DO NOT SCALE

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SCALEBAR (m)

NORTH

Additional green field run off from proposed school/development - 13.2 l/s added to S218

STORM Network 1											
Pipe Code	Diameter (mm)	Gradient (1:)	Pipe Type	Pipe Length	Upstream Manhole Number	Upstream Manhole Invert	Upstream Manhole Cover	Downstream Manhole Number	Downstream Manhole Invert	Downstream Manhole Cover
1.000	300	80	CLAY	53.928	S101	90.11	91.88	S102	89.44	92.32
1.001	300	150	CLAY	25.774	S102	89.44	92.32	S103	89.27	92.14
1.002	300	150	CLAY	27.917	S103	89.27	92.14	S104	89.08	91.45
1.003	300	237	CLAY	17.748	S104	89.08	91.45	S105	89.00	91.00
1.004	300	239	CLAY	22.431	S105	89.00	91.00	S106	88.91	90.43
1.005	300	239	CLAY	20.291	S106	88.91	90.43	S107	88.82	90.42
1.006	300	19	CLAY	26.839	S107	88.82	90.42	S1	87.40	89.35
1.007	300	44	CLAY	28.859	S1	87.50	89.35	S3	86.85	89.00
1.008	300	80	CLAY	58.970	S3	86.85	89.00	S4	86.11	88.04
1.009	300	102	CLAY	42.972	S4	86.11	88.04	S5	85.69	87.61
1.010	675	48	CONC	61.448	S5	83.52	87.61	S11	82.23	84.81
1.011	675	406	CONC	11.781	S11	82.23	84.81	S12	82.20	84.27
1.012	675	45	CONC	46.516	S12	82.20	84.27	S13	81.17	83.41
1.013	675	67	CONC	24.120	S13	81.17	83.41	S15	80.81	82.95
1.014	675	51	CONC	12.639	S15	80.81	82.95	S16	80.56	82.90
1.015	675	79	CONC	29.584	S16	80.56	82.90	S20	80.18	83.05
1.016	750	78	CONC	44.235	S20	77.94	83.05	S21	77.35	79.52
1.017	750	84	CONC	34.247	S21	75.85	79.52	S23	75.44	77.69
1.018	750	48	CONC	20.718	S23	73.19	77.69	S24	72.76	76.00
1.019	750	66	CONC	13.163	S24	70.76	76.00	S25	70.56	73.50
1.020	750	43	CONC	29.678	S25	68.56	73.50	S26	67.87	70.61
1.021	750	50	CONC	71.017	S26	65.60	70.61	S27	64.18	66.50
1.022	750	50	CONC	24.246	S27	64.18	66.50	SHWALL 1	63.70	65.50
1.023	750	401	CONC	56.728	SHWALL 1	63.13	65.50	S28	62.99	64.60
1.024	450	24	CONC	46.344	S28	62.99	64.60	S29	61.06	62.75
1.025	450	100	CONC	16.932	S29	59.47	62.75	S30	59.30	60.25
2.000	225	21	CLAY	6.543	S2	87.24	89.32	S3	86.92	89.00
3.000	225	23	CLAY	20.436	S201	90.50	95.60	S202	92.60	94.28
3.001	225	25	CLAY	17.475	S202	92.60	94.28	S205	91.90	93.56
3.002	450	151	CONC	21.103	S205	91.00	93.56	S208	90.86	93.27
3.003	450	44	CONC	22.961	S208	90.86	93.27	S209	90.34	92.29
3.004	450	168	CONC	43.275	S209	90.34	92.29	S210	90.08	92.42
3.005	450	103	CONC	39.069	S210	90.08	92.42	S216	89.70	91.95
3.006	450	78	CONC	10.667	S216	89.70	91.95	S218	89.56	92.32
3.007	450	400	CONC	46.819	S218	89.12	92.32	S219	89.01	92.59
3.008	450	401	CONC	18.860	S219	89.01	92.59	S224	88.96	92.37
3.009	450	401	CONC	25.673	S224	88.96	92.37	S225	88.89	92.29
3.010	450	398	CONC	17.517	S225	88.89	92.29	S226	88.85	92.55
3.011	450	400	CONC	54.800	S226	88.85	92.55	S227	88.71	92.71
3.012	450	400	CONC	24.003	S227	88.71	92.71	S228	88.65	92.06
3.013	450	53	CONC	51.144	S228	88.65	92.06	S229	87.68	90.60
3.014	450	53	CONC	20.659	S229	87.68	90.60	S231	87.29	89.97
3.015	450	403	CONC	28.598	S231	87.29	89.97	S232	87.22	89.63
3.016	450	127	CONC	28.476	S232	87.22	89.63	S239	87.00	89.87
3.017	450	44	CONC	44.143	S239	86.00	89.87	S5	85.00	87.61
4.000	300	80	CLAY	26.680	S203	92.31	94.03	S204	91.97	93.70
4.001	300	73	CLAY	10.797	S204	91.97	93.70	S205	91.83	93.56
5.000	225	80	CLAY	13.083	S206	91.90	93.62	S207	91.73	93.45
6.001	225	42	CLAY	27.182	S207	91.73	93.45	S208	91.08	93.27
6.000	225	31	CLAY	36.031	S211	91.94	93.66	S215	90.75	92.45
6.001	300	68	CLAY	56.048	S215	90.68	92.45	S216	89.85	91.95
7.000	225	41	CLAY	39.675	S212	92.52	94.24	S213	91.55	93.20
7.001	300	80	CLAY	20.987	S213	91.47	93.20	S214	91.21	92.94
7.002	300	88	CLAY	47.234	S214	91.21	92.94	S215	90.68	92.45
