The slopes and intercepts shown above do NOT include any corrections or adjustments.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (No Dev)	ONE HOUR	12:45	14:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	245	100.000
B		✓	332	100.000
C		✓	155	100.000
D		✓	6	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	153	89	3
	B	203	0	126	3
	C	71	82	0	2
	D	1	5	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	3	3	0
	B	3	0	3	0
	C	3	3	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-CD	0.25	8.71	0.3	A
B-AD	0.42	12.18	0.8	B
A-BCD	0.01	5.22	0.0	A
A-B				
A-C				
D-ABC	0.02	8.30	0.0	A
C-ABD	0.15	7.22	0.2	A
C-D				
C-A				

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	96	610	0.158	96	0.2	7.188	A
B-AD	154	562	0.274	152	0.4	9.019	A
A-BCD	3	699	0.004	3	0.0	5.212	A
A-B	115			115			
A-C	67			67			
D-ABC	5	464	0.010	4	0.0	7.838	A
C-ABD	62	625	0.099	61	0.1	6.572	A
C-D	2			2			
C-A	53			53			

13:00 - 13:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	115	593	0.194	115	0.2	7.747	A
B-AD	183	548	0.335	183	0.5	10.143	B
A-BCD	4	717	0.005	4	0.0	5.089	A
A-B	137			137			
A-C	80			80			
D-ABC	5	454	0.012	5	0.0	8.025	A
C-ABD	74	616	0.120	74	0.1	6.838	A
C-D	2			2			
C-A	64			64			

13:15 - 13:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	141	567	0.249	141	0.3	8.684	A
B-AD	224	529	0.425	224	0.7	12.151	B
A-BCD	5	743	0.007	5	0.0	4.927	A
A-B	167			167			
A-C	97			97			
D-ABC	7	440	0.015	7	0.0	8.297	A
C-ABD	91	604	0.150	90	0.2	7.221	A
C-D	2			2			
C-A	78			78			

13:30 - 13:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	141	567	0.249	141	0.3	8.708	A
B-AD	224	529	0.425	224	0.8	12.183	B
A-BCD	5	743	0.007	5	0.0	4.933	A
A-B	167			167			
A-C	97			97			
D-ABC	7	440	0.015	7	0.0	8.298	A
C-ABD	91	604	0.150	91	0.2	7.224	A
C-D	2			2			
C-A	78			78			

13:45 - 14:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	115	592	0.194	115	0.3	7.778	A
B-AD	183	548	0.335	184	0.5	10.220	B
A-BCD	4	717	0.005	4	0.0	5.097	A
A-B	137			137			
A-C	80			80			
D-ABC	5	454	0.012	5	0.0	8.026	A
C-ABD	74	616	0.120	74	0.1	6.847	A
C-D	2			2			
C-A	64			64			

14:00 - 14:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	96	609	0.158	97	0.2	7.227	A
B-AD	154	562	0.274	154	0.4	9.110	A
A-BCD	3	699	0.004	3	0.0	5.219	A
A-B	115			115			
A-C	67			67			
D-ABC	5	464	0.010	5	0.0	7.841	A
C-ABD	62	625	0.099	62	0.1	6.588	A
C-D	2			2			
C-A	53			53			

2040, Friday Evening (No Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Cock Hill/Ardkeen	Crossroads	Two-way		12.66	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	Friday Evening (No Dev)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	293	100.000
B		✓	501	100.000
C		✓	202	100.000
D		✓	3	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	194	98	1
	B	351	0	148	2
	C	81	115	0	6
	D	2	1	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	3	3	0
	B	3	0	3	0
	C	3	3	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-CD	0.40	15.19	0.7	C
B-AD	0.74	26.78	2.8	D
A-BCD	0.00	5.10	0.0	A
A-B				
A-C				
D-ABC	0.00	0.00	0.0	A
C-ABD	0.22	7.97	0.3	A
C-D				
C-A				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	113	535	0.210	111	0.3	8.735	A
B-AD	265	568	0.466	261	0.9	11.949	B
A-BCD	1	715	0.002	1	0.0	5.087	A
A-B	146			146			
A-C	74			74			
D-ABC	0	452	0.000	0	0.0	0.000	A
C-ABD	87	616	0.141	86	0.2	6.985	A
C-D	5			5			
C-A	61			61			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	134	497	0.271	134	0.4	10.208	B
B-AD	316	550	0.574	314	1.3	15.586	C
A-BCD	1	737	0.002	1	0.0	4.943	A
A-B	174			174			
A-C	88			88			
D-ABC	0	438	0.000	0	0.0	0.000	A
C-ABD	104	606	0.171	104	0.2	7.376	A
C-D	5			5			
C-A	72			72			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	165	415	0.397	164	0.7	14.683	B
B-AD	387	523	0.739	382	2.6	25.209	D
A-BCD	2	768	0.002	2	0.0	4.755	A
A-B	213			213			
A-C	108			108			
D-ABC	0	418	0.000	0	0.0	0.000	A
C-ABD	128	593	0.215	127	0.3	7.957	A
C-D	7			7			
C-A	88			88			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	165	409	0.403	165	0.7	15.186	C
B-AD	387	523	0.739	386	2.8	26.783	D
A-BCD	2	768	0.002	2	0.0	4.761	A
A-B	213			213			
A-C	108			108			
D-ABC	0	418	0.000	0	0.0	0.000	A
C-ABD	128	593	0.215	128	0.3	7.966	A
C-D	7			7			
C-A	88			88			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	134	491	0.274	136	0.4	10.457	B
B-AD	316	550	0.574	321	1.4	16.537	C
A-BCD	1	737	0.002	1	0.0	4.954	A
A-B	174			174			
A-C	88			88			
D-ABC	0	437	0.000	0	0.0	0.000	A
C-ABD	104	606	0.171	104	0.2	7.390	A
C-D	5			5			
C-A	72			72			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	113	532	0.212	113	0.3	8.861	A
B-AD	265	568	0.466	267	0.9	12.385	B
A-BCD	1	715	0.002	1	0.0	5.095	A
A-B	146			146			
A-C	74			74			
D-ABC	0	452	0.000	0	0.0	0.000	A
C-ABD	87	616	0.141	87	0.2	7.006	A
C-D	5			5			
C-A	61			61			

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Cock_Hill_3_Arm_Rdbt.j9
Path: \\DUBLINFILE\ProjectData\IE01T22A88 Tesco Cavan\5. Technical\5. Modelling\Junctions_9_Models\2040_No_Dev
Report generation date: 30/11/2022 16:17:22

»2040, Saturday Afternoon (No Dev)
»2040, Friday Evening (No Dev)

Summary of junction performance

	Saturday Afternoon (No Dev)					Friday Evening (No Dev)				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2040									
Arm 1	D1	0.4	3.81	0.28	A	D2	0.7	4.65	0.40	A
Arm 2		0.2	3.47	0.14	A		0.3	4.01	0.21	A
Arm 3		0.3	3.52	0.20	A		0.4	3.89	0.28	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

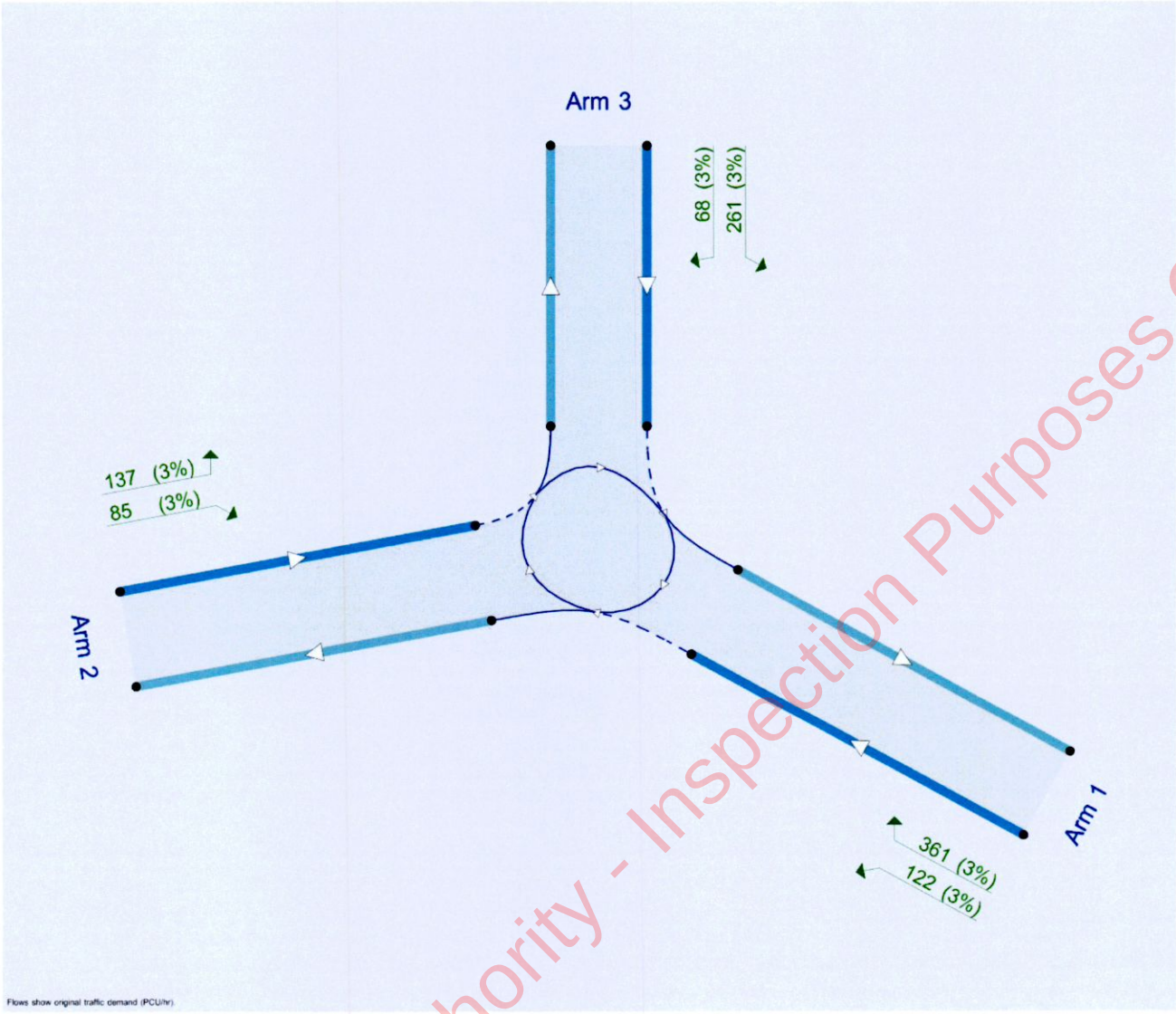
File summary

File Description

Title	
Location	
Site number	
Date	28/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\pgannon
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (No Dev)	ONE HOUR	12:45	14:15	15
D2	2040	Friday Evening (No Dev)	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2040, Saturday Afternoon (No Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	3.64	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Eastern Arm	
2	Western Arm	
3	Northern Arm	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.03	5.96	9.3	49.9	35.6	35.7	
2	3.69	6.45	6.5	38.9	35.6	51.6	
3	3.33	5.87	7.6	40.5	35.6	39.4	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.587	1374
2	0.573	1396
3	0.581	1369

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (No Dev)	ONE HOUR	12:45	14:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	336	100.000
2		✓	153	100.000
3		✓	244	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	1	82	253
	2	73	0	80
	3	197	47	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	3	3
	2	3	0	3
	3	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.28	3.81	0.4	A
2	0.14	3.47	0.2	A
3	0.20	3.52	0.3	A

Main Results for each time segment

12:45 - 13:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	253	35	1353	0.187	252	0.2	3.363	A
2	115	191	1287	0.090	115	0.1	3.164	A
3	184	56	1337	0.137	183	0.2	3.212	A

13:00 - 13:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	302	42	1349	0.224	302	0.3	3.540	A
2	138	228	1265	0.109	137	0.1	3.287	A
3	219	66	1330	0.165	219	0.2	3.336	A

13:15 - 13:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	370	52	1343	0.275	370	0.4	3.807	A
2	168	279	1236	0.136	168	0.2	3.473	A
3	269	81	1322	0.203	268	0.3	3.520	A

13:30 - 13:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	370	52	1343	0.275	370	0.4	3.807	A
2	168	280	1236	0.136	168	0.2	3.474	A
3	269	81	1322	0.203	269	0.3	3.520	A

13:45 - 14:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	302	42	1349	0.224	302	0.3	3.545	A
2	138	229	1265	0.109	138	0.1	3.289	A
3	219	67	1330	0.165	220	0.2	3.340	A

14:00 - 14:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	253	35	1353	0.187	253	0.2	3.370	A
2	115	191	1286	0.090	115	0.1	3.166	A
3	184	56	1337	0.137	184	0.2	3.216	A

2040, Friday Evening (No Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	4.27	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	Friday Evening (No Dev)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	483	100.000
2		✓	222	100.000
3		✓	329	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	122	361
	2	85	0	137
	3	261	68	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	3	3
	2	3	0	3
	3	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.40	4.65	0.7	A
2	0.21	4.01	0.3	A
3	0.28	3.89	0.4	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	364	51	1344	0.271	362	0.4	3.772	A
2	167	271	1241	0.135	166	0.2	3.450	A
3	248	64	1332	0.186	247	0.2	3.413	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	434	61	1338	0.325	434	0.5	4.099	A
2	200	324	1210	0.165	199	0.2	3.668	A
3	296	76	1325	0.223	296	0.3	3.603	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	532	75	1330	0.400	531	0.7	4.638	A
2	244	397	1168	0.209	244	0.3	4.011	A
3	362	93	1315	0.276	362	0.4	3.889	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	532	75	1330	0.400	532	0.7	4.645	A
2	244	397	1168	0.209	244	0.3	4.014	A
3	362	94	1315	0.276	362	0.4	3.893	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	434	61	1338	0.325	435	0.5	4.109	A
2	200	325	1209	0.165	200	0.2	3.672	A
3	296	77	1325	0.223	296	0.3	3.608	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	364	51	1344	0.271	364	0.4	3.788	A
2	167	272	1240	0.135	167	0.2	3.459	A
3	248	64	1332	0.186	248	0.2	3.421	A

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: Cock_Hill_Site_Entrance.j9
Path: \\DUBLINFILE\ProjectData\IE01T22A88 Tesco Cavan\5. Technical\5. Modelling\Junctions_9_Models\2040_No_Dev
Report generation date: 30/11/2022 16:17:40

»2040, Saturday Afternoon (No Dev)
»2040, Friday Evening (No Dev)

Summary of junction performance

	Saturday Afternoon (No Dev)					Friday Evening (No Dev)				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2040									
Stream B-C	D1	0.0	0.00	0.00	A	D2	0.0	6.29	0.01	A
Stream B-AD		0.0	0.00	0.00	A		0.0	0.00	0.00	A
Stream A-BCD		0.0	0.00	0.00	A		0.0	4.42	0.01	A
Stream D-ABC		0.0	0.00	0.00	A		0.0	8.21	0.03	A
Stream C-ABD		0.0	6.13	0.00	A		0.0	0.00	0.00	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

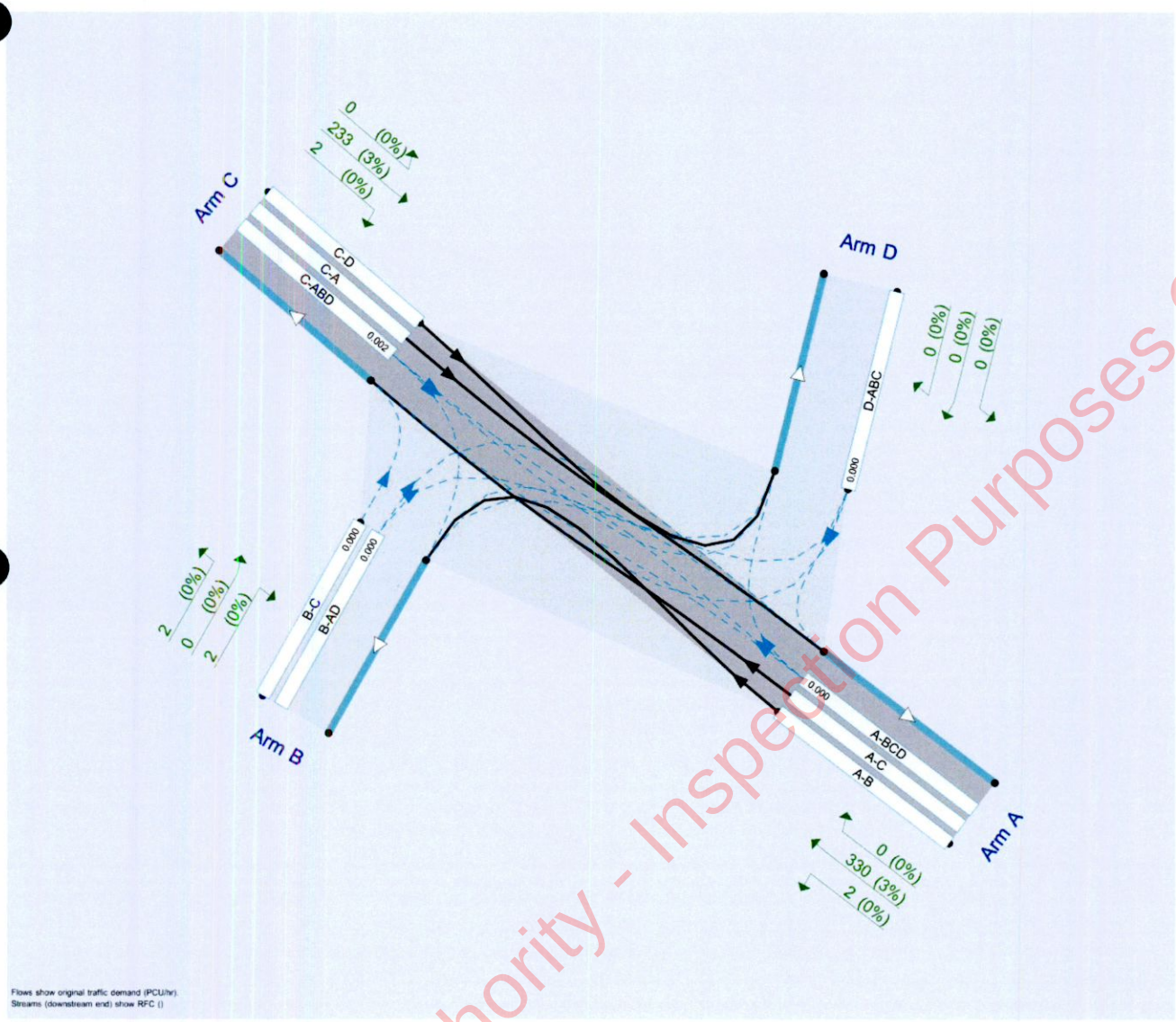
File summary

File Description

Title	
Location	
Site number	
Date	28/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\pgannon
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (No Dev)	ONE HOUR	12:45	14:15	15
D2	2040	Friday Evening (No Dev)	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2040, Saturday Afternoon (No Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Cock Hill/Site Entrance	Right-Left Stagger	Two-way		0.02	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Cock Hill (Southern Arm)		Major
B	Site Entrance		Minor
C	Cock Hill (Northern Arm)		Major
D	School Road		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	6.00				115.0	✓	0.00
C	6.00		✓	3.00	100.0	✓	10.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes		3.50	3.50	75	120
D	One lane	3.00			105	100

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
A-D	641	-	-	-	0.248	0.248	0.248	-	0.248	-	-
B-AD	590	0.108	0.272	-	-	-	0.171	0.388	0.171	0.108	0.272
B-C	734	0.113	0.285	-	-	-	-	-	-	0.113	0.285
C-B	687	0.266	0.266	-	-	-	-	-	-	0.266	0.266
D-A	687	-	-	-	0.266	0.105	0.266	-	0.105	-	-
D-BC	562	0.163	0.163	0.370	0.259	0.102	0.259	-	0.102	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (No Dev)	ONE HOUR	12:45	14:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	332	100.000
B		✓	4	100.000
C		✓	235	100.000
D		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	2	330	0
	B	2	0	2	0
	C	233	2	0	0
	D	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	3	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.00	0.00	0.0	A
B-AD	0.00	0.00	0.0	A
A-BCD	0.00	0.00	0.0	A
A-B				
A-C				
D-ABC	0.00	0.00	0.0	A
C-ABD	0.00	6.13	0.0	A
C-D				
C-A				

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	664	0.000	0	0.0	0.000	A
B-AD	0	492	0.000	0	0.0	0.000	A
A-BCD	0	597	0.000	0	0.0	0.000	A
A-B	2			2			
A-C	248			248			
D-ABC	0	546	0.000	0	0.0	0.000	A
C-ABD	2	620	0.002	1	0.0	5.816	A
C-D	0			0			
C-A	175			175			

13:00 - 13:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	650	0.000	0	0.0	0.000	A
B-AD	0	473	0.000	0	0.0	0.000	A
A-BCD	0	589	0.000	0	0.0	0.000	A
A-B	2			2			
A-C	297			297			
D-ABC	0	532	0.000	0	0.0	0.000	A
C-ABD	2	607	0.003	2	0.0	5.943	A
C-D	0			0			
C-A	209			209			

13:15 - 13:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	631	0.000	0	0.0	0.000	A
B-AD	0	447	0.000	0	0.0	0.000	A
A-BCD	0	577	0.000	0	0.0	0.000	A
A-B	2			2			
A-C	363			363			
D-ABC	0	512	0.000	0	0.0	0.000	A
C-ABD	2	590	0.004	2	0.0	6.127	A
C-D	0			0			
C-A	257			257			

13:30 - 13:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	631	0.000	0	0.0	0.000	A
B-AD	0	447	0.000	0	0.0	0.000	A
A-BCD	0	577	0.000	0	0.0	0.000	A
A-B	2			2			
A-C	363			363			
D-ABC	0	512	0.000	0	0.0	0.000	A
C-ABD	2	590	0.004	2	0.0	6.127	A
C-D	0			0			
C-A	257			257			

13:45 - 14:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	650	0.000	0	0.0	0.000	A
B-AD	0	473	0.000	0	0.0	0.000	A
A-BCD	0	589	0.000	0	0.0	0.000	A
A-B	2			2			
A-C	297			297			
D-ABC	0	532	0.000	0	0.0	0.000	A
C-ABD	2	607	0.003	2	0.0	5.943	A
C-D	0			0			
C-A	209			209			

14:00 - 14:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	0	664	0.000	0	0.0	0.000	A
B-AD	0	492	0.000	0	0.0	0.000	A
A-BCD	0	597	0.000	0	0.0	0.000	A
A-B	2			2			
A-C	248			248			
D-ABC	0	546	0.000	0	0.0	0.000	A
C-ABD	2	620	0.002	2	0.0	5.816	A
C-D	0			0			
C-A	175			175			

2040, Friday Evening (No Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Cock Hill/Site Entrance	Right-Left Stagger	Two-way		0.21	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	Friday Evening (No Dev)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	497	100.000
B		✓	5	100.000
C		✓	309	100.000
D		✓	12	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	0	492	5
	B	0	0	5	0
	C	304	0	0	5
	D	5	0	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	3	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.01	6.29	0.0	A
B-AD	0.00	0.00	0.0	A
A-BCD	0.01	4.42	0.0	A
A-B				
A-C				
D-ABC	0.03	8.21	0.0	A
C-ABD	0.00	0.00	0.0	A
C-D				
C-A				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	628	0.006	4	0.0	5.770	A
B-AD	0	448	0.000	0	0.0	0.000	A
A-BCD	7	833	0.008	7	0.0	4.412	A
A-B	0			0			
A-C	367			367			
D-ABC	9	503	0.018	9	0.0	7.288	A
C-ABD	0	1183	0.000	0	0.0	0.000	A
C-D	4			4			
C-A	229			229			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	607	0.007	4	0.0	5.976	A
B-AD	0	421	0.000	0	0.0	0.000	A
A-BCD	9	873	0.010	9	0.0	4.223	A
A-B	0			0			
A-C	438			438			
D-ABC	11	482	0.022	11	0.0	7.644	A
C-ABD	0	1143	0.000	0	0.0	0.000	A
C-D	4			4			
C-A	273			273			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	578	0.010	5	0.0	6.286	A
B-AD	0	383	0.000	0	0.0	0.000	A
A-BCD	13	930	0.014	13	0.0	3.988	A
A-B	0			0			
A-C	534			534			
D-ABC	13	452	0.029	13	0.0	8.206	A
C-ABD	0	1089	0.000	0	0.0	0.000	A
C-D	6			6			
C-A	335			335			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	6	578	0.010	6	0.0	6.286	A
B-AD	0	383	0.000	0	0.0	0.000	A
A-BCD	13	930	0.014	13	0.0	3.992	A
A-B	0			0			
A-C	534			534			
D-ABC	13	452	0.029	13	0.0	8.206	A
C-ABD	0	1089	0.000	0	0.0	0.000	A
C-D	6			6			
C-A	335			335			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	607	0.007	5	0.0	5.978	A
B-AD	0	421	0.000	0	0.0	0.000	A
A-BCD	9	873	0.010	9	0.0	4.234	A
A-B	0			0			
A-C	438			438			
D-ABC	11	482	0.022	11	0.0	7.645	A
C-ABD	0	1143	0.000	0	0.0	0.000	A
C-D	4			4			
C-A	273			273			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	4	628	0.006	4	0.0	5.770	A
B-AD	0	448	0.000	0	0.0	0.000	A
A-BCD	7	833	0.008	7	0.0	4.419	A
A-B	0			0			
A-C	367			367			
D-ABC	9	503	0.018	9	0.0	7.289	A
C-ABD	0	1183	0.000	0	0.0	0.000	A
C-D	4			4			
C-A	229			229			

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Dublin_Rd_Cock_Hill_Rdbt_East_Arm_Cal.j9
Path: \\DUBLINFILE\ProjectData\IE01T22A88 Tesco Cavan\5. Technical\5. Modelling\Junctions_9_Models\2040_No_Dev
Report generation date: 30/11/2022 14:29:46

»2040, Saturday Afternoon (No Dev)
»2040, Friday Evening (No Dev)

Summary of junction performance

	Saturday Afternoon (No Dev)					Friday Evening (No Dev)				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2040									
Arm 1	D1	67.3	226.70	1.12	F	D2	13.8	59.88	0.96	F
Arm 2		0.9	12.27	0.49	B		0.7	11.17	0.41	B
Arm 3		6.3	34.02	0.88	D		3.8	22.01	0.80	C
Arm 4		5.3	47.41	0.86	E		3.8	31.51	0.80	D

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

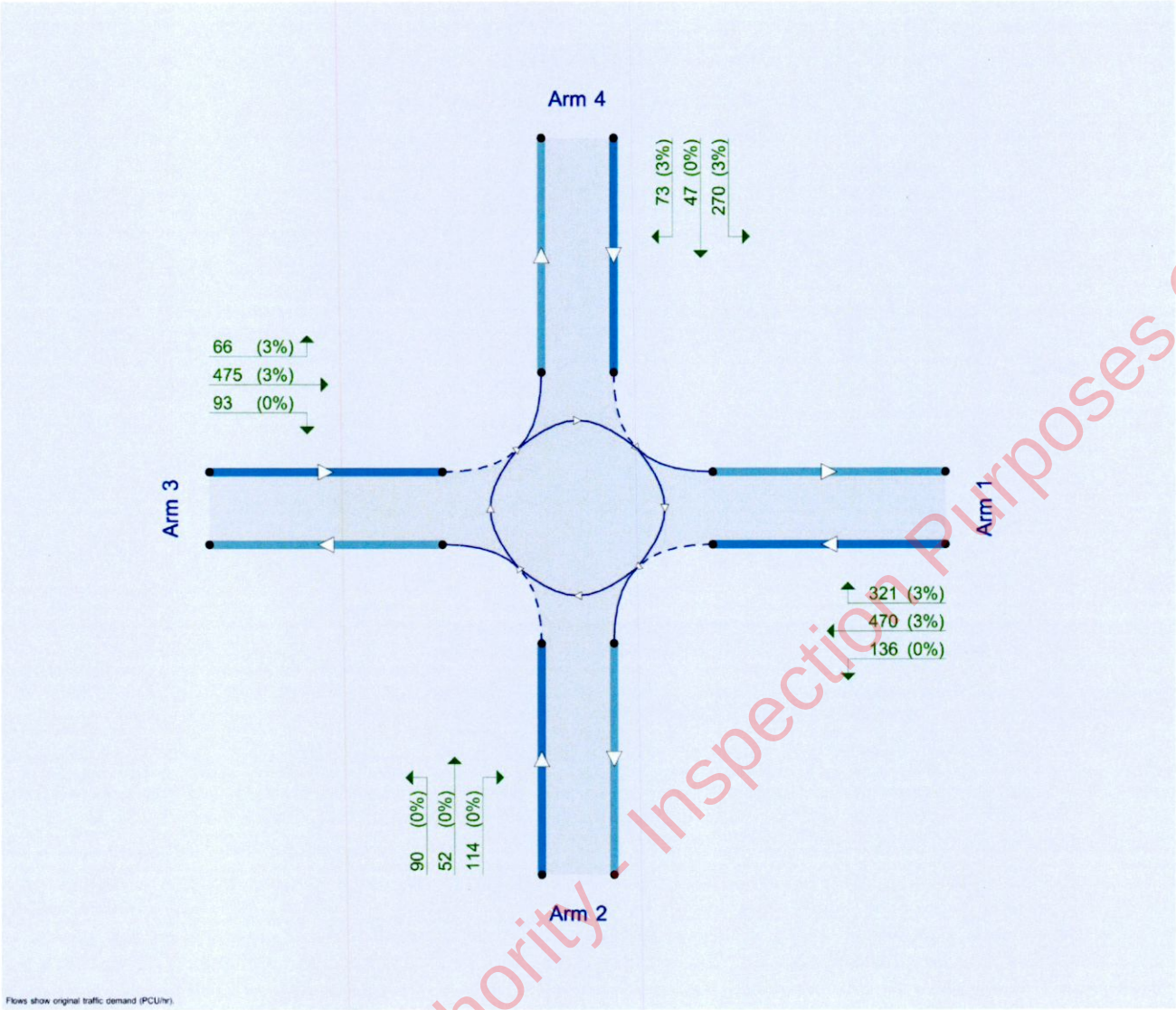
File summary

File Description

Title	
Location	
Site number	
Date	24/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\pgannon
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (No Dev)	ONE HOUR	12:45	14:15	15
D2	2040	Friday Evening (No Dev)	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2040, Saturday Afternoon (No Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	114.74	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	R212 Dublin Rd (East)	
2	Shopping Centre Entry/Exit (Southern Arm)	
3	R212 Dublin Rd (West)	
4	Cock Hill (Northern Arm)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.15	3.16	0.1	19.4	32.6	52.3	
2	3.65	3.65	0.0	23.4	32.6	61.2	
3	3.65	3.66	0.0	20.3	32.6	39.0	
4	3.04	3.05	0.0	24.4	32.6	53.4	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final slope	Final intercept (PCU/hr)
1	✓	0.464	1030	0.464	1030
2				0.480	995
3				0.518	1073
4				0.461	856

