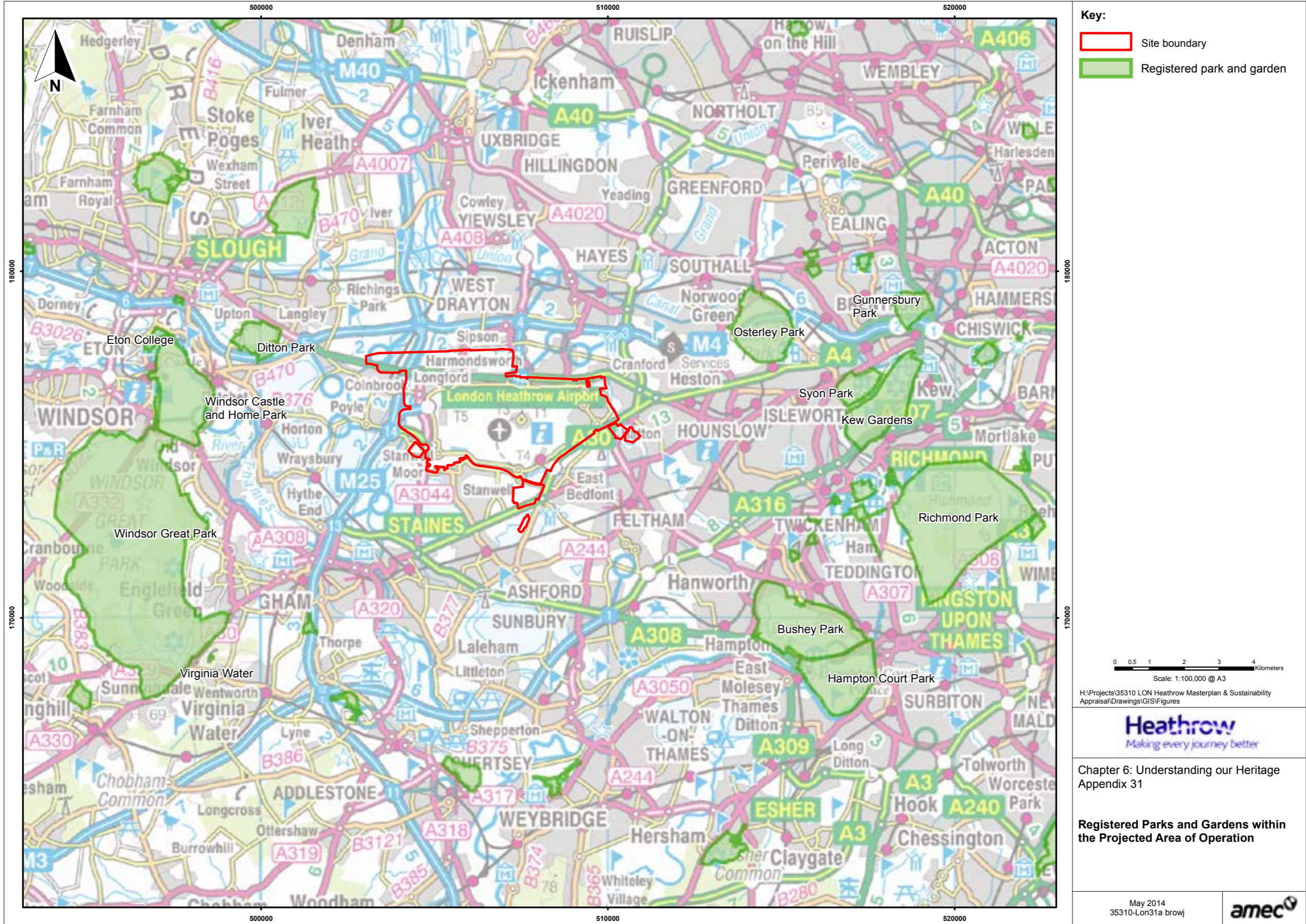
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30 Designated Wildlife Sites



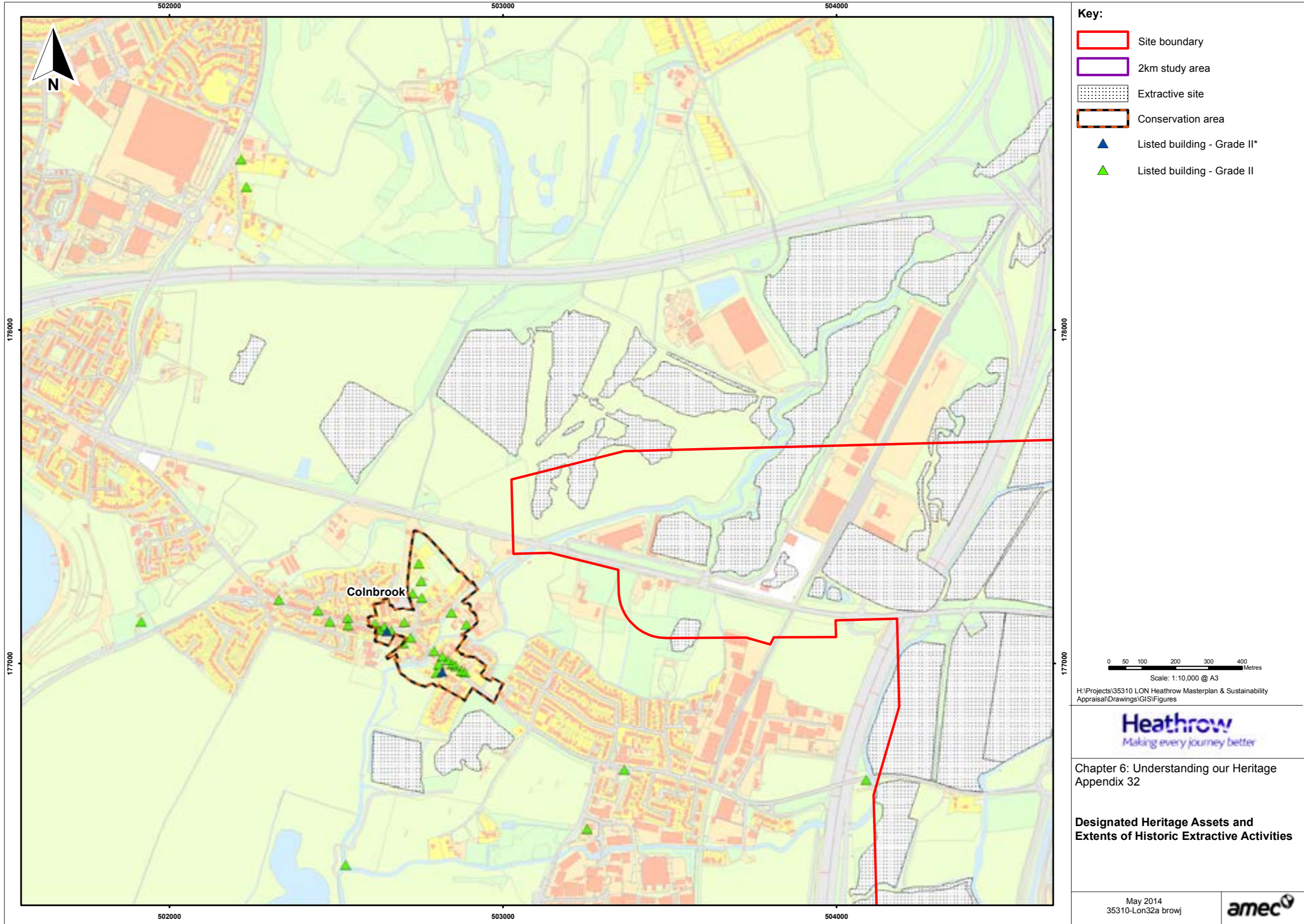
