APPENDIX C Summary of Foundation Loading



Re-erection – Method Statement 19th October 2012 9065w0007F

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By RAG

Project Kings Cross Gas Holder No. 8

Sheet 9065-SK-025 Rev

Section Support Reaction Summary

Checked CSD Date March 12

Support Reactions for Combination Gk (Unfactored Eurocode Loading) Analysis Type : Linear elastic

Joint	Suppo	rt reactions (ki	N)	Support	t moments (kN	lm)
reference	Px	Py	Pz	Mx	My	Mz
1	-0.003	117.419	-0.017	-0.089	0.000	0.018
2	-0.009	117.419	-0.014	-0.075	0.000	0.050
3	-0.014	117.419	-0.009	-0.050	0.000	0.075
4	-0.017	117.419	-0.003	-0.018	0.000	0.089
5	-0.017	117.419	0.003	0.018	0.000	0.089
6	-0.014	117.419	0.009	0.050	0.000	0.075
7	-0.009	117.419	0.014	0.075	0.000	0.050
8	-0.003	117.419	0.017	0.089	0.000	0.018
9	0.003	117.419	0.017	0.089	0.000	-0.018
10	0.009	117.419	0.014	0.075	0.000	-0.050
11	0.014	117.419	0.009	0.050	0.000	-0.075
12	0.017	117.419	0.003	0.018	0.000	-0.089
13	0.017	117.419	-0.003	-0.018	0.000	-0.089
14	0.014	117.419	-0.009	-0.050	0.000	-0.075
15	0.009	117.419	-0.014	-0.075	0.000	-0.050
16	0.003	117.419	-0.017	-0.089	0.000	-0.018

Support Reactions for Combination Qk (Unfactored Eurocode Loading) is Type : Linear elastic

Joint	Suppo	rt reactions (k	N)	Support moments (kNm)				
reference	Px	Py	Pz	Mx	My	Mz		
1	1.734	17.998	-24.687	-288.325	-0.023	-8.963		
2	4.638	12.988	-25.606	-277.672	-0.057	-30.355		
3	5.696	5.296	-27.283	-271.844	-0.042	-50.312		
4	3.057	0.038	-29.175	-282.873	0.019	-33.670		
5	-3.057	-0.038	-29.175	-282.873	0.019	33.670		
6	-5.696	-5.296	-27.283	-271.844	-0.042	50.312		
7	-4.638	-12.988	-25.606	-277.672	-0.057	30.355		
8	-1.734	-17.998	-24.687	-288.325	-0.023	8.963		
9	1.734	-17.998	-24.687	-288.325	0.023	-8.963		
10	4.638	-12.988	-25.606	-277.672	0.057	-30.355		
11	5.696	-5.296	-27.283	-271.844	0.042	-50.312		
12	3.057	-0.038	-29.175	-282.873	-0.019	-33.670		
13	-3.057	0.038	-29.175	-282.873	-0.019	33.670		
14	-5.696	5.296	-27.283	-271.844	0.042	50.312		
15	-4.638	12.988	-25.606	-277.672	0.057	30.355		
16	-1.734	17.998	-24.687	-288.325	0.023	8.963		

NB: The loadings given are applicable for all wind directions. The support reaction on each base is interchangeable with another.

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Section Support Reaction Summary

Support Reactions for Combination Gk (Unfactored British Standard Loads) Analysis Type : Linear elastic

Joint	Supp	ort reactions	(kN)	Support moments (kNm)				
reference	Px	Py	Pz	Mx	Му	Mz		
1	-0.004	117.419	-0.018	-0.095	0.000	0.019		
2	-0.010	117.419	-0.015	-0.081	0.000	0.054		
3	-0.015	117.419	-0.010	-0.054	0.000	0.081		
4	-0.018	117.419	-0.004	-0.019	0.000	0.095		
5	-0.018	117.419	0.004	0.019	0.000	0.095		
6	-0.015	117.419	0.010	0.054	0.000	0.081		
7	-0.010	117.419	0.015	0.081	0.000	0.054		
8	-0.004	117.419	0.018	0.095	0.000	0.019		
9	0.004	117.419	0.018	0.095	0.000	-0.019		
10	0.010	117.419	0.015	0.081	0.000	-0.054		
11	0.015	117.419	0.010	0.054	0.000	-0.081		
12	0.018	117.419	0.004	0.019	0.000	-0.095		
13	0.018	117.419	-0.004	-0.019	0.000	-0.095		
14	0.015	117.419	-0.010	-0.054	0.000	-0.081		
15	0.010	117.419	-0.015	-0.081	0.000	-0.054		
16	0.004	117.419	-0.018	-0.095	0.000	-0.019		

Support Reactions for Combination Qk (Unfactored British Standard Loads)