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (No Dev)	ONE HOUR	12:45	14:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	935	100.000
2		✓	256	100.000
3		✓	645	100.000
4		✓	392	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	8	136	470	321
	2	114	0	90	52
	3	475	93	11	66
	4	270	47	73	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	3	3
	2	0	0	0	0
	3	3	0	0	3
	4	3	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.12	226.70	67.3	F
2	0.49	12.27	0.9	B
3	0.88	34.02	6.3	D
4	0.86	47.41	5.3	E

Main Results for each time segment

12:45 - 13:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	704	168	952	0.739	693	2.7	13.728	B
2	193	656	680	0.284	191	0.4	7.345	A
3	486	369	882	0.551	481	1.2	9.094	A
4	295	523	615	0.480	291	0.9	11.295	B

13:00 - 13:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	841	202	936	0.898	824	6.9	29.189	D
2	230	781	620	0.371	229	0.6	9.202	A
3	580	440	845	0.686	576	2.1	13.543	B
4	352	626	567	0.621	350	1.6	16.775	C

13:15 - 13:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1029	243	917	1.122	905	38.1	103.526	F
2	282	865	579	0.487	280	0.9	11.990	B
3	710	502	813	0.874	696	5.7	28.602	D
4	432	757	507	0.852	420	4.6	38.101	E

13:30 - 13:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1029	248	915	1.125	913	67.3	217.700	F
2	282	874	575	0.490	282	0.9	12.267	B
3	710	506	811	0.876	708	6.3	34.024	D
4	432	769	502	0.860	429	5.3	47.408	E

13:45 - 14:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	841	210	933	0.901	919	47.8	226.702	F
2	230	865	579	0.397	231	0.7	10.375	B
3	580	475	827	0.701	595	2.5	16.814	C
4	352	645	559	0.631	366	1.8	20.414	C

14:00 - 14:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	704	172	950	0.741	881	3.4	88.053	F
2	193	818	602	0.320	194	0.5	8.835	A
3	486	437	847	0.574	490	1.4	10.475	B
4	295	534	610	0.484	299	1.0	11.994	B

2040, Friday Evening (No Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	37.87	E

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	Friday Evening (No Dev)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	796	100.000
2		✓	206	100.000
3		✓	592	100.000
4		✓	414	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	8	82	385	321
	2	75	0	81	50
	3	421	51	10	110
	4	244	41	129	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	3	3
	2	0	0	0	0
	3	3	0	0	3
	4	3	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.96	59.88	13.8	F
2	0.41	11.17	0.7	B
3	0.80	22.01	3.8	C
4	0.80	31.51	3.8	D

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	599	172	950	0.631	592	1.7	10.150	B
2	155	635	690	0.225	154	0.3	6.704	A
3	446	338	898	0.496	442	1.0	8.036	A
4	312	422	661	0.471	308	0.9	10.364	B

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	716	206	934	0.766	710	3.1	16.058	C
2	185	761	629	0.294	185	0.4	8.087	A
3	532	405	863	0.617	530	1.6	11.009	B
4	372	506	623	0.598	370	1.5	14.489	B

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	876	250	914	0.959	845	10.9	41.630	E
2	227	909	559	0.406	226	0.7	10.784	B
3	652	486	821	0.794	644	3.6	20.005	C
4	456	615	572	0.796	448	3.5	27.976	D

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	876	254	912	0.961	865	13.8	59.881	F
2	227	928	549	0.413	227	0.7	11.165	B
3	652	495	817	0.798	651	3.8	22.011	C
4	456	621	570	0.800	455	3.8	31.506	D

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	716	212	932	0.768	756	3.7	24.850	C
2	185	806	608	0.305	186	0.4	8.559	A
3	532	425	853	0.624	540	1.8	12.133	B
4	372	515	618	0.602	381	1.6	16.095	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	599	175	949	0.632	607	1.8	11.036	B
2	155	650	683	0.227	156	0.3	6.837	A
3	446	345	894	0.498	449	1.0	8.349	A
4	312	428	658	0.473	314	0.9	10.825	B

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
+44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk

Filename: Cock Hill_Ardkeen_Crossroads.j9
Path: \\DUBLINFILE\ProjectData\IE01T22A88 Tesco Cavan\5. Technical\5. Modelling\Junctions_9_Models\2040_Dev
Report generation date: 30/11/2022 16:14:42

»2040, Saturday Afternoon (Dev)
»2040, Friday Evening (Dev)

Summary of junction performance

	Saturday Afternoon (Dev)					Friday Evening (Dev)				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2040									
Stream B-CD	D1	0.9	15.28	0.47	C	D2	6.9	126.56	0.96	F
Stream B-AD		2.3	25.73	0.70	D		11.5	92.86	0.97	F
Stream A-BCD		0.0	4.95	0.01	A		0.0	4.93	0.00	A
Stream D-ABC		0.0	9.12	0.02	A		0.0	0.00	0.00	A
Stream C-ABD		0.4	8.70	0.26	A		0.4	9.09	0.30	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

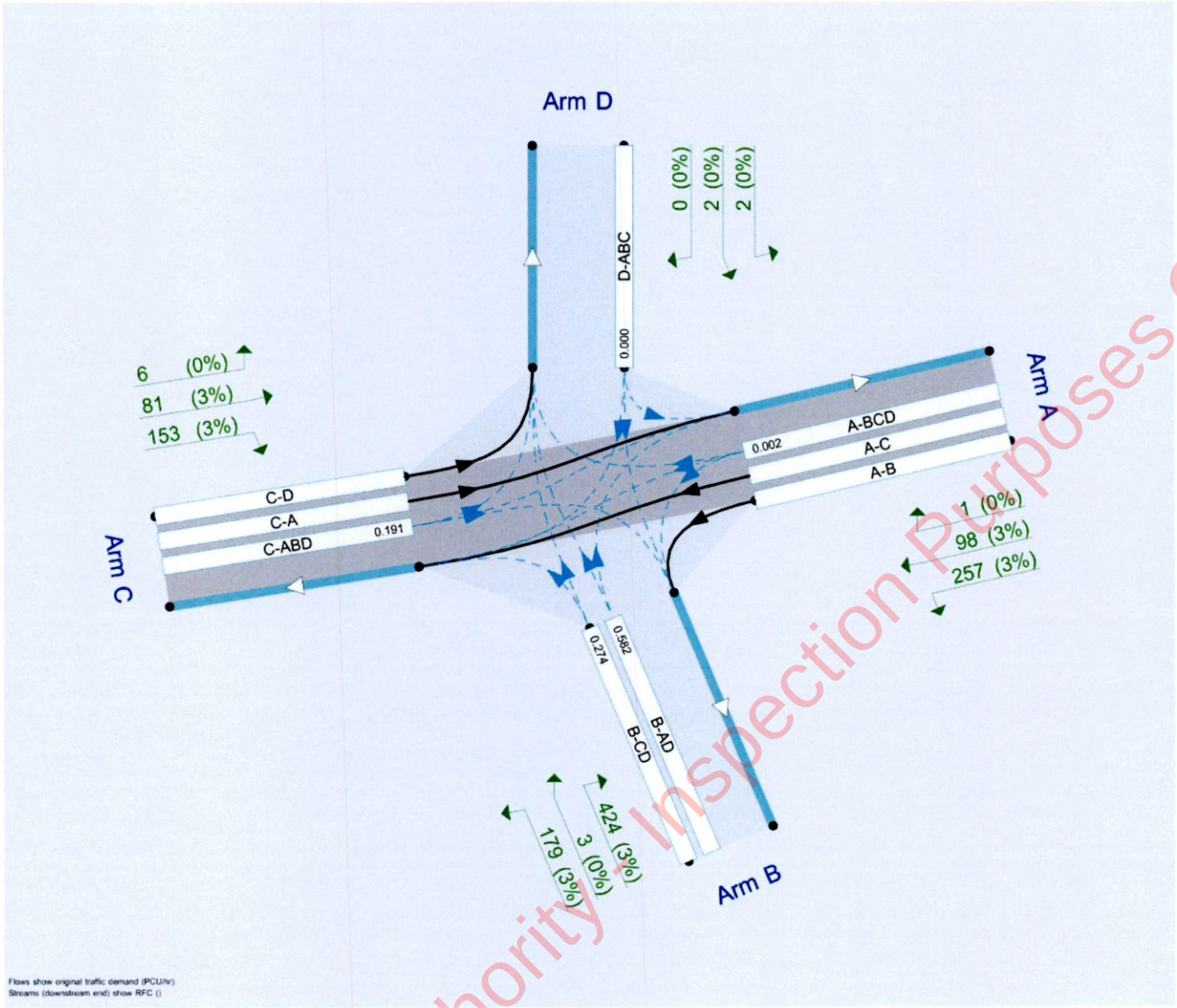
File summary

File Description

Title	
Location	
Site number	
Date	28/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\pgannon
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (Dev)	ONE HOUR	12:45	14:15	15
D2	2040	Friday Evening (Dev)	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2040, Saturday Afternoon (Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Cock Hill/Ardkeen	Crossroads	Two-way		11.45	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Ardkeen (Eastern Arm)		Major
B	Cock Hill (Southern Arm)		Minor
C	Ardkeen (Western Arm)		Major
D	Cock Hill (Northern Arm)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	6.00				60.0	✓	0.00
C	6.00		✓	2.20	170.0	✓	2.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B	One lane plus flare		6.00	6.00	6.00	6.00	3.00		3.00	92	182
D	One lane	2.20								120	50

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	609	-	-	-	-	-	-	0.236	0.337	0.236	-	-	-
B-A	631	0.115	0.291	0.291	-	-	-	0.183	0.415	-	0.291	0.291	0.145
B-C	690	0.106	0.267	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	560	0.102	0.258	0.258	-	-	-	0.162	0.368	0.162	-	-	-
B-D, offside lane	631	0.115	0.291	0.291	-	-	-	0.183	0.415	0.183	-	-	-
C-B	672	0.261	0.261	0.372	-	-	-	-	-	-	-	-	-
D-A	603	-	-	-	-	-	-	0.234	-	0.092	-	-	-
D-B, nearside lane	498	0.144	0.144	0.328	-	-	-	0.229	0.229	0.091	-	-	-
D-B, offside lane	498	0.144	0.144	0.328	-	-	-	0.229	0.229	0.091	-	-	-
D-C	498	-	0.144	0.328	0.115	0.229	0.229	0.229	0.229	0.091	-	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (Dev)	ONE HOUR	12:45	14:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	346	100.000
B		✓	505	100.000
C		✓	210	100.000
D		✓	9	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	254	89	3
	B	308	0	192	5
	C	71	137	0	2
	D	1	8	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	3	3	0
	B	3	0	3	0
	C	3	3	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-CD	0.47	15.28	0.9	C
B-AD	0.70	25.73	2.3	D
A-BCD	0.01	4.95	0.0	A
A-B				
A-C				
D-ABC	0.02	9.12	0.0	A
C-ABD	0.26	8.70	0.4	A
C-D				
C-A				

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	147	571	0.258	146	0.4	8.687	A
B-AD	233	534	0.436	230	0.8	12.066	B
A-BCD	3	739	0.005	3	0.0	4.946	A
A-B	190			190			
A-C	67			67			
D-ABC	7	438	0.015	7	0.0	8.348	A
C-ABD	103	606	0.171	103	0.2	7.353	A
C-D	1			1			
C-A	53			53			

13:00 - 13:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	176	535	0.329	175	0.5	10.279	B
B-AD	278	514	0.541	276	1.2	15.501	C
A-BCD	5	765	0.006	5	0.0	4.784	A
A-B	227			227			
A-C	80			80			
D-ABC	8	424	0.019	8	0.0	8.656	A
C-ABD	124	594	0.208	124	0.3	7.875	A
C-D	2			2			
C-A	63			63			

13:15 - 13:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	216	463	0.467	215	0.9	14.814	B
B-AD	340	483	0.704	336	2.3	24.453	C
A-BCD	6	803	0.008	6	0.0	4.575	A
A-B	277			277			
A-C	97			97			
D-ABC	10	405	0.024	10	0.0	9.118	A
C-ABD	152	579	0.263	152	0.4	8.680	A
C-D	2			2			
C-A	77			77			

13:30 - 13:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	216	458	0.472	216	0.9	15.282	C
B-AD	340	483	0.704	340	2.3	25.729	D
A-BCD	6	803	0.008	6	0.0	4.580	A
A-B	277			277			
A-C	97			97			
D-ABC	10	405	0.024	10	0.0	9.120	A
C-ABD	152	579	0.263	152	0.4	8.696	A
C-D	2			2			
C-A	77			77			

13:45 - 14:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	176	531	0.332	178	0.5	10.533	B
B-AD	278	514	0.541	282	1.3	16.286	C
A-BCD	5	765	0.006	5	0.0	4.796	A
A-B	227			227			
A-C	80			80			
D-ABC	8	424	0.019	8	0.0	8.660	A
C-ABD	124	594	0.208	124	0.3	7.895	A
C-D	2			2			
C-A	63			63			

14:00 - 14:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	147	568	0.259	148	0.4	8.829	A
B-AD	233	534	0.436	235	0.8	12.458	B
A-BCD	3	738	0.005	3	0.0	4.954	A
A-B	190			190			
A-C	67			67			
D-ABC	7	438	0.015	7	0.0	8.356	A
C-ABD	103	606	0.171	104	0.2	7.383	A
C-D	1			1			
C-A	53			53			

2040, Friday Evening (Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Cock Hill/Ardkeen	Crossroads	Two-way		53.08	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	Friday Evening (Dev)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	356	100.000
B		✓	606	100.000
C		✓	240	100.000
D		✓	4	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	257	98	1
	B	424	0	179	3
	C	81	153	0	6
	D	2	2	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	3	3	0
	B	3	0	3	0
	C	3	3	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-CD	0.96	126.56	6.9	F
B-AD	0.97	92.86	11.5	F
A-BCD	0.00	4.93	0.0	A
A-B				
A-C				
D-ABC	0.00	0.00	0.0	A
C-ABD	0.30	9.09	0.4	A
C-D				
C-A				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	137	498	0.274	135	0.4	10.178	B
B-AD	320	549	0.582	314	1.4	15.444	C
A-BCD	1	739	0.002	1	0.0	4.928	A
A-B	193			193			
A-C	74			74			
D-ABC	0	439	0.000	0	0.0	0.000	A
C-ABD	116	605	0.191	115	0.2	7.548	A
C-D	4			4			
C-A	61			61			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	163	424	0.385	162	0.6	14.086	B
B-AD	382	526	0.726	377	2.5	24.182	C
A-BCD	2	766	0.002	2	0.0	4.761	A
A-B	231			231			
A-C	88			88			
D-ABC	0	421	0.000	0	0.0	0.000	A
C-ABD	139	594	0.234	138	0.3	8.140	A
C-D	5			5			
C-A	72			72			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	200	228	0.878	186	4.3	72.322	F
B-AD	467	487	0.958	443	8.6	62.247	F
A-BCD	2	805	0.003	2	0.0	4.544	A
A-B	282			282			
A-C	108			108			
D-ABC	0	397	0.000	0	0.0	0.000	A
C-ABD	171	579	0.295	171	0.4	9.067	A
C-D	6			6			
C-A	87			87			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	200	210	0.956	190	6.9	126.556	F
B-AD	467	483	0.966	455	11.5	92.857	F
A-BCD	2	805	0.003	2	0.0	4.550	A
A-B	282			282			
A-C	108			108			
D-ABC	0	395	0.000	0	0.0	0.000	A
C-ABD	171	579	0.295	171	0.4	9.086	A
C-D	6			6			
C-A	87			87			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	163	375	0.435	188	0.8	22.200	C
B-AD	381	520	0.734	415	3.2	42.519	E
A-BCD	2	766	0.002	2	0.0	4.773	A
A-B	231			231			
A-C	88			88			
D-ABC	0	417	0.000	0	0.0	0.000	A
C-ABD	139	594	0.234	139	0.3	8.168	A
C-D	5			5			
C-A	72			72			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	137	488	0.280	138	0.4	10.631	B
B-AD	320	549	0.582	326	1.5	17.111	C
A-BCD	1	739	0.002	1	0.0	4.935	A
A-B	193			193			
A-C	74			74			
D-ABC	0	438	0.000	0	0.0	0.000	A
C-ABD	116	605	0.191	116	0.2	7.587	A
C-D	4			4			
C-A	61			61			

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Cock_Hill_3_Arm_Rdbt.j9
Path: \\DUBLINFILE\ProjectData\IE01T22A88 Tesco Cavan\5. Technical\5. Modelling\Junctions_9_Models\2040_Dev
Report generation date: 30/11/2022 16:15:05

»2040, Saturday Afternoon (Dev)
»2040, Friday Evening (Dev)

Summary of junction performance

	Saturday Afternoon (Dev)					Friday Evening (Dev)				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2040									
Arm 1	D1	0.6	4.28	0.35	A	D2	0.8	5.06	0.45	A
Arm 2		0.3	3.94	0.20	A		0.3	4.36	0.25	A
Arm 3		0.4	3.93	0.26	A		0.5	4.15	0.31	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

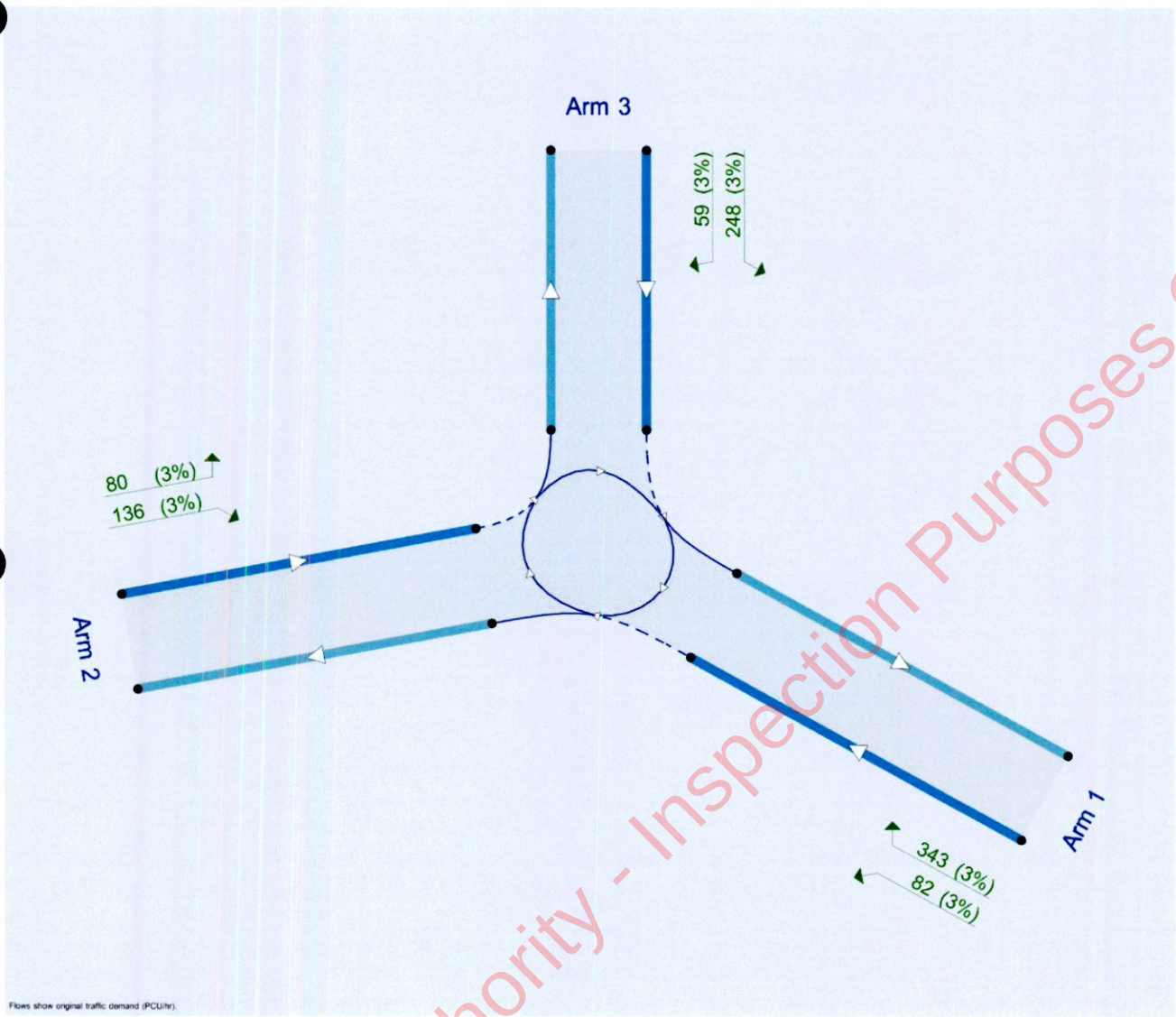
File summary

File Description

Title	
Location	
Site number	
Date	28/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\pgannon
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (Dev)	ONE HOUR	12:45	14:15	15
D2	2040	Friday Evening (Dev)	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2040, Saturday Afternoon (Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	4.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Eastern Arm	
2	Western Arm	
3	Northern Arm	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.03	5.96	9.3	49.9	35.6	35.7	
2	3.69	6.45	6.5	38.9	35.6	51.6	
3	3.33	5.87	7.6	40.5	35.6	39.4	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.587	1374
2	0.573	1396
3	0.581	1369

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (Dev)	ONE HOUR	12:45	14:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	426	100.000
2		✓	216	100.000
3		✓	307	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	1	82	343
	2	136	0	80
	3	248	59	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	3	3
	2	3	0	3
	3	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.35	4.28	0.6	A
2	0.20	3.94	0.3	A
3	0.26	3.93	0.4	A

Main Results for each time segment

12:45 - 13:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	321	44	1348	0.238	319	0.3	3.600	A
2	163	258	1248	0.130	162	0.2	3.412	A
3	231	103	1309	0.177	230	0.2	3.433	A

13:00 - 13:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	383	53	1343	0.285	383	0.4	3.861	A
2	194	309	1219	0.159	194	0.2	3.618	A
3	276	123	1297	0.213	276	0.3	3.629	A

13:15 - 13:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	65	1336	0.351	468	0.6	4.272	A
2	238	378	1179	0.202	238	0.3	3.938	A
3	338	151	1281	0.264	338	0.4	3.929	A

13:30 - 13:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	469	65	1336	0.351	469	0.6	4.277	A
2	238	379	1179	0.202	238	0.3	3.940	A
3	338	151	1281	0.264	338	0.4	3.930	A

13:45 - 14:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	383	53	1343	0.285	384	0.4	3.867	A
2	194	310	1218	0.159	194	0.2	3.624	A
3	276	123	1297	0.213	276	0.3	3.635	A

14:00 - 14:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	321	44	1348	0.238	321	0.3	3.614	A
2	163	259	1247	0.130	163	0.2	3.421	A
3	231	103	1309	0.177	231	0.2	3.440	A

2040, Friday Evening (Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3	4.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	Friday Evening (Dev)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	538	100.000
2		✓	257	100.000
3		✓	363	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1	2	3
From	1	0	122	416
	2	120	0	137
	3	288	75	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1	2	3
From	1	0	3	3
	2	3	0	3
	3	3	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	0.45	5.06	0.8	A
2	0.25	4.36	0.3	A
3	0.31	4.15	0.5	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	405	56	1341	0.302	403	0.4	3.948	A
2	193	312	1217	0.159	193	0.2	3.618	A
3	273	90	1317	0.208	272	0.3	3.547	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	67	1334	0.362	483	0.6	4.353	A
2	231	374	1182	0.196	231	0.2	3.898	A
3	326	108	1306	0.250	326	0.3	3.782	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	592	82	1325	0.447	591	0.8	5.045	A
2	283	457	1134	0.250	283	0.3	4.355	A
3	400	132	1292	0.309	399	0.5	4.150	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	592	83	1325	0.447	592	0.8	5.058	A
2	283	458	1133	0.250	283	0.3	4.360	A
3	400	132	1292	0.309	400	0.5	4.154	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	484	68	1334	0.363	485	0.6	4.370	A
2	231	375	1181	0.196	231	0.3	3.907	A
3	326	108	1306	0.250	327	0.3	3.789	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	405	57	1341	0.302	406	0.4	3.967	A
2	193	314	1216	0.159	194	0.2	3.626	A
3	273	90	1316	0.208	274	0.3	3.555	A

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

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Filename: Cock_Hill_Site_Entrance.j9
Path: \\DUBLINFILE\ProjectData\IE01T22A88 Tesco Cavan\5. Technical\5. Modelling\Junctions_9_Models\2040_Dev
Report generation date: 30/11/2022 16:15:24

»2040, Saturday Afternoon (Dev)
»2040, Friday Evening (Dev)

Summary of junction performance

	Saturday Afternoon (Dev)					Friday Evening (Dev)				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2040									
Stream B-C	D1	0.5	9.00	0.32	A	D2	0.3	8.19	0.21	A
Stream B-AD		0.2	12.04	0.19	B		0.1	12.21	0.11	B
Stream A-BCD		0.0	0.00	0.00	A		0.0	4.30	0.02	A
Stream D-ABC		0.0	0.00	0.00	A		0.0	8.56	0.03	A
Stream C-ABD		0.4	9.26	0.31	A		0.3	8.73	0.21	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

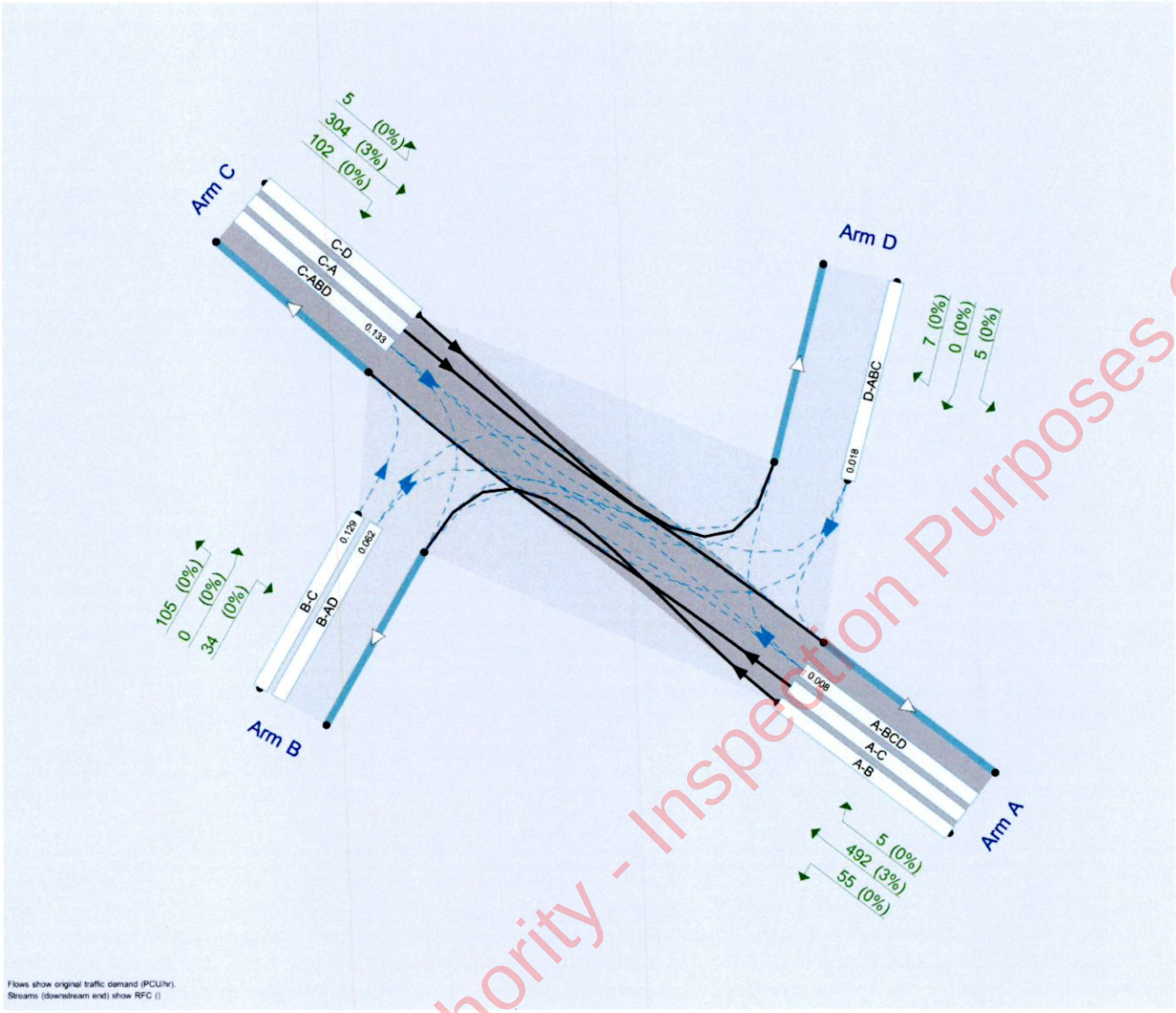
File summary

File Description

Title	
Location	
Site number	
Date	28/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\pgannon
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (Dev)	ONE HOUR	12:45	14:15	15
D2	2040	Friday Evening (Dev)	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2040, Saturday Afternoon (Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Cock Hill/Site Entrance	Right-Left Stagger	Two-way		3.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Cock Hill (Southern Arm)		Major
B	Site Entrance		Minor
C	Cock Hill (Northern Arm)		Major
D	School Road		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A	6.00				115.0	✓	0.00
C	6.00		✓	3.00	100.0	✓	10.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Lane Width (Left) (m)	Lane Width (Right) (m)	Visibility to left (m)	Visibility to right (m)
B	Two lanes		3.50	3.50	75	120
D	One lane	3.00			105	100

