CALCULATION COVER SHEET

EWR Alliance

PROJECT:	TOTAL NUMBER OF PAGES IN CALCULATION: 2
East West Rail Phase 2	

Section A: Defining the Calculation Package

PHASE: 2A A1 COMPOUND
DESCRIPTION OF CALCULATION: Surface Water Drainage Manhole Schedule
REFERENCES:

SOFTWARE USED:	VERSION	DISC/FILE IDENTIFIER	
		INPUT DATA	OUTPUT DATA
MICRODRAINAGE	2018		

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Section B: Revision Details

PROJECT NUMBER: 133735			DOCUMENT REF: 133735_RW-EWR-XX-A1-SH-DH-001100		
REVISION	PURPOSE AND DESCRIPTION	ORIGINATED	CHECKED	AUTHORISED	DATE
B01	FOR ISSUE TO LOCAL PLANNING AUTHORITY	RAMA SASTRY	G ALADAKATTI	ADRIAN ROSE	15.08.2019
B02	FOR ISSUE TO LOCAL PLANNING AUTHORITY	RAMA SASTRY	P LAWRENCE	ADRIAN ROSE	10.02.2020
B03	FOR ISSUE TO LOCAL PLANNING AUTHORITY	RAMA SASTRY	MARK STEVENS	ADRIAN ROSE	09.06.2020

133735_RW-EWR-XX-A1-SH-DH-001100

Notes

1 Pipe lengths are stated from centre to centre of chambers.
2 Chamber dimensions are internal dimensions based on MCHW highways construction details.
3 Eastings and Northings are provided in EWR2-Snakegrid and levels are mAOD.
4 Schedule to be read in conjunction with,
133735_RW-EWR-XX-A1-DR-DH-001100
133735_RW-EWR-XX-A1-DR-DH-001101
133735_RW-EWR-XX-A1-DR-DH-001102
133735_RW-EWR-XX-A1-DR-DH-001103

5 Schedule to be read in conjunction with the A1 drainage model 133735_RW-EWR-XX-A1-M3-DH-003100. Refer to this model for the exact location, depth and size of the basin, silt fences and bunds. For details of haybales please refer to standard detail 133735_RW-EWR-XX-XX-DR-DH-050003.
6 For details of compounds drainage ditches refer to Ditch Type-A in standard detail drawing 133735_RW-EWR-XX-XX-DR-DH-050001.
7 For details of Manhole refer to MCHW Highways Construction Details series F, Volume 3 (November 2008) - Type 11 (Sub type-11a) Chamber drawing no. F27.
8 For details of drainage pipes and ditches refer to standard detail drawing 133735_RW-EWR-XX-XX-DR-DH-050001 & 133735_RW-EWR-XX-XX-DR-DH-050002.
9 For details of residual risks refer to hazard risk register 133735-EWR-LOG-SSD-000004.
10 Ditches for compound A1 have been designed as a trapezoidal ditch with a 0.5m base width and a 1 in 1 side slopes.
11 Third party supplier (Select) to provide package pumping station as shown on "Generic_Drawing" and rising main to pumping station. Technical requirements for each package pumping station are provided in Note 12 below.