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31 Registered Parks and Gardens within the Projected Area of Operation



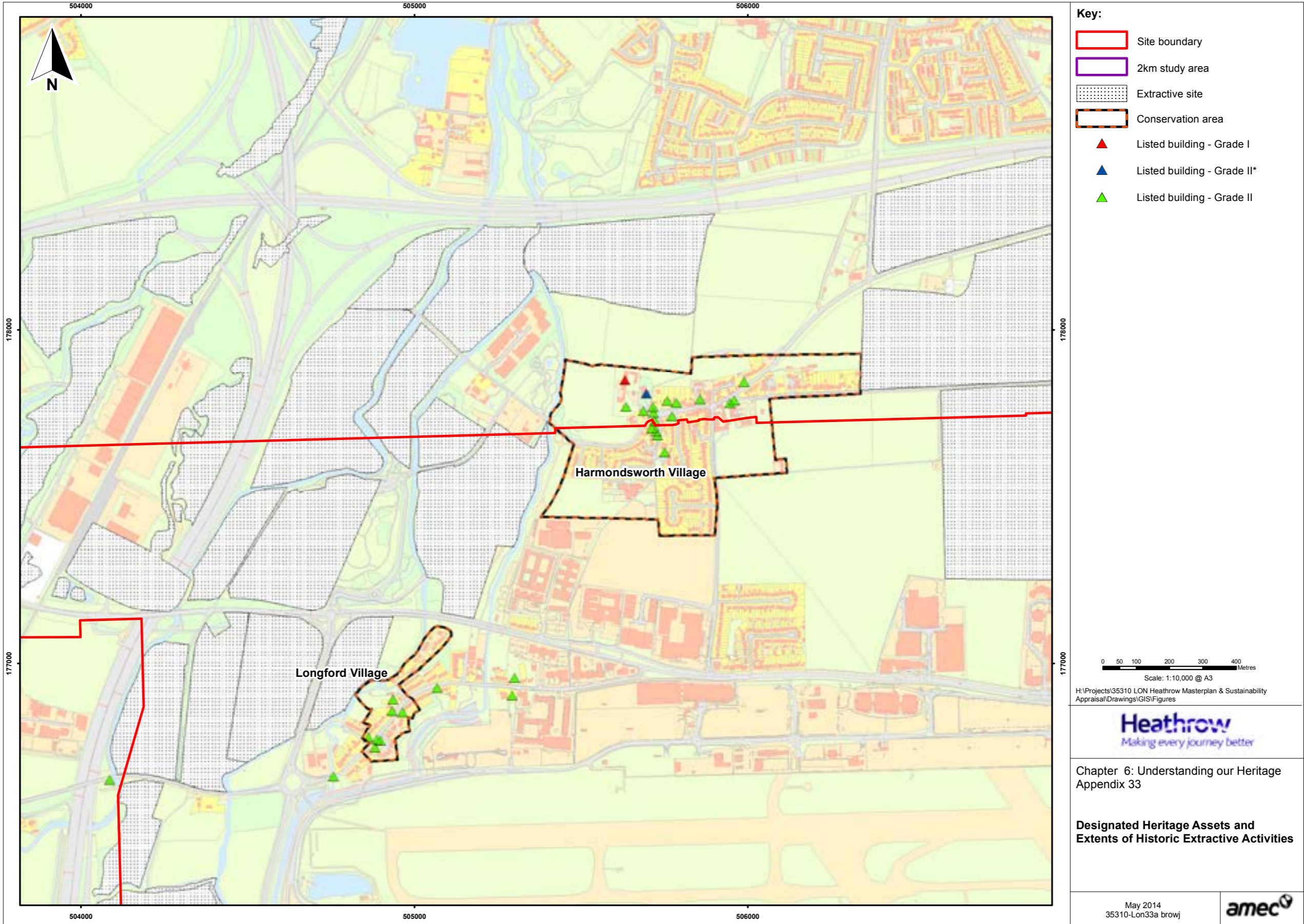
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32 Designated Heritage Assets and Extents of Historic Extractive Activities