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
A-D	641	-	-	-	0.248	0.248	0.248	-	0.248	-	-
B-AD	590	0.108	0.272	-	-	-	0.171	0.388	0.171	0.108	0.272
B-C	734	0.113	0.285	-	-	-	-	-	-	0.113	0.285
C-B	687	0.266	0.266	-	-	-	-	-	-	0.266	0.266
D-A	687	-	-	-	0.266	0.105	0.266	-	0.105	-	-
D-BC	562	0.163	0.163	0.370	0.259	0.102	0.259	-	0.102	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (Dev)	ONE HOUR	12:45	14:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	420	100.000
B		✓	236	100.000
C		✓	392	100.000
D		✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	90	330	0
	B	63	0	173	0
	C	233	159	0	0
	D	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	3	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.32	9.00	0.5	A
B-AD	0.19	12.04	0.2	B
A-BCD	0.00	0.00	0.0	A
A-B				
A-C				
D-ABC	0.00	0.00	0.0	A
C-ABD	0.31	9.26	0.4	A
C-D				
C-A				

Main Results for each time segment

12:45 - 13:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	130	638	0.204	129	0.3	7.055	A
B-AD	47	439	0.108	47	0.1	9.170	A
A-BCD	0	585	0.000	0	0.0	0.000	A
A-B	68			68			
A-C	248			248			
D-ABC	0	526	0.000	0	0.0	0.000	A
C-ABD	120	603	0.199	119	0.2	7.422	A
C-D	0			0			
C-A	175			175			

13:00 - 13:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	156	619	0.251	155	0.3	7.763	A
B-AD	57	409	0.138	56	0.2	10.198	B
A-BCD	0	574	0.000	0	0.0	0.000	A
A-B	81			81			
A-C	297			297			
D-ABC	0	508	0.000	0	0.0	0.000	A
C-ABD	143	586	0.244	143	0.3	8.108	A
C-D	0			0			
C-A	209			209			

13:15 - 13:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	190	591	0.323	190	0.5	8.974	A
B-AD	69	369	0.188	69	0.2	12.008	B
A-BCD	0	560	0.000	0	0.0	0.000	A
A-B	99			99			
A-C	363			363			
D-ABC	0	482	0.000	0	0.0	0.000	A
C-ABD	175	564	0.310	175	0.4	9.236	A
C-D	0			0			
C-A	257			257			

13:30 - 13:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	190	590	0.323	190	0.5	9.001	A
B-AD	69	368	0.188	69	0.2	12.037	B
A-BCD	0	559	0.000	0	0.0	0.000	A
A-B	99			99			
A-C	363			363			
D-ABC	0	482	0.000	0	0.0	0.000	A
C-ABD	175	564	0.310	175	0.4	9.259	A
C-D	0			0			
C-A	257			257			

13:45 - 14:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	156	618	0.251	156	0.3	7.796	A
B-AD	57	409	0.138	57	0.2	10.231	B
A-BCD	0	574	0.000	0	0.0	0.000	A
A-B	81			81			
A-C	297			297			
D-ABC	0	508	0.000	0	0.0	0.000	A
C-ABD	143	586	0.244	143	0.3	8.135	A
C-D	0			0			
C-A	209			209			

14:00 - 14:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	130	638	0.204	131	0.3	7.098	A
B-AD	47	439	0.108	48	0.1	9.211	A
A-BCD	0	585	0.000	0	0.0	0.000	A
A-B	68			68			
A-C	248			248			
D-ABC	0	526	0.000	0	0.0	0.000	A
C-ABD	120	603	0.199	120	0.3	7.461	A
C-D	0			0			
C-A	175			175			

2040, Friday Evening (Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Cock Hill/Site Entrance	Right-Left Stagger	Two-way		2.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	Friday Evening (Dev)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	552	100.000
B		✓	139	100.000
C		✓	411	100.000
D		✓	12	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0	55	492	5
	B	34	0	105	0
	C	304	102	0	5
	D	5	0	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	0	3	0
	B	0	0	0	0
	C	3	0	0	0
	D	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-C	0.21	8.19	0.3	A
B-AD	0.11	12.21	0.1	B
A-BCD	0.02	4.30	0.0	A
A-B				
A-C				
D-ABC	0.03	8.56	0.0	A
C-ABD	0.21	8.73	0.3	A
C-D				
C-A				

Main Results for each time segment

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	79	613	0.129	78	0.1	6.724	A
B-AD	26	414	0.062	25	0.1	9.252	A
A-BCD	7	856	0.008	7	0.0	4.293	A
A-B	41			41			
A-C	367			367			
D-ABC	9	491	0.018	9	0.0	7.470	A
C-ABD	77	576	0.133	76	0.2	7.195	A
C-D	4			4			
C-A	229			229			

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	94	589	0.160	94	0.2	7.274	A
B-AD	31	380	0.080	30	0.1	10.304	B
A-BCD	10	902	0.011	10	0.0	4.092	A
A-B	49			49			
A-C	437			437			
D-ABC	11	467	0.023	11	0.0	7.889	A
C-ABD	92	554	0.165	92	0.2	7.779	A
C-D	4			4			
C-A	273			273			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	116	555	0.208	115	0.3	8.181	A
B-AD	37	332	0.113	37	0.1	12.191	B
A-BCD	15	966	0.015	15	0.0	3.843	A
A-B	60			60			
A-C	533			533			
D-ABC	13	434	0.030	13	0.0	8.563	A
C-ABD	112	525	0.214	112	0.3	8.720	A
C-D	6			6			
C-A	335			335			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	116	555	0.208	116	0.3	8.193	A
B-AD	37	332	0.113	37	0.1	12.208	B
A-BCD	15	966	0.015	15	0.0	3.846	A
A-B	60			60			
A-C	533			533			
D-ABC	13	434	0.030	13	0.0	8.564	A
C-ABD	112	525	0.214	112	0.3	8.732	A
C-D	6			6			
C-A	335			335			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	94	589	0.160	95	0.2	7.289	A
B-AD	31	380	0.081	31	0.1	10.323	B
A-BCD	10	902	0.011	10	0.0	4.100	A
A-B	49			49			
A-C	437			437			
D-ABC	11	467	0.023	11	0.0	7.892	A
C-ABD	92	554	0.165	92	0.2	7.792	A
C-D	4			4			
C-A	273			273			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-C	79	613	0.129	79	0.1	6.744	A
B-AD	26	414	0.062	26	0.1	9.277	A
A-BCD	7	856	0.008	7	0.0	4.298	A
A-B	41			41			
A-C	367			367			
D-ABC	9	491	0.018	9	0.0	7.472	A
C-ABD	77	576	0.133	77	0.2	7.217	A
C-D	4			4			
C-A	229			229			

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: Dublin_Rd_Cock_Hill_Rdbt_East_Arm_Cal.j9
Path: \\DUBLINFILE\ProjectData\IE01T22A88 Tesco Cavan\5. Technical\5. Modelling\Junctions_9_Models\2040_Dev
Report generation date: 30/11/2022 14:28:19

»2040, Saturday Afternoon (Dev)
»2040, Friday Evening (Dev)

Summary of junction performance

	Saturday Afternoon (Dev)					Friday Evening (Dev)				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2040									
Arm 1	D1	111.5	443.70	1.22	F	D2	26.0	100.18	1.02	F
Arm 2		1.1	13.13	0.52	B		0.8	12.13	0.44	B
Arm 3		9.2	49.06	0.92	E		4.8	27.12	0.84	D
Arm 4		33.9	207.08	1.11	F		8.2	60.44	0.92	F

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

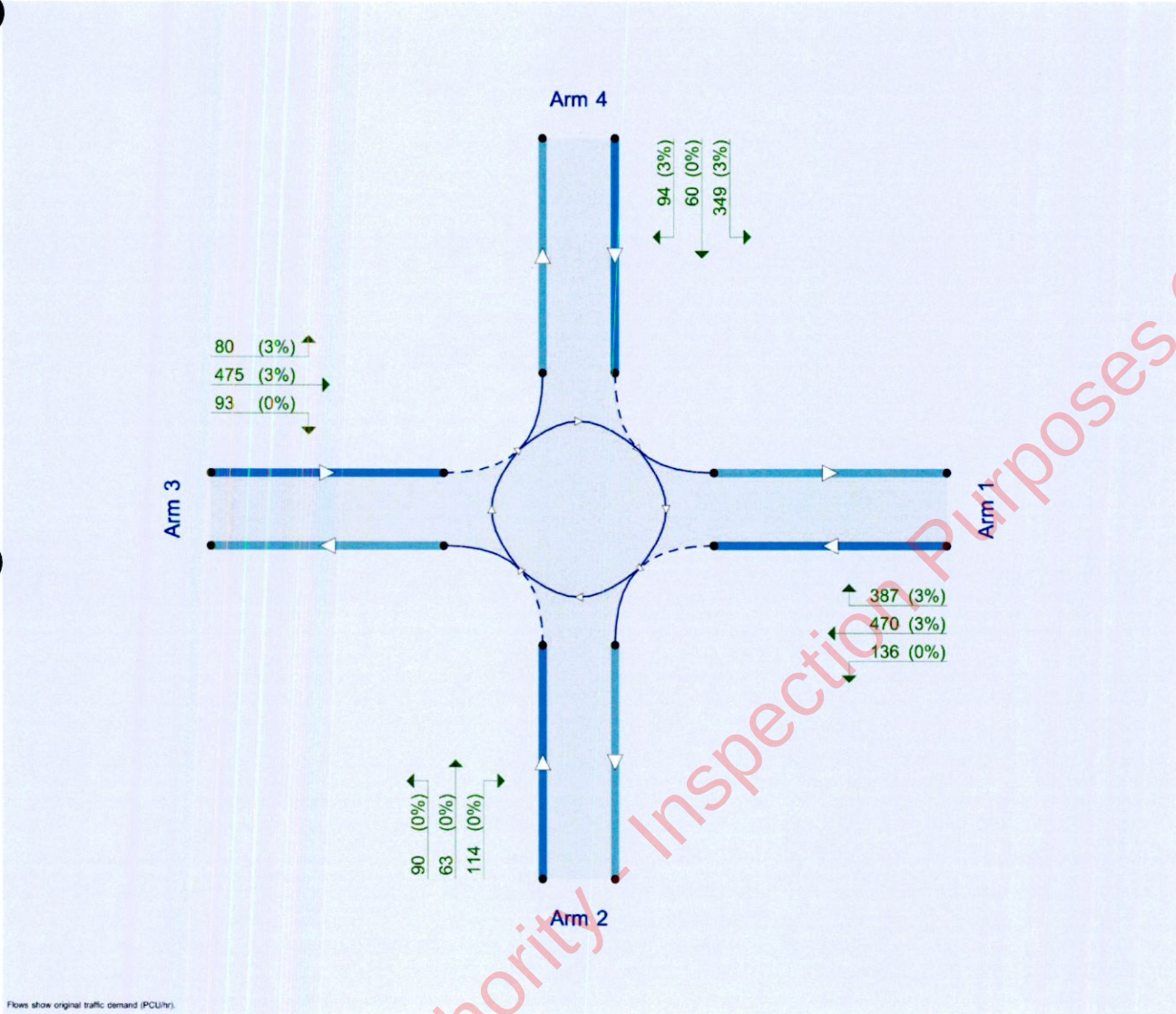
File summary

File Description

Title	
Location	
Site number	
Date	24/11/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	ADSYSTRA\pgannon
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (Dev)	ONE HOUR	12:45	14:15	15
D2	2040	Friday Evening (Dev)	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2040, Saturday Afternoon (Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	240.36	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	R212 Dublin Rd (East)	
2	Shopping Centre Entry/Exit (Southern Arm)	
3	R212 Dublin Rd (West)	
4	Cock Hill (Northern Arm)	

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	I' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
1	3.15	3.16	0.1	19.4	32.6	52.3	
2	3.65	3.65	0.0	23.4	32.6	61.2	
3	3.65	3.66	0.0	20.3	32.6	39.0	
4	3.04	3.05	0.0	24.4	32.6	53.4	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Enter slope and intercept directly	Entered slope	Entered intercept (PCU/hr)	Final slope	Final intercept (PCU/hr)
1	✓	0.464	1030	0.464	1030
2				0.480	995
3				0.518	1073
4				0.461	856

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2040	Saturday Afternoon (Dev)	ONE HOUR	12:45	14:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	1001	100.000
2		✓	267	100.000
3		✓	659	100.000
4		✓	505	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	8	136	470	387
	2	114	0	90	63
	3	475	93	11	80
	4	349	60	94	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	3	3
	2	0	0	0	0
	3	3	0	0	3
	4	3	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.22	443.70	111.5	F
2	0.52	13.13	1.1	B
3	0.92	49.06	9.2	E
4	1.11	207.08	33.9	F

Main Results for each time segment

12:45 - 13:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	754	193	940	0.801	739	3.8	17.202	C
2	201	718	650	0.309	199	0.4	7.952	A
3	496	425	853	0.582	491	1.4	10.040	B
4	380	522	615	0.618	374	1.6	14.944	B

13:00 - 13:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	900	231	923	0.975	865	12.6	46.259	E
2	240	842	591	0.406	239	0.7	10.214	B
3	592	501	813	0.728	588	2.6	16.009	C
4	454	625	568	0.800	446	3.6	28.672	D

13:15 - 13:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1102	263	908	1.214	903	62.3	161.661	F
2	294	886	569	0.516	293	1.0	12.935	B
3	726	552	787	0.922	705	7.9	37.582	E
4	556	751	510	1.091	492	19.5	104.679	F

13:30 - 13:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	1102	268	906	1.217	905	111.5	354.030	F
2	294	889	568	0.518	294	1.1	13.130	B
3	726	554	786	0.923	720	9.2	49.055	E
4	556	765	503	1.105	499	33.9	207.077	F

13:45 - 14:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	900	264	908	0.992	900	111.5	443.696	F
2	240	890	567	0.423	241	0.7	11.086	B
3	592	517	805	0.736	617	3.1	21.748	C
4	454	652	555	0.818	539	12.7	162.334	F

14:00 - 14:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	754	210	933	0.808	924	68.9	353.163	F
2	201	887	569	0.353	202	0.6	9.835	A
3	496	500	814	0.609	502	1.7	12.024	B
4	380	534	609	0.624	424	1.8	24.239	C

2040, Friday Evening (Dev)

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	61.71	F

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2040	Friday Evening (Dev)	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		✓	833	100.000
2		✓	212	100.000
3		✓	605	100.000
4		✓	475	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	8	82	385	358
	2	75	0	81	56
	3	421	51	10	123
	4	280	47	148	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	3	3
	2	0	0	0	0
	3	3	0	0	3
	4	3	0	3	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1	1.02	100.18	26.0	F
2	0.44	12.13	0.8	B
3	0.84	27.12	4.8	D
4	0.92	60.44	8.2	F

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	627	190	942	0.666	619	2.0	11.208	B
2	160	676	670	0.238	158	0.3	7.015	A
3	455	370	881	0.517	451	1.1	8.511	A
4	358	421	661	0.541	353	1.2	11.810	B

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	749	228	924	0.810	741	4.0	19.355	C
2	191	809	606	0.314	190	0.5	8.633	A
3	544	443	844	0.645	541	1.8	12.096	B
4	427	505	623	0.686	423	2.1	18.178	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	917	273	903	1.015	864	17.4	58.374	F
2	233	947	540	0.432	232	0.7	11.642	B
3	666	523	802	0.830	656	4.4	23.731	C
4	523	613	573	0.912	504	6.7	44.885	E

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	917	279	900	1.019	883	26.0	100.181	F
2	233	968	530	0.440	233	0.8	12.127	B
3	666	532	797	0.835	665	4.8	27.122	D
4	523	620	570	0.918	517	8.2	60.440	F

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	749	241	918	0.815	831	5.4	55.426	F
2	191	899	563	0.338	192	0.5	9.715	A
3	544	484	823	0.661	555	2.1	14.300	B
4	427	518	617	0.692	450	2.5	24.595	C

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	627	195	939	0.668	640	2.1	12.832	B
2	160	698	660	0.242	160	0.3	7.221	A
3	455	380	876	0.520	459	1.1	8.949	A
4	358	429	658	0.543	362	1.3	12.701	B

8.0 Hydrology

Qbar Calculation
Using IOH Report 124 for Sites < 25 km²

Catchment Name
Cavan (Rev 1)

$^1Q_{bar} = 0.00108 * (AREA)^{0.89}(SAAR)^{1.17}(SOIL)^{2.17}$ — **Estimation of QBAR from IOH Report 124 for catchments less than 25 km² using the 3 variable equation**

SITE AREA =	4.06	Ha	Overall Redline Area
CATCHMENT AREA =	2.70	Ha (excl. Public Open Space)	Overall Catchment Area (Hectares) For catchments < 50 hectares in area, flow rates are linearly interpolated for smaller areas.
AREA =	0.027	km²	Area of the Catchment (km²)
SAAR =	980	mm	Standard Annual Average Rainfall (mm)
SOIL =	0.40		
$M5_{60}$	15.4	mm	
$M5_{2DAY}$	53.5	mm	
$R=(M5_{60}/M5_{2d})$	0.29		Soil index value (SPR) calculated from Flood Studies Report Vol V Fig I 4.18(1) - The Classification of Soils from Winter Rainfall Acceptance Rate .

Soil Type Expressed as a Percentage	Soil 1	Soil 2	Soil 3	Soil 4	Soil 5
	0	0	100	0	0
SOIL Value	0.15	0.30	0.40	0.45	0.50

Flood Return Event	[5]Growth Factor	Permitted Flow (l/s)
1	0.85	11.6
QBAR	1	13.6
10	1.67	22.7
30	2.1	28.6
50	2.33	31.7
100	2.6	35.4
200	2.85	38.8
1000	3.5	47.7

[4]QBar from Site with Factorial Error Allowance

r^2 =	0.847
n =	71
fse =	1.651

Q'_{bar} = 22.48 l/s

(With Allowance for the standard factorial error)

Pro-rata based on 50 Ha Site area to calculate Qbar

Q_{bar} =	0.00010	cumecs/Ha

Q_{bar} =	5.0	l/s/Ha

$Q_{bar[rural]}$ = 13.6 l/s

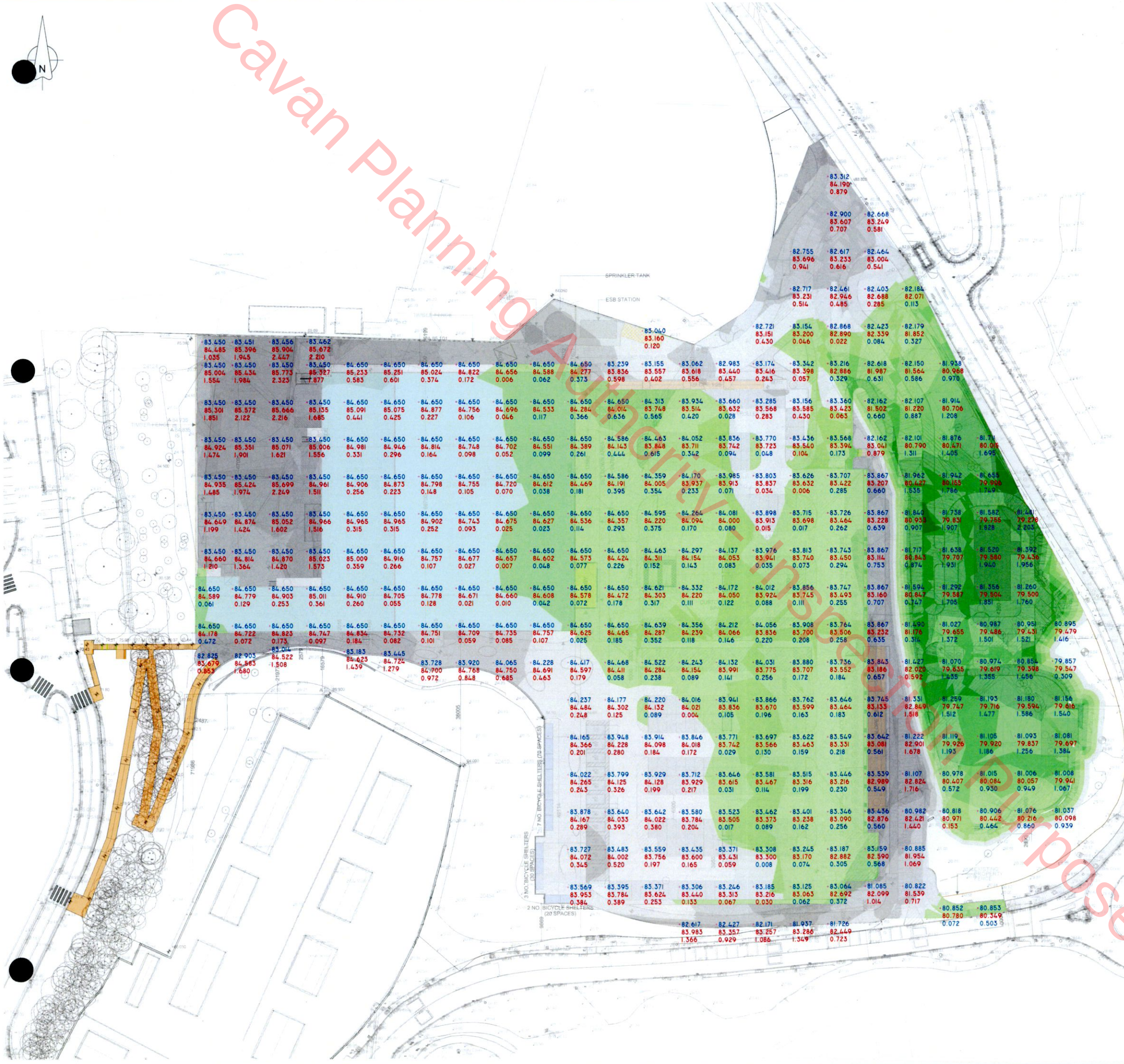
Catchment Characteristics

Cavan (Rev 1)	Area (m²)	Runoff Coeff.	Effective Area (m²)
Roofs - Type 1 (Draining to gullies)		0.85	0
Roofs - Type 2 (Draining to SUDS Soakaway features)		0.70	0
Roofs - Type 3 (Draining to Back Gardens)	-	0.85	0
Green Roofs		0.70	0
Roads and Footpaths - Type 1 (Draining to gullies)	-	0.85	0
Roads and Footpaths - Type 2 (Draining to Suds features)		0.70	0
Paved Areas	-	0.80	0
Permeable Paving	-	0.60	0
Grass over Basement		0.25	0
Parks (contributing)	-	0.25	0
Public Open Space (non-contributing)	-	0.00	0.0

Include Public Open Space in Effective Catchment Area? no — Assumed open space area does not drain to surface water network

Effective Catchment Area 0 m²

Effective Catchment Runoff Coefficient 0.00



GENERAL NOTES

1. DO NOT SCALE THIS DRAWING. WORK ONLY TO FIGURED DIMENSIONS.
2. FOR ALL RELEVANT NOTES, REFER TO STRUCTURAL AND CIVIL ENGINEERING PERFORMANCE SPECIFICATION.
3. ANY DISCREPANCIES ARE TO BE REPORTED TO PINNACLE CONSULTING ENGINEERS IMMEDIATELY.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS, ARCHITECTS AND SUB-CONTRACTORS DRAWINGS AND DETAILS.

FORMATION ALLOWANCES

SERVICE YARD, CAR PARK, PERMEABLE PAVING, BUILDING SLAB, ACCESS ROAD - CONSTRUCTION DEPTH = 500MM

KEY

=66.400	PROPOSED FORMATION LEVELS (BASED ON FORMATION ALLOWANCES TABLE)
=64.185	EXISTING LEVELS
= 2.215	DEPTH OF FILL
= 1.483	DEPTH OF CUT

DENOTES AREAS OF FILL

- +5.500 TO +6.000
- +5.000 TO +5.500
- +4.500 TO +5.000
- +4.000 TO +4.500
- +3.500 TO +4.000
- +3.000 TO +3.500
- +2.500 TO +3.000
- +2.000 TO +2.500
- +1.500 TO +2.000
- +1.000 TO +1.500
- +0.500 TO +1.000
- 0.000 TO +0.500

DENOTES AREAS OF CUT

- 0.000 TO -0.500
- -0.500 TO -1.000
- -1.000 TO -1.500
- -1.500 TO -2.000
- -2.000 TO -2.500
- -2.500 TO -3.000
- 3.000 TO -3.500
- -3.500 TO -4.000

0 50MM ON A1 DWG. 50

REV	DESCRIPTION	BY	CHK	DATE
-	-	-	-	-

CLIENT
TESCO IRELAND

PROJECT
TESCO IRELAND
CAVAN TOWN CENTRE

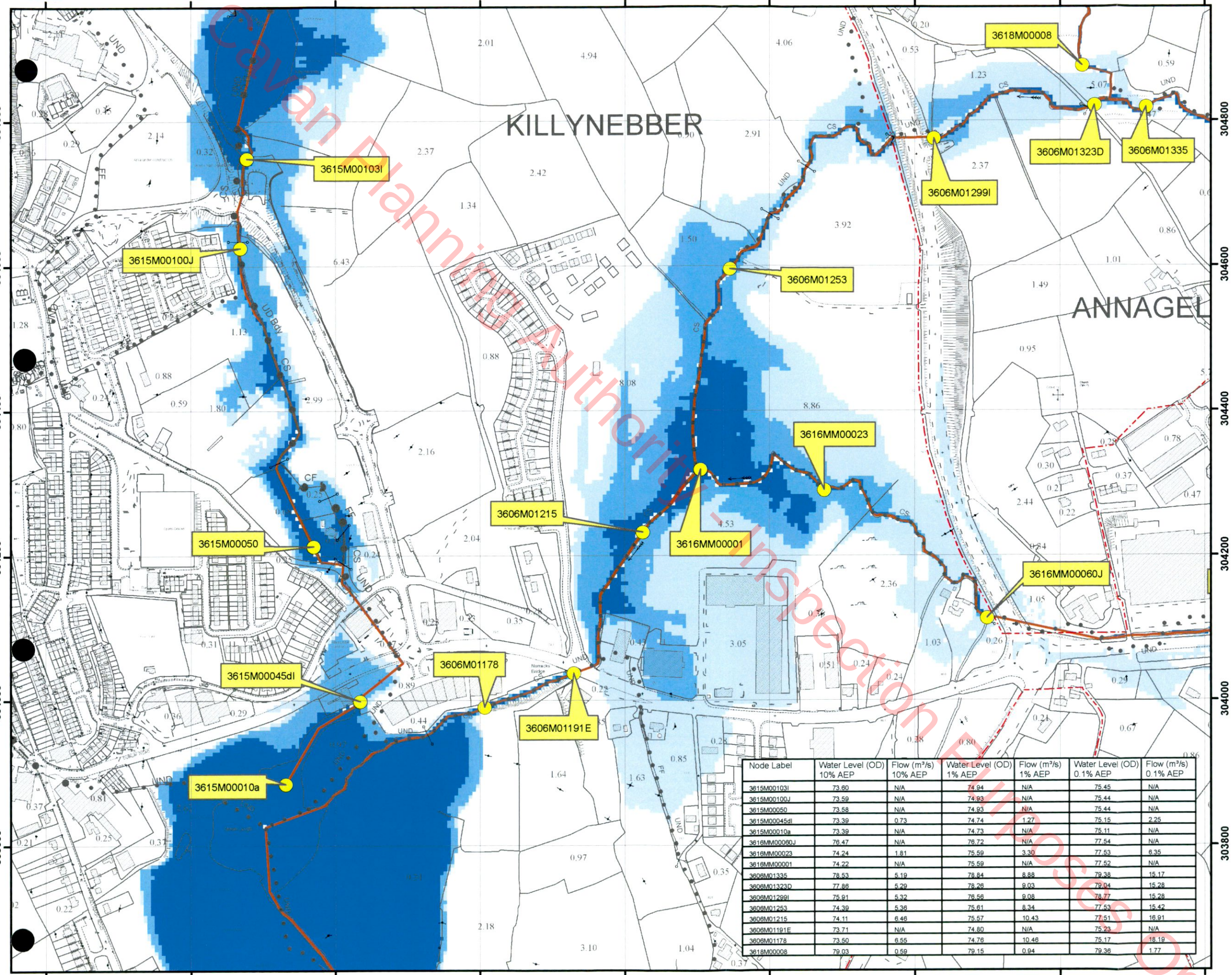
DRAWING TITLE
CUT & FILL TO FORMATION

CUT & FILL VOLUMES
CUT= 9,945.20M³
FILL = 8,821.73M³
NET = 1,123.47M³ (CUT)

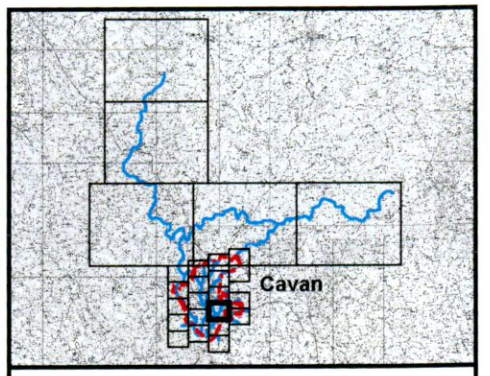
PINNACLE CONSULTING ENGINEERS
GROSVENOR COURT,
67A PATRICK STREET,
DUN LAOGHAIRE,
COUNTY DUBLIN
IRELAND.
TELEPHONE: +353 1231 1041
WELWYN GARDEN CITY | NORWICH | LONDON | THE HAGUE

DRAWING STATUS			
DRAFT			
SCALE @ A1	DATE	DRAWN BY	CHECKED
1:500	Nov-2022	AMB	S'OR
DRG NO. P210904 - 160			REVISION P01

REF P210904



Node Label	Water Level (OD) 10% AEP	Flow (m³/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m³/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m³/s) 0.1% AEP
3615M00103I	73.60	N/A	74.94	N/A	75.45	N/A
3615M00100J	73.59	N/A	74.93	N/A	75.44	N/A
3615M00050	73.58	N/A	74.93	N/A	75.44	N/A
3615M00045dI	73.39	0.73	74.74	1.27	75.15	2.25
3615M00010a	73.39	N/A	74.73	N/A	75.11	N/A
3616MM00060J	76.47	N/A	76.72	N/A	77.54	N/A
3616MM00023	74.24	1.81	75.59	3.30	77.53	6.35
3616MM00001	74.22	N/A	75.59	N/A	77.52	N/A
3606M01335	78.53	5.19	78.84	8.88	79.38	15.17
3606M01323D	77.86	5.29	78.26	9.03	79.04	15.28
3606M01299I	75.91	5.32	76.56	9.08	78.77	15.28
3606M01253	74.39	5.36	75.61	8.34	77.53	15.42
3606M01215	74.11	6.46	75.57	10.43	77.51	16.91
3606M01191E	73.71	N/A	74.80	N/A	75.23	N/A
3606M01178	73.50	6.55	74.76	10.46	75.17	18.19
3618M00008	79.03	0.59	79.15	0.94	79.36	1.77



IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

Legend

- 10% Fluvial AEP Event
- 1% Fluvial AEP Event
- 0.1% Fluvial AEP Event
- Modelled River Centreline
- AFA Extents
- Node Point
- Node ID Node Label

FINAL

REV:	NOTE:	DATE:

NORTH WESTERN NEIGHBOURHOOD CFRAM STUDY

OPW Oifig na nOibreacha Poiblí The Office of Public Works

RPS

The Office of Public Works
Jonathan Swift Street
Trim
Co Meath

Elmwood House
74 Boucher Road
Belfast
BT12 6RZ

T +44(0) 28 90 667914
F +44(0) 28 90 668286
W www.rpsgroup.com
E ireland@rpsgroup.com

Map:	Cavan Fluvial Flood Extents
Map Type:	EXTENT
Source:	FLUVIAL
Map Area:	HPW
Scenario:	CURRENT
Drawn By :	C.C. Date : 14 July 2016
Checked By :	T.D. Date : 14 July 2016
Approved By :	S.P. Date : 14 July 2016
Drawing No. :	N36CAV_EXFCD_F0_13
Map Series :	Page 13 of 25
Drawing Scale :	1:5,000 @ A3

IGSL Ltd

Tesco Cavan

Ground Investigation Report

Project No. 24083

July 2022

M7 Business Park
Naas
Co. Kildare
Ireland

T: +353 (45) 846176
E: info@igsl.ie
W: www.igsl.ie

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FOREWORD

The following conditions and notes on the geotechnical site investigation procedures should be read in conjunction with this report.