12 The pumping station and rising main shall meet the following minimum technical requirements:
- Package pumping station to have pumps arranged in a duty-standby configuration.
- Pump switching on points to be controlled using float switches.
- Package pumping station unit to have D400 vented cover and frame to avoid the need for a separate vent stack.
- Control panel to be located within a IP66 rated enclosure with external warning beacon. The warning beacon shall flash if there is failure of one or both of the pumps.
- Control panel to have pump running indicator light, pumped tripped indicator light and manual to auto select switch. The pumping station design is responsible to determining the appropriate level of electrical protection in accordance with IET Wiring Regulations.
- The control panel is to have a permanent power supply from the compound substation and auxiliary surface mounted IP66 rated power plug to allow 110V or 230V generator power supply to be connected in the event of the main site power supply failing.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**Setting out Point**	**Easting (m)**	**Northing (m)**	**Setting Out Point Type (Setting out point / Check dam / Headwall / Chamber)**	**USMH Dia (mm)**	**Catchpit / Headwall Type**	**Cover Level (mAOD)**	**Depth from CL to IL (m)**	**Drainage Invert Level (mAOD)**	**Pipe / Ditch**	**Section Type**	**Outlet Pipe Dia / Ditch Base Width (mm)**	**Outlet Pipe Number**	**Outlet Pipe / Ditch Length (m)**	**Outlet Pipe / Ditch Gradient (1:x)**	**Notes**
2	**A1.1_Surface Water**															
3	**1_A1.1_1**	177018.241	141645.699	Setting out point	-	-	**70.868**	**0.500**	**70.368**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_1.000**	**25.741**	**500.0**	
4	**1_A1.1_2**	177023.008	141620.403	Setting out point	-	-	**70.864**	**0.547**	**70.317**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_1.001**	**28.847**	**183.7**	
5	**1_A1.1_3**	177028.280	141592.043	Setting out point	-	-	**70.660**	**0.500**	**70.160**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_1.002**	**41.861**	**164.2**	
6	**1_A1.1_4**	177068.129	141604.863	Setting out point	-	-	**70.405**	**0.500**	**69.905**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_1.003**	**43.092**	**64.9**	
7	**1_A1.1_5**	177143.870	141726.332	Setting out point	-	-	**70.444**	**0.750**	**69.694**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_2.000**	**14.672**	**500.0**	
8	**1_A1.1_6**	177134.989	141714.653	Setting out point	-	-	**70.456**	**0.791**	**69.665**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_2.001**	**15.297**	**500.0**	
9	**1_A1.1_7**	177125.377	141702.753	Setting out point	-	-	**70.525**	**0.891**	**69.634**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_2.002**	**30.503**	**500.0**	
10	**1_A1.1_8**	177107.425	141678.093	Setting out point	-	-	**70.626**	**1.053**	**69.573**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_2.003**	**17.876**	**500.0**	Proposed Check dam. Refer to standard detail drawings 133735_RW-EWR-XX-ALL-DR-DH-050012.
11	**1_A1.1_9**	177092.909	141667.659	Setting out point	-	-	**70.622**	**1.085**	**69.537**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_2.004**	**16.392**	**500.0**	
12	**1_A1.1_10**	177098.084	141652.106	Setting out point	-	-	**70.507**	**1.003**	**69.504**	Carrier pipe	Concrete pipe with an unreinforced surround Pipe D3	**225**	**1_A1.1_2.005**	**20.062**	**99.8**	Refer to Ditch to Pipe connection detail on drawing 133735_RW-EWR-XX-ALL-DR-DH-050002.
13	**1_A1.1_11**	177104.325	141633.039	Setting out point	-	-	**70.212**	**0.909**	**69.303**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_2.006**	**15.528**	**250.5**	Refer to Ditch to Pipe connection detail on drawing 133735_RW-EWR-XX-ALL-DR-DH-050002.
