

B1 Hazard Screening Assessment

B1.1 Introduction

To simplify the assessment of risks, UK statutory guidance allows the use of authoritative and scientifically based guideline values for the initial hazard screening assessment, provided that such guideline values are available and are appropriate to the site circumstances of the pollutant linkages in question. The hazard screening assessment is used to identify Contaminant of Concern (CoCs) that may pose a risk of harm to human health, or a risk of significant pollution of groundwater at the site.

B1.2 Soil Quality

B1.2.1 Hazard Screening Guideline Values

- The following guidelines have been used for the assessment of soil contamination at the site:
- UK Contaminated Land Exposure Assessment (CLEA) soil guideline values (SGVs) for commercial/industrial land-use.
 - Arup Generic Assessment Criteria (GAC) derived for soils using CLEA UK and RISC 4 were used where no SGVs are available.
 - The Dutch soil Serious Risk Contaminations values for human health (SRC_{human}) for contaminants where no SGV or Arup GAC values are available.
 - The Dutch Intervention Values (DIV) for soil for those contaminants where no SRC_{human} values have been published.
 - UK ICRCCL Guidance Note 64/85 for asbestos on contaminated sites.

CLEA Statistical Analysis

As recommended by the Department for Environment, Food & Rural Affairs (DEFRA) and the EA, Arup has carried out statistical tests (mean and maximum value tests) to quantify uncertainties associated with variation of contaminant concentrations across the site, and the sampling and chemical analysis of soil samples (see Section 4, Appendix A of CLR 7).

Mean Value Test

The mean value test compares the relevant screening guideline values with the upper 95th percentile (95% confidence limit) of the mean measured concentration and has been applied to the data set of soil chemical test results for the site. Where the data set passes the mean value test, this indicates that no further action is warranted.

Maximum Value Test

Measured contaminant concentrations that exceed the selected screening guideline values require some further consideration even when the mean value test has been passed. In considering whether further sampling and analysis is required, the maximum value test has been carried out to determine whether the maximum value in a sample set classifies as a statistical 'outlier'. Outliers are data points that do not fall within the expected distribution of measurements for the sample population.

If the maximum value is assessed to be a statistical outlier this could indicate the presence of a localised and/or largely undiscovered area of contamination (hotspot), or be the result of a measurement or recording error. Further work would be required, including more detailed information review and/or site investigation, to delineate contaminant hotspot areas.

B1.2.2 Soil Quality Assessment

Results of soil chemical testing from the CTRL site investigations have been compared to hazard screening guideline values derived as detailed above. The results and the screening values for the sample locations beneath the Pancras Road realignment footprint are summarised below, and the laboratory results are included in full in the following spreadsheet.

Determinand	Units	No of Samples Tested	Range Measured	Screening Values	Number of Samples Exceeding Screening Value
Arsenic	(mg/kg)	27	10 – 41	500 ¹	0
Cadmium	(mg/kg)	36	1 – 5	1,400 ¹	0
Chromium	(mg/kg)	27	19 – 49	5,000 ¹	0
Copper	(mg/kg)	27	24 – 396	62,800 ³	0
Lead	(mg/kg)	27	18 – 3,000	750 ¹	6
Mercury	(mg/kg)	36	0.07 – 7.85	480 ¹	0
Nickel	(mg/kg)	27	12 – 60	5,000 ¹	0
Selenium	(mg/kg)	36	0.13 – 1.42	8,000 ¹	0
Zinc	(mg/kg)	27	49 – 700	220,000 ³	0
Total monohydric phenols	(mg/kg)	19	0.5 – 2.7	21900 ¹	0
GRO	(mg/kg)	20	<0.1 – 0.2	5,000 ⁵	0
DRO	(mg/kg)	26	4 – 1,400	5,000 ⁵	0
Toluene	(mg/kg)	6	0.003 – 0.193	150 ¹	0
Ethylbenzene	(mg/kg)	6	<0.001 – 0.024	48,000 ¹	0
m,p-Xylenes	(mg/kg)	6	<0.001 – 0.094	388 ²	0
o-Xylene	(mg/kg)	6	<0.001 – 0.042	109 ²	0
Naphthalene	(mg/kg)	20	<1 – 7	17,000 ³	0
Benzo(a)pyrene	(mg/kg)	20	<1– 32	9 ³	5
Anthracene	(mg/kg)	20	<1 – 69	25,500 ²	0
Phenanthrene	(mg/kg)	20	<1 – 210	23,000 ²	0
Fluoranthene	(mg/kg)	20	<1 – 209	30,300 ²	0
Benzo(a)anthracene	(mg/kg)	20	<1 – 53	3,000 ²	0
Chrysene	(mg/kg)	20	<1 – 53	32,000 ²	0
Benzo(g,h,i)perylene	(mg/kg)	20	<1 – 14	12,000 ²	0