Standards

The ground investigation works for this project have been carried out by IGSL in accordance with Eurocode 7 - Part 2: Ground Investigation & Testing (EN 1997-2:2007). This has been used together with complementary documents such as BS 5930 (2015) and BS 1377 (Parts 1 to 9) and the following European Norms:

- EN 1997-2 Eurocode 7: 2007 – Geotechnical Design – Part 2: Ground Investigation & Testing
- EN ISO 22475-1:2006 Geotechnical Investigation and Sampling – Sampling Methods & Groundwater Measurements
- EN ISO 14688-1:2002 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 1: Identification and Description
- EN ISO 14688-2:2004 Geotechnical Investigation and Testing – Identification and Classification of Soil, Part 2: Classification Principles
- EN ISO 14689-1:2004 Geotechnical Investigation and Testing - Identification & Classification of Rock, Part 1: Identification & Description

Reporting

No responsibility can be held by IGSL Ltd for ground conditions between exploratory hole locations. The engineering logs provide ground profiles and configuration of strata relevant to the investigation depths achieved and caution should be taken when extrapolating between exploratory points. No liability is accepted for ground conditions extraneous to the investigation points. Unless specifically stated, no account has been taken of possible subsidence due to mineral extraction, mining works or karstification below or close to the site.

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Boring Procedures

Where required, 'shell and auger' or cable percussive boring technique is employed as defined by Section 6.3 of IS EN ISO 22475-1:2006. The boring operations, sampling and in-situ testing meet with the recommendations set out in IS EN 1997-2:2007 and BS 1377:1990 and EN ISO 22476-3:2005. The shell and auger boring technique allows for continuous sampling in clay and silt above the water table and sand and gravel below the water table (Table 2 of IS EN ISO 22475-1:2006).

It is highlighted that some disturbance and variation is unavoidable in particular ground (e.g. blowing sands, gravel / cobble dominant glacial deposits etc). Attention is drawn to this condition, whenever it is suspected. Where cobbles and boulders are recorded, no conclusion should be drawn concerning the size, presence, lithological nature, or numbers per unit volume of ground.

In-Situ Testing

Where required, Standard Penetration Tests (SPT's) are conducted strictly in accordance with Section 4.6 of IS EN 1997-2:2007. The SPT equipment (hammer energy test) has been calibrated in accordance with EN ISO 22476-3:2005 and the Energy Ratio (E_r). A calibration certificate is available upon request. The E_r is defined as the ratio of the actual energy E_{meas} (measured energy during calibration) delivered to the drive weight assembly into the drive rod below the anvil, to the theoretical energy (E_{theor}) as calculated from the drive weight assembly. The measured number of blows (N) reported on the engineering logs are uncorrected. In sands, the energy losses due to rod

length and the effect of the overburden pressure should be taken into account (see IS EN ISO 22476-3:2005).

Soil Sampling

Three categories of sampling methods are outlined in EN ISO 22475-1:2006. The categories are referenced A, B and C for any given ground conditions and are shown in Tables 1 and 2 of EN ISO 22475-1:2006. Reference should be made to EN 1997-2:2002 for guidelines on sample class and quality for strength and compressibility testing. Samples of quality classes 1 or 2 can only be obtained by using Category A sampling methods.

Where appropriate, Class 1 thin wall undisturbed tube samples (UT100) are obtained in fine grained soils (not heterogeneous tills) and meet the requirements of EN 1997-2:2002 and EN ISO 22475-1:2006. Soil samples for laboratory tests are divided into five classes with respect to the soil properties that are assumed to remain unchanged during sampling, handling transport and storage. The minimum sample quality required for testing purposes to Eurocode 7 compatibility (EN 1997-2:2002) is shown in Table A.

Table A – Details of Sample Quality Requirements

EN 1997 Clause	Test	Minimum Sample Quality Class
5.5.3	Water Content	3
5.5.4	Bulk Density	2
5.5.5	Particle Density	N/S
5.5.6	Particle Size Analysis	N/S
5.5.7	Consistency Limits	4
5.5.8	Density Index	N/S
5.5.9	Soil Dispersivity	N/S
5.5.10	Frost Susceptibility	N/S
5.6.2	Organic Content	4
5.6.3	Carbonate Content	3
5.6.4	Sulphate Content	3
5.6.5	pH	3
5.6.6	Chloride Content	3
5.7	Strength Index	1
5.8	Strength Tests	1
5.9	Compressibility Tests	1
5.10	Compaction Tests	N/S
5.11	Permeability	2

N/S – not stated. Presume a representative sample of appropriate size.

Samples recovered from trial pits or trenches meet the requirements of IS EN ISO 22475-1. It is highlighted that unforeseen circumstances such as variations in geological strata may lead to lower quality sample classes being obtained.

Groundwater

The depth of entry of any influx of groundwater is recorded during the course of boring operations. However, the normal rate of boring does not usually permit the recording of an equilibrium level for any one water strike. Where possible, drilling is suspended for a period of twenty minutes to monitor the subsequent rise in water level. Groundwater conditions observed in the borings or pits are those appertaining to the period of investigation. It should be noted however, that groundwater levels are subject to diurnal, seasonal and climatic variations and can also be affected by drainage conditions, tidal variations etc.

Engineering Logging

Soil and rock identification has been based on the examination of the samples recovered and conforms with IS EN ISO 14688-1:2018 and IS EN ISO 14689-1:2018. Rock weathering classification conforms to IS EN ISO 14689-1:2003 while discontinuities (bedding planes, joints, cleavages, faults etc) are classified in accordance with 4.3.3 of IS EN ISO 14689-1:2003. Rock mechanical indices (TCR, SCR, RQD) are defined in accordance with IS EN ISO 22475-1:2006.

Where peat has been encountered, samples have been logged in accordance with the Von Post Classification (ref. Von Post, L. 1992. Sveriges Gologiska Undersoknings torvinventering och nogra av dess hittils vunna resultat (SGU peat inventory and some preliminary results) Svenska Mosskulturforeningens Tidskrift, Jonkoping, Swedden, 36, 1-37 and Hobbs N. B. Mire morphology and the properties of some British and foreign peats. QJEG, Vol. 19, 1986.

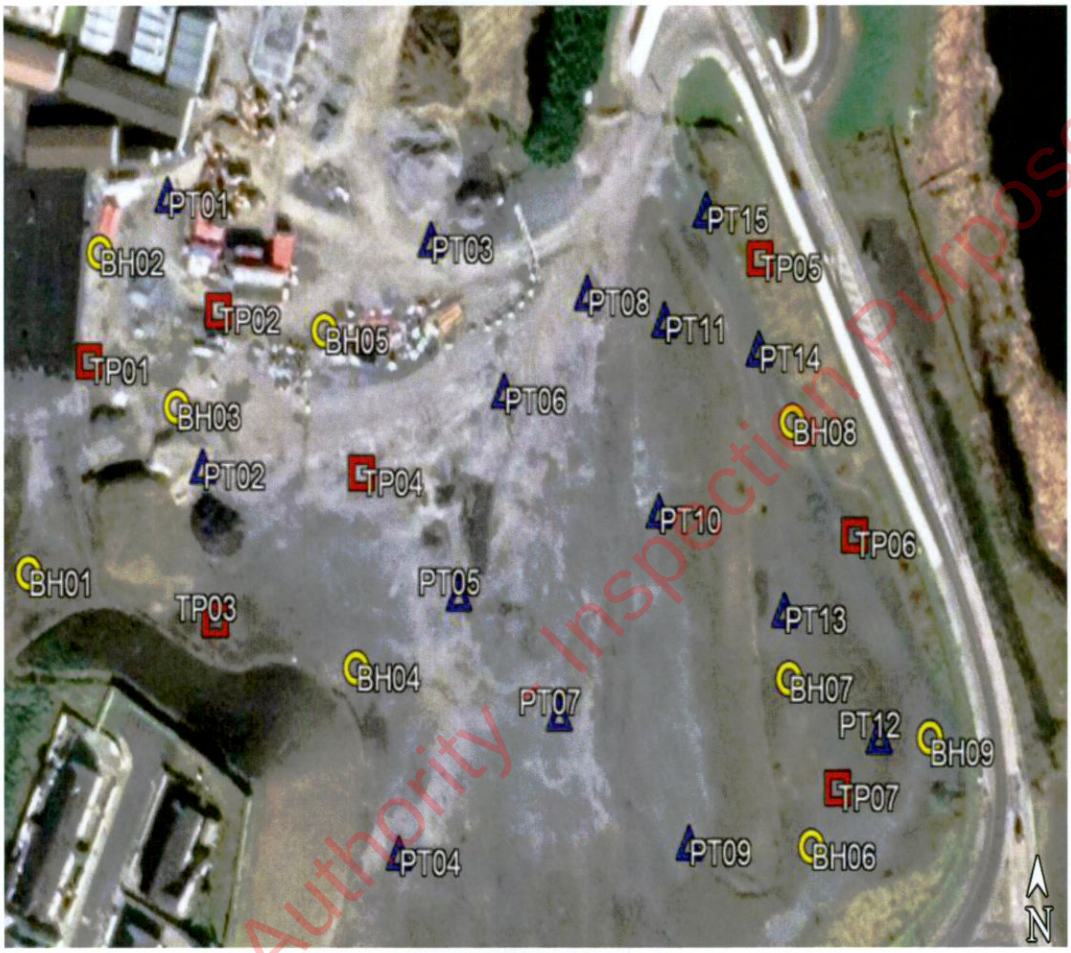
Retention of Samples

After satisfactory completion of all the scheduled laboratory tests on any sample, the remaining material will be discarded. Unless a period of retention of samples is agreed, it is our normal practice to discard all soil samples one month after submission of our final report.

1. INTRODUCTION

At the instruction of Pinnacle Consulting Engineers and Tesco Ireland, IGSL has undertaken a programme of geotechnical investigations for a new Tesco Extra store at Cavan Town. It is understood that the proposed development will include a new Tesco Extra building, drive through outlets, filing station, car parking and access roads.

Figure 1 – Site Location Showing Exploratory Points



The ground investigations comprised cable percussive boreholes, trial pits and plate load tests. Groundwater and gas monitoring standpipes were installed in three of the nine cable percussive boreholes. The investigations were executed in accordance with BS 5930, Code of Practice for Site Investigations (2015+A1:2020) and EN 1997-2 Eurocode 7 Part 2 Ground Investigation & Testing. The fieldworks were supervised by an IGSL engineering geologist.

Geotechnical laboratory testing was carried out on selected samples and included moisture content, particle size distribution, Atterberg Limits and CBR. Chemical analysis was conducted to BRE SD1 suite and sulphur & sulphate on granular fill to EN 1744 methods.. Environmental testing (WAC analysis) was also undertaken on selected samples. The 'as-built' co-ordinates and ground levels are shown on the exploratory hole logs with locations plotted on the exploratory hole plans(Appendix 8).

This report presents the findings from the field and laboratory testing. An evaluation of the ground and groundwater conditions and engineering properties ('ground assessment') is presented. Recommendations are provided on bearing capacity, pavement construction, slopes and protection of buried concrete.

2. FIELDWORKS

2.1 General

The geotechnical investigations were carried out during May 2022 and comprised the following:

- Cable percussive boreholes (9 No.)
- Trial pits (7 No.)
- Plate load tests (15 No.)
- Groundwater & Gas monitoring
- Surveying of exploratory hole locations

2.2 Cable Percussive Boreholes

Cable percussive boring (200mm diameter) was undertaken at nine locations using a Dando 2000 rig. The boreholes are denoted BH01 to BH09 and extended to depths ranging from 2.2 to 10.0m. Boring commenced after scanning (CAT & Jenny) to verify the presence or absence of service ducts. Disturbed bulk samples were recovered at 1m intervals or change of strata during boring and these are denoted 'B' on the engineering logs. Undisturbed samples (U100's) were attempted but proved largely unsuccessful due to the prevalence of gravel and cobble clasts within the matrix.

Standard Penetration Tests (SPT's) were performed in the boreholes and given the nature of the soils, a solid cone was used. It is noted that the SPT N-Values reported are the number of blows for 300mm increment penetration (e.g. BH01 at 1.0m where N=19). These exclude the seating blow values, which represent the initial 150mm depth of penetration. Where partial penetration was achieved during testing, the number of blows is shown for the actual penetration depth achieved (e.g. BH1 at 5.0m where N=50/150mm). In accordance with Eurocode 7, the SPT hammer has been calibrated and the energy ratio (Er) is 71.,5%. It is highlighted that the SPT N-Values reported on the engineering logs are uncorrected for energy ratio.

Combined groundwater and gas monitoring standpipes were installed in three of the nine boreholes i.e. (BH 3 8 and 9 and included 50mm diameter plain and slotted sections with pea gravel response zones and cement / bentonite pellet seals. Upright protective headwork covers were concreted in place. Descriptions of the soils encountered, in-situ tests undertaken and samples recovered are presented on the borehole records in Appendix 1. Details of groundwater strikes and hard strata boring (i.e. chiselling) are also presented on the aforementioned records.

2.3 Trial Pits

Trial pitting was carried out using a 13T tracked excavator. The trial pits were logged and sampled by an IGSL engineering geologist in accordance with BS 5930 (2015) and EN 14688-1:2017. Bulk disturbed samples (typically 20 to 25 kg) were taken as the pits progressed. The bulk samples were placed in heavy-duty polyethylene bags and sealed before being transported to Naas for laboratory testing.

The trial pits were backfilled with the as-dug arisings and reinstated to the satisfaction of IGSL's site representative. The trial pit logs and photos are presented in Appendix 2 and include descriptions of the soils encountered, groundwater conditions and stability of the pit sidewalls.

2.4 Plate Load Tests

Fifteen plate load tests were conducted on existing ground level. The plate testing was undertaken to evaluate the modulus of sub-grade reaction (Ks) and derive equivalent CBR values in accordance with HD26-26/10. A 450mm diameter plate was used for the tests with kentledge provided by a 7t excavator. Two load cycle tests were performed and the load / settlement plots, Ks and equivalent CBR values are presented in Appendix 3.

2.5 Groundwater Monitoring

Standpipes were installed in three cable percussive boreholes and groundwater measurements are presented in Appendix 4.

2.6 Gas Monitoring

Following installation of the standpipes gas taps were fitted. This enabled gas monitoring to be conducted. Gas level measurements, were taken in accordance with CIRIA C665:2007 using a calibrated GA5000 gas monitor. The results are presented in Appendix 4. The flow rate measurements recorded by the GA5000 were logged after the initial gas quantification readings were taken. The unit does not allow for simultaneous monitoring of gas quantities and gas flow.

2.7 Surveying of Exploratory Hole Locations

Following completion of the exploratory works, surveying was carried out using GPS techniques. Co-ordinates (x, y) were measured to Irish National Grid and ground levels (z) established to Malin Head. The co-ordinates and ground levels are shown on the exploratory hole logs with the approximate locations plotted on the exploratory hole plan in Appendix 8.

SPT Hammer Calibration Certificate for Dando rig used on project

EQUIPE GROUP

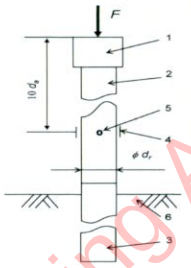
SPT Calibration Report

Hammer Energy Measurement Report

Type of Hammer	Terrier
Test No	2022_110
Client	IGSL
Test Depth (m)	9.60
Mass of hammer	m = 63.5kg
Falling height	h = 0.76m
E_{theor} =	$m \times g \times h$ = 473J

Characteristics of the instrumented rod

Diameter	d_r = 0.052 m
Length of instrumented rod	0.558 m
Area	A = 11.61 cm²
Modulus	E_a = 206843 MPa



Key
1 Anvil
2 Part of instrumented rod
3 Drive Rod
4 Strain Gauge
5 Accelerometer
6 Ground
F Force
d_r Diameter of rod

Fig. B.1 and B.2
BS EN ISO 22476-3 : 2005 + A1 : 2011

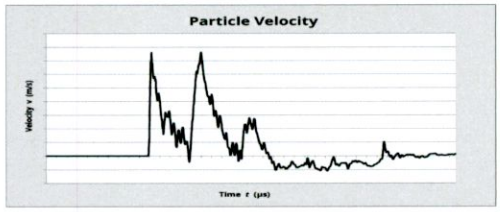
DATE OF TEST	VALID UNTIL	HAMMER ID
21/02/2022	21/02/2023	TMA1713

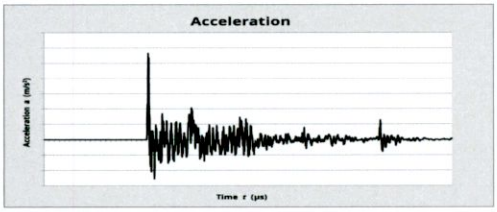
E_{meas} = **0.339** kN-m

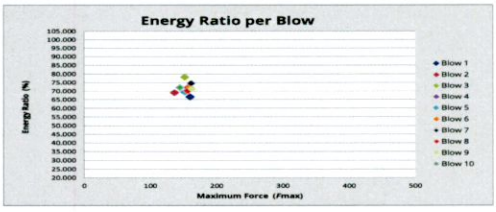
E_{theor} = **0.473** kN-m

Comments

Energy Ratio (Er) = E_{meas} / E_{theor} **71.59%**







Equipe SPT Analyzer Operator	Certificate prepared by	Certificate checked by	Certificate date
JL			01/03/2022

3. LABORATORY TESTING

Geotechnical laboratory testing was carried out on selected trial pit and cable percussive borehole samples. The testing included moisture content, Atterberg Limits (Liquid / Plastic Limits), sieve analysis (PSD) and California Bearing Ratio (CBR).

Chemical analysis (sulphuur & sulphate to EN 1744 methods) and simplified petrography was conducted on granular fill samples retrieved from the trial pits and the findings are presented in Appendix 7. Chemical analysis was also undertaken on selected samples to measure sulphur, sulphate, magnesium, ammonium, sulphur and chloride (BRE SD-1 Suite). Environmental analysis (WAC) was conducted on selected samples. The laboratory test records are enclosed in Appendices 5, 6 and 7 respectively.

4. GROUND CONDITIONS, GROUNDWATER & GROUD GASES

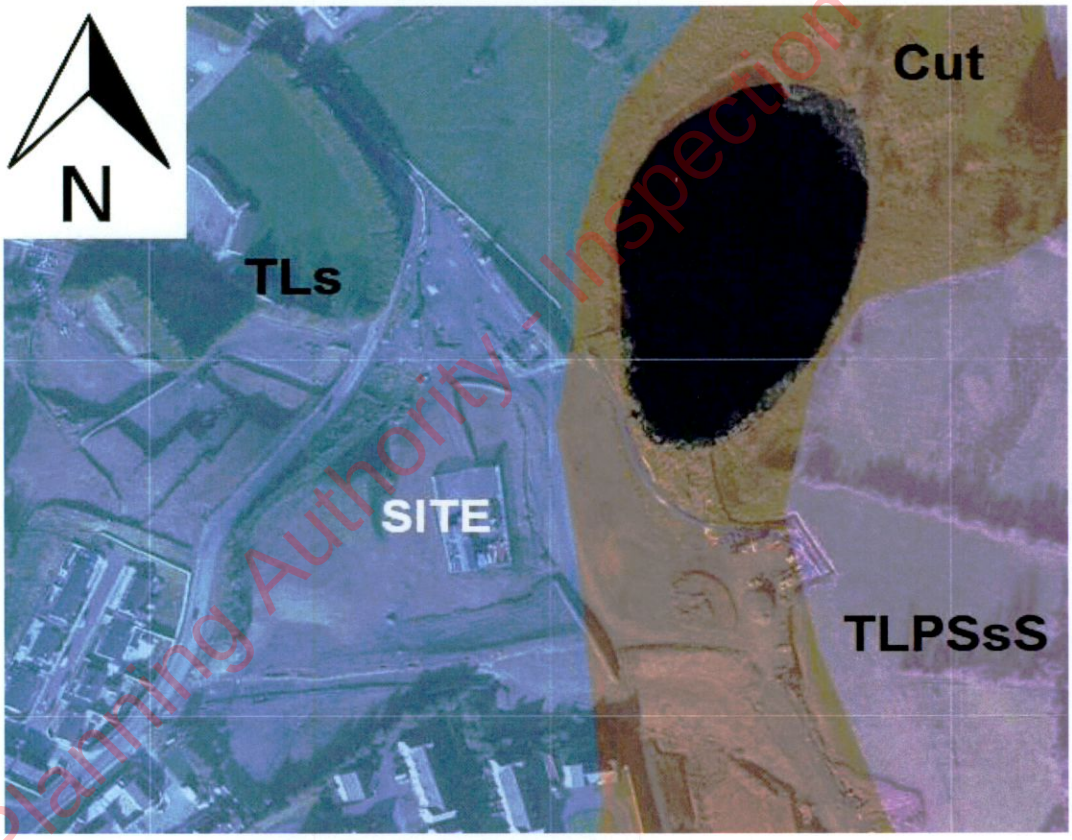
4.1 Ground Profile

The ground profile at the site can be categorized as follows:

- Made GROUND comprising grey crushed rock
- MADE GROUND comprising re-worked brown and grey brown sandy gravelly clay with low / medium cobble content
- Brown and dark grey, sandy gravelly CLAY with low and medium cobble content

The quaternary map for the area (site) is shown in Figure 2. The quaternary deposits consist of limestone derived glacial till (TLs). The brown shaded area denotes raised peat. It is understood that earthworks were undertaken at the site in recent years and involved removal of the peat and build up with glacial till material from higher ground areas within the site. Peat was not encountered in any of the cable percussive boreholes or trial pits.

Figure 2 – Quaternary Geology Map for the Area



4.2 Superficial Deposits

Anthropogenic Materials (Made Ground)

A layer of crushed rock granular fill was encountered in the trial pits and cable percussive boreholes extends to depths of 0.5 to 0.9m. This consists of grey limestone and siltstone and has a particle size distribution or grading comparable to sub-base (CL 804 / 808) or T1 Struc hardcore (100% passing the 37.5mm sieve).

Figure 2 – Images Showing Crushed Rock Granular Fill in Trial Pits

TP 1 (GL to 0.8m) **TP 7 (GL to 0.5m)**

A number of the trial pits and boreholes encountered re-worked brown and grey brown sandy gravelly clay with low and medium cobble content. It is understood that the material was placed and compacted in a systematic manner (i.e. engineered fill as opposed to dozed out in layers without compaction).

The re-worked material was found to be most extensive in BH's 6 and 9 where it was present to depths of 4.8 and 6.0m. In the case of the trial pits it was most notable in TP's 5, 6 and 7 where it was proven to a depths of at least 3.1m (TP 7). In strength terms, the re-worked till is largely firm and stiff in consistency.

Indigenous Glacial Soils

Underlying the made ground are glacially derived soils referred to as glacial till. The till comprises heavily over-consolidated grey brown and dark grey, sandy gravelly CLAY with low and medium cobble content. A series of index or classification tests were carried out on borehole and trial pit samples and results are presented in Appendix 5.

Moisture contents are somewhat variable with the majority in the 8 to 11% envelope. The particle size distributions show the glacial soils to be well graded with typical 'straight-line' type profiles (refer to Figure 5). Fines contents (<425micron) are largely between 35 and 46%. The Atterberg Limits show the fine grained soils to be largely low plasticity (CL) CLAY with a small number of samples classed as intermediate plasticity CLAY.

Figure 4 – Atterberg Limit Plot

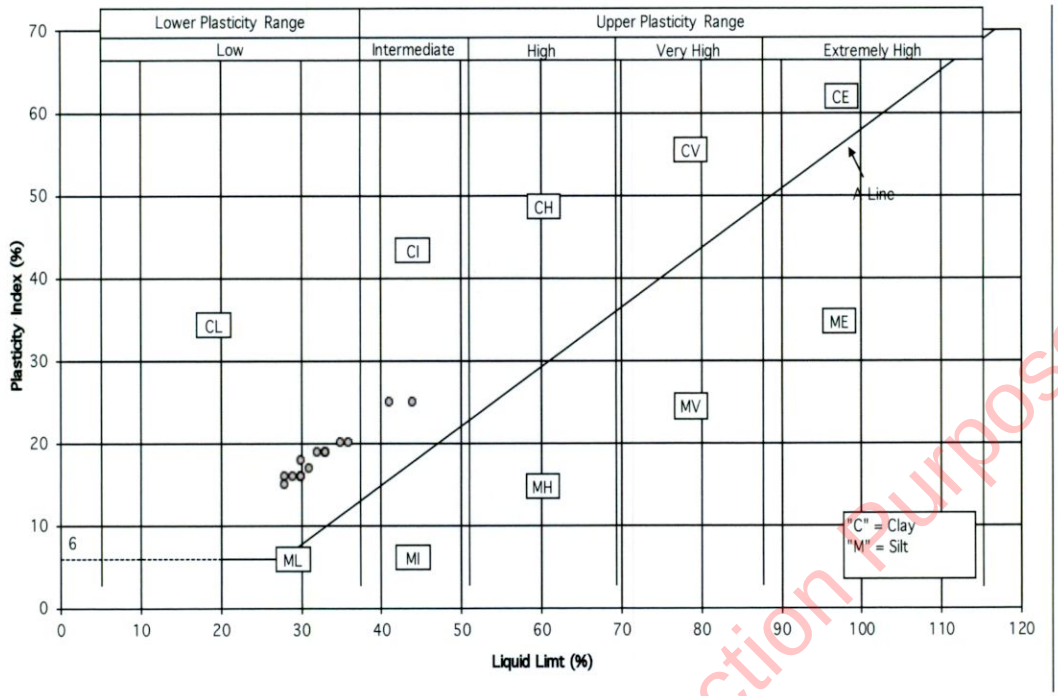
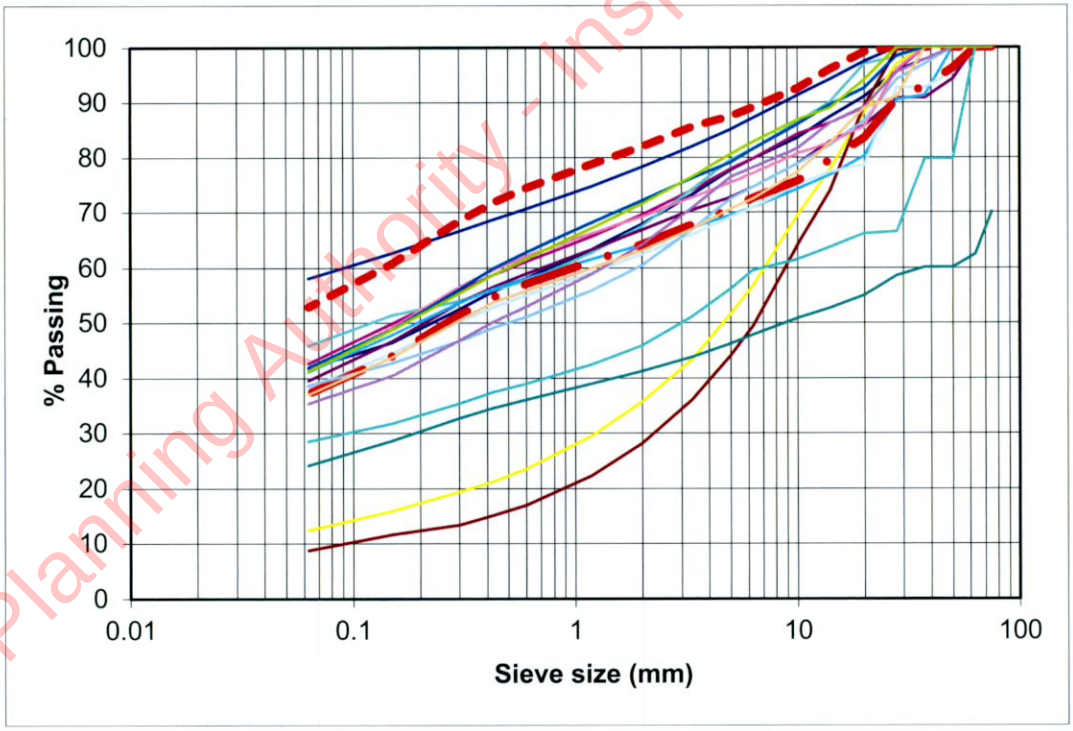


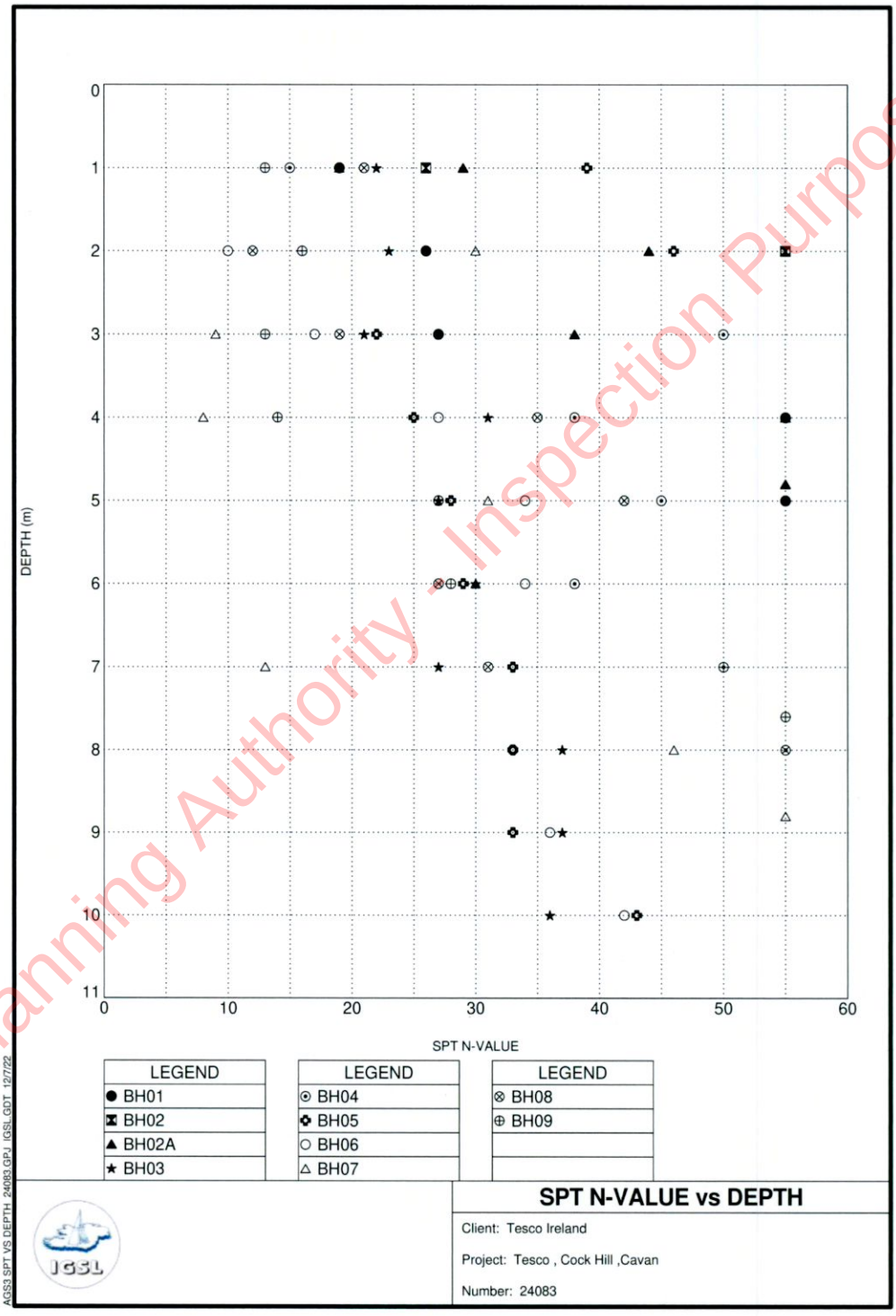
Figure 5 – Particle Size Distribution Envelope



Standard Penetration Tests (SPT's) were conducted in the cable percussive boreholes to establish stiffness or shear strength. An SPT data plot is presented in Figure 6. The shear strength can be estimated using the Stroud & Butler correlation between SPT N-Value and undrained shear strength where Cu ≈ 4 to 6N. The N-Values in the MADE GROUND typically range from 13 to 21 and class the material as upperbound medium strength (40 -75 kN/m^2) as defined in Table 6 of EN 14688-2:2017. The upper indigenous glacial soils are classed as firm / stiff and stiff (high strength 75 to 150

kN/m^2). The SPT's show an increase in strength with depth, (from c4m) with a number of N-Values +40 (very high strength 150 – 300 kN/m^2). As noted in Section 2, due to the prevalence of gravel and cobble clasts few undisturbed samples were recovered in the superficial deposits. In cases where U100 samples were recovered (BH 7 at 3.0m) the material upon extrusion proved unsuitable for testing as it failed to retain its cylindrical shape.