14	**1_A1.1_12**	177109.086	141618.259	Setting out point	-	-	**70.091**	**0.850**	**69.241**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_1.004**	**58.198**	**501.7**	
15	**1_A1.1_13**	177164.375	141636.429	Setting out point	-	-	**69.807**	**0.682**	**69.125**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_1.005**	**14.664**	**190.4**	Ditch into the attenuation basin.
16	**1_A1.1_14**	177177.489	141642.991	Outlet to basin	-	-	**69.773**	**0.729**	**69.044**	-	-	-	-	-	-	Outlet into attenuation Basin 1_A1.1
17	**1_A1.1_15**	177169.906	141711.763	Setting out point	-	-	**70.252**	**0.500**	**69.752**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_3.000**	**12.680**	**500.0**	
18	**1_A1.1_16**	177179.523	141703.498	Setting out point	-	-	**70.283**	**0.556**	**69.727**	Ditch	Note 10 on the 'Notes Tab'	**500**	**1_A1.1_3.001**	**11.488**	**26.6**	
19	**1_A1.1_17**	177180.383	141692.042	Setting out point	-	-	**70.310**	**1.015**	**69.295**	Carrier pipe	Concrete pipe with an unreinforced surround Pipe D3	**225**	**1_A1.1_3.002**	**23.903**	**120.1**	Pipe into the attenuation basin. Refer to construction detail 133735_RW-EWR-XX-ALL-DR-DH-050002.
20	**1_A1.1_18**	177199.004	141677.054	Outlet to basin	-	-	**70.038**	**0.942**	**69.096**	-	-	-	-	-	-	Outlet into attenuation Basin 1_A1.1
21	**1_A1.1_19**	177205.445	141665.223	Attenuation Basin	-	Basin (Pond 1_A1.1)	**69.415**	**0.555**	**68.860**	-	-	-	-	-	-	Refer to note 5 in the 'Notes' tab for setting out information for the pond
22	**1_A1.1_20**	177225.988	141660.247	Headwall	-	Althon H6CA Headwall with 300mm penstock	**69.470**	**0.611**	**68.859**	Carrier pipe	Concrete pipe with an unreinforced surround Pipe D3	**225**	**1_A1.1_1.008**	**22.702**	**475.9**	Refer to construction detail 133735_RW-EWR-XX-ALL-DR-DH-050002 and 050003.
23	**1_A1.1_21**	177248.591	141662.360	Chamber	1500	DN1500mm online chamber (see notes)	**69.398**	**0.587**	**68.811**	Carrier pipe	Pipe D1	**225**	**1_A1.1_1.009**	**16.461**	**491.2**	Chamber will include a complex control with two orifices (one elevated above the other). The lower orifice will have an invert level of 68.811mAOD and be 0.095m in diameter, with the second orifice elevated at 69.061mAOD (0.250m above the invert) and 0.210m in diameter. Chamber to include two 0.6m X 0.6m openings with 0.25m vertically aligned steps on either side of the control wall to allow access for maintenance. Chamber to be constructed with a 0.3m sump from the invert of pipe 1_A1.1_1.009 to the invert of the chamber. Chamber to be a proprietary product supplied by CPM, please refer to their construction details. Chamber is to be constructed in a part of the site where topographical survey could not be completed. Survey prior to construction/ de-vegetation should be made available to the designer to confirm the design.
24	**1_A1.1_OF**	177264.685	141665.816	Headwall	-	Althon H3C Headwall with 150mm Flap valve	**69.310**	**0.533**	**68.777**	-	-	-	-	-	-	Outfall to existing land drainage ditch along the eastern boundary of the compound. Headwall to include a 150mm flap valve to prevent passage of newts and flood water into the system.
25	**A1.2_Surface Water**															
26	**2_A1.2_3**	177051.449	141799.672	Setting out point	-	-	**71.233**	**0.500**	**70.733**	Ditch	Note 10 on the 'Notes Tab'	**500**	**2_A1.2_2.000**	**17.526**	**67.1**	
27	**2_A1.2_4**	177036.968	141809.544	Setting out point	-	-	**70.972**	**0.500**	**70.472**	Ditch	Note 10 on the 'Notes Tab'	**500**	**2_A1.2_2.001**	**15.121**	**72.7**	
28	**2_A1.2_5**	177025.750	141799.403	Setting out point	-	-	**70.764**	**0.500**	**70.264**	Ditch	Note 10 on the 'Notes Tab'	**500**	**2_A1.2_2.002**	**18.099**	**61.1**	
29	**2_A1.2_6**	177012.564	141787.005	Setting out point	-	-	**70.468**	**0.500**	**69.968**	Ditch	Note 10 on the 'Notes Tab'	**500**	**2_A1.2_2.003**	**22.602**	**71.1**	Ditch into the attenuation basin.