Joint	Supp	ort reactions (kN)	Suppor	t moments (kN	im)
reference	Px	Py	Pz	Mx	Mx My	
1	1.513	20.379	-42.853	-546.381	-0.029	-7.637
2	4.623	14.891	-42.292	-512.061	-0.075	-36.380
3	6.785	6.541	-42.570	-484.253	-0.061	-76.489
4	4.149	0.600	-44.413	-496.330	0.006	-56.452
5	-4.149	-0.600	-44.413	-496.330	0.006	56.452
6	-6.785	-6.541	-42.570	-484.253	-0.061	76.489
7	-4.623	-14.892	-42.293	-512.060	-0.075	36.381
8	-1.513	-20.378	-42.853	-546.382	-0.029	7.638
9	1.513	-20.378	-42.853	-546.382	0.029	-7.638
10	4.623	-14.892	-42.292	-512.060	0.075	-36.381
11	6.785	-6.541	-42.570	-484.253	0.061	-76.489
12	4.149	-0.600	-44.413	-496.330	-0.006	-56.452
13	-4.149	0.600	-44.413	-496.330	-0.006	56.452
14	-6.785	6.541	-42.570	-484.253	0.061	76.489
15	-4.623	14.892	-42.292	-512.060	0.075	36.381
16	-1.513	20.378	-42.853	-546.381	0.029	7.638

interchangeable with another.



NB: The loadings given are applicable for all wind directions. The support reaction on each base is

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APPENDIX D Schedule of Site Fixings

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Project Kings Cross Gas Holder No. 8

section Re-erection Fixing Schedule Notes

- 1. Notes: To be read in conjunction with schedule 9065w0006 Gasholder 8 Re-erection Fixings.
- all components to be painted to improve adherence of paint system as required.
- 3. Galvanising: All structural elements to be galvanised to BS ED ISO 1461. All fasteners/fixings to be galvanised to BS 7371 Part 6 unless specifically specified otherwise.
- nuts following tightening.
- 5. Joint covers and lower drainage capital: To be fully bedded on a layer of approved mastic

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2. Painting: All exposed site fixings (including those provided by Shepley Engineering Ltd) to be painted

with the approved site painting/touch up painting system specification. Paint system to be undamaged subsequent to fixing installation is pre-painted fixings to be 'touched up' subsequent to installation where damaged or fixings painted complete subsequent to installation. Etch or equivalent

Nuts and locking devices: All principle fixings are subject to fluctuating tensile forces and nuts require spring washers or equivalent approved proprietary locking devices to prevent loosening of