Figure 6 – SPT Data Plot (N-Values v Depth) for All Boreholes



4.3 Groundwater

With the exception of TP 3 and TP 7, groundwater strikes or seepages were not encountered during trial pit excavation. In the case of the boreholes, groundwater was intercepted at depths ranging from 0.3 to 8.20m. The groundwater levels in the standpipes are summarized in Table 1. This shows groundwater levels ranged from 72.99 to 83.84m OD in June 2022.

Table 1 – Summary Details of Groundwater Levels in Borehole Standpipes

BH	Ground Elevation (m OD)	Groundwater during boring	Groundwater level (29.6.2022)
BH 3	85.08	No strike (dry)	1.24 (83.84m OD)
BH 8	79.95	8.20m (rapid inflow), stood at 7.20m after 20 mins	6.22m (73.73m OD)
BH 9	79.90	7.20m (slow) stood at 6.90m after 20 mins	6.91m (72.99m OD)

4.4 Ground Gases

Gas monitoring was undertaken in the borehole standpipes to measure concentrations of methane, carbon dioxide, oxygen and hydrogen sulphide. A Geotech GA5000 apparatus was used and the readings were conducted by an IGSL engineering geologist. Summary details of the gas concentrations are presented in Table 2. The monitoring works determined methane (CH_4)) concentrations of 0.1% with carbon dioxide (CO_2) concentrations of 0.1 to 0.3%. Hydrogen sulphide (H_2S) was not detected in any of the standpipes

Table 2 – Summary Details of Ground Gas Measurements (Peak Levels During Monitoring)

BH	Reading Date	CH_4 (%)	CO_2 (%)	O_2 (%)	CO (ppm)	H_2S (ppm)
BH 3	29.6.22	0.1	0.1	20.7	0	0
BH 8	29.6.22	0.1	0.1	20.7	0	0
BH 9	29.6.22	0.1	0.3	20.5	2	0

5. GROUND ASSESSMENT & ENGINEERING RECOMMENDATIONS

5.1 General

On foot of the findings from the ground investigations, the following issues are discussed and recommendations provided:

- Bearing capacity
- Floor Slabs
- Pavement construction
- Slopes / batters
- Buried concrete
- Granular fill characteristics

5.2 Bearing Capacity

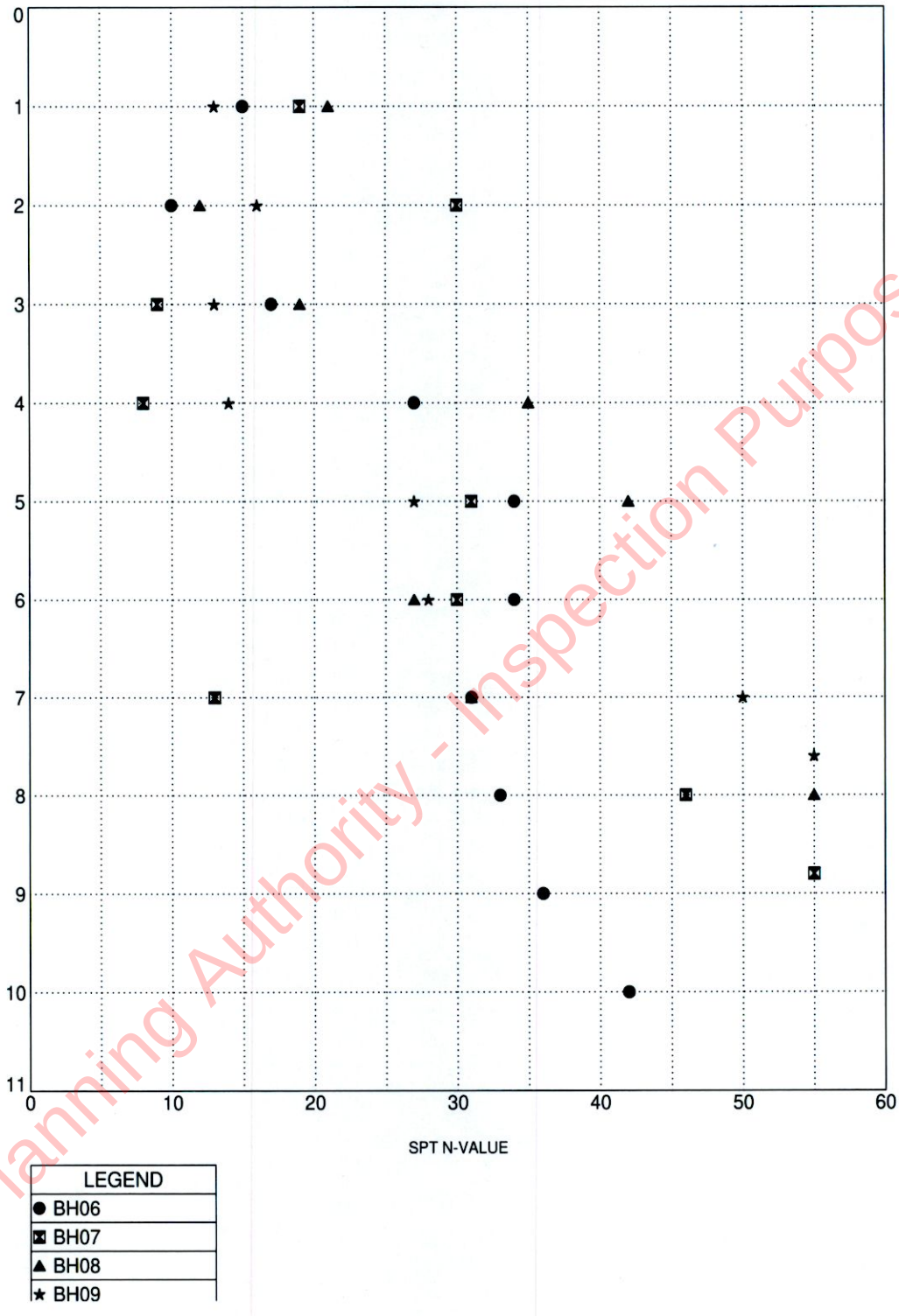
It is understood that a finished floor level (FFL) of 85.15m OD is proposed for the Tesco store and existing ground elevations at the borehole positions range from 84.78 to 85.1m. The ground investigation points at the proposed store building show the indigenous glacial still is stiff and very stiff and therefore classed as high strength in accordance with Table 6 in EN 14688-2:2018.

A safe or allowable bearing pressure of 200 kN/m^2 is recommended for pad or strip footing foundations placed on or located within the stiff and very stiff glacial till (minimum undrained shear strength of 100 kN/m^2). Long term consolidation settlement for such loading magnitude would be expected to be <10 to 15mm.

The granular fill in the boreholes and trial pits mainly extends to depths of 0.5 to 0.9m hence footings and pads should be positioned below this/ Given the low plasticity nature of the glacial till, excavations should be blinded (protected) without delay with lean mix or low-grade concrete. This is important to prevent softening or degradation occurring from surface water run-off.

A number of drive through buildings and a filling station are planned at the east and south-eastern corner of the site. The boreholes at this area (i.e. BH 6, 7, 8 & 9) showed MADE GROUND (re-worked glacial till) present to depths of 0.8 (BH 7) to 6.0m (BH 9). The SPT N-Values for these borehole locations are shown in Figure 7. The data set demonstrates a degree of variation in the strength or stiffness of the re-worked glacial soils with SPT N-Values ranging from 10 to 27 (mean value of 17). Taking a conservative approach, the re-worked glacial till should be capable of providing a safe or allowable bearing capacity of 75 to 100 kN/m^2 The plate load tests conducted at this area (PT 9, 10, 12 & 13) on the granular fill produced CBR values of 9.8 to 55% on Cycle 1 and 23 to 102% on Cycle 2.

Figure 7 – SPT Data Plot for Boreholes 6, 7, 8 & 9



5.3 Floor Slabs

A series of plate load tests were carried out on the existing granular fill at the proposed Tesco store footprint to assess settlement under loading and derive equivalent CBR values. Summary details are summarized in Table 3. Settlements at a loading of 100 kN/m^2 rmostly range from 0.3 to 0.5mm while CBR values vary from 6 to 103% on Cycle 1 (Initial load)) to 34 to 355% on Cycle 2 (re-load).

The test results are very positive and show that a ground bearing floor slab is suitable. Once foundations and groundworks (services etc) are completed, the granular fill (if left in place) should be proof rolled to counteract disturbance. A minimum of 8 roller passes is recommended with a smooth drum roller having a mass per metre width of roll not less than 5400kg. Plate load tests should be carried out post compaction and achieve a minimum CBR value of 30% on the re-load cycle.

Table 3 – Summary Details of Plate Load Tests at Store Area (on existing granular fill)

Plate Test Location	Ground Elevation (m OD)	Settlements at Loading of 100 kN/m^2	CBR Cycle 1 (%)	CBR Cycle 2 (%)
PT 1	85.42	3 & 0.7mm	6.1	34
PT 2	85.05	0.5 & 0.2mm	103	355
PT 3	83.85	0.3 & 0.3mm	67	209
PT 5	84.49	0.8 & 0.4mm	18	74
PT 6	84.41	0.3 & 0.3mm	66	121

Imported granular fills (T0, T1, T2 Perm) should be tested (independent of the quarry source) to ensure that they meet the physical, durability, chemical and mineralogical characteristics set out in the aforementioned Annex E of SR 21;2014+A1;2016 and Pinnacle specification. Independent testing on samples of the proposed source hardcore is strongly recommended in advance of the material being used on the site (at least 3 weeks before use). As a minimum, particle size grading, chemical analysis and simplified petrology are advised to 'screen' the material and assess compliance with Annex E in SR21;2014+A1;2016.

High quality compaction of hardcore / granular fill beneath ground bearing floor slabs is advised to achieve a dense and well compacted fill and to ensure that settlement is not an issue for a ground bearing floor slab. Layer thickness, number of roller passes and mass per metre and width of roll should meet the guidelines in IS 888:2016. Layer thickness should not exceed 200mm using a smooth drum roller with a mass per metre of roll of not less than 5400 kg. Plate load tests should be conducted by an accredited organization (to BS 1377 incremental load method) on T1 hardcore at a frequency of 1 per 400m^2. The formation or sub-grade should be proof rolled (static) to counteract any disturbance from excavation works or stress relief, prior to placing the first layer of T1 hardcore.

5.4 Pavement Construction

Plate load tests were also carried out at the proposed car parking area to the east of the proposed Tesco building. Summary details of the test findings are shown in Table 4. The CBR values for Cycle 1 range from 14 to 55% and increase noticeably during Cycle 2 (32 to 102%). Laboratory CBR tests were performed on samples of the re-worked glacial till material recovered rom TP 5 and TP 7. The materials were re-compacted at their as-received moisture contents (i.e. 10 & 11%) and produced CBR values of 12.5 and 6.4% (mean of top and bottom values).

The proposed car park levels are unknown so it is uncertain whether the in-situ granular fill may need to be removed (cut areas) or if additional Class 6F capping or Series 800 unbound granular fill or sub-base (CL 804 / 808) will be required to build up to underside of base course bituminous layer. Plate load tests on the formation or sub-grade should be considered during construction to

validate the strength or stiffness of the sub-grade. Based on the laboratory test data a CBR value of 5% would not be unreasonable for determining pavement thickness make-up (capping and sub-base).

Table 4 – Summary Details of Plate Load Tests at Car Park Area

Plate Test Location	Ground Elevation (m OD)	CBR Cycle 1 (%)	CBR Cycle 2 (%)
PT 4	84.79	28	66
PT 7	83.86	28	69
PT 8	83.77	25	42
PT 9	83.10	14	25
PT 10	83.68	55	102
PT 11	83.60	15	32
PT 15	82.01	17	20

5.5 Slopes & Ground Retention

A slope angle of 1V to 2H (26°) is recommended for long term cut slopes or batters formed within the firm / stiff glacial till soils. For temporary slopes a batter of 1V to 1.5H (33°) should be feasible in the stiff to very stiff glacial till, however onsideration should be given to the potential for perched water to be present within the made ground or at the interface with the re-worked material.

For confined excavation works (e.g. service trenches etc), both the re-worked soils and indigenous glacial till soils will be susceptible to instability (i.e. sidewall collapse and spalling), therefore ground support measures (e.g. trench box) are advised to ensure safe excavation works. Site operatives or personnel should not enter unsupported excavations and should be informed of the potential risks. Where site operatives or engineering staff work in close proximity to temporary slopes or batters, these should be inspected daily by a suitably experienced geotechnical engineer or engineering geologist.

In relation to retaining walls and ground retention, an angle of shearing resistence or friction (∅ of 34° is recommended for determining (calculating) sliding of retaining walls or pads constructed on the re-worked and indigenous glacial til. Large shear box tests on this type of materiál generally produce ∅ values of 36 to 38° but the effects of water (softening) should be considered in design against sliding. Where reinforced concrete retaining walls are selected these should be founded on firm / stiff soils (CBR value of at least 4% or existing granular fill where appropriate.

5.6 Buried Concrete

Chemical analysis tests ((BRE SD1) were performed on selected soil samples. The tests show pH values of 9.6 to 12 with water soluble sulphate (SO_4) contents 0.16 to 1.2 g/l. Total sulphur (TS) contents ranged from 0.36 to 0.86% while acid soluble sulphate (AS) contents varied from 0.032 to 0.33%. The Total Potential Sulphate contents can be calculated (3 x TS%) and from this the Oxidisible Sulphide (OS) content can be determined (TPS – AS). The equivalent pyrite (% FeS_2) contents can also be estimated (OS x 0.623%). Summary details of the chemical results and derived values for the glacial till samples are presented in Table 5.

Table 5 – Summary Details of Chemical Analysis Tests on Glacial Soils

Sample Location	Sample Depth (m)	Total Sulphur (%)	Acid Soluble Sulphate (%)	Water Soluble Sulphate (g/l)	Total Potential Sulphate (%)	Oxidisible Sulphide (% SO_4)	Equivalent Pyrite Content (%)
BH 1	1.0	0.53	0.33	1/2	1.59	1.26	0.78
BH 5	1.0	0.36	0.075	0.16	1.08	0.92	0.57
BH 6	1.0	0.57	0.19	0.48	1.71	1.23	0.76
BH 7	1.0	0.61	0.048	0.29	1.83	1.78	1.10
BH 9	2.0	0.86	0.043	0.22	2.58	2.53	1.57

On the basis of the samples tested, the material falls into Design Sulphate Classes DS-4 and DS-5. The tests show that anoxic sulphide and sulphur is present in the glacial soils and given the equivalent pyrite contents it would be prudent to allow for Design Sulphate Class DS-5 for buried concrete. ACEC class A-4S is recommended in accordance with BRE SD1 2005 Concrete in Aggressive Ground.

5.7 Granular Fill (Chemical Analysis & Simplified Petrography)

The crushed rock granular fil material encountered in the trial pits and boreholes was subjected to chemical analysis and simplified petrography. Summary details of the chemical test results are presented in Table 6. The analysis determined total sulphur (TS() contents of 0.27 to 0.45% with acid soluble sulphate (AS) contents of 0.06 to 0.37%. Water soluble sulphate (as SO_4) contents range from 177 to 1250 mg/l. Inspection of the data in Table 6

Table 6 – Summary Details of Chemical Analysis Tests on Granular Fill

Sample Location	Sample Depth (m)	Total Sulphur (%)	Acid Soluble Sulphate (%)	Water Soluble Sulphate (as SO_4 g/l)	Total Potential Sulphate (%)	Oxidisible Sulphide (% SO_4)	Equivalent Pyrite Content (%)
TP 1	0.5	0.27	0.37	1250	0.81	0.44	0.27
TP 3	0.3	0.29	0.06	177	0.87	0.81	0.50
TP 7	0.3	0.45	0.31	995	1.35	1.04	0.65

The simplified petrographic examinations were conducted by an IGSL Professional Geologist in accordance with IS EN 932-2:1999. The aggregate samples consist of dark grey and greenish grey siltstone and argillaceous limestone with fines and coatings. Figure 6 illustrates the unwashed and washed material from TP 3. The rock types or lithologies are fine grained sedimentary rocks and slightly metamorphosed. There was no calcareous mudstone (rock type most associated with pyritic heave) in the samples examined and no evidence of pyrite or sulphide oxidation or reactions (i.e. gypsum crystallization).

The chemical results show that the samples exceed the automatic pass threshold limit of 0.2% for total sulphur (TS) but are below the fail limit of 1%. Two of the three water soluble sulphate (WS) contents exceed the pass threshold limit of 750 mg/l but are below the fail limit of 1500 mg/l. The TS and WS values therefore do not satisfy the pass threshold limits in Test Suite 0 of I.S. 398-1:2017. Given the chemical results and presence of argillaceous limestone, it is advised that the granular fill should not be re-used as hardcore under concrete floor slabs for the new store development. The material could be excavated and stockpiled and re-used as general fill for the project (e.g. build up under pavements, site offices, car parking etc).

Figure 8 – Images Showing Crushed Rock Aggregate Samples (TP 3)

References

1. BS 5930: (2015+A1:2020 Code of Practice for Site Investigation, British Standards Institution (BSI).
2. BS 1377 (1990) Methods of Testing of Soils for Civil Engineering Purposes, BSI.
3. BRE Special Digest SD 1, Concrete in Aggressive Ground, 2005
4. Eurocode 7, Part 2: Ground Investigation & Testing (EN 1997-2:2007)
5. Site Investigation Practice: Assessing BS 5930 (1986), Geological Society Special Publication, No. 2.
6. Standard Recommendation SR21:2014:+A1:2016, NSAI
7. Stroud, M.A & Butler, F.G (1975) 'The SPT and the Engineering properties of Glacial Materials". Proceedings of the Symposium on Engineering Behaviour of Glacial Materials, Birmingham
8. Tomlinson, M.J. Foundation Design & Construction, 7th Ed

Appendix 1

Cable Percussive Borehole Records

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH01**
		SHEET	Sheet 1 of 1
CO-ORDINATES	642,138.84 E 804,778.00 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	85.10	**BOREHOLE DEPTH (m)**	5.00
		DATE COMMENCED	19/05/2022
		DATE COMPLETED	19/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
		BORED BY	P.Thomas
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (comprising dark grey / black clay and gravel fill)		84.20	0.90						
1	Firm dark brown sandy SILT/CLAY with low gravel and medium cobble content		83.60	1.50	AA172991	B	1.00		N = 19 (3, 4, 4, 5, 5, 5)	
2	Stiff and very stiff brown sandy gravelly CLAY with low cobble content				AA172992	B	2.00		N = 26 (3, 5, 6, 6, 7, 7)	
3					AA172993	B	3.00		N = 27 (4, 4, 5, 5, 6, 11)	
4					AA172994	B	4.00		N = 50/225 mm (9, 12, 14, 17, 19)	
5	Obstruction End of Borehole at 5.00 m		80.10	5.00	AA172995	B	5.00		N = 50/150 mm (25, 27, 23)	
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.10	4.30	1	
4.80	5.00	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 24083.GPJ IGSL.GDT 9/6/22

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH02**
		SHEET	Sheet 1 of 1
CO-ORDINATES	642,155.75 E 804,839.90 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	85.13	**BOREHOLE DEPTH (m)**	2.20
		DATE COMMENCED	27/05/2022
		DATE COMPLETED	27/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		BORED BY	P.Thomas
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (comprising dark grey / black clay and gravel fill)		84.73	0.40						
	Stiff brown sandy SILT/CLAY with medium gravel content		84.03	1.10	AA170459	B	1.00		N = 26 (3, 5, 6, 6, 7, 7)	
1	Stiff and very stiff dark brown sandy gravelly CLAY with medium cobble content									
2			82.93	2.20	AA170460	B	2.00		N = 50/150 mm (10, 15, 22, 28)	
	Obstruction End of Borehole at 2.20 m									
3										
4										
5										
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
1.90	2.20	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit was carried out . Obstruction encountered . Moved to 1m BH02A and attempted rebore.

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 24083.GPJ IGSL.GDT 9/6/22

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH02A**
		SHEET	Sheet 1 of 1
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)		**BOREHOLE DEPTH (m)**	4.80
		DATE COMMENCED	27/05/2022
		DATE COMPLETED	27/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		BORED BY	P.Thomas
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (comprising dark grey / black clay and gravel fill)			0.40						
	Stiff brown sandy SILT/CLAY with low gravel content			1.10	AA171907	B	1.00		N = 29 (4, 5, 8, 7, 6, 8)	
1	Stiff and very stiff dark brown very sandy gravelly CLAY with medium cobble content									
2					AA171908	B	2.00		N = 44 (7, 8, 10, 9, 10, 15)	
3					AA170461	B	3.00		N = 38 (7, 9, 8, 9, 9, 12)	
4					AA170462	B	4.00		N = 50/225 mm (10, 14, 15, 18, 17)	
				4.80					N = 50/150 mm (25, 30, 20)	
5	Obstruction End of Borehole at 4.80 m									
6										
7										
8										
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
3.50	4.00	1.5	
4.50	4.80	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 24083.GPJ IGSL.GDT 9/6/22

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH03**
		SHEET	Sheet 1 of 2
CO-ORDINATES	642,176.52 E 804,812.40 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	85.08	**BOREHOLE DEPTH (m)**	10.00
		DATE COMMENCED	18/05/2022
		DATE COMPLETED	19/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		BORED BY	P.Thomas
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (comprising dark grey / black clay and gravel fill)									
			83.98	1.10	AA172981	B	1.00		N = 22 (3, 5, 5, 7, 5, 5)	
1	Stiff brown sandy SILT/CLAY with low gravel content									
					AA172982	B	2.00		N = 23 (2, 4, 7, 4, 6, 6)	
2			82.58	2.50						
	Stiff dark brown/black sandy gravelly CLAY with medium cobble content				Failed	U	2.50			
					AA172983	B	3.00		N = 21 (3, 4, 4, 4, 5, 8)	
3										
					AA172984	B	4.00		N = 31 (4, 6, 6, 8, 8, 9)	
4										
					AA172985	B	5.00		N = 27 (3, 5, 5, 6, 8, 8)	
5										
					AA172986	B	6.00		N = 30 (4, 4, 6, 7, 8, 9)	
6										
					AA172987	B	7.00		N = 27 (4, 5, 6, 6, 7, 8)	
7										
					AA172988	B	8.00		N = 37 (6, 7, 8, 8, 9, 12)	
8										
					AA172989	B	9.00		N = 37 (4, 6, 8, 8, 9, 12)	
9										
			75.08	10.00						

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
8.40	8.80	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
19-05-22	9.70	2.00	9.70	50mm SP

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

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GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH03**
		SHEET	Sheet 2 of 2
CO-ORDINATES	642,176.52 E 804,812.40 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	85.08	**BOREHOLE DEPTH (m)**	10.00
		DATE COMMENCED	18/05/2022
		DATE COMPLETED	19/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
		BORED BY	P.Thomas
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
10					AA172990	B	10.00		N = 36 (4, 5, 7, 8, 10, 11)	
11										
12										
13										
14										
15										
16										
17										
18										
19										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
8.40	8.80	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
19-05-22	9.70	2.00	9.70	50mm SP

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 24083.GPJ IGSL.GDT 9/6/22

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH04**
		SHEET	Sheet 1 of 1
CO-ORDINATES	642,221.45 E 804,762.70 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	84.78	**BOREHOLE DEPTH (m)**	8.00
		DATE COMMENCED	27/05/2022
		DATE COMPLETED	27/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		BORED BY	P.Thomas
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (comprising dark grey / black clay and gravel fill)		83.98	0.80						
1	Stiff brown sandy SILT/CLAY with low gravel content				AA170451	B	1.00		N = 15 (2, 3, 4, 3, 4, 4)	
2					AA170452	B	2.00		N = 15/225 mm (2, 3, 4, 4, 7)	
3	Stiff and very stiff dark brown sandy gravelly CLAY with medium cobble content		81.88	2.90	AA170453	B	3.00		N = 50 (4, 9, 12, 14, 16, 8)	
4					AA170454	B	4.00		N = 38 (5, 7, 8, 8, 10, 12)	
5					AA170455	B	5.00		N = 45 (5, 8, 9, 10, 12, 14)	
6					AA170456	B	6.00		N = 38 (4, 8, 8, 8, 10, 12)	
7					AA170457	B	7.00		N = 50 (6, 9, 10, 15, 15, 10)	
8	Obstruction End of Borehole at 8.00 m		76.78	8.00	AA170458	B	8.00		N = 50/225 mm (8, 11, 14, 16, 20)	
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
3.10	3.50	1	
7.00	7.30	1.25	
7.80	8.00	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
0.30	0.30	0.80	No	20	Moderate

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH05**
		SHEET	Sheet 1 of 2
CO-ORDINATES	642,212.98 E 804,826.50 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	84.82	**BOREHOLE DEPTH (m)**	10.00
		DATE COMMENCED	20/05/2022
		DATE COMPLETED	23/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		BORED BY	P.Thomas
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (comprising dark grey / black clay and gravel fill)		84.12	0.70						
1	Stiff brown sandy SILT/CLAY with some gravel		83.32	1.50	AA177951	B	1.00		N = 39 (5, 9, 10, 10, 9, 10)	
2	Stiff to locally very stiff dark brown sandy gravelly CLAY with some cobbles and boulders				AA177952	B	2.00		N = 46 (3, 12, 14, 16, 8, 8)	
3					AA177953	B	3.00		N = 22 (3, 4, 5, 5, 6, 6)	
4					AA177954	B	4.00		N = 25 (4, 4, 5, 6, 6, 8)	
5					AA177955	B	5.00		N = 28 (3, 5, 6, 6, 7, 9)	
6					AA177956	B	6.00		N = 29 (4, 5, 5, 7, 8, 9)	
7					AA177957	B	7.00		N = 33 (3, 5, 5, 8, 10, 10)	
8					AA177958	B	8.00		N = 33 (4, 4, 6, 7, 9, 11)	
9					AA177959	B	9.00		N = 33 (3, 6, 6, 8, 9, 10)	
			74.82	10.00						