Determinand	Units	No of Samples Tested	Range Measured	Screening Values	Number of Samples Exceeding Screening Value
Benzo(k)fluoranthene	(mg/kg)	17	<1 – 36	3,200 ²	0
Acenaphthylene	(mg/kg)	20	<1 – 10	26,000 ²	0
Benzo(b)fluoranthene	(mg/kg)	20	<1 – 40	2,800 ²	0
Dibenz(a,h)anthracene	(mg/kg)	2	<1	70 ²	0
Asbestos	(%)	12	Not present	1 ⁶	0
pH value	(pH units)	27	7 – 11.5	–	–

Key:	
1.	CLEA Soil Guideline Values (SGV) for commercial/industrial use (2002 to 2005), SOM 1% assumed.
2.	Dutch Serious Risk Concentration for human health (2001).
3.	Arup generic assessment criteria (GAC) for commercial/industrial use (2004 to 2006).
5.	Dutch Intervention Values for human health and ecotoxicity (2000).
6.	ICRCL Guidance note on asbestos contaminated sites (1985).

The hazard screening assessment indicates that the concentrations of only two contaminants were above their screening value, in some of the samples. These two CoC's are lead and benzo(a)pyrene. Six of the 17 samples that were analysed for lead exceeded the SGV (commercial end use) screening level, and five of the 42 samples that were analysed for benzo(a)pyrene exceeded the Arup GAC (commercial end use) screening level. The significance of these exceedances is discussed in Section 4.2.2 of the report.