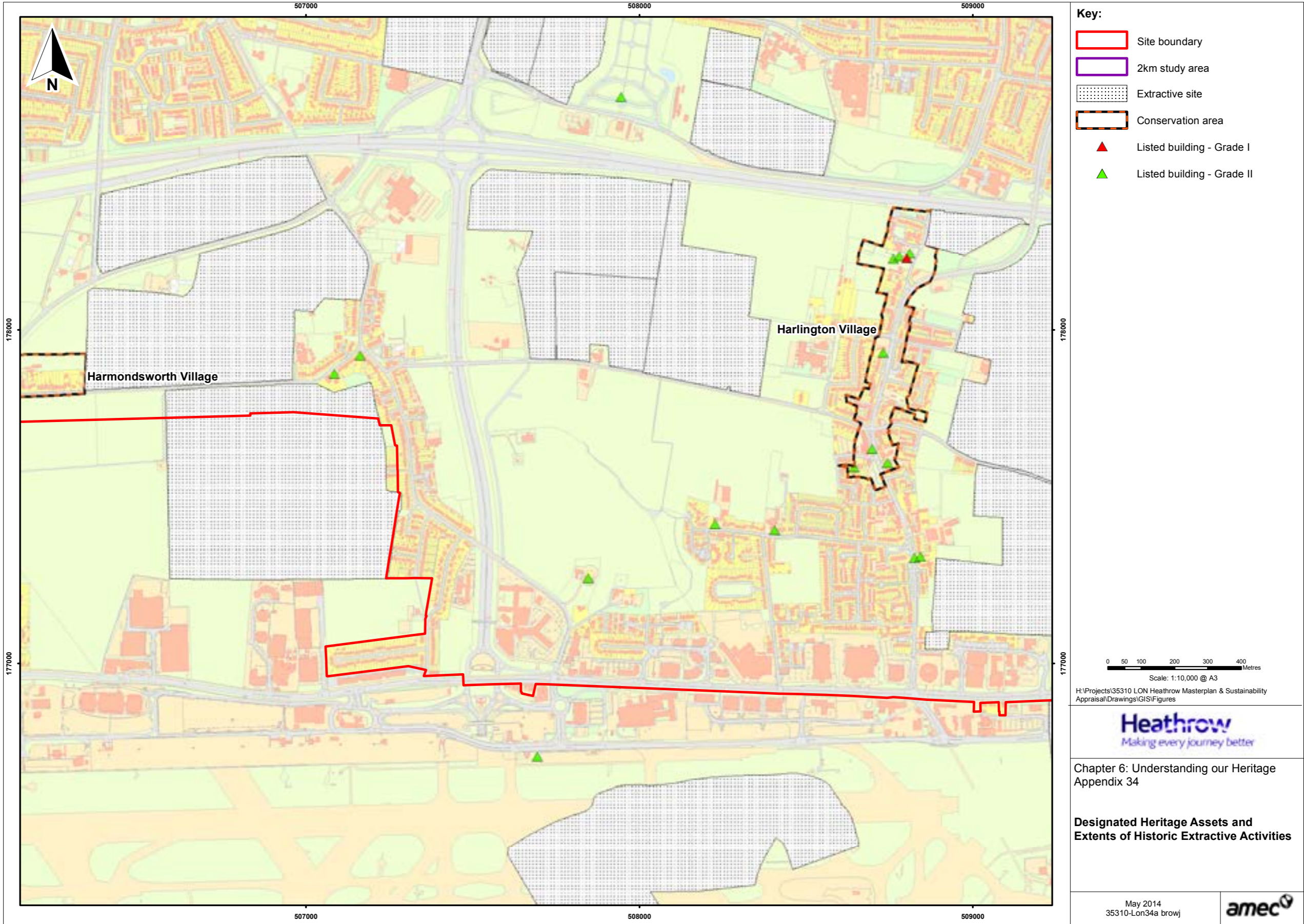
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33 Designated Heritage Assets and Extents of