30	**2_A1.2_7**	176996.543	141771.062	Setting out point	-	-	**70.113**	**0.463**	69.650	-	-	-	-	-	-	Outlet into attenuation Basin 2_A1.2
31	**2_A1.2_8**	177021.616	141662.141	Setting out point	-	-	**70.906**	**0.495**	**70.411**	Ditch	Note 10 on the 'Notes Tab'	**500**	**2_A1.2_3.000**	**10.798**	**500.0**	
32	**2_A1.2_9**	177019.139	141672.651	Setting out point	-	-	**71.000**	**0.611**	**70.389**	Ditch	Note 10 on the 'Notes Tab'	**500**	**2_A1.2_3.001**	**26.240**	**495.1**	
33	**2_A1.2_10**	177013.119	141698.191	Setting out point	-	-	**70.929**	**0.593**	**70.336**	Filter Pipe	Filter Drain	**225**	**2_A1.2_3.002**	**17.714**	**56.8**	Refer to Ditch to Pipe connection detail on drawing 133735_RW-EWR-XX-ALL-DR-DH-050002.
34	**2_A1.2_11**	177007.227	141714.896	Chamber	1050	Type 7 Catchpit	**70.919**	**1.015**	**69.904**	Carrier Pipe	Concrete pipe with an unreinforced surround Pipe D3	**225**	**2_A1.2_3.003**	**19.822**	**61.4**	
35	**2_A1.2_12**	176999.152	141732.999	Chamber	1050	Type 7 Catchpit	**70.596**	**1.015**	**69.581**	Filter Pipe	Filter Drain	**300**	**2_A1.2_3.004**	**18.328**	**443.0**	Pipe into the attenuation basin.
36	**2_A1.2_13**	176994.342	141750.684	Setting out point	-	-	**70.478**	**0.938**	**69.540**	-	-	-	-	-	-	Outlet into attenuation Basin 2_A1.2
37	**2_A1.2_14D**	176994.061	141760.696	Setting out point	-	Basin (Pond 2_A1.2)	**69.931**	**1.500**	**68.431**	Carrier pipe	Pipe D2	**225**	**2_A1.2_2.005**	**13.414**	**500.0**	
38	**2_A1.2_15**	177003.829	141758.068	Pumping Station	-	Pumping Station Wetwell Chamber (See Notes)	**70.572**	**2.162**	**68.410**	Pumped Main (Note 11)	-	-	**2_A1.2_2.006**	**15.500 (Approx.)**	**-**	Proposed pumping station and pumped main to be provided by Select as a packaged system. Pumping station to restrict flow rate to 4.2l/s. Refer to Note 11.
39	**2_A1.2_1**	176998.424	141747.479	Stilling Chamber	1035	Stilling Chamber (Aqua Stafford Hybrid Catchpit or equivalent) (See Notes)	**70.494**	**0.640**	**69.854**	Piped outlet from stilling chamber (Note 11)	Pipe D3	**150**	**2_A1.2_1.000**	**12.75**	**59.85**	Invert level of incoming pumped main to be 300mm below the outlet invert level of the stilling chamber (type D1/D2 surround). Outlet pipe to maintain constant body of static water. Refer to standard detail for catchpits 133735_RW_EWR-XX-ALL-DR-DR-050003
40	**2_A1.2_OF1**	176985.673	141747.439	Headwall	-	Althon H3C Headwall with 150mm Flap valve	**70.151**	**0.510**	**69.641**	-	-	-	-	-	-	Outfall to highway drainage ditch along the western boundary of the compound. Headwall to include a 150mm flap valve to prevent ingress of flows from the highway ditch and to prevent great crested newts entering the drainage system.
41	**2_A1.2_17**	176984.947	141759.705	Headwall		Althon H3C Headwall with 100mm Penstock	**69.995**	**0.598**	**69.397**	Carrier pipe	Pipe D1	**100**	**2_A1.2_4.000**	**5.630**	**208.5**	Refer to construction detail 133735_RW-EWR-XX-ALL-DR-DH-050003.
42	**2_A1.2_OF2**	176979.344	141759.146	Headwall	-	Althon H3C Headwall with 100mm Flap valve	**69.833**	**0.463**	**69.370**	-	-	-	-	-	-	Outfall to highway drainage ditch along the western boundary of the compound. Headwall to include a 150mm flap valve to prevent passage of backing up of flows from the highway ditch and to prevent great crested newts entering the drainage system.
43	**A1_Proposed Culverts**															
44	**2_A1.2_19**	176997.958	141647.357	-	-	300mm Pipe	**71.620**	**1.227**	**70.393**	Carrier Pipe	Concrete pipe with an unreinforced surround Pipe D3	**300**	**2_A1.2_3.000**	**17.255**	**0.01**	Proposed culvert crossing of a haul road connecting Bicester Road and Compound A1. This culvert is along the ditch flowing along the western boundary of the compound.
45	**2_A1.2_20**	177002.154	141664.094	-	-		**71.680**	**1.388**	**70.292**							