Location		DS7324-0	DS7324-0	DS7324-0	DS7324-2	DS7324-3	OT3745A	OT3745A	SA5009-0	SA5009-0	SA5009-1	SA5009-2	SA5009-5	SA7323-0	SA7323-0	SA7323-1	SA7323-3	SA7324A	SA7324A	SA7324A	SA7324A	SA7324A	SA7324A	TP5010-0	TP5010-1	TP5010-2	TP7394-0	TP7395-0	TP7395-0	TP7396-0	
Depth		0.1	0.3	0.7	2.1	3	0.5	2	0.3	0.5	1	2	5	0.2	0.55	1	3	0.25	0.5	1	3	4.2	0.15	1	2	0.25	0.08	0.5	0.1		
Sample Reference		C	C	C	C	C	K	B	K	B	K	K	K	C	C	C	C	C	C	B	C	C	K	B	K	C	C	C	C		
Stratum		MG	MG	MG	MG	MG	ALV	LC	MG	MG	MG	LC	LC	MG	MG	MG	LC	MG	MG	MG	MG	LC	MG	MG	LC	MG	MG	MG	MG		
	Screening Criteria	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	
SGV/GACs Commercial Industrial																															
Arsenic	500	20	20	25	21	23								38	32	19	20	16	18	16	25	23				23	22	26	32		
Cadmium	1400	3	2	3	2	3	<1	<1	<1		<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	3	<1	<1	2	3	3	5		
Chromium	5000	47	45	40	40	27								34	49	44	24	22	32	32	41	37				19	47	35	40		
Copper	62800	59	24	113	30	78								184	61	41	27	87	51	52	37	39				174	54	173	396		
Lead	750	789	39	295	34	408								452	279	125	18	230	1030	1350	151	132				945	355	3000	2270		
Mercury	480	0.89	0.08	0.67	0.07	0.51	<1	<1	<1		<1	<1	<1	1.13	0.89	0.31	0.09	0.29	1.37	1.67	4.05	5.99	<1	<1	<1	4.02	0.64	1.13	2.11		
Nickel	5000	60	36	53	36	29								58	35	20	31	42	22	20	35	36				22	34	30	46		
Selenium	8000	0.53	0.46	0.46	1.42	0.88	<1	<1	<1		<1	<1	<1	1.1	0.64	0.45	0.33	0.66	0.68	0.89	1.32	1.32	<1	<1	<1	0.41	0.44	0.45	0.87		
Zinc (Total)	220000	469	68	168	80	552								580	179	88	65	159	552	628	114	122				160	98	228	700		
Asbestos CR	nc	NFO	NFO	NFO										NFO	NFO			NFO									NFO		NFO	NFO	
Asbestos CS	nc	<0.001	<0.001	<0.001										<0.001	<0.001												<0.001		<0.001	<0.001	
Cyanide (Total)	nc	3	<1	4	<1	3								5	1	<1	<1	1	5	<1	<1	4									
pH	nc	8.8	8.3	8.7	8.4	8.4								11.5	10	8.2	7.8	8.1	7.4	7.9	8.4	8.3				8.5	8.9	9.2	8.1		
Sults	nc	0.109	0.0651	0.121	0.13	0.365	<0.01							0.533	0.0839	0.167	1.59	0.124	0.856	0.751	0.334	0.399				0.139	0.12	0.171	0.208		
Sulphate Water Soluble	nc					0.28										0.11				0.66		1.06									
Boron (water soluble)	nc	1	1.2	0.7	3.6	2.2								0.6	0.7	1.1	1.8	1.4	1	1.5	2.6	2.7				0.4	1	1.2	0.2		
Phenol (Total)	21900	<0.5	<0.5	<0.5	<0.5	<0.5		<1						<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5									
Gasoline Range Organics by GC	5000	<0.1	<0.1	<0.1	0.1	<0.1								<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1				<0.1		<0.1	<0.1		
Diesel range organics	5000	12	14	145	10	4								127	57	65	39	82	60	69	96	9				138		146	134		
Mineral Oil	5000																														
Aromatic hydrocarbons	nc																														
Acenaphthylene	26000	<2	<1	<1	<1	<2								<1	<1	<1	<1	<2	<2	<2	<1	<1				<1		<1	<1		
Acenaphthene	nc	20	<1	1	<1	2								<1	<1	<1	<1	<2	<2	<2	<1	<1				<1		<1	<1		
Anthracene	25500	69	<1	4	<1	6								1	<1	<1	<1	2	2	4	<1	<1				<1		<1	<1		
Benzo(a)anthracene	3000	53	<1	7	<1	14								3	3	<1	<1	6	8	11	<1	<1				1		<1	1		
Benzo(a)pyrene	9	32	<1	5	<1	16								4	4	<1	<1	7	12	17	<1	<1				<1		1	1		
Benzo(b)fluoranthene	2800	30	<1	4	<1	12								3	3	<1	<1	13	9	12	<1	<1				<1		<1	<1		
Benzo(ghi)perylene	12000	13	<1	3	<1	9								3	2	<1	<1	4	10	14	<1	<1				<1		<1	<1		
Benzo(k)fluoranthene	3200	36	<1	6	<1	14								4	3	<1	<1	#	12	16	<1	<1				<1		<1	<1		
Chrysene	32000	53	<1	8	<1	17								4	3	<1	<1	7	9	13	<1	<1				1		<1	1		
Fluorene	nc	28	<1	1	<1	2								<1	<1	<1	<1	<2	<2	<2	<1	<1				<1		<1	<1		
FLUORANTHENE	30300	209	<1	16	<1	27								5	3	<1	<1	13	5	10	<1	<1				<1		1	2		
Indeno(1,2,3-cd)pyrene	nc	23	<2	5	<2	16								5	4	<2	<2	7	14	20	<1	<1				<2		<2	<2		
Naphthalene	17000	7	<1	<1	<1	<2								1	<1	<1	<1	<2	3	5	<1	<1				1		<1	<1		
Phenanthrene	23000	210	<1	13	<1	18																									