8.000	225	11	CLAY	10.669	S217	90.77	92.67	S218	89.80	92.32
9.000	225	80	CLAY	9.564	S220	91.47	93.20	S221	91.35	93.40
9.001	300	41	CLAY	37.117	S221	91.28	93.40	S222	90.37	92.17
9.002	300	92	CLAY	46.345	S222	90.37	92.17	S223	89.86	91.66
9.003	300	41	CLAY	21.676	S223	89.86	91.66	S224	89.33	92.37
10.000	225	54	CLAY	11.584	S230	87.96	89.69	S231	87.75	89.97
11.000	225	62	CLAY	58.375	S233	92.33	94.05	S234	91.38	93.11
11.001	300	168	CLAY	43.117	S234	91.31	93.11	S235	91.05	93.10
11.002	300	168	CLAY	57.818	S235	91.05	93.10	S236	90.71	92.63
11.003	300	168	CLAY	28.234	S236	90.71	92.63	S237	90.54	92.33
11.004	300	168	CLAY	19.466	S237	89.47	92.33	S238	89.36	91.27
11.005	300	168	CLAY	19.325	S238	88.07	91.27	S239	87.96	89.87
12.000	225	70	CLAY	21.361	S6	84.36	86.14	S7	84.06	85.84
12.001	225	68	CLAY	25.623	S7	84.06	85.84	S8	83.68	85.46
12.002	225	72	CLAY	24.293	S8	83.68	85.46	S9	83.35	85.12
12.003	300	102	CLAY	46.600	S9	83.27	85.12	S10	82.81	84.55
12.004	300	240	CLAY	50.347	S10	82.81	84.55	S11	82.60	84.81
13.000	225	15	CLAY	21.739	S14A	84.12	85.85	S14	82.69	84.40
13.001	225	20	CLAY	28.254	S14	82.67	84.40	S15	81.26	82.95
14.000	225	170	CLAY	13.070	S17	83.68	85.45	S18	83.61	85.03
14.001	450	31	CONC	27.953	S18	83.38	85.03	S19	82.48	84.50
14.002	450	26	CONC	27.828	S19	81.48	84.50	S20	80.41	83.05
15.000	225	32	CLAY	41.136	S301	96.59	98.01	S302	95.31	96.73
15.001	225	111	CLAY	35.630	S302	95.31	96.73	S303	94.99	96.62
15.002	225	28	CLAY	34.499	S303	94.20	95.62	S304	92.99	94.64
15.003	300	150	CLAY	21.353	S304	92.91	94.64	S305	92.77	94.73
15.004	300	88	CLAY	16.052	S305	92.77	94.73	S309	92.59	94.25
15.005	300	27	CLAY	21.223	S309	92.59	94.25	S310	91.81	93.43
15.006	450	49	CONC	40.929	S310	91.66	93.43	S311	90.83	92.63
15.007	450	61	CONC	22.496	S311	90.83	92.63	S312	90.46	92.26
15.008	450	26	CONC	32.650	S312	90.46	92.26	S313	89.20	91.16
15.009	450	188	CONC	25.532	S313	88.35	91.16	S321	88.21	89.75
15.010	450	398	CONC	20.720	S321	86.70	89.75	S322	86.65	88.40
15.011	450	399	CONC	35.522	S322	84.86	88.40	S324	84.77	86.72
15.012	450	181	CONC	34.367	S324	83.60	86.72	S331	83.41	86.26
15.013	450	261	CONC	26.368	S331	83.41	86.26	S18	83.31	85.03
16.000	225	55	CLAY	31.679	S306	93.61	96.03	S307	93.03	94.75
16.001	225	151	CLAY	15.813	S307	93.03	94.75	S308	92.93	94.46
16.002	225	66	CLAY	17.647	S308	92.93	94.46	S309	92.66	94.25
17.000	225	66	CLAY	34.996	S314	93.82	95.33	S315	93.29	95.46
17.001	225	41	CLAY	11.207	S315	93.29	95.46	S316	93.02	95.56
17.002	225	42	CLAY	31.434	S316	93.02	95.56	S317	92.27	93.94
17.003	225	168	CLAY	44.603	S317	90.71	93.94	S318	90.45	92.23
17.004	300	150	CLAY	28.940	S318	90.37	92.23	S319	90.18	91.82
17.005	300	24	CLAY	20.170	S319	90.18	91.83	S320	89.34	91.00
17.006	300	19	CLAY	18.728	S320	89.34	91.00	S321	88.36	90.23
18.000	450	401	CONC	38.531	S323	83.70	87.37	S324	83.60	86.72
19.000	225	38	CLAY	63.225	S325	89.14	91.60	S326	87.47	89.20
19.001	300	54	CLAY	28.234	S326	87.40	89.20	S327	86.87	88.60
19.002	300	168	CLAY	21.480	S327	85.74	88.60	S328	85.61	87.78
19.003	300	168	CLAY	10.725	S328	85.61	87.78	S329	85.55	87.25
19.004	450	396	CONC	16.244	S329	85.40	87.25	S330	85.36	86.49
19.005	450	399	CONC	13.982	S330	84.40	86.49	S331	84.36	86.26
20.000	225	169	CLAY	21.861	S22A	78.32	80.05	S22B	78.20	79.92
20.001	225	11	CLAY	18.898	S22B	78.20	79.92	S22	76.55	79.36
20.002	225	11	CLAY	14.615	S22	76.55	79.36	S23	75.22	77.69
21.000	225	171	CLAY	19.125	S24A	72.72	74.45	S24B	72.61	74.85
21.001	225	170	CLAY	35.277	S24B	72.61	74.85	S24C	72.41	76.50
21.002	225	74	CLAY	23.037	S24C	72.41	76.50	S24	72.09	76.00