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.10	2.60	1.25	
9.70	10.00	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH05**
		SHEET	Sheet 2 of 2
CO-ORDINATES	642,212.98 E 804,826.50 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	84.82	**BOREHOLE DEPTH (m)**	10.00
		DATE COMMENCED	20/05/2022
		DATE COMPLETED	23/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
		BORED BY	P.Thomas
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
10					AA177960	B	10.00		N = 43 (4, 6, 9, 10, 10, 14)	
11										
12										
13										
14										
15										
16										
17										
18										
19										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
2.10	2.60	1.25	
9.70	10.00	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

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GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH06**
		SHEET	Sheet 1 of 2
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)		**BOREHOLE DEPTH (m)**	10.00
		DATE COMMENCED	23/05/2022
		DATE COMPLETED	24/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		BORED BY	P.Thomas
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (Comprised of black clayey stone fill)			0.90						
1	MADE GROUND (comprising re-worked dark brown sandy SILT/CLAY with low cobble content)			2.10	AA177961	B	1.00		N = 15 (2, 3, 4, 3, 4, 4)	
2	MADE GROUD (comprising re-worked light brown slightly sandy SILT/CLAY with low cobble content)				AA177962	B	2.00		N = 10 (2, 2, 2, 2, 2, 4)	
					Failed	U	2.50			
3					AA177963	B	3.00		N = 17 (2, 3, 3, 4, 5, 5)	
4				4.40	AA177964	B	4.00		N = 27 (3, 5, 6, 5, 8, 8)	
	MADE GROUND (comprising re-worked black very gravelly SILT/CLAY with low to medium cobble content)			4.80						
5	Geotextile Fabric			4.85	AA177965	B	5.00		N = 34 (4, 6, 7, 7, 9, 11)	
	Stiff brown sandy gravelly CLAY with low cobble content									
6					AA177966	B	6.00		N = 34 (3, 6, 6, 7, 9, 12)	
				6.90						
7	Stiff and very stiff dark brown/black sandy gravelly CLAY with medium cobble content				AA177967	B	7.00		N = 31 (4, 5, 7, 7, 7, 10)	
8					AA177968	B	8.00		N = 33 (5, 6, 6, 8, 8, 11)	
9					AA177969	B	9.00		N = 36 (4, 6, 7, 8, 9, 12)	
				10.00						

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.50	4.80	1	
9.50	9.70	1.5	
9.80	10.00	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

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GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH06**
		SHEET	Sheet 2 of 2
CO-ORDINATES		**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)		**BOREHOLE DEPTH (m)**	10.00
		DATE COMMENCED	23/05/2022
		DATE COMPLETED	24/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		BORED BY	P.Thomas
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Samples: Sample Type	Samples: Depth (m)	Samples: Recovery	Field Test Results	Standpipe Details
10					AA177970	B	10.00		N = 42 (5, 7, 9, 9, 10, 14)	
11										
12										
13										
14										
15										
16										
17										
18										
19										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
4.50	4.80	1	
9.50	9.70	1.5	
9.80	10.00	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
					No water strike

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

IGSL BH LOG 24083.GPJ IGSL.GDT 9/6/22

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH07**
		SHEET	Sheet 1 of 1
CO-ORDINATES	642,330.06 E 804,760.50 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	79.94	**BOREHOLE DEPTH (m)**	8.80
		DATE COMMENCED	26/05/2022
		DATE COMPLETED	26/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
		BORED BY	P.Thomas
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (comprising dark grey / black clay and gravel fill)		79.14	0.80						
1	Firm / stiff dark brown/black sandy SILT/CLAY with low cobble content				AA177987	B	1.00		N = 19 (3, 4, 4, 4, 5, 6)	
2					AA177988	B	2.00		N = 30 (3, 5, 6, 8, 8, 8)	
			77.44	2.50						
3	Soft light brown sandy SILT/CLAY with medium gravel and low cobble content				AA177989	B	3.00		N = 9 (3, 3, 3, 2, 2, 2)	
4					AA177990	B	4.00		N = 8 (1, 2, 2, 2, 2, 2)	
			75.34	4.60						
5	Stiff and very stiff dark brown/black sandy gravelly CLAY with medium gravel and cobble content				AA177991	B	5.00		N = 31 (3, 5, 7, 7, 8, 9)	
6					AA177992	B	6.00		N = 30 (4, 4, 5, 7, 7, 11)	
7					AA177993	B	7.00		N = 13 (2, 3, 3, 3, 3, 4)	
8					AA177994	B	8.00		N = 46 (4, 7, 9, 10, 12, 15)	
			71.14	8.80						
9	Obstruction End of Borehole at 8.80 m				AA177995	B	8.80		N = 50/150 mm (25, 29, 21)	

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
8.30	8.50	0.75	
8.60	8.80	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
4.50	4.50	4.70	4.00	20	Slow
8.00	8.00	No	7.30	20	Moderate

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

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GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH08**
		SHEET	Sheet 1 of 1
CO-ORDINATES	642,330.28 E 804,809.50 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	79.95	**BOREHOLE DEPTH (m)**	8.50
		DATE COMMENCED	24/05/2022
		DATE COMPLETED	25/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		BORED BY	P.Thomas
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	Brown sandy SILT/CLAY with occasional cobbles and boulders (Probable re-worked MADE GROUND)		79.65	0.30						
1	Firm / stiff dark brown sandy SILT/CLAY with some gravel and occasional cobbles (Probable Made ground)				AA177979	B	1.00		N = 21 (4, 5, 5, 7, 5, 4)	
2					AA177980	B	2.00		N = 12 (2, 2, 3, 3, 3, 3)	
3			76.45	3.50	AA177981	B	3.00		N = 19 (3, 6, 8, 5, 3, 3)	
4	Stiff to locally very stiff light brown very sandy gravelly CLAY with medium gravel and cobble content				AA177982	B	4.00		N = 35 (2, 2, 4, 9, 10, 12)	
5					AA177983	B	5.00		N = 42 (6, 5, 6, 9, 15, 12)	
6					AA177984	B	6.00		N = 27 (4, 5, 5, 7, 7, 8)	
7					AA177985	B	7.00		N = 31 (5, 5, 6, 7, 9, 9)	
8			71.45	8.50	AA177986	B	8.00		N = 50/225 mm (5, 7, 15, 26, 9)	
9	Obstruction End of Borehole at 8.50 m									

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
0.00	4.30	3	
4.30	4.50	0.75	
5.30	5.60	1.5	
8.30	8.50	1.5	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
8.20	8.20	No	7.20	20	Rapid

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
25-05-22	8.50	1.00	8.50	50mm SP

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend

D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

GEOTECHNICAL BORING RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**BOREHOLE NO.**	**BH09**
		SHEET	Sheet 1 of 1
CO-ORDINATES	642,365.35 E 804,749.50 N	**RIG TYPE**	Dando 2000
		BOREHOLE DIAMETER (mm)	
GROUND LEVEL (mOD)	79.90	**BOREHOLE DEPTH (m)**	7.60
		DATE COMMENCED	24/05/2022
		DATE COMPLETED	24/05/2022
CLIENT	Tesco Ireland	**SPT HAMMER REF. NO.**	
		BORED BY	P.Thomas
ENGINEER	Pinnacle C.E	**ENERGY RATIO (%)**	
		PROCESSED BY	F.C

Depth (m)	Description	Legend	Elevation	Depth (m)	Samples: Ref. Number	Sample Type	Depth (m)	Recovery	Field Test Results	Standpipe Details
0	MADE GROUND (comprising dark grey / black clay and gravel fill)		79.20	0.70						
1	MADE GROUND (comprising re-worked brown sandy SILT/CLAY with medium gravel and cobble content)				AA177971	B	1.00		N = 13 (2, 2, 3, 3, 3, 4)	
2					AA177972	B	2.00		N = 16 (2, 4, 3, 4, 3, 6)	
3					AA177973	B	3.00		N = 13 (3, 3, 3, 3, 3, 4)	
4					AA177974	B	4.00		N = 14 (2, 2, 3, 3, 3, 5)	
5			74.10	5.80	AA177975	B	5.00		N = 27 (3, 5, 6, 6, 7, 8)	
6	MADE GROUND (comprising re-worked black clayey GRAVEL / gravelly CLAY with medium cobble content)		73.90	6.00						
	Geotextile Fabric		73.85	6.05	AA177976	B	6.00		N = 28 (4, 4, 5, 7, 8, 8)	
7	Stiff and very stiff black very gravelly sandy CLAY with low to medium gravel and cobble content				AA177977	B	7.00		N = 50 (4, 6, 8, 15, 15, 12)	
			72.30	7.60						
8	Obstruction End of Borehole at 7.60 m				AA177978	B	7.80		N = 50/75 mm (25, 50)	
9										

HARD STRATA BORING/CHISELLING

From (m)	To (m)	Time (h)	Comments
6.50	7.00	1.5	
7.30	7.60	2	

WATER STRIKE DETAILS

Water Strike	Casing Depth	Sealed At	Rise To	Time (min)	Comments
7.20	7.20	No	6.90	20	Slow

INSTALLATION DETAILS

Date	Tip Depth	RZ Top	RZ Base	Type
24-05-22	7.60	1.00	7.60	50mm SP

GROUNDWATER PROGRESS

Date	Hole Depth	Casing Depth	Depth to Water	Comments

REMARKS CAT scanned location and hand dug inspection pit was carried out .

Sample Legend
D - Small Disturbed (tub)
B - Bulk Disturbed
LB - Large Bulk Disturbed
Env - Environmental Sample (Jar + Vial + Tub)
UT - Undisturbed 100mm Diameter Sample
P - Undisturbed Piston Sample
W - Water Sample

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Appendix 2

Trial Pit Records & Photographs

TRIAL PIT RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**TRIAL PIT NO.**	**TP01**
		SHEET	Sheet 1 of 1
LOGGED BY	S.Cunningham	**CO-ORDINATES**	642,151.21 E 804,816.60 N
		DATE STARTED	25/05/2022
		DATE COMPLETED	25/05/2022
CLIENT	Tesco Ireland	**GROUND LEVEL (m)**	85.05
ENGINEER	Pinnacle C.E	**EXCAVATION METHOD**	13T Tracked Machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 MADE GROUND comprised of grey clayey sandy GRAVEL.					AA178448	B	0.50-0.60		
		0.80	84.25						
Stiff to very stiff dark brown/grey sandy gravelly CLAY with a medium cobble content and abundant boulders.					AA178449	B	1.10-1.20		
1.0									
2.0					AA178450	B	2.50-2.60		
		2.60	82.45						
End of Trial Pit at 2.60m									
3.0									

Groundwater Conditions
Dy

Stability
Stable

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**TRIAL PIT NO.**	**TP02**
		SHEET	Sheet 1 of 1
LOGGED BY	S.Cunningham	**CO-ORDINATES**	642,186.95 E 804,826.60 N
		DATE STARTED	25/05/2022
		DATE COMPLETED	25/05/2022
CLIENT	Tesco Ireland	**GROUND LEVEL (m)**	85.02
ENGINEER	Pinnacle C.E	**EXCAVATION METHOD**	13T Tracked Machine

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	MADE GROUND comprised of grey clayey sandy GRAVEL.									
	Firm light brown mottled grey sandy gravelly CLAY with a medium cobble and occasional boulders.		0.50	84.52		AA178457	B	0.70-0.80		
1.0	Stiff to very stiff grey sandy gravelly CLAY with a low cobble content and occasional boulders.		1.10	83.92						
2.0						AA178458	B	1.80-1.90		
	End of Trial Pit at 2.60m		2.60	82.42						
3.0										

Groundwater Conditions
Dry

Stability
Stable

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**TRIAL PIT NO.**	**TP03**
		SHEET	Sheet 1 of 1
LOGGED BY	S.Cunningham	**CO-ORDINATES**	642,187.48 E 804,774.30 N
		DATE STARTED	25/05/2022
		DATE COMPLETED	25/05/2022
CLIENT	Tesco Ireland	**GROUND LEVEL (m)**	84.91
ENGINEER	Pinnacle C.E	**EXCAVATION METHOD**	13T Tracked Machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 MADE GROUND comprised of grey clayey sandy GRAVEL.					AA178451	B	0.40-0.50		
				(Seepage)					
Firm brown sandy gravelly CLAY with a low cobble content.		0.75	84.16	(Slow)					
1.0 Stiff to very stiff dark brown/grey sandy gravelly CLAY with a low cobble content and abundant boulders.		1.20	83.71		AA178452	B	1.20-1.30		
2.0					AA178453	B	2.10-2.20		
End of Trial Pit at 2.60m		2.50	82.41						
3.0									

Groundwater Conditions
Seepage in made ground.

Stability
Stable

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**TRIAL PIT NO.**	**TP04**
		SHEET	Sheet 1 of 1
LOGGED BY	S.Cunningham	**CO-ORDINATES**	642,223.69 E 804,800.30 N
		DATE STARTED	25/05/2022
		DATE COMPLETED	25/05/2022
CLIENT	Tesco Ireland	**GROUND LEVEL (m)**	84.74
ENGINEER	Pinnacle C.E	**EXCAVATION METHOD**	13T Tracked Machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 MADE GROUND comprised of grey clayey sandy GRAVEL.									
		0.80	83.94		AA178454	B	0.70-0.80		
Stiff to very stiff dark brown/grey sandy gravelly CLAY with a low cobble content and abundant boulders.					AA178455	B	1.00-1.10		
1.0									
2.0					AA178456	B	2.40-2.50		
End of Trial Pit at 2.65m		2.65	82.09						
3.0									

Groundwater Conditions
Dry

Stability
Stable

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**TRIAL PIT NO.**	**TP05**
		SHEET	Sheet 1 of 1
LOGGED BY	S.Cunningham	**CO-ORDINATES**	642,341.23 E 804,735.70 N
		DATE STARTED	25/05/2022
		DATE COMPLETED	25/05/2022
CLIENT	Tesco Ireland	**GROUND LEVEL (m)**	80.36
ENGINEER	Pinnacle C.E	**EXCAVATION METHOD**	13T Tracked Machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 TOPSOIL									
MADE GROUND comprised of dark firm grey/brown sandy gravelly CLAY with a low cobble content and occasional large boulders.		0.25	80.11		AA178464	B	0.60-0.70		
					AA178465	B	1.80-1.90		
MADE GROUND comprised of dark firm 'to stiff grey/brown sandy gravelly CLAY with a low cobble content and occasional large boulders.		2.10	78.26		AA178466	B	2.60-2.70		
End of Trial Pit at 2.80m		2.80	77.56						

1.0

2.0

3.0

Groundwater Conditions
Dry

Stability
Stable

General Remarks

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TRIAL PIT RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**TRIAL PIT NO.**	**TP06**
		SHEET	Sheet 1 of 1
LOGGED BY	S.Cunningham	**CO-ORDINATES**	642,341.22 E 804,735.80 N
		DATE STARTED	25/05/2022
		DATE COMPLETED	25/05/2022
CLIENT	Tesco Ireland	**GROUND LEVEL (m)**	80.36
ENGINEER	Pinnacle C.E	**EXCAVATION METHOD**	13T Tracked Machine

	Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0	MADE GROUND comprised of grey clayey sandy GRAVEL.									
	MADE GROUND comprised of dark brown/dark grey firm sandy gravelly CLAY with a low cobble content and occasional boulders.		0.50	79.86						
1.0						AA178462	B	0.90-1.00		
	MADE GROUND comprised of dark firm 'to stiff grey/brown sandy gravelly CLAY with a low cobble content and occasional large boulders.		1.50	78.86						
2.0						AA178463	B	2.10-2.20		
	End of Trial Pit at 2.60m		2.60	77.76						
3.0										

Groundwater Conditions
Dry

Stability
Stable

General Remarks

TRIAL PIT RECORD

REPORT NUMBER 24083

CONTRACT	Tesco , Cock Hill ,Cavan	**TRIAL PIT NO.**	**TP07**
		SHEET	Sheet 1 of 1
LOGGED BY	S.Cunningham	**CO-ORDINATES**	642,342.14 E 804,738.10 N
		DATE STARTED	25/05/2022
		DATE COMPLETED	25/05/2022
CLIENT	Tesco Ireland	**GROUND LEVEL (m)**	80.32
ENGINEER	Pinnacle C.E	**EXCAVATION METHOD**	13T Tracked Machine

Geotechnical Description	Legend	Depth (m)	Elevation	Water Strike	Samples: Sample Ref	Samples: Type	Samples: Depth	Vane Test (KPa)	Hand Penetrometer (KPa)
0.0 MADE GROUND comprised of grey clayey sandy GRAVEL.					AA178459	B	0.30-0.40		
MADE GROUND comprised of dark firm grey/brown sandy gravelly CLAY with a low cobble content and occasional large boulders.		0.50	79.82	(Seepage)					
1.0					AA178460	B	1.30-1.40		
2.0					AA178461	B	2.60-2.70		
3.0 End of Trial Pit at 3.10m		3.10	77.22						

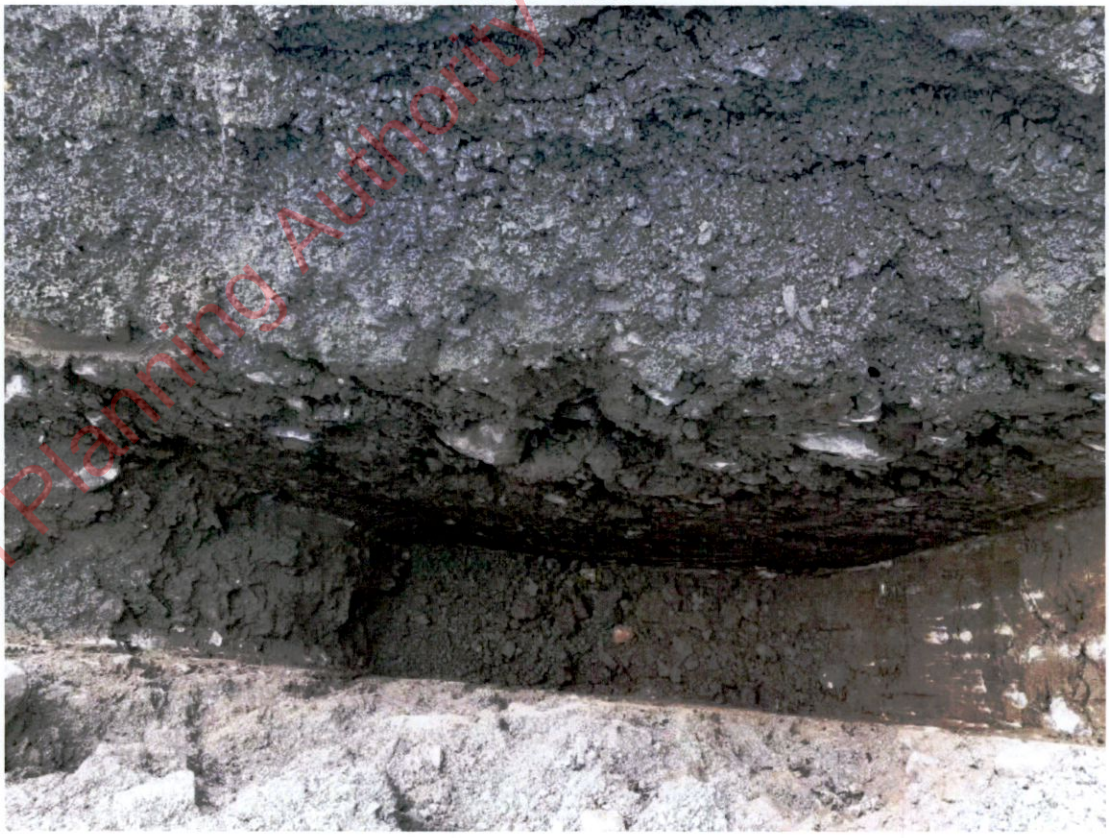
Groundwater Conditions
Seepage at 0.5m

Stability
Stable

General Remarks

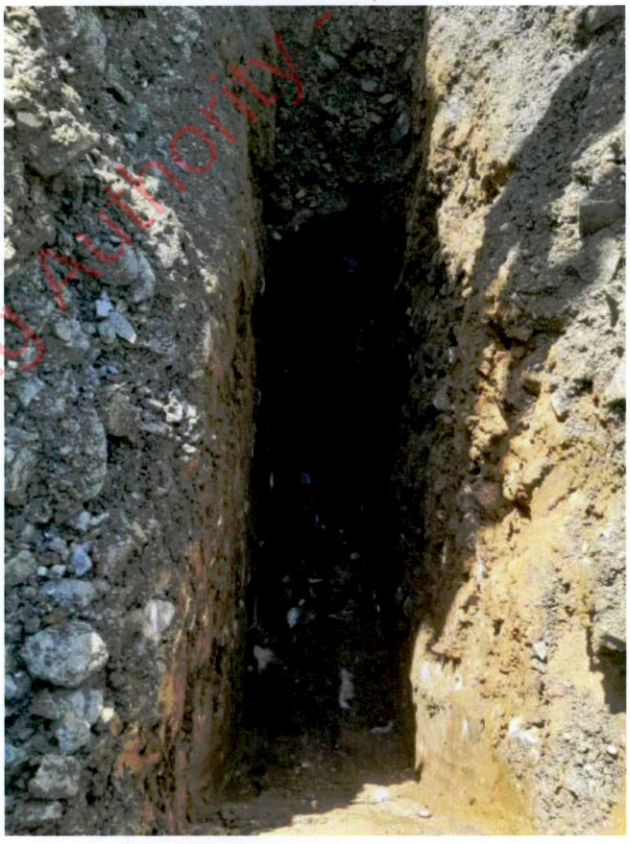
TP01 – 1 of 3

TP01 – 2 of 3



TP01 – 3 of 3

TP02 – 1 of 3



TP02 – 2 of 3

TP02 – 3 of 3

TP03 – 1 of 3

TP03 – 2 of 3

TP03 – 3 of 3

TP04 – 1 of 3

TP04 – 2 of 3

TP04 – 3 of 3

TP05 – 1 of 3

TP05 – 2 of 3

TP05 – 3 of 3

TP06 – 1 of 3

TP06 – 2 of 3

TP06 – 3 of 3

TP07 – 1 of 3

TP07 – 2 of 3

TP07 – 3 of 3

Appendix 3

Plate Load Test Records

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

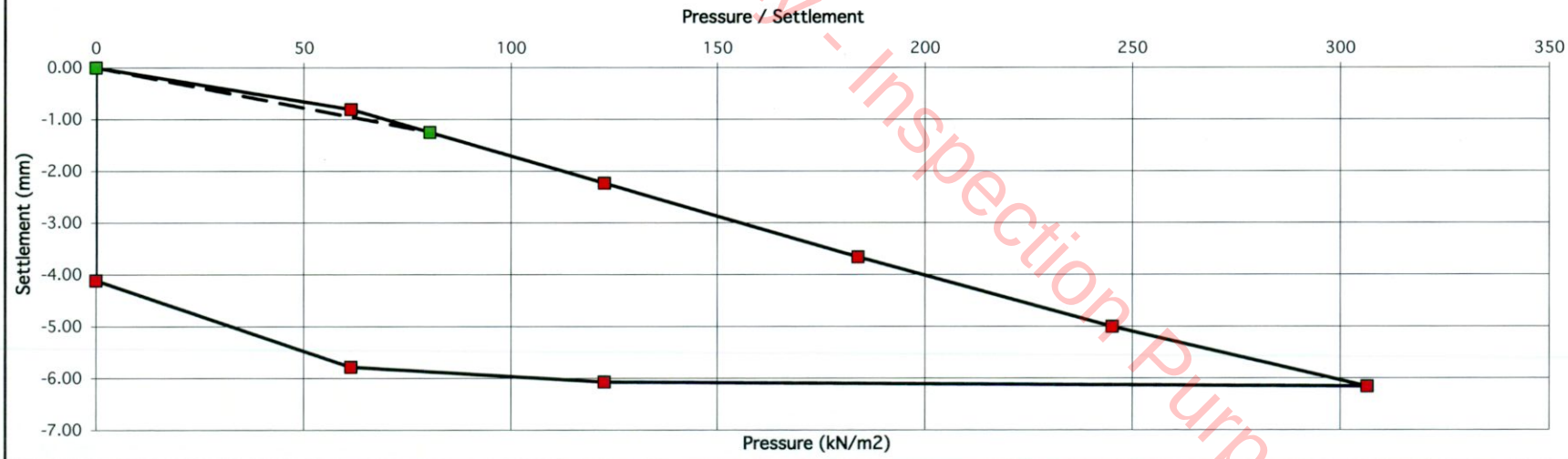
Reference No.	R135121
Contract	24083 - Tesco, Co. Cavan
Test No.	PT01 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 64
Modulus of subgrade reaction = 41 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 6.1 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

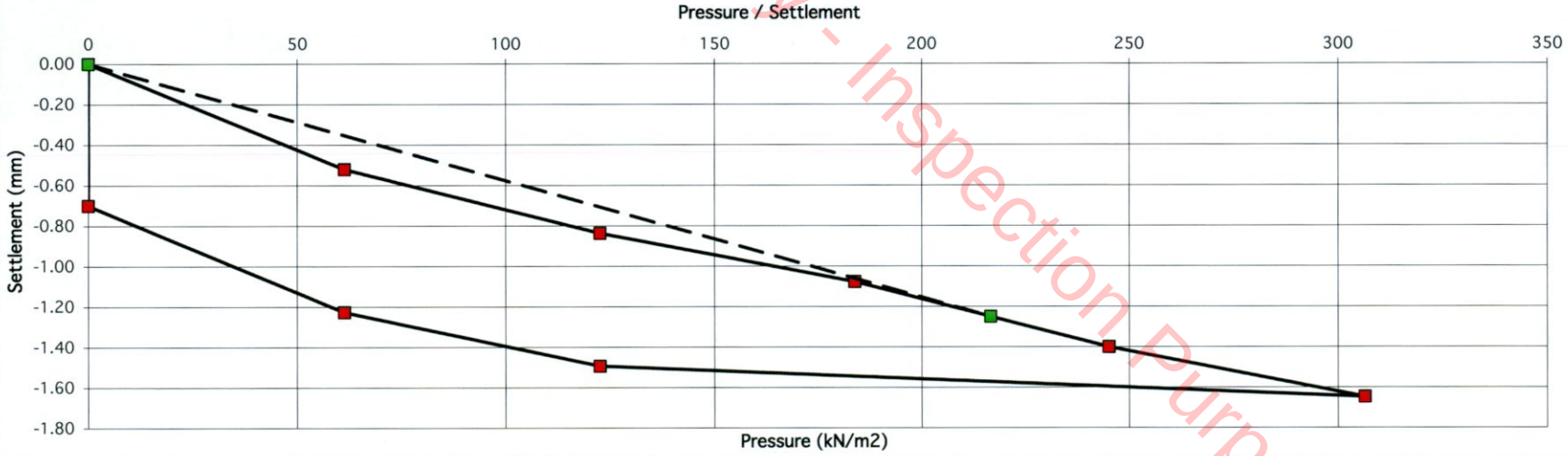
Reference No.	R135121
Contract	24083 - Tesco, Co. Cavan
Test No.	PT01 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 173
Modulus of subgrade reaction = 111 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 34.0 %

PLATE TEST REPORT SHEET (F3.1)

Reference No.	R135122
Contract	24083 - Tesco, Co. Cavan
Test No.	PT02 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

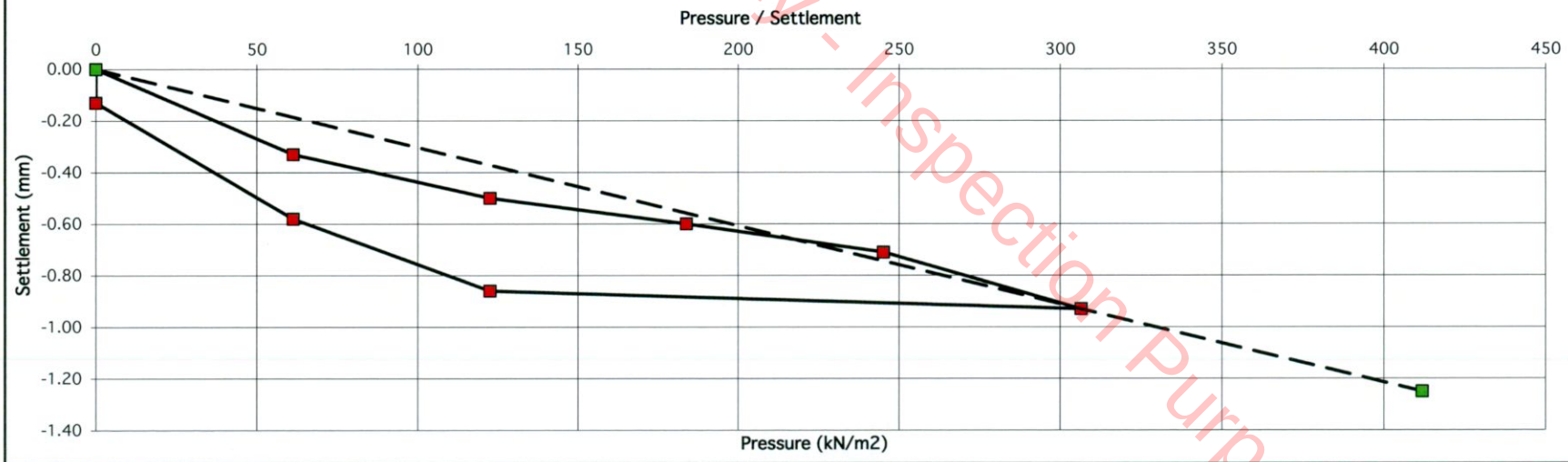
Applied Pressure/Settlement Curve

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 330
Modulus of subgrade reaction = 212 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 103.6 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