Location		TP7396-0	TP7402-0	TP7402-1	TP7424-0	TP7424-0	TP7424-0	TP7424-1	TP7425-0	TP7425-0	TP7425-0	TP7425-2
Depth		0.9	0.2	1	0.1	0.2	0.5	1	0.1	0.2	0.5	2
Sample Reference		C	C	C	C	C	C	C	C	C	C	C
Stratum		MG	MG	MG	MG	MG	MG	TG	MG	MG	MG	MG
	Screening Criteria	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com	Com
SGV/GACs Commercial Indus												
Arsenic	500	10	17	23		41	24	15	28		16	21
Cadmium	1400	2	<1	<1		<1	<1	<1	<1		<1	<1
Chromium	5000	30	23	33		20	37	22	40		31	37
Copper	62800	38	54	46		39	122	60	104		47	58
Lead	750	296	135	123		65	413	112	354		161	213
Mercury	480	0.38	1.44	0.71		0.72	7.85	0.96	2.15		1.06	0.97
Nickel	5000	16	12	18		36	23	14	30		28	29
Selenium	8000	0.37	0.44	0.35		1.17	0.98	0.45	0.89		0.13	0.76
Zinc (Total)	220000	74	70	64		80	437	49	258		58	89
Asbestos CR	nc		NFO	NFO	NFO	NFO			NFO	NFO		
Asbestos CS	nc				<0.001	<0.001			<0.001	<0.001		
Cyanide (Total)	nc		<1	<1					<1		<1	
pH	nc	8.1	8.8	9.4		8.3	8.1	7	9.1		8.1	8
Sults	nc	0.0491	1.47	1.33							0.0176	
Sulphate Water Soluble	nc		0.65									
Boron (water soluble)	nc	0.9	2.9	1.7		0.6	1.2	0.5	0.6		0.2	0.6
Phenol (Total)	21900		<0.5	<0.5					2.7		0.5	
Gasoline Range Organics by GC	5000	<0.1	0.2	<0.1								
Diesel range organics	5000	242	1389	281		1400	200	155	947		237	178
Mineral Oil	5000											
Aromatic hydrocarbons	nc											
Acenaphthylene	26000	<1	10	2								
Acenaphthene	nc	<1	2	<1								
Anthracene	25500	<1	25	5								
Benzo(a)anthracene	3000	<1	32	6								
Benzo(a)pyrene	9	<1	23	6								
Benzo(b)fluoranthene	2800	<1	40	11								
Benzo(ghi)perylene	12000	<1	10	3								
Benzo(k)fluoranthene	3200	<1										
Chrysene	32000	<1	28	6								
Fluorene	nc	<1	12	2								
FLUORANTHENE	30300	<1	66	15								
Indeno(1,2,3-cd)pyrene	nc	<2	18	5								
Naphthalene	17000	<1	3	<1								
Phenanthrene	23000	<1	91	16								
Pyrene	nc	<1	63	14								
STYRENE (MONOMER)	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
trans 1,2 - Dichloroethene	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
trans 1,3 - Dichloropropene	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
CFC-11	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
tert-Butylbenzene	nc					<0.001	<0.001	<0.001	0.012		<0.001	<0.001
Tetrachloromethene	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
Toluene	150					0.004	0.012	0.012	0.193		0.003	0.003
Trichloroethene	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,1,1 - Trichloroethane	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,1,2,2-TETRACHLOROETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,1,2-TRICHLOROETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,1-DICHLOROETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,1-DICHLOROETHYLENE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,2-DICHLOROBENZENE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,2-DICHLOROETHANE	nc					<0.001	<0.001	<0.001	0.001		<0.001	<0.001
cis 1,2 - Dichloroethene	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,2 - Dibromomethane	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,2 - Dichloropropane	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
M-DICHLOROBENZENE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,3-DICHLOROPROPANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
1,4-DICHLOROBENZENE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
2,2-DICHLOROPROPANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
BROMOBENZENE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
TRIBOMOMETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
BROMOMETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
BROMODICHLOROMETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
CHLOROBENZENE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
CHLOROETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
CHLOROFORM	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
CHLOROMETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
CARBON TETRACHLORIDE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
CFC-12	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
CHLORODIBROMOMETHANE	nc					<0.001	<0.001	<0.001	<0.001		<0.001	<0.001
Ethylbenzene	48000					<0.001	0.001	<0.001	0.024		0.004	<0.001
HEXACHLORO-1,3-BUTADIENE	nc					0	0	0	0		0	0
m/p-Xylene	388					0.001	0.003	0.005	0.094		<0.001	<0.001
n - Butylbenzene	nc					0	0	0	0		0	0
o-Xylene	109					<0.001	0.001	0.002	0.042		0.002	<0.001
2-PHENYLBUTANE	nc					<0.001	<0.001	<0.001	0.018		<0.001	<0.001

nc' denotes 'no criterion'
Denotes elevated above screening criterion
NFO' denotes 'no fibres detected'
all results reported as mg/kg