FOUL Network 10										
Pipe Code	Diameter (mm)	Gradient (1:)	Pipe Type	Pipe Length	Upstream Manhole Number	Upstream Manhole Invert	Upstream Manhole Cover	Downstream Manhole Number	Downstream Manhole Invert	Downstream Manhole Cover
1.000	150	47	Circular	37.368	F101	90.96	92.32	F102	90.17	92.08
1.001	150	47	Circular	31.608	F102	90.17	92.08	F103	89.51	91.30
1.002	150	47	Circular	15.439	F103	89.51	91.30	F104	89.18	90.92
1.003	150	47	Circular	20.891	F104	89.18	90.92	F105	88.74	90.40
1.004	150	47	Circular	43.011	F105	88.74	90.40	F106	87.84	89.42

FOUL Network 11										
Pipe Code	Diameter (mm)	Gradient (1:)	Pipe Type	Pipe Length	Upstream Manhole Number	Upstream Manhole Invert	Upstream Manhole Cover	Downstream Manhole Number	Downstream Manhole Invert	Downstream Manhole Cover
1.000	150	70	Circular	24.918	F201	92.24	93.59	F202	91.88	93.42
1.001	150	150	Circular	43.810	F202	91.88	93.42	F204	91.59	93.36
1.002	150	150	Circular	25.852	F204	91.59	93.36	F205	91.42	93.01
1.003	150	150	Circular	12.601	F205	91.42	93.01	F206	91.33	92.86
1.004	150	46	Circular	44.261	F206	91.33	92.86	F208	90.38	92.39
1.005	150	150	Circular	49.712	F208	90.38	92.39	F209	90.05	91.86
1.006	150	150	Circular	16.694	F209	90.05	91.86	F210	89.94	92.40
1.007	150	150	Circular	41.346	F210	89.94	92.40	F211	89.66	92.60
1.008	150	150	Circular	18.600	F211	89.66	92.60	F212	89.54	92.40
1.009	150	150	Circular	25.549	F212	89.54	92.40	F213	89.37	92.25
1.010	150	150	Circular	17.954	F213	89.37	92.25	F214	89.25	92.49
1.011	150	150	Circular	18.602	F214	89.25	92.49	F215	89.12	92.80
1.012	150	150	Circular	36.556	F215	89.12	92.80	F216	88.88	92.76
1.013	150	150	Circular	26.272	F216	88.88	92.76	F217	88.70	91.95
1.014	150	150	Circular	54.731	F217	88.70	91.95	F218	88.27	90.12
1.015	150	150	Circular	19.803	F218	88.27	90.12	F219	88.14	89.65
1.016	150	150	Circular	16.983	F219	88.14	89.65	F220	88.03	89.68
1.017	150	150	Circular	19.024	F220	88.03	89.68	F231	87.90	89.94
1.018	150	20	Circular	31.688	F231	87.90	89.94	F232	86.35	88.25
1.019	150	150	Circular	16.226	F232	86.35	88.25	F233	86.24	87.52
2.000	150	24	Circular	17.194	F203	92.32	93.67	F204	91.59	93.36
3.000	150	13	Circular	14.724	F207	91.52	92.87	F208	90.38	92.39
4.000	150	80	Circular	31.374	F221	94.11	95.46	F222	93.72	94.64
4.001	150	60	Circular	26.392	F222	93.72	94.64	F223	93.27	94.66