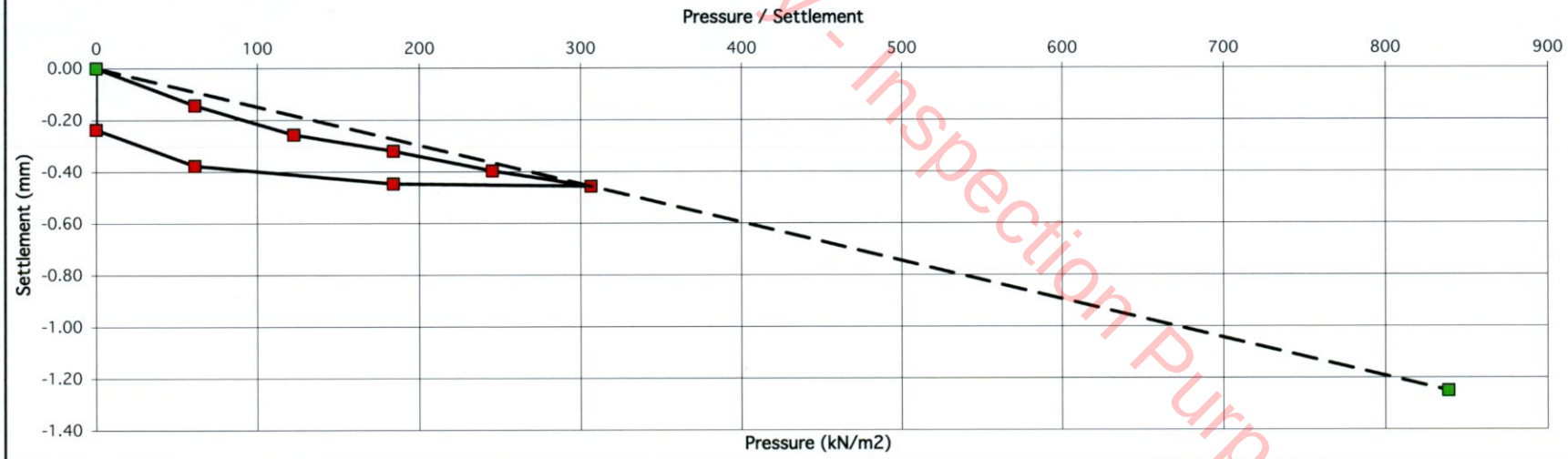
Reference No.	R135122
Contract	24083 - Tesco, Co. Cavan
Test No.	PT02 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 671
Modulus of subgrade reaction = 431 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 355.2 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

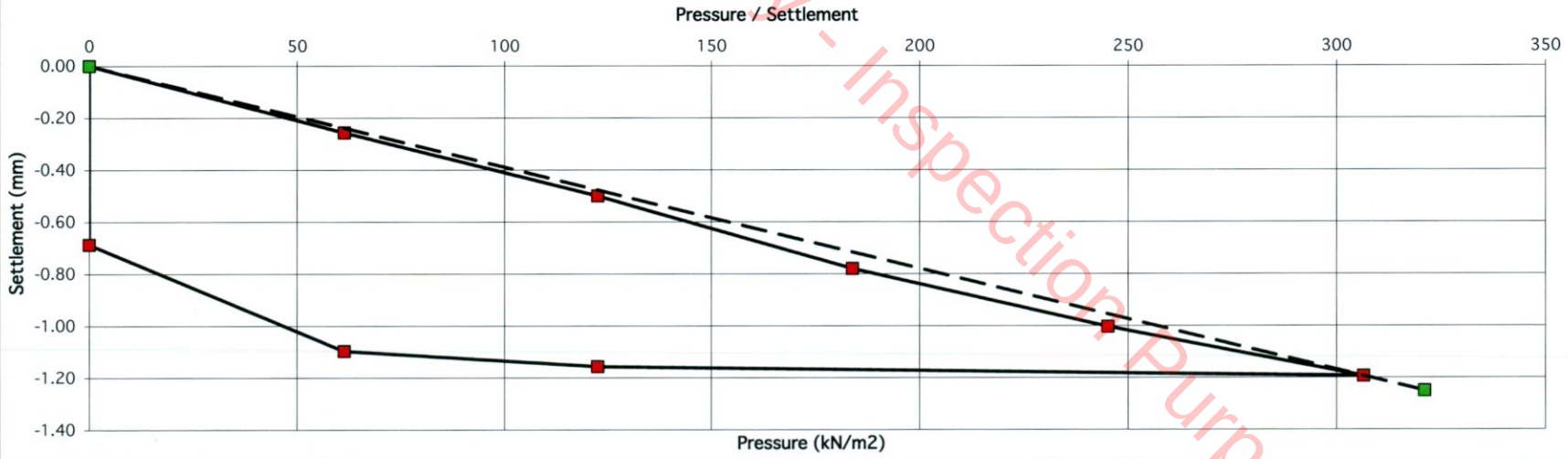
Reference No.	R135123
Contract	24083 - Tesco, Co. Cavan
Test No.	PT03 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 257
Modulus of subgrade reaction = 165 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 67.2 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

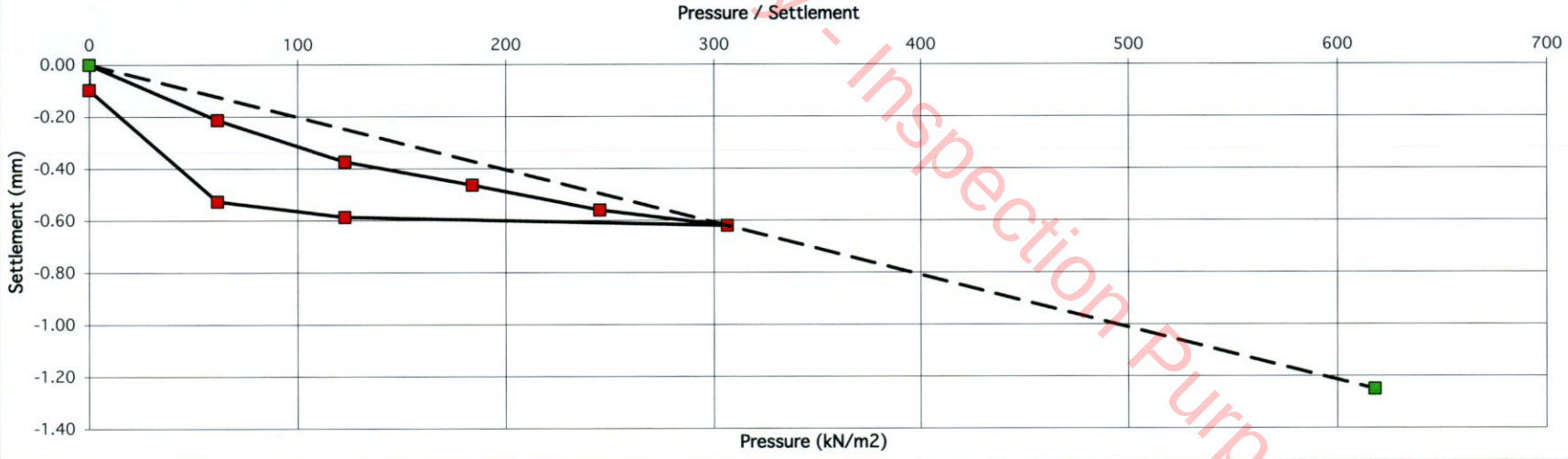
Reference No.	R135123
Contract	24083 - Tesco, Co. Cavan
Test No.	PT03 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 494
Modulus of subgrade reaction = 318 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 209.1 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

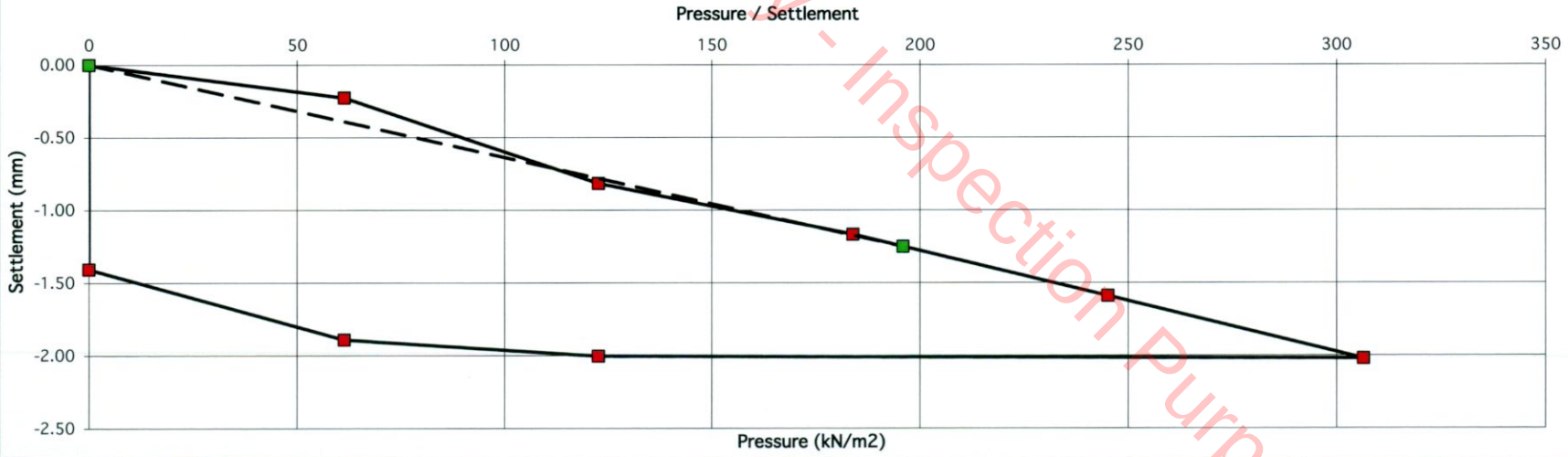
Reference No.	R135124
Contract	24083 - Tesco, Co. Cavan
Test No.	PT04 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 157
Modulus of subgrade reaction = 101 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 28.6 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

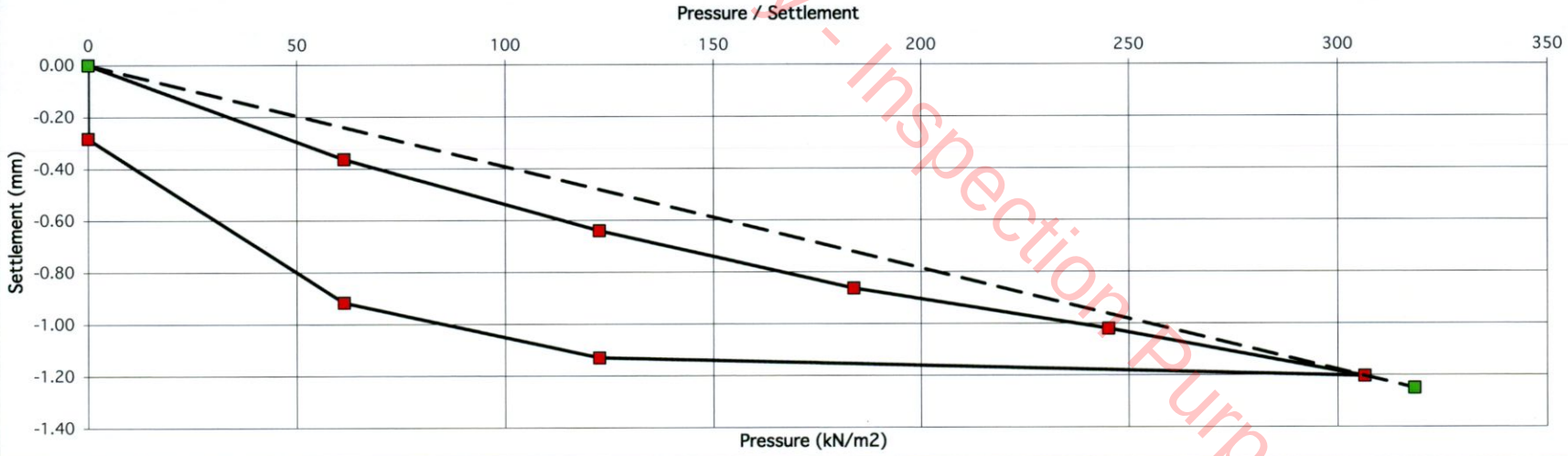
Reference No.	R135124
Contract	24083 - Tesco, Co. Cavan
Test No.	PT04 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 255
Modulus of subgrade reaction = 164 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 66.3 %

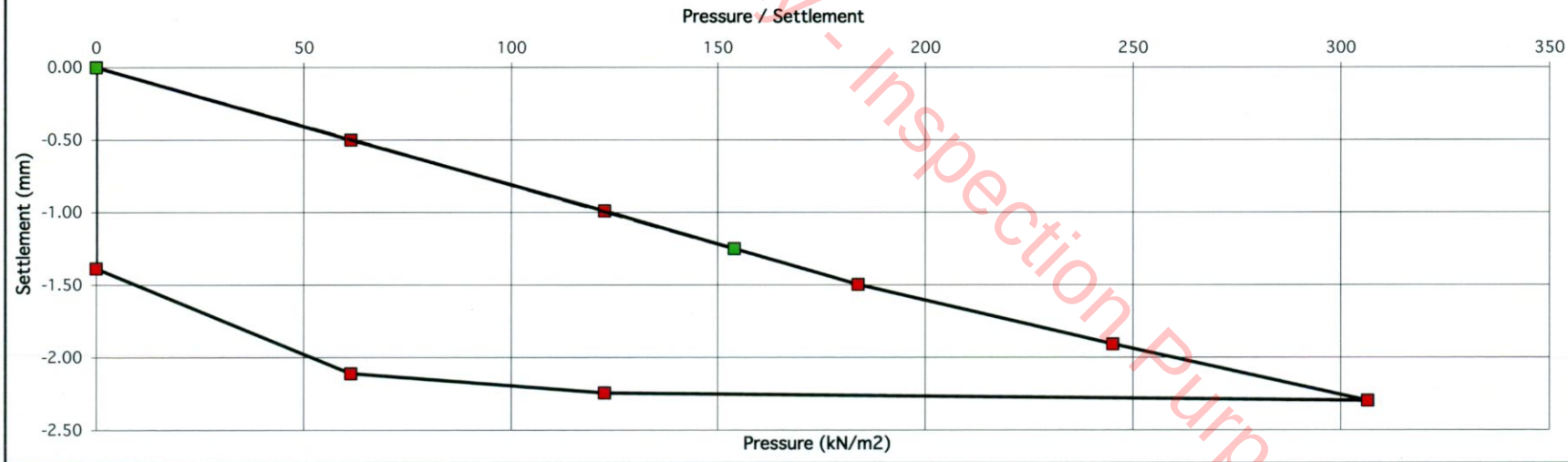
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135125
Contract	24083 - Tesco, Co. Cavan
Test No.	PT05 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 123
Modulus of subgrade reaction = 79 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 18.8 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

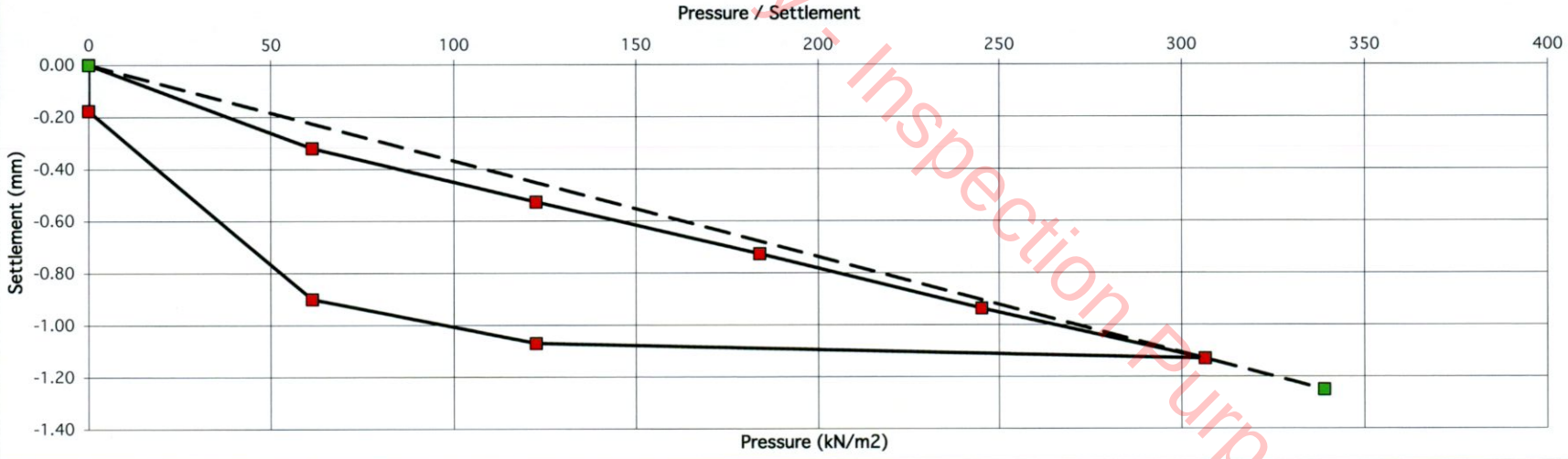
Reference No.	R135125
Contract	24083 - Tesco, Co. Cavan
Test No.	PT05 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 271
Modulus of subgrade reaction = 174 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 73.9 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

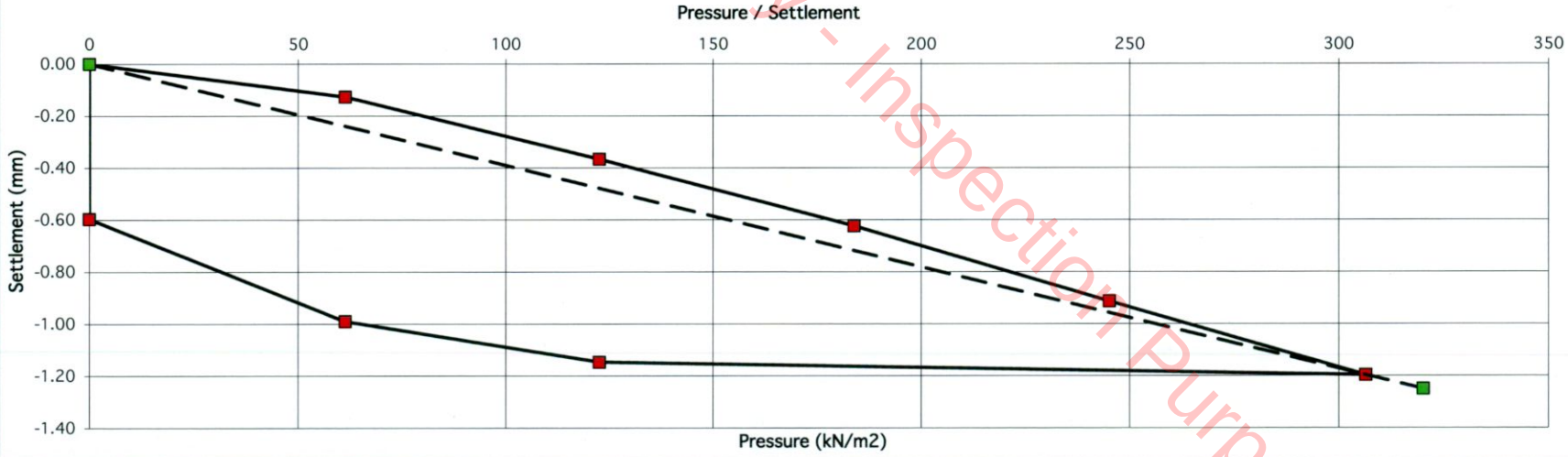
Reference No.	R135126
Contract	24083 - Tesco, Co. Cavan
Test No.	PT06 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 256
Modulus of subgrade reaction = 165 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 66.9 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

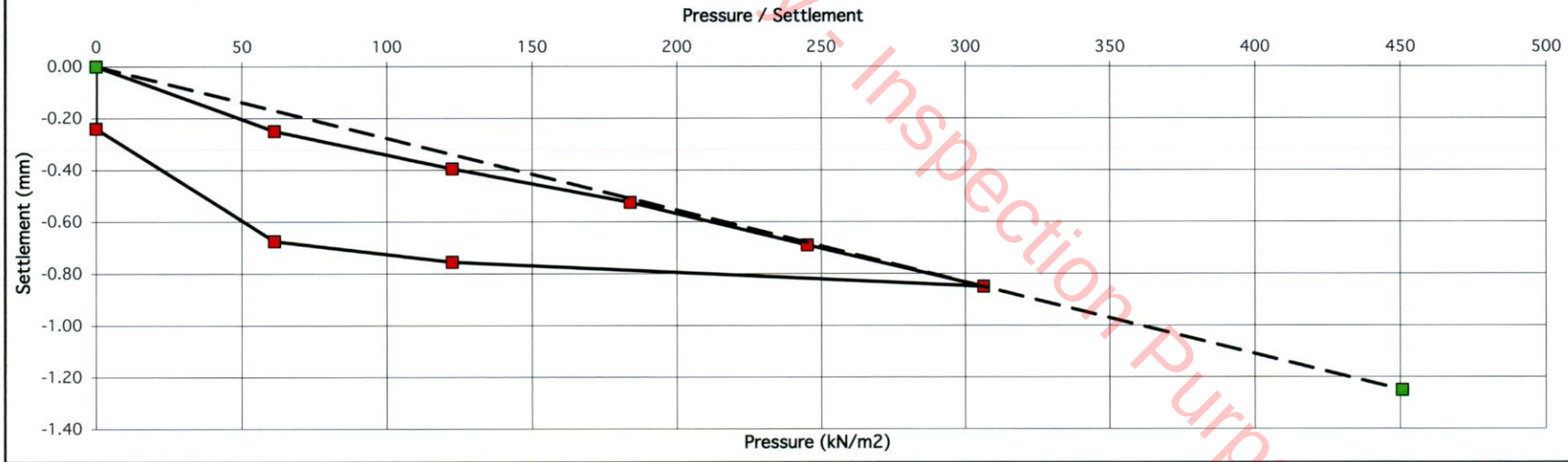
Reference No.	R135126
Contract	24083 - Tesco, Co. Cavan
Test No.	PT06 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 361
Modulus of subgrade reaction = 232 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 121.0 %

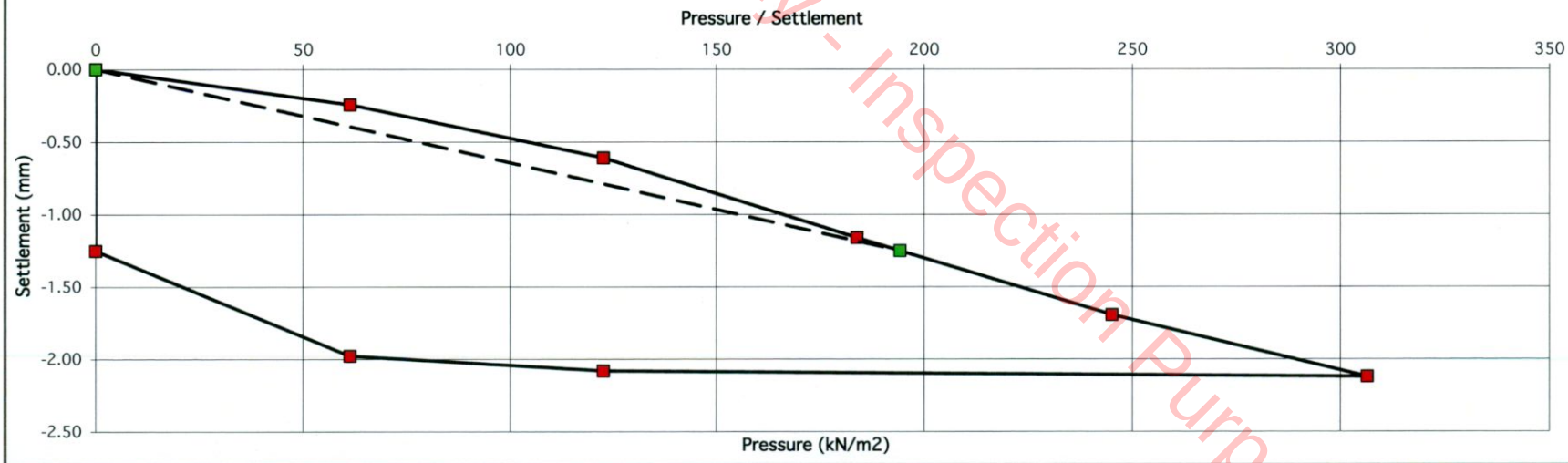
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135127
Contract	24083 - Tesco, Co. Cavan
Test No.	PT07 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 155
Modulus of subgrade reaction = 100 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 28.1 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

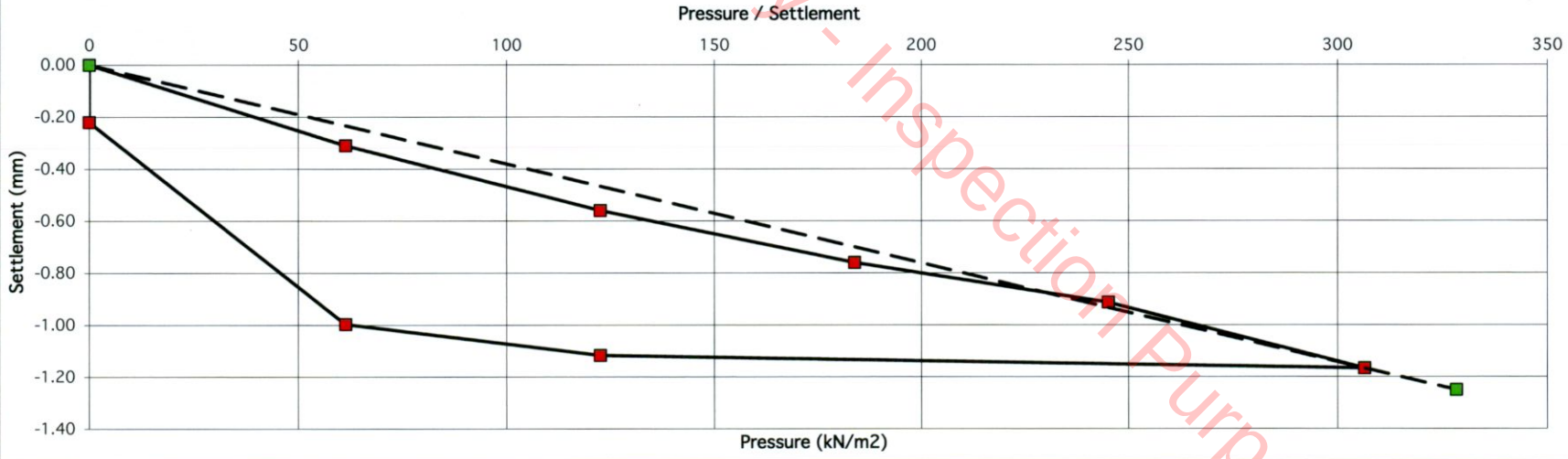
Reference No.	R135127
Contract	24083 - Tesco, Co. Cavan
Test No.	PT07 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 263
Modulus of subgrade reaction = 169 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 69.9 %

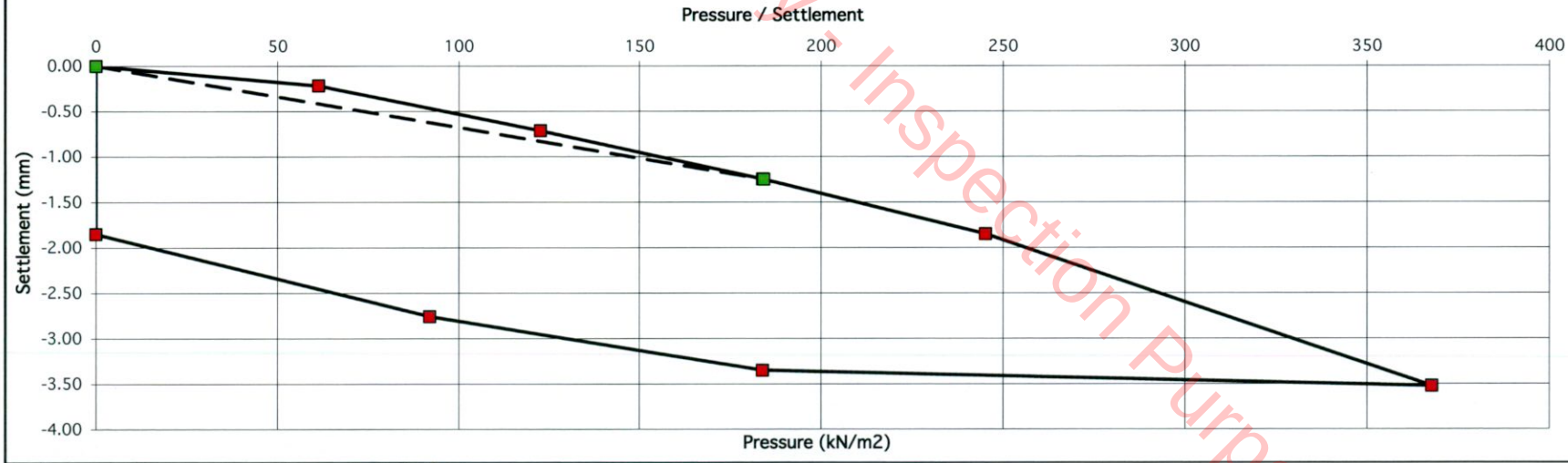
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135128
Contract	24083 - Tesco, Co. Cavan
Test No.	PT08 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 147
Modulus of subgrade reaction = 95 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 25.7 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

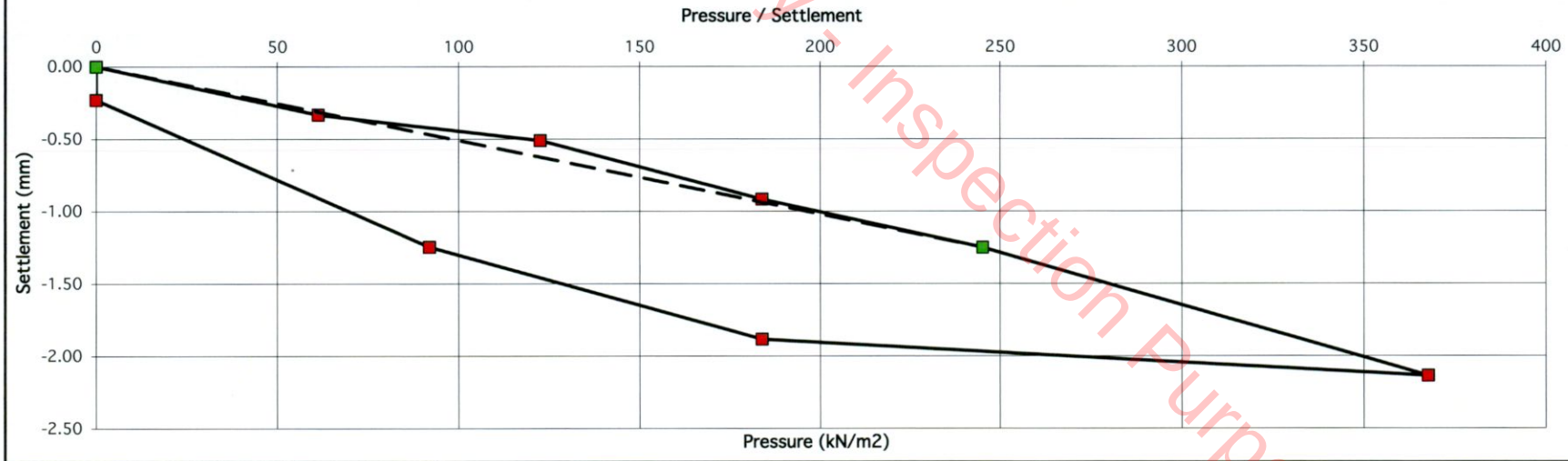
Reference No.	R135128
Contract	24083 - Tesco, Co. Cavan
Test No.	PT08 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 196
Modulus of subgrade reaction = 126 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 42.1 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