	Mean Value Test								Max Value Test			
	Number of samples	Min	Max	Mean x	Standard Deviation	t value	US95	Screening Criteria	Mean Value Test	T	Tcrit	Max Value Test
Scenario								SGV/GACs Commercial Industrial				
Metals												
Arsenic	27	10	41	22.74	6.92	1.706	25.01	500	PASS	2.112	2.519	PASS
Cadmium	36	1	5	1.56	0.97	1.699	1.83	1400	PASS	2.662	2.639	FAIL
Chromium	27	19	49	34.37	8.80	1.706	37.26	5000	PASS	1.406	2.519	PASS
Copper	27	24	396	83.26	77.26	1.706	108.63	62800	PASS	2.731	2.519	FAIL
Lead	27	18	3000	510.15	701.74	1.706	740.54	750	PASS	2.008	2.519	PASS
Mercury	36	0.07	7.85	1.42	1.62	1.699	1.88	480	PASS	2.114	2.639	PASS
Nickel	27	12	60	31.52	12.50	1.706	35.62	5000	PASS	1.757	2.519	PASS
Selenium	36	0.13	1.42	0.77	0.33	1.699	0.87	8000	PASS	1.393	2.639	PASS
Zinc	27	49	700	229.22	210.05	1.706	298.19	220000	PASS	1.725	2.519	PASS
Miscellaneous												
Asbestos CR												
Asbestos CS	12	0.001	0.001	0.00	0.00	1.796	0.00	nc	PASS	-	-	-
Cyanide (Total)	18	1	5	2.00	1.53	1.74	2.63	nc	PASS	1.714	2.335	PASS
pH	27	7	11.5	8.51	0.85	1.706	8.79	nc	PASS	3.234	2.519	FAIL
Sults	23	0.01	1.59	0.40	0.48	1.717	0.57	nc	PASS	1.591	2.448	PASS
Sulphate Water Soluble	5	0.11	1.06	0.55	0.37	2.132	0.91	nc	PASS	1.018	1.600	PASS
Boron (water soluble)	27	0.2	3.6	1.26	0.87	1.706	1.55	nc	PASS	1.744	2.519	PASS
Hydrocarbons												
Phenol (Total)	19	0.5	2.7	0.64	0.51	1.734	0.85	21900	PASS	3.807	2.361	FAIL
Gasoline Range Organics	20	0.1	0.2	0.11	0.02	1.729	0.11	5000	PASS	4.249	2.385	FAIL
Diesel Range Organics	26	4	1400	239.85	385.18	1.708	368.87	5000	PASS	1.823	2.502	PASS
PAHs												
Acenaphthylene	20	1	10	1.75	2.00	1.729	2.52	26000	PASS	3.494	2.385	FAIL
Acenaphthene	20	1	20	2.20	4.21	1.729	3.83	nc	PASS	3.822	2.385	FAIL
Anthracene	20	1	69	6.45	15.67	1.729	12.51	25500	PASS	2.889	2.385	FAIL
Benzo(a)anthracene	20	1	53	7.65	12.96	1.729	12.66	3000	PASS	2.180	2.385	PASS
Benzo(a)pyrene	20	1	32	6.80	8.79	1.729	10.20	9	FAIL	1.816	2.385	PASS
Benzo(b)fluoranthene	20	1	40	7.35	10.57	1.729	11.44	2800	PASS	1.933	2.385	PASS
Benzo(g,h,i)perylene	20	1	14	4.05	4.44	1.729	5.77	12000	PASS	1.730	2.385	PASS
Benzo(k)fluoranthene	17	1	36	5.94	9.23	1.746	9.85	3200	PASS	2.108	2.309	PASS
Chrysene	20	1	53	7.90	12.71	1.729	12.81	32000	PASS	2.106	2.385	PASS
Dibenzo(a,h)anthracene	2	1	1	1.00	0.00	6.134	1.00	70	PASS	-	-	-
Fluorene	20	1	28	3.15	6.34	1.729	5.60	nc	PASS	3.189	2.385	FAIL
FLUORANTHENE	20	1	209	19.00	47.22	1.729	37.26	30300	PASS	2.401	2.385	FAIL
Indeno(1,2,3-cd)pyrene	20	1	23	6.75	7.14	1.729	9.51	nc	PASS	1.704	2.385	PASS
Naphthalene	20	1	7	1.80	1.61	1.729	2.42	17000	PASS	2.581	2.385	FAIL
Phenanthrene	20	1	210	19.70	49.02	1.729	38.65	23000	PASS	2.432	2.385	FAIL
Pyrene	20	1	192	18.35	43.37	1.729	35.12	nc	PASS	2.319	2.385	PASS

9 Access Statement

- 9.1 An Access Statement is enclosed. The Access Statement has been prepared with regard to the requirements of Condition 19 of the Planning Permission. Accordingly, the Statement:
- i) Addresses the relevant design principles set out in the Access and Inclusivity Strategy dated September 2005;
 - ii) Highlights any areas where technical or other constraints have prevented or constrained the application of these design principles; and
 - iii) Includes a project programme for the realignment works, to identify the key stages at which important decisions affecting inclusivity and accessibility will be made.

Access Statement

Introduction

This document sets out Argent (King’s Cross) Ltd, London & Continental Railways Limited and Exel plc’s approach to accessible and inclusive design with regard to the realignment of Pancras Road.

It has been written within the context of the site-wide ‘Access and Inclusivity Strategy’ (September 2005) submitted with the outline planning application. In particular, this Statement addresses the design principles set out in the strategy, having regard to Planning Condition 19.