4.002	150	15	Circular	14.426	F223	93.27	94.66	F225	92.31	94.15
4.003	150	66	Circular	21.369	F225	92.15	94.15	F226	91.82	93.32
4.004	150	66	Circular	49.841	F226	91.82	93.32	F229	91.07	92.37
4.005	150	60	Circular	19.198	F229	91.07	92.37	F230	90.75	91.43
4.006	150	10	Circular	21.032	F230	90.75	91.43	F231	88.65	89.94
5.000	150	24	Circular	24.083	F224	93.15	94.51	F225	92.15	94.15
6.000	150	80	Circular	40.854	F227	91.78	93.13	F228	91.27	92.67
6.001	150	150	Circular	29.169	F228	91.27	92.67	F229	91.07	92.37

FOUL Network 12										
Pipe Code	Diameter (mm)	Gradient (1:)	Pipe Type	Pipe Length	Upstream Manhole Number	Upstream Manhole Invert	Upstream Manhole Cover	Downstream Manhole Number	Downstream Manhole Invert	Downstream Manhole Cover
1.000	150	80	CLAY	28.295	F301	94.04	95.40	F302	93.69	95.50
1.001	150	150	CLAY	15.255	F302	93.69	95.50	F303	93.58	95.63
1.002	150	150	CLAY	31.950	F303	93.58	95.63	F305	93.37	94.02
1.003	150	150	CLAY	45.321	F305	89.24	94.02	F306	88.94	92.23
1.004	150	150	CLAY	29.339	F306	88.94	92.23	F307	88.74	91.80
1.005	150	151	CLAY	21.823	F307	88.74	91.80	F308	88.60	90.80
1.006	150	18	CLAY	20.094	F308	88.60	90.80	F309	87.48	89.47
1.007	150	150	CLAY	18.772	F309	87.48	89.47	F310	87.35	88.29
1.008	150	19	CLAY	31.122	F310	85.72	88.29	F311	84.06	86.75
1.009	150	150	CLAY	23.007	F311	84.06	86.75	F312	83.90	86.37
1.010	150	150	CLAY	10.810	F312	83.90	86.37	F313	83.83	86.25
1.011	150	30	CLAY	25.460	F313	83.83	86.25	F314	83.00	84.94
2.000	100	150	CLAY	36.175	F304	89.53	92.02	F305	89.29	94.02

FOUL Network 1										
Pipe Code	Diameter (mm)	Gradient (1:)	Pipe Type	Pipe Length	Upstream Manhole Number	Upstream Manhole Invert	Upstream Manhole Cover	Downstream Manhole Number	Downstream Manhole Invert	Downstream Manhole Cover
1.000	150	80	CLAY	38.563	FF1	87.97	89.32	FF3	87.49	89.05
1.001	150	73	CLAY	56.744	FF3	87.49	89.05	FF4	86.72	88.07
1.002	150	79	CLAY	43.383	FF4	86.72	88.07	FF5	86.17	87.52
1.003	150	20	CLAY	61.419	FF5	86.17	87.52	FF9	83.14	84.72
1.004	150	16	CLAY	11.076	FF9	83.14	84.72	F10	82.43	84.19
2.000	150	21	CLAY	8.140	FF2	87.88	89.23	FF3	87.49	89.05
3.000	150	80	CLAY	23.506	FF6	84.15	85.50	FF7	83.86	85.17
3.001	150	135	CLAY	55.609	FF7	83.86	85.17	FF8	83.44	84.56
3.002	150	135	CLAY	41.027	FF8	83.44	84.56	FF9	83.14	84.72