Historic Extractive Activities

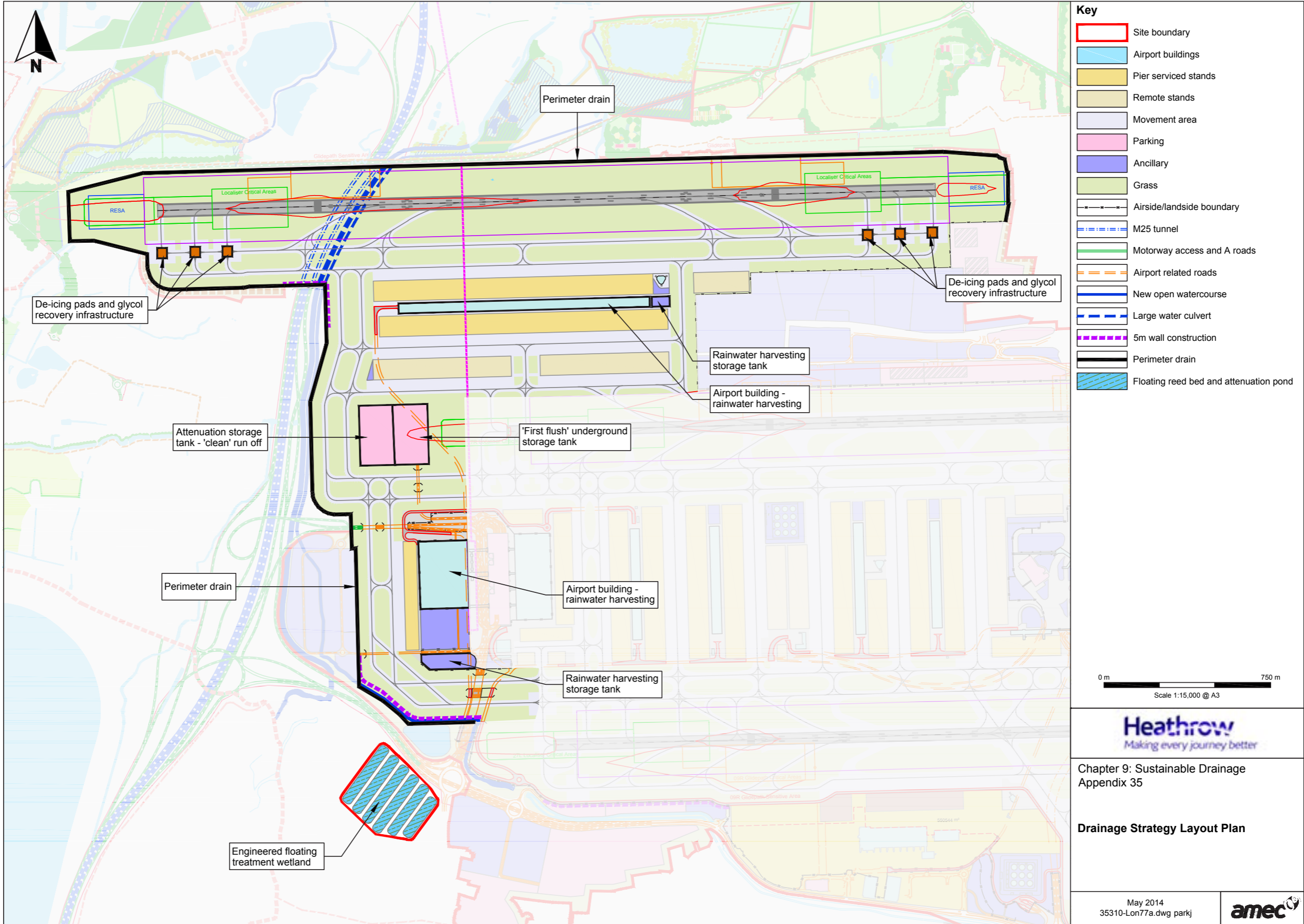


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34 Designated Heritage Assets