Policy and Approach

The policy and approach of Argent (King’s Cross) Ltd, London & Continental Railways Limited and Exel plc to access, with particular relevance to the inclusion of people with disabilities, is set out in the Access and Inclusivity Strategy dated September 2005 and Section V of the Section 106 Agreement dated 22 December 2006.

Design Principles

Access and Circulation

The realigned Pancras Road will be an adopted highway providing northbound access from Euston Road to Goods way for general traffic. In the northern section, there will also be a southbound taxi lane, which will change to general traffic from the junction of the Boulevard to Euston Road. The western pavement south of the taxi lay-bys will be adopted, with the northern section controlled by St Pancras Station, with a public right of way. The eastern pavement will be adopted by Camden.

The road will provide access for (St Pancras and King’s Cross) station traffic, including coaches, taxis and private drop-off.

North of the German Gym, a wide pavement on the east side will provide a high quality north-south pedestrian route with future links into the King’s Cross Central development and also a segregated cycle lane.

South of the German Gym, there is a clearly defined high quality pavement on the west side of the road along the side of St Pancras Station, whilst the east side becomes part of the open space between the stations.

Taxi and private vehicle set-down for St Pancras station are in clearly defined areas on the west side of the road. A southbound taxi lane, on the east side, will provide queuing space for King’s Cross Station taxis in their future configuration. The details of these future drop-off and set-down facilities will be brought forward by Network Rail as part its King’s Cross Station Enhancement project.

Parking

There will be no parking on Pancras Road, although it will provide access to the car park for St Pancras Station and the coach stops under the station.

Levels

Pancras Road will be relatively flat with levels varying from 17m AOD at Euston Road to 16.4mAOD at Goods Way.

Canal Access

This Enabling Work does not include works to or affect access to, the Regent’s Canal.

Residential Mix, Lifetime and Wheelchair Accessible homes

This Enabling Work does not include the provision of any homes.

Wayfinding

Signage for the road has not yet been detailed. Although much of the signage will be specified according to normal highway standards, there will also be some signage that will form part of an overall wayfinding strategy for the wider King’s Cross Central development. King’s Cross Central signage will itself need to integrate with signage for the stations.

Signage for the road will need to be installed before the international station opening in November 2007.

Threshold Treatments

The levels of the pavement on the east side of Pancras Road have been set to allow level access into the future buildings of Development Zone B.

This submission includes landscape details between the road and the ‘keyhole’ at the domestic entrance to St Pancras Station. The change in levels at this location means that steps are required on the southern side, leading up to the Station entrance (as indicated in Landscape Proposal Plans LPP101A and C). The steps will be clearly demarcated using tactile paving at the top and bottom. Handrails will be provided.

The proposed works do not include steps around the perimeter of the keyhole. The Landscape Proposal Plans do include steps in this location, however detailed development of the design means that this level change can be graded out, resulting in a more accessible environment generally around this entrance and widening useable the space available to people moving through the area.

The taxi ranks located in front of the International entrance and north of the Keyhole Entrance are designed to assist people with disabilities in the following ways:

- The northern end of each rank can be used for the disembarkation of disabled passengers. This will have a full height pavement and clear manoeuvring space to reduce the gradient of the ramped exit from the taxi and
- The southern end can be used for passenger drop-off from either a taxi or a member of the public using a wheelchair stowed in the boot of the car. The dropped kerb at the end of the rank will allow the passenger to alight at street level and then access the pavement.

Security

The security team for St Pancras Station will be responsible for safety in the areas controlled by the Station.

In addition, Pancras Road is part of the Camden / Islington CCTV system and there is a camera located approximately halfway along the road. This camera will be relocated to an agreed location for the realigned scheme.

As King’s Cross Central develops, there will be opportunities for the proposed public safety teams to cover Pancras Road in accordance with strategy set out at Section I of the Section 106 Agreement dated 22 December 2006.

Street Furniture and Facilities

Security requirements mean that there are no seats or bins proposed on the west pavement.

Provision of such street furniture of the eastern side of the road will be addressed as part of the future detailed design of public areas (for example Station Square) within King’s Cross Central. Accordingly, these Enabling Works do not include the provision of any seats or bins.