FOUL Network 2										
Pipe Code	Diameter (mm)	Gradient (1:)	Pipe Type	Pipe Length	Upstream Manhole Number	Upstream Manhole Invert	Upstream Manhole Cover	Downstream Manhole Number	Downstream Manhole Invert	Downstream Manhole Cover
1.000	150	22	CLAY	27.952	F10	82.90	84.25	F11	81.63	82.98
1.001	150	56	CLAY	11.593	F11	81.63	82.98	F12	81.42	82.77
1.002	150	80	CLAY	29.142	F12	81.42	82.77	F15	81.06	82.88
1.003	150	16	CLAY	45.808	F15	81.06	82.88	F16	78.26	79.61
1.004	150	120	CLAY	35.224	F16	78.26	79.61	F17	77.97	79.36
1.005	150	95	CLAY	35.860	F17	77.97	79.36	F18	77.59	80.20
1.006	150	150	CLAY	28.573	F18	76.09	80.20	F19	75.90	79.38
2.000	150	31	CLAY	28.384	F13	83.00	85.02	F14	82.08	84.50
2.001	150	31	CLAY	31.315	F14	82.08	84.50	F15	81.06	82.88

Notes

1. Setting out shall be undertaken using only the information given. Distances should not be scaled from this drawing.
2. All sewers shall be constructed in accordance with Sewers for Adoption 6th Edition and United Utilities Details & Guidelines.
3. The minimum gravity pipe diameter under adoptable highways shall be 150mm
4. It is the responsibility of the Contractor to verify all information given with regards to existing services and drainage connections etc. prior to commencing the works. The rates shall include for hand dig around services where necessary. The Contractor shall adhere to the CDM Regulations at all times
5. The outsides of all sewers shall be a minimum of 1.0m from kerb lines and the outside of manholes shall be a minimum of 0.5m from kerb lines
6. Existing flows in watercourses, sewers and land drains shall be maintained at all times
7. Only trained personnel shall be permitted to enter confined spaces
8. All materials to bear the relevant B.S. Kitemark and comply fully with the specifications. All concrete & concrete products must use Sulphate resistant cement to withstand Class 3 condition (unless the site investigation report proves that sulphate attack from soils and groundwater will not occur).
9. All opening notices etc. as required under Highways Acts etc. are to be obtained prior to commencement of works. All works are to be inspected by L.A., NHBC or the Network Operator as applicable.
10. Where "Ultra Rib" UPVC pipes (or similar approved) are used in adoptable drainage they shall be handled and laid in accordance with the manufacturers instructions and will be subject to post installation deformation testing prior to adoption.
    A Class S Bed and Surround must be used for "Ultra Rib" pipes
11. Trench backfill in highways to within 1m of highway shall, as directed by the Highway Authority be a suitable granular material all in accordance with Sewers for Adoption.
12. Slab levels shall not be varied without reference to the Engineer for guidance.
13. Pipes have not been designed to accommodate construction traffic loading. The contractor is responsible for providing adequate protection to the pipes during construction.

Legend

Proposed

- S01 — Adoptable Surface Water Sewer
- F01 — Adoptable Foul Sewer
- FFL 88.85 — Plot Slab Level
- Sewer Easement

KEY PLAN

Coopers Drawing List:

7503 / 01	Proposed Drainage Layout
7503 / 02	Proposed Highway Setting Out
7503 / 03	Proposed Highway Layout
7503 / 04	Proposed Highway Longsections
7503 / 05	Highway Construction Details
7503 / 06	S38 Agreement Plan
7503 / 07	External Works Layout
7503 / 08	Private Drainage Layout
7503 / 09	Drainage Construction Details.
7503 / 10	Manhole Schedules
7503 / 11	Surface Water Manhole Details
7503 / 12	Foul Manhole Details
7503 / 13	Flow Control Manhole Details
7503 / 14	Surface Water Catchment Areas
7503 / 15	Surface Water Attenuation Pond Details
7503 / 16	Proposed Cut and Fill Earthworks
7503 / 17	Surface Finishes
7503 / 18	S104 Sewer Easement Plan

PRELIMINARY

coopers
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Client: Story Homes

Project: EDGEHILL PARK, CUMBRIA, PHASE 3

Title: Engineering layout Drainage Sheet 1 of 2

DRAWING NUMBER	SCALE at A0	1:750	
7503 / PL01-1	DATE	28.10.20	REVISION
	DRAWN	JAR	-
	CHECKED	AJ	