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Ref. No.	Description	Survey Information	Fixing Specification	SEL Supply	Drg. Reference	No. per Fixing	Total No.	Comments
01/01	Holding down bolts, bolt boxes, square plate washers (cast in), bolt nuts inc. locking devices and oversized washers.	Original bolts 60mm dia. Overall thickness of CI column base plate 305mm.	Specification by others. All elements not wholly embedded in concrete to be galvanised.	N	N/A	4 per column	64	Design and specification of HD bolts and ancilliaries to be coordinated with forces issued by CPD, existing CI column base plate and proposed foundations.
02/01	Column plinth inspection plate.	Design based upon dismantling information.	Countersunk head, M12/M14, galvanised, 40mm long,	Y	N/A	4 per plate.	64	Inspection plates are being returned to site 'loose' subsequent to refurbishment. Adequate fixings provided by SEL (60 M12/16 M14) to suit variation in fixing sizes between plates.
03/01	Lower lattice beam tie bars.	Design based upon dismantling information.	50mm dia., galvanised, S275, tie bar, part threaded M50 c/w galvanised, G10 nut, spring washers or alternative locking device.	Ν	9065-09-1001A	1 per column	16	
03/02	Lower lattice beam tie	Design based upon	Profiled, galvanised, S275,	N	9065-09-1001A	2 per tie bar	32	
04/01	Internel 'V' brackets to lattice beam/column 'bolt boxes'.	Design based upon dismantling information.	Structural steelwork elements fabricated by SEL to drgs by CPD.	Y	9065/8/1002B	2 per connection 4 per column	64	
04/02	Bolts for 'V' brackets.	Design based upon dismantling information.	M30, galvanised, G8.8 bolts, 350mm long shank, 150mm long thread, G10 nut, spring washer or alternative locking device.	Ν	N/A	2 per V bracket	128	
04/03	Bearing plates for V bracket bolts at lattice beam web.	Design based upon dismantling information.	S275, round bearing plate, galvanised, 8mm thick, external dia.72mm, internal dia. 35mm.	N	N/A	2 per V bracket	128	
05/01	Lattice beam to Cl column bolt box.	Design based upon dismantling information.	Galvanised, M27, G8.8 bolts, G10 nut, spring washer or equivalent locking device.	Ν	N/A	6 per lattice beam/column connection	384	Make allowance for packing generally 0 to 30mm in bolt lengths to be provided.
05/02	Oversize washer plates for lattice beam/column connections.	Design based upon dismantling information.	Galvanised, oversized washer plates, 66x66x5mm thick with 30mm dia internal hole, placed beneath bolt head and nut.	Ν	N/A	12 per lattice beam/column connection	768	
05/03	Packers to lattice beam end plates.	Design based upon dismantling information.	Packers/shims/finger shims to be proprietary bespoke PVC/polypropylene/synthetic rubber, Thickness range 5mm-25mm.	Ν	N/A	1 set per lattice beam/column connection	64 sets	Packers to be provided in a variety of thicknesses. Excess quantities to be provided to cater for unknown quantities of different thicknesses. Minimum 5mm packer to be incorporated in all joints.
06/01	Bolts connecting upper and lower columns at joint F.	Design based upon dismantling information.	M33, galvanised, G8.8 studs, c/w circlip retaining device, 2 No G10 nuts and spring washers or equivalent locking devices.	Ν	N/A	8 per connection	128	Fixings to be located and secured in upper column on site prior to assembly ie. connection in upper column concealed on assembly.
06/02	Oversize washer plates for upper and lower column connections.	Design based upon dismantling information.	Galvanised, oversized washer plates, 76x76x6mm thick with 36mm dia internal hole, placed beneath bolt head and nut.	Ν	N/A	16 per connection between columns	256	
07/01	Bolts connecting lower drainage capital to upper column.	Design based upon dismantling information.	M24, galvanised, G8.8 bolts, G10 nut, spring washer or equivalent locking device. Oversize flat washer beneath head.	Ν	N/A	6 per connection	96	Bolts inserted via recess to underside of upper column.
07/02	Oversize washer plates for lower drainage capital/upper column connection.	Design based upon dismantling information.	Galvanised, oversized washer plates, 66x66x5 m thick with 27mm dia internal hole, placed beneath nut.	Ν	N/A	6 per connection	96	
08/01	Knee plate.	N/A	M20, galvanised, G8.8 bolts, G10 nuts, spring washer or equivalent locking devices	Ν	9065-06-1001D	4 per connection 2 connections per knee plate	128	Bolt lengths vary.
08/02	Knee plate packers	Packer thicknesses to be determined under re- erection detailed design/site erection works	Packers to be proprietary bespoke 60x395mm PVC/polypropylene/synthetic rubber	Ν	9065-06-1001D	2 sets of packers per knee plate	32 sets	
09/01	Guide rail brackets/column connections	Design based upon dismantling information.	M16/M18/M20/M22/M24/M2 7 traditional bolts where accessible otherwise toggle style blindbolts or hollobolts - all utilising existing holes in brackets/C columns. Standard galvanised oversize flat washers to be provided beneath all heads, similarly nuts where non blind bolts are used.	N	N/A	4 bolts per bracket. 15 brackets per column.	960	Use largest fixing to suit hole through both bracket and column. Fixings to be galvanised or equivalent where galvanising is not permitted due to the operation of fixings.

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09/03	Guide rail splices at brackets 6 & 9	Design based upon dismantling information.	M27, galvanised, G8.8 bolts, G10 nut, spring washer or alternative locking device.	N	N/A	4 per splice excliding bracket fixings	128	
09/04	Guide rail/bracket connection Bracket No 6	Design based upon dismantling information.	M16/M27, galvanised, G8.8 bolts, G10 nut,spring washer or alternative locking device	N	N/A	2 M16 & 2 M27 bolt assemblies per bracket	32 M16 & 32 M27	
09/05	Guide rail/bracket connection Bracket No 9	Design based upon dismantling information.	M27, galvanised, G8.8 bolts, G10 nut, spring washer or alternative locking device	N	N/A	2 bolts per bracket	32	
09/06	Guide rail/bracket connection Bracket No 14	Design based upon dismantling information.	M27, galvanised, G8.8 bolt, G10 nut, spring washer or alternative locking device	N	N/A	1 bolt per bracket	16	
09/07	Guide rail bracket packers	Packing thickness to be determined on site by 're- erection' Contactor	Packers/shims/finger shims to be proprietary bespoke PVC/polypropylene/synthetic rubber.	N	N/A	1 set or 4 per guide rail bracket. 15 brackets per column	Maximum 240 sets or 960 individual	Packers to be provided in a variety of thicknesses. Excess quantities to be provided to cater for unknown quantities of different thicknesses. Note: Not all brackets included packers in the original structure, provision of packers to suit 're-erection' Contractors 'best line of fit.

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Appendix B

Written Scheme of Investigation (MOLAS Archaeology)