Summary of features incorporated to ensure a high level of accessibility

Below is a summary of the features which have been incorporated into the scheme to ensure that a high level access for people with disabilities is achieved:

General considerations:

- A consistent treatment and palette of materials will be used throughout the scheme to give a consistent and navigable landscape over the whole area;
- Raised tables are being used as opposed to the use of dropped kerbs, and this will ease road crossings for a wide range of people;
- Materials are used to reinforce the pedestrian routes and crossings;

Specific Considerations:

- Joints between paving stones and sets will be level and generally of a 5mm width, but no more than 10mm when filled;

- Paving surfaces will be firm, durable and slip resistant;
- Tactile paving will consist of a stone surface, with stainless steel or stone tactile blisters to meet the DFT guidelines for tactile paving;
- Cycle pathways will be clearly demarcated to meet DFT guidelines with corduroy paving laid in the prescribed manner;
- Large security bollards are being used to protect the station entrances. They are being brought forward separately by LCR/CTRL and do not form part of these Enabling Works. Nevertheless, they have been designed to minimise their potential impact on partially sighted and disabled users in the following ways:
 - They are consistently placed around entrances with a minimum 1200mm clear space between them;
 - They are large, tall detectable objects to assist partially sighted cane users;
 - They will be made from stainless steel, but have a contrasting band of colour at the base to clearly visually differentiate the bollard from the lighter paving in the area;
 - Lighting posts will be consistently located 500mm in from the edge of the roadway to meet the DFT guidelines (Building edge mounting is not possible).

The Design Process and Constraints

The successful inclusion of access within a design process is iterative rather than a process of review. The design has therefore been developed with the continuous input of the access specialist All Clear Designs as the Inclusive Design Champion within the project team.

There are no areas where technical or other constraints have prevented or constrained the application of the design principles articulated within the Access and Inclusivity Strategy (2005) and reported on above, with the exception of station security considerations which have prevented the provision of seats and bins on the western footway. This is explained within the ‘Street Furniture and Facilities’ section above.

Consultation

The proposed works have been subject to consultation with a number of bodies, as explained at Section 6 of this submission.

Argent (King’s Cross) Ltd has discussed with Camden Council officers a timetable for their (re)convening of the King’s Cross Access Forum. This would provide a mechanism for further advice and feedback on accessibility issues.

Project Programme

Section 10 of this document provides a project programme for these Enabling Works.

The accuracy and delivery of the design details shown on the submitted drawings are very important. The construction process will include ongoing assessment against agreed and approved sample panels to

achieve and maintain the construction quality required to produce an accessible environment. An access specialist will be included in this quality assurance phase.

As explained above, decisions have yet to be made about wayfinding/signage and the provision of seating, bins and bicycle parking within the public realm. The provision of such street furniture will be addressed as part of future detailed design.

Sources of Advice

The proposed works draw upon the technical advice of accessibility specialists All Clear Designs and the documentation and guidance listed below.

Documentation & Guidance

Specific documentation used in the development of the design (but not exclusively) has been as follows:

- BS8300:2001 Design of buildings and their approaches to meet the needs of disabled people – code of practice
- Part M of the Building Regulations 2004 Access to and use of buildings
- BS5588 part 8:1999 Fire precautions in the design, construction and use of buildings: Code of practice for means of escape for disabled people.
- Sign design guide: a guide to inclusive Signage by JMU and the Sign Design Society
- Designing for Accessibility 2004 by CAE
- Parking for Disabled People, Traffic Advisory Leaflet 5/95, Department for Transport, Local Government and the Regions, London, 1995.
- Inclusive Mobility, Department for Transport, Local Government and the Regions, London, 2004.
- Train and Station Services for Disabled Passengers: A Code of Practice. Strategic Rail Authority 2006

10 Construction Timetable

10.1 This Section provides a construction timetable for the works, together with details of how that timetable relates to the overall sequence of development and its major phases.

10.2 The realignment and related works would be carried out in stages as follows:

- i) **Stage 1:** works from the Euston Road to the St Pancras Station international entrance. These works are programmed for Spring 2007 and are likely to be undertaken by Union Railways North;
- ii) **Stage 2:** The bulk of the works are programmed for April 2007 – January 2008, with the southern area, including the keyhole, phased to tie in with the station opening on 14 November 2007. The attached phasing drawings show the intended construction sequence for Stage 2, which is:

Project Enabling Works

- a) Install site offices and welfare facilities
- b) Erect temporary fencing to site boundary and site security
- c) Set up survey control points
- d) Start salvage work on the Northern Stanley Building (under separate listed building consent)
- e) Relocate taxis

Site Investigation

- f) Trial holes and services location
- g) Soil sampling and testing

Southern Area works

- h) Set out the proposed route of utilities from existing Pancras Road alignment to just beyond the Keyhole
- i) Mark up all existing services
- j) Excavate and prepare for installation of ducts and services
- k) Install ducts
- l) Bed and surround
- m) Backfill
- n) Construct road and pavement

Demolition of Stanley Building (under separate listed building consent)