and Extents of Historic Extractive Activities

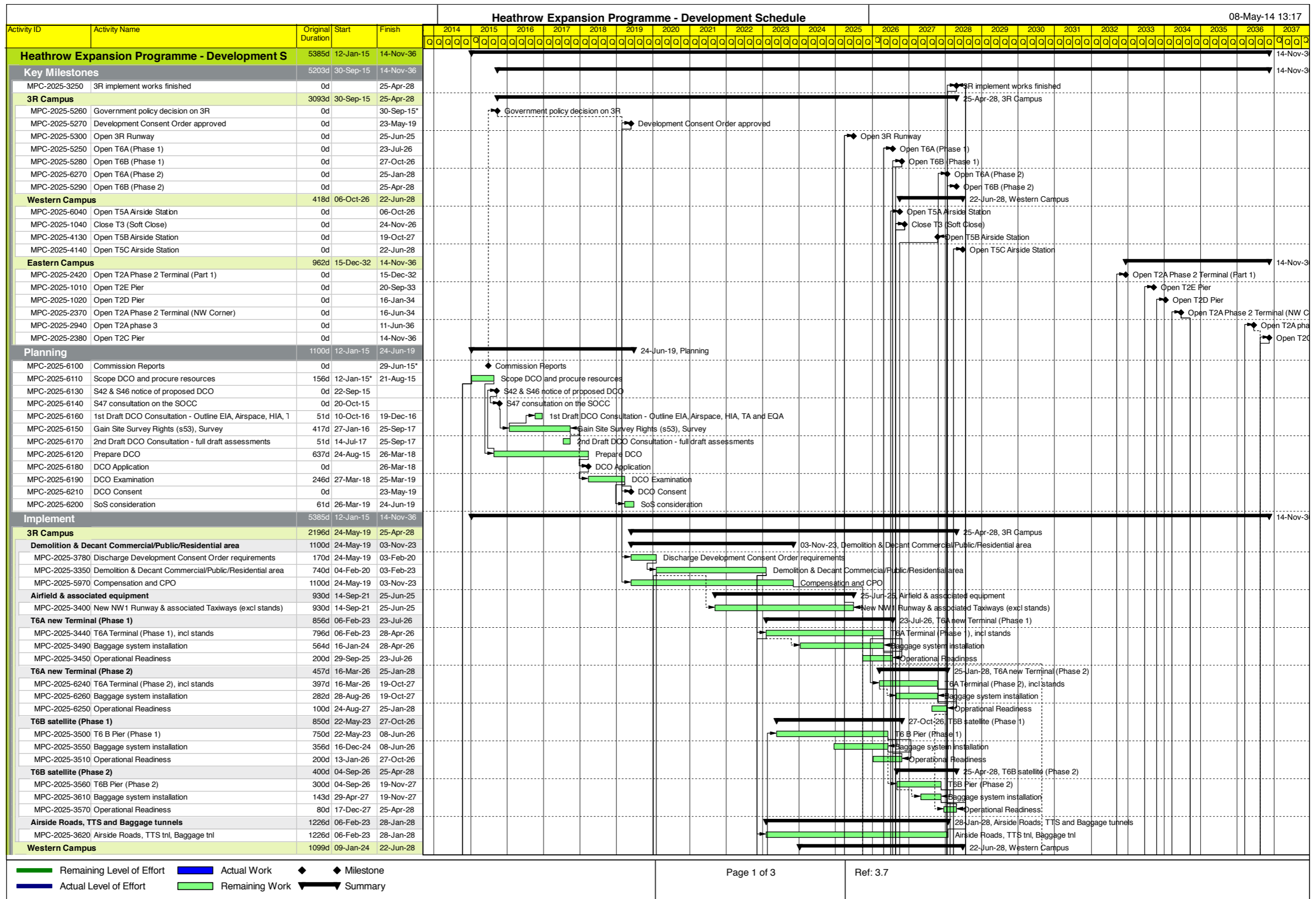


35 Drainage Strategy Layout Plan

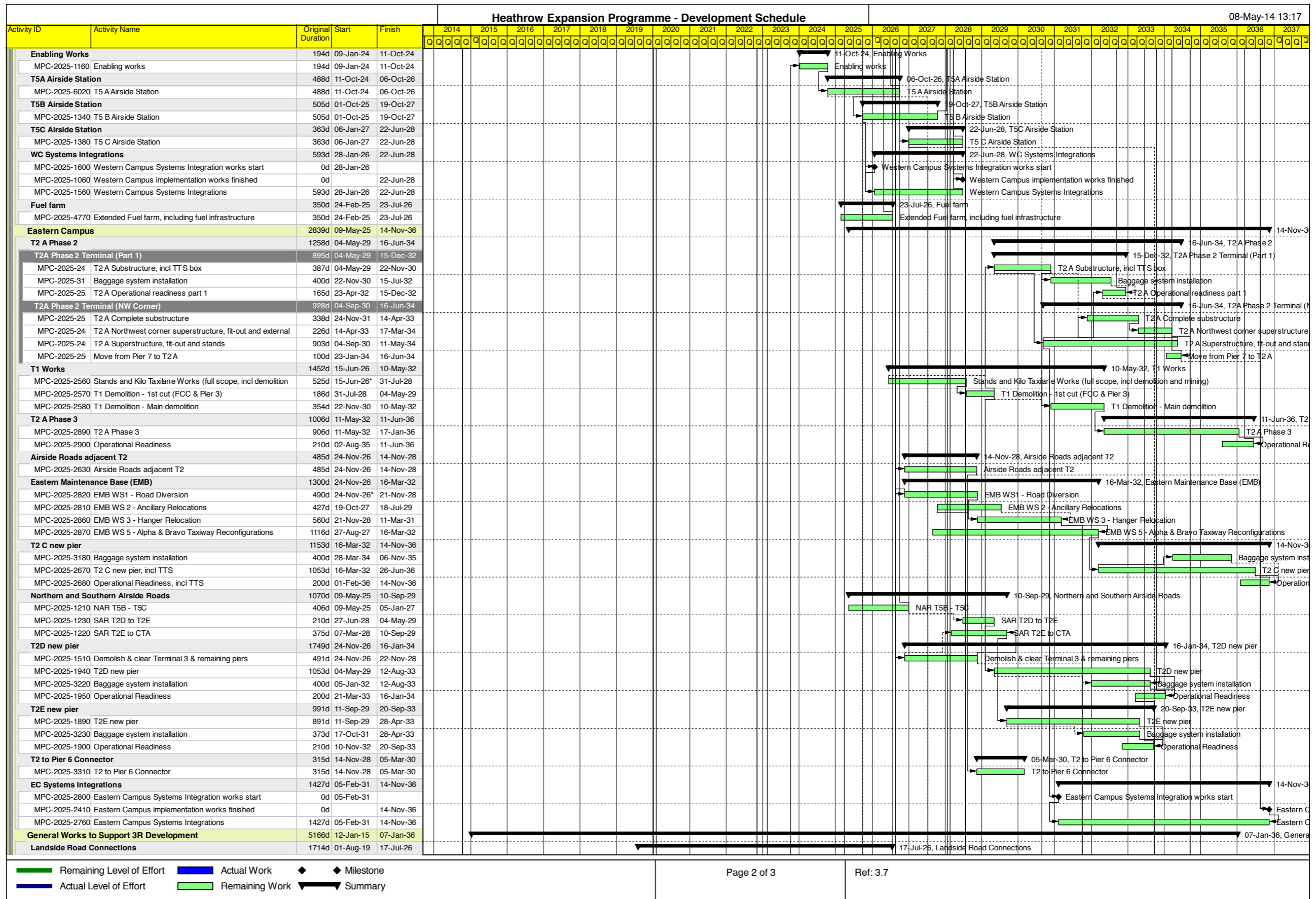


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36 Construction Schedule



36 Construction Schedule



36 Construction Schedule