Sewer Diversion in Central Area

- o) Set out the proposed route
- p) Mark up all existing services
- q) Excavate

- r) Install pipes and manholes

Utilities Diversions in Central Area

- s) Set out the proposed route of utilities
- t) Mark up all existing services
- u) Excavate and prepare for installation of ducts and services
- v) Install ducts
- w) Bed and surround
- x) Backfill
- y) Construct road and pavement

Prepare Temporary diversion route

- z) Resurface Battlebridge Road
- aa) Adjust kerbline
- bb) Temporary white lining and traffic signs
- cc) Open diversion road to traffic

Work in Northern area

- dd) Close northern end of Pancras Road from the Coach Road
- ee) Set out the proposed route of utilities
- ff) Mark up all existing services
- gg) Excavate and prepare for installation of ducts and services
- hh) Install ducts
- ii) Bed and surround
- jj) Backfill
- kk) Construct road and pavement

Open new road to traffic

Close diversion road

- iii) **Stage 3:** Stage 3 would comprise (i) residual works to the eastern side of Pancras road, north of Battlebridge Road, including the area in front of the coach road and the construction of the gas main extension; and (ii) the majority of tree planting, along the western side of Pancras Road. These works would be carried out later, probably between 2008 and 2010, to tie in with adjacent King's Cross Central development and LUL/Network Rail works.

10.3 The majority of tree planting would be carried out in Stage 3 to tie in with the completion of adjacent construction works, including works to the Great Northern Hotel, works to provide the

final configuration of taxi facilities for King's Cross Station and the opening of the London Underground Northern Ticket Hall (which will, for example, reduce pedestrian flows along the southern section of Pancras Road).

10.4 The following drawings show the interim layout and design at the completion of the Stage 2 works:

- i) 67940/CP/7102 Interim Context Plan – Highways Works
- ii) TOWN279.1(97)020 Indicative Landscape Design Details for End of Stage 2
- iii) TOWN279.1(97)022 Key Plan of Indicative Design Details for End of Stage 2
- iv) TOWN279.1(97)011 Indicative Landscape Design Details for End of Stage 2, Area 1 of 8
- v) TOWN279.1(97)012 Indicative Landscape Design Details for End of Stage 2, Area 2 of 8
- vi) TOWN279.1(97)013 Indicative Landscape Design Details for End of Stage 2, Area 3 of 8
- vii) TOWN279.1(97)014 Indicative Landscape Design Details for End of Stage 2, Area 4 of 8
- viii) TOWN279.1(97)015 Indicative Landscape Design Details for End of Stage 2, Area 5 of 8
- ix) TOWN279.1(97)016 Indicative Landscape Design Details for End of Stage 2, Area 6 of 8
- x) TOWN279.1(97)017 Indicative Landscape Design Details for End of Stage 2, Area 7 of 8
- xi) TOWN279.1(97)018 Indicative Landscape Design Details for End of Stage 2, Area 8 of 8
- xii) TOWN279.1(08)615 Specification of Tree Pit Locations for End of Stage 2

10.5 The west pavement along St Pancras Station and the two northbound lanes would be complete, but the eastern pavement and the majority of the south-bound carriageway would be in an interim/temporary state. A number of trees would already be planted, close to the 'keyhole' entrance to St Pancras Station; elsewhere temporary setts would mark zones for future tree planting north of the international entrance to St Pancras Station.

10.6 Planting of trees south of the international entrance would be carried out following detailed radar surveys of the services to confirm appropriate locations. Here, tree planting will require lifting and relaying the paving.

10.7 At the completion of the Stage 2 works the interim highway layout will accommodate:

- i) Two north-bound lanes, primarily for station traffic (including coaches) and public transport (buses)
- ii) A south-bound taxi lane between Goods Way and Euston Road
- iii) Pedestrian footways
- iv) Taxi and private car pick-up and drop-off for St Pancras International

v) Taxi pick-up and drop-off for King's Cross Station

vi) Access to the LUL NTH site via the existing LUL access road

vii) Access to the King's Cross Station service yard via the existing (old) alignment of Pancras Road

10.8 The interim layout therefore provides for taxi-pick up and drop-off for King's Cross Station in its current, temporary state, as well as for continued access for London Underground to the Northern Ticket Hall site and Network Rail service access for as long as necessary. These are important components of the "choreography" of works and construction sites referred to in the covering letter.

10.9 The attached graphics show the realignment of Pancras Road in the context of all those Enabling Works likely to be undertaken during 2007 and 2008. They also illustrate our current intentions for the First Major Phase and Second Major Phase of build development, to be undertaken between 2009 and 2012.