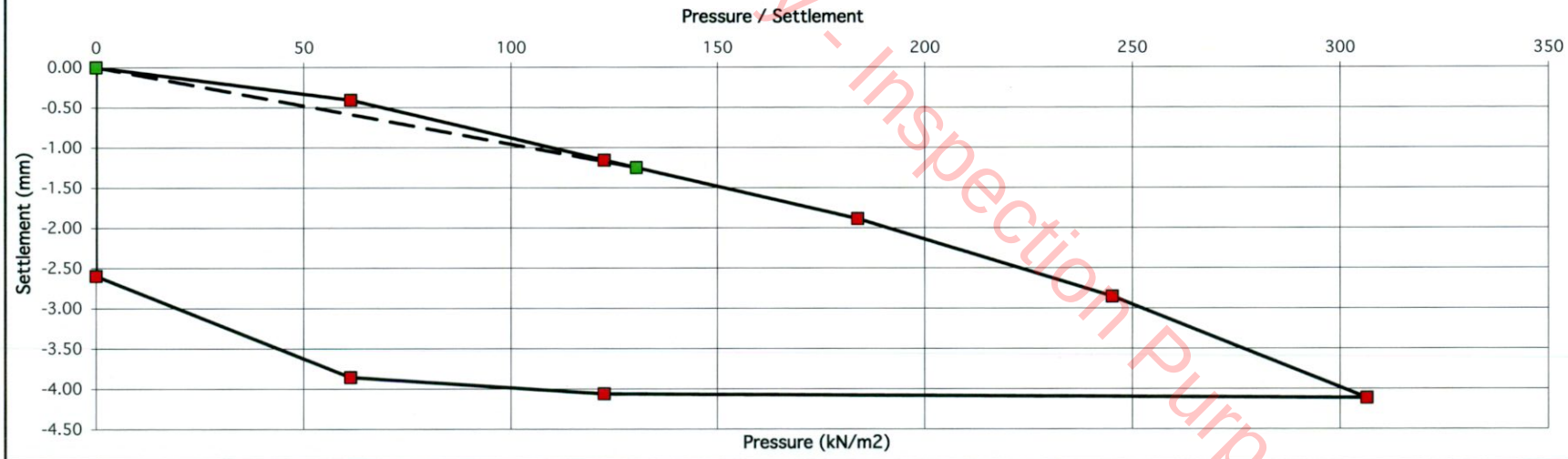
Reference No.	R135129
Contract	24083 - Tesco, Co. Cavan
Test No.	PT09 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 104
Modulus of subgrade reaction = 67 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 14.1 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

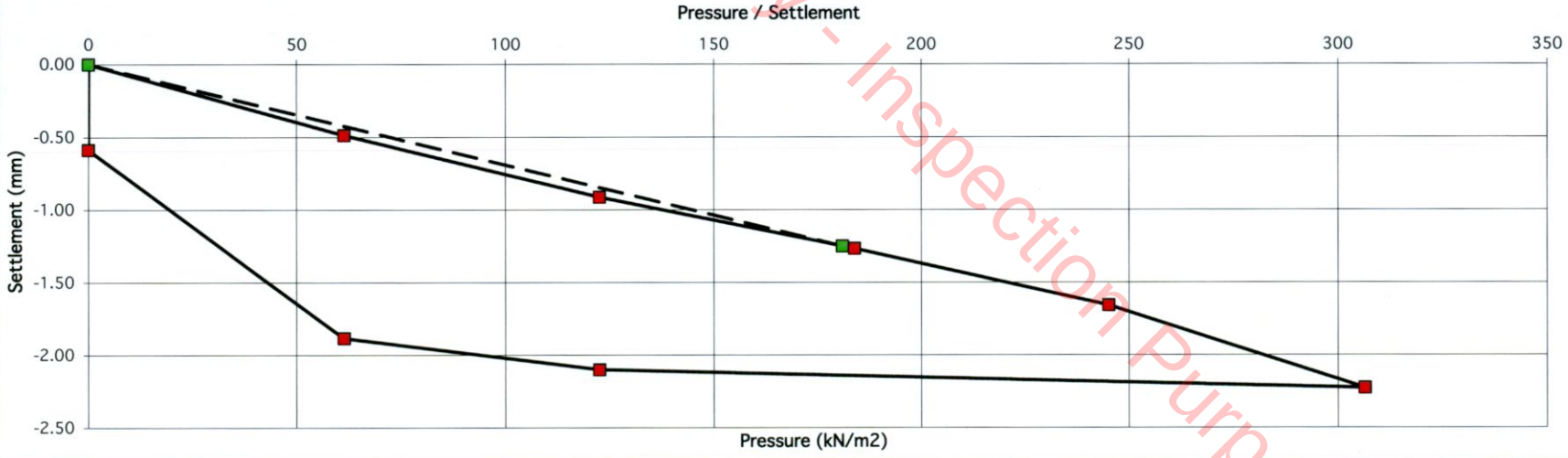
Reference No.	R135129
Contract	24083 - Tesco, Co. Cavan
Test No.	PT09 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 145
Modulus of subgrade reaction = 93 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 24.9 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

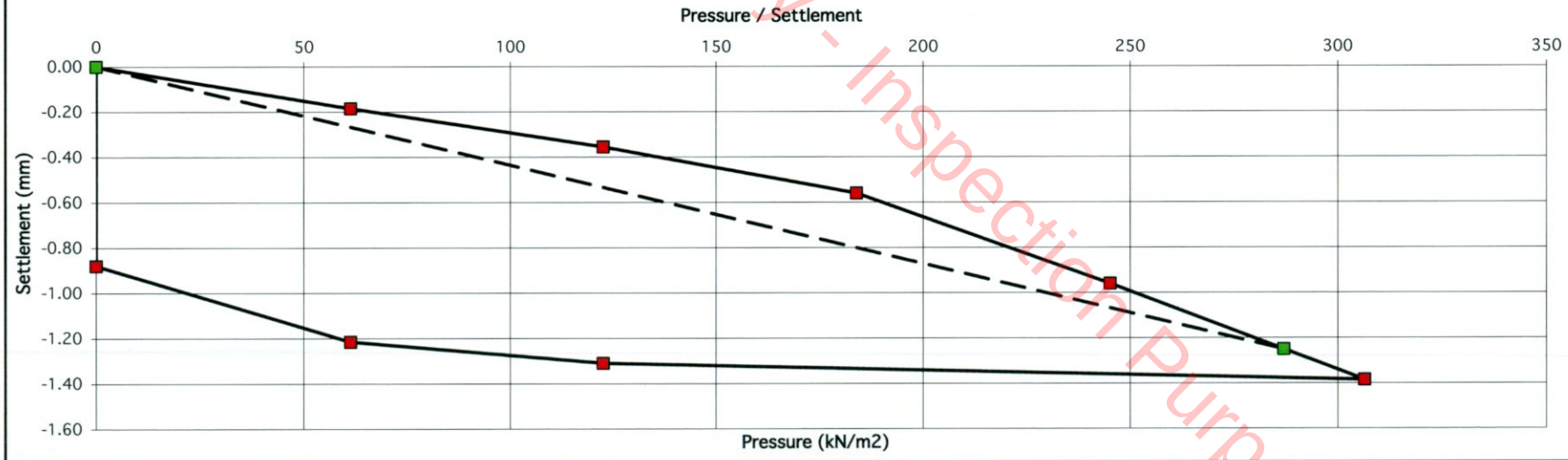
Reference No.	R135130
Contract	24083 - Tesco, Co. Cavan
Test No.	PT10 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 230
Modulus of subgrade reaction = 148 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 55.4 %

PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

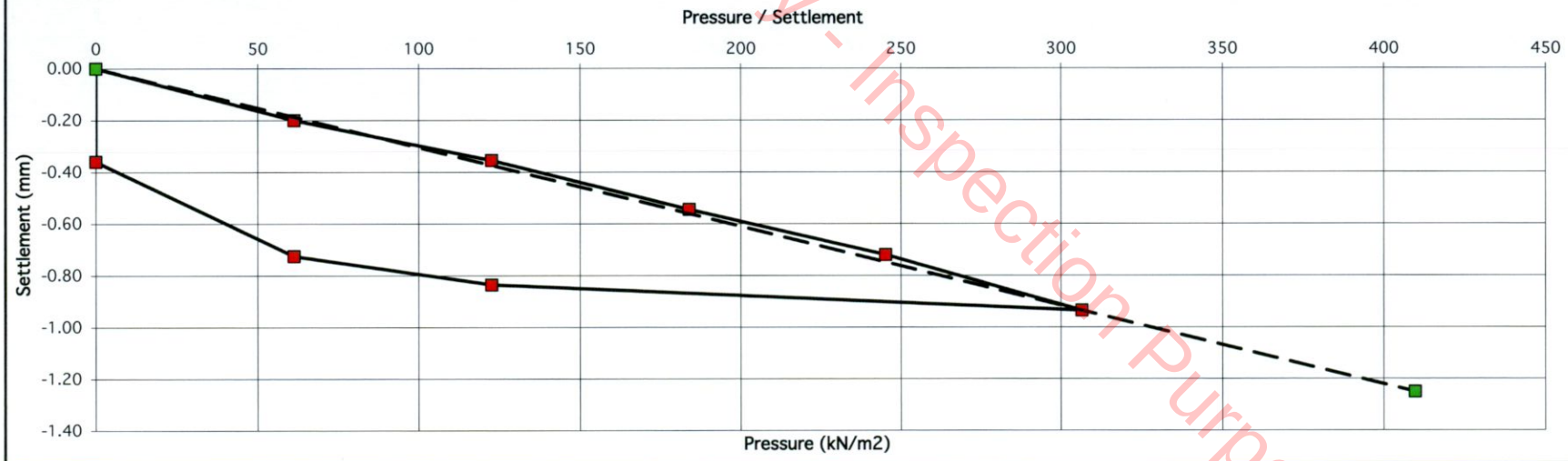
Reference No.	R135130
Contract	24083 - Tesco, Co. Cavan
Test No.	PT10 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)

MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____

Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 328
Modulus of subgrade reaction = 211 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 102.6 %

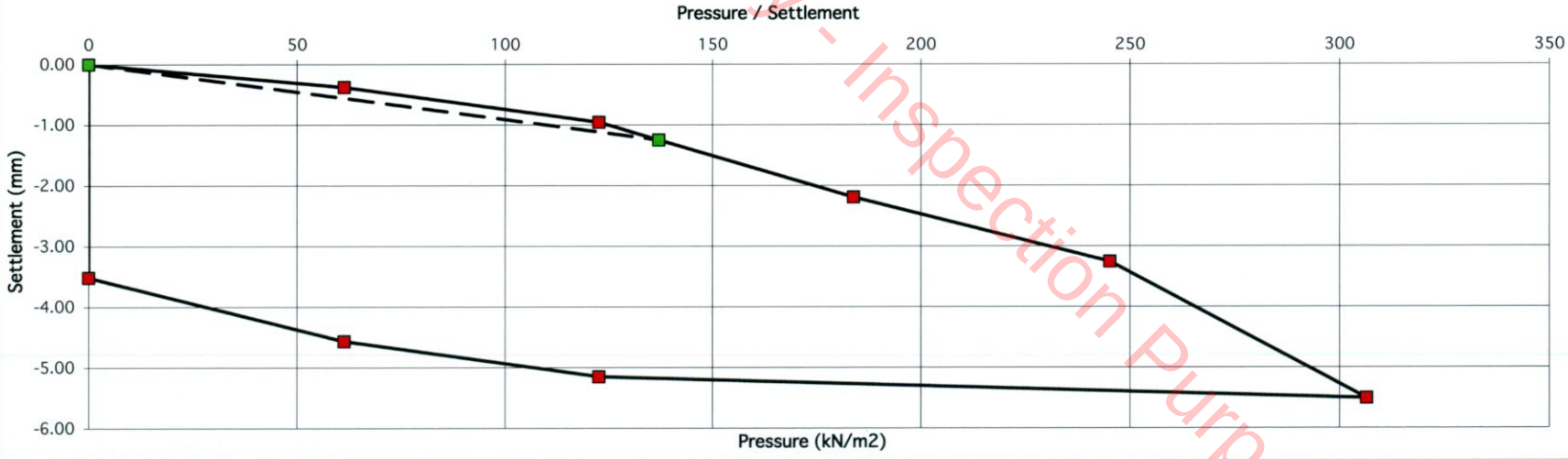
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135131
Contract	24083 - Tesco, Co. Cavan
Test No.	PT11 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 110
Modulus of subgrade reaction = 71 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 15.4 %

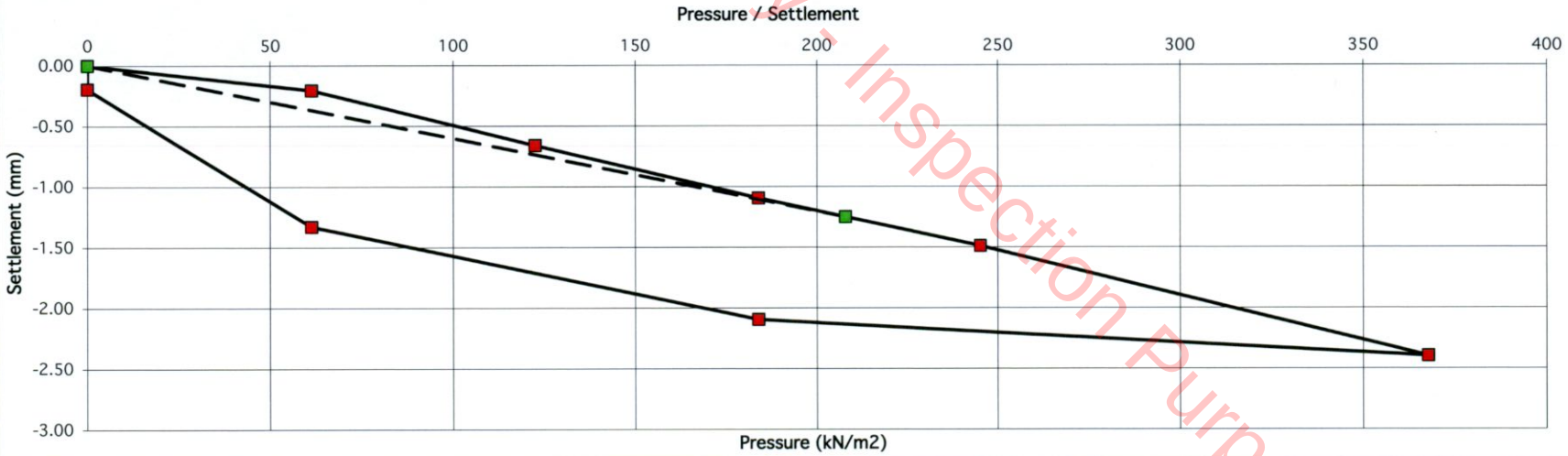
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135131
Contract	24083 - Tesco, Co. Cavan
Test No.	PT11 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 166
Modulus of subgrade reaction = 107 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 31.7 %

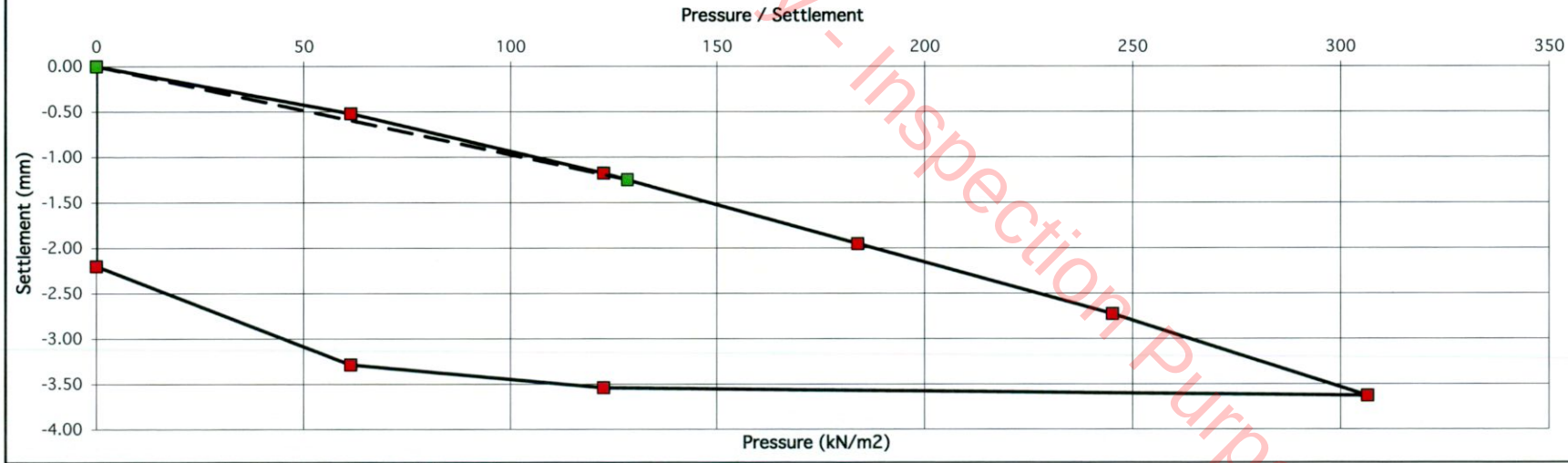
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135132
Contract	24083 - Tesco, Co. Cavan
Test No.	PT12 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 103
Modulus of subgrade reaction = 66 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 13.7 %

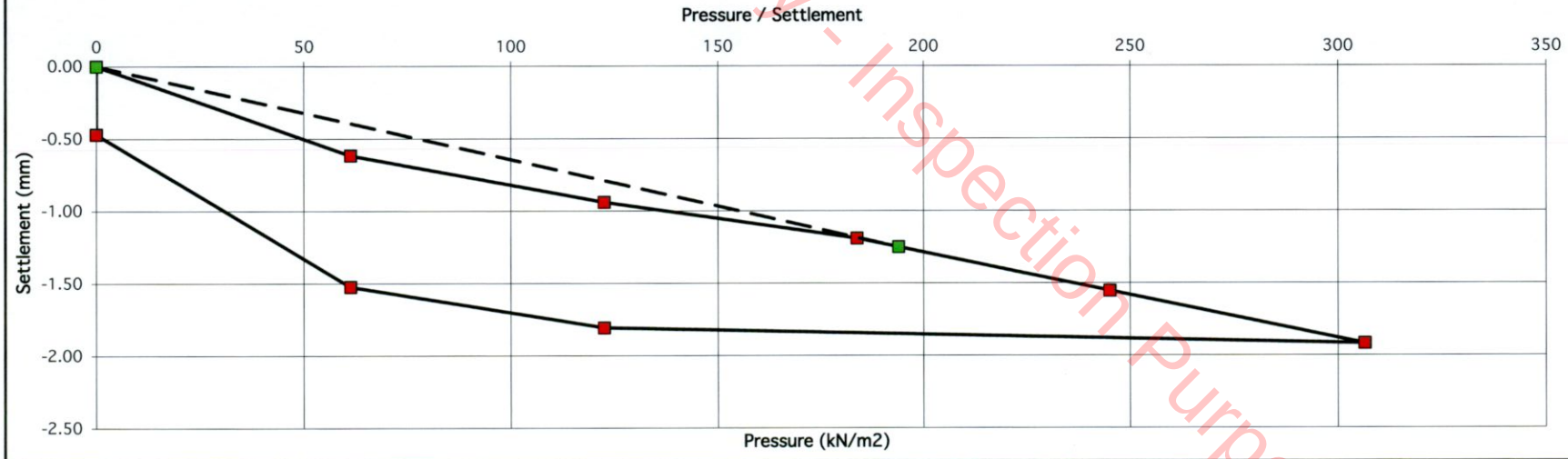
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135132
Contract	24083 - Tesco, Co. Cavan
Test No.	PT12 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 155
Modulus of subgrade reaction = 100 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 28.1 %

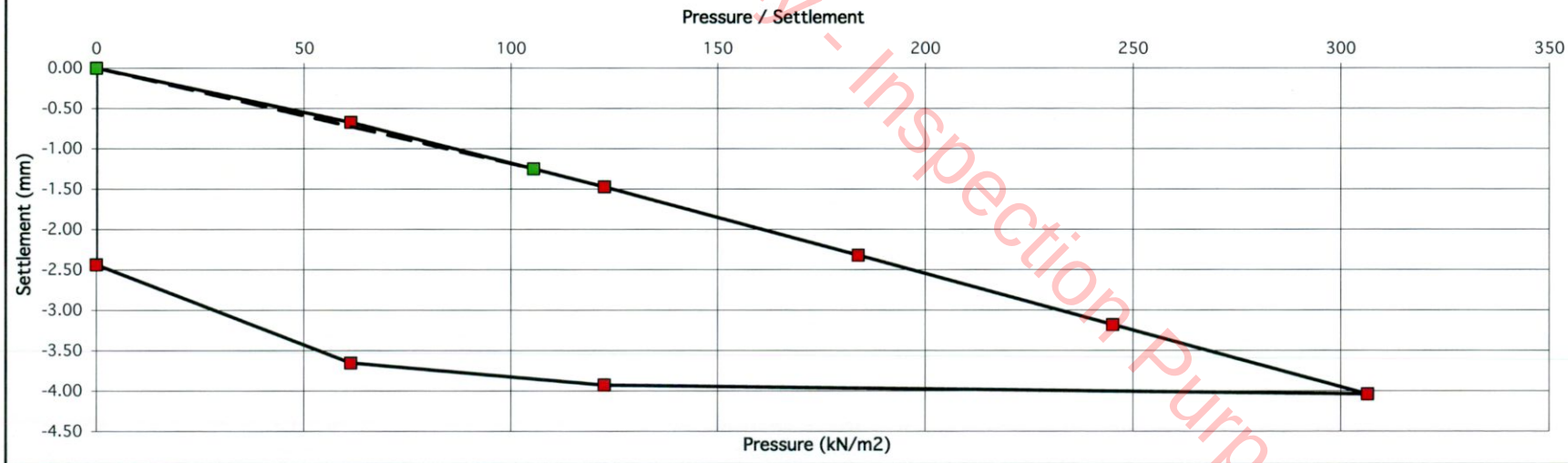
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135133
Contract	24083 - Tesco, Co. Cavan
Test No.	PT13 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 84
Modulus of subgrade reaction = 54 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 9.8 %

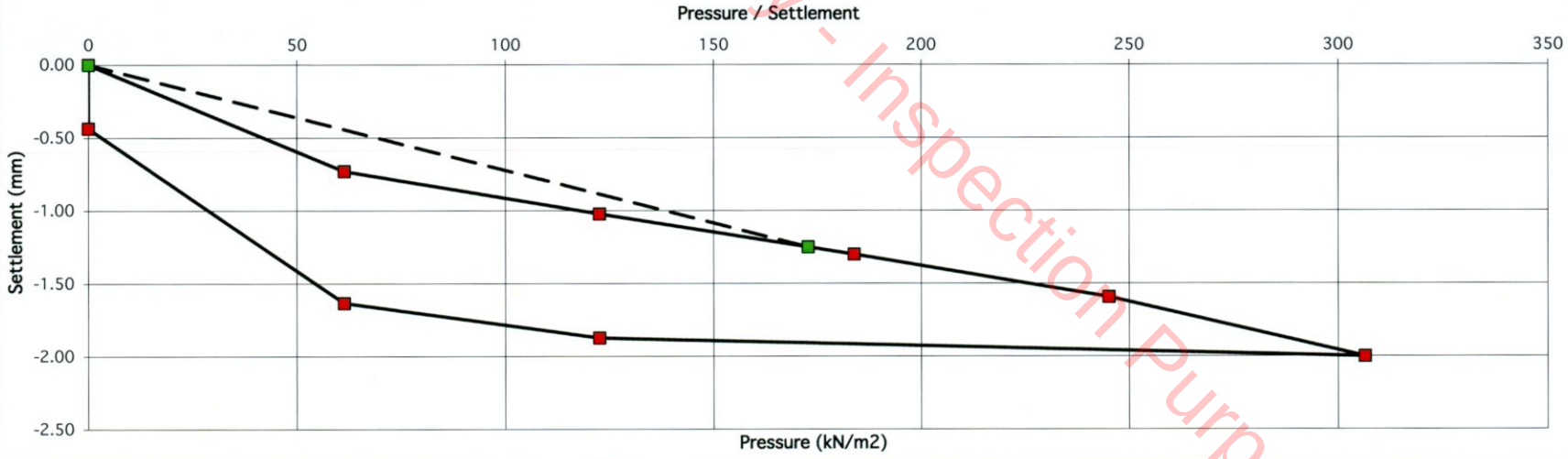
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135133
Contract	24083 - Tesco, Co. Cavan
Test No.	PT13 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 138
Modulus of subgrade reaction = 89 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 23.0 %

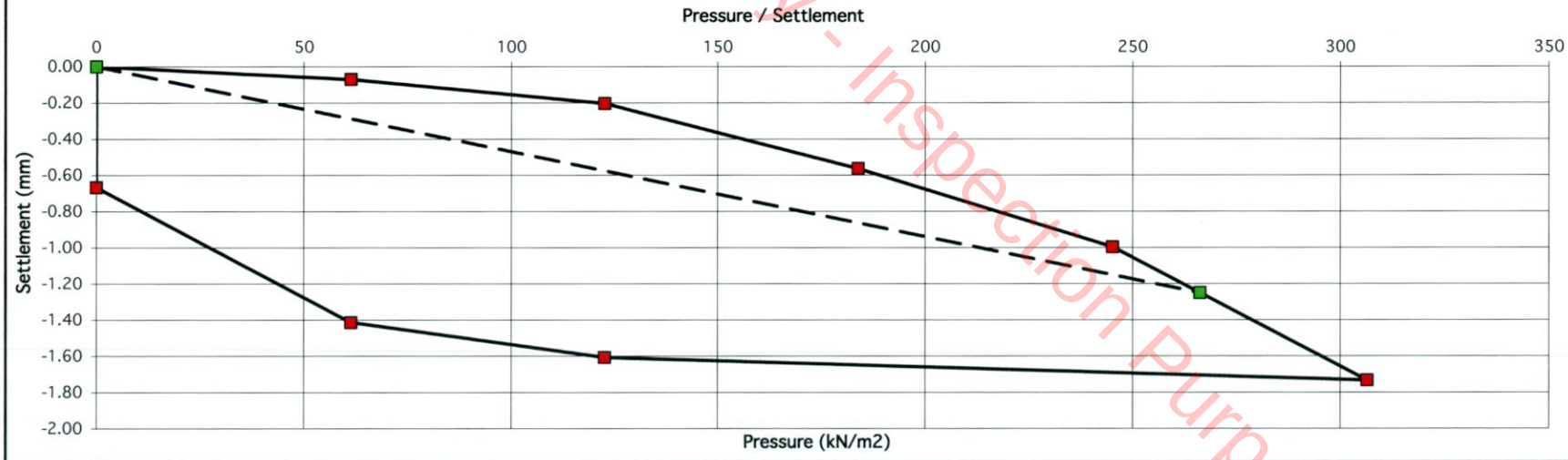
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135134
Contract	24083 - Tesco, Co. Cavan
Test No.	PT14 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 213
Modulus of subgrade reaction = 137 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 48.6 %

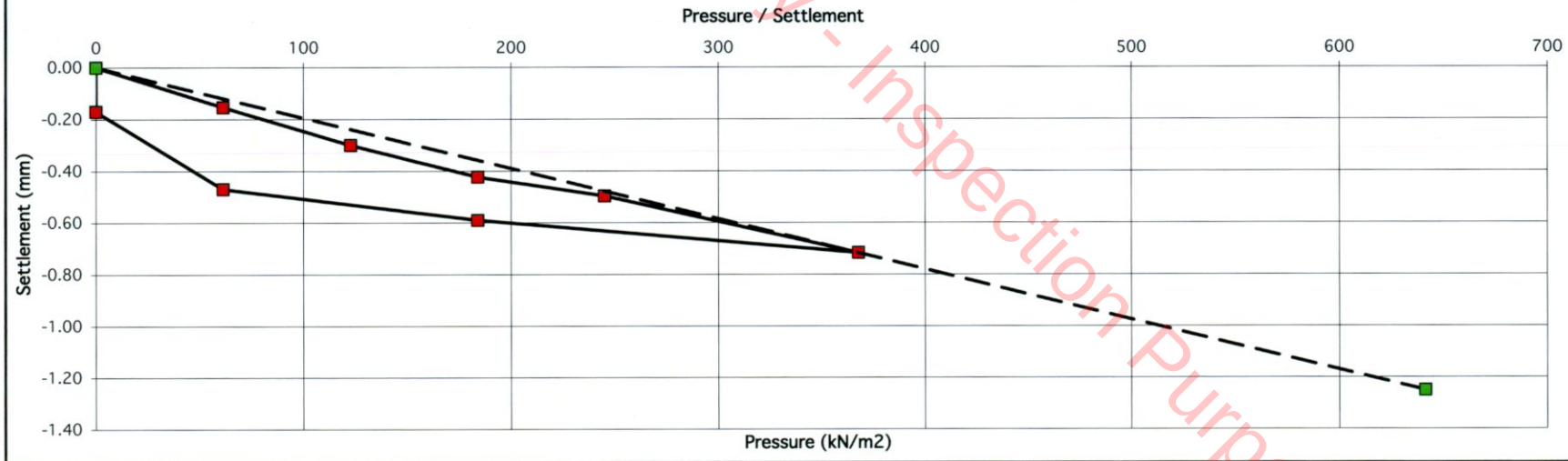
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135134
Contract	24083 - Tesco, Co. Cavan
Test No.	PT14 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 513
Modulus of subgrade reaction = 330 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 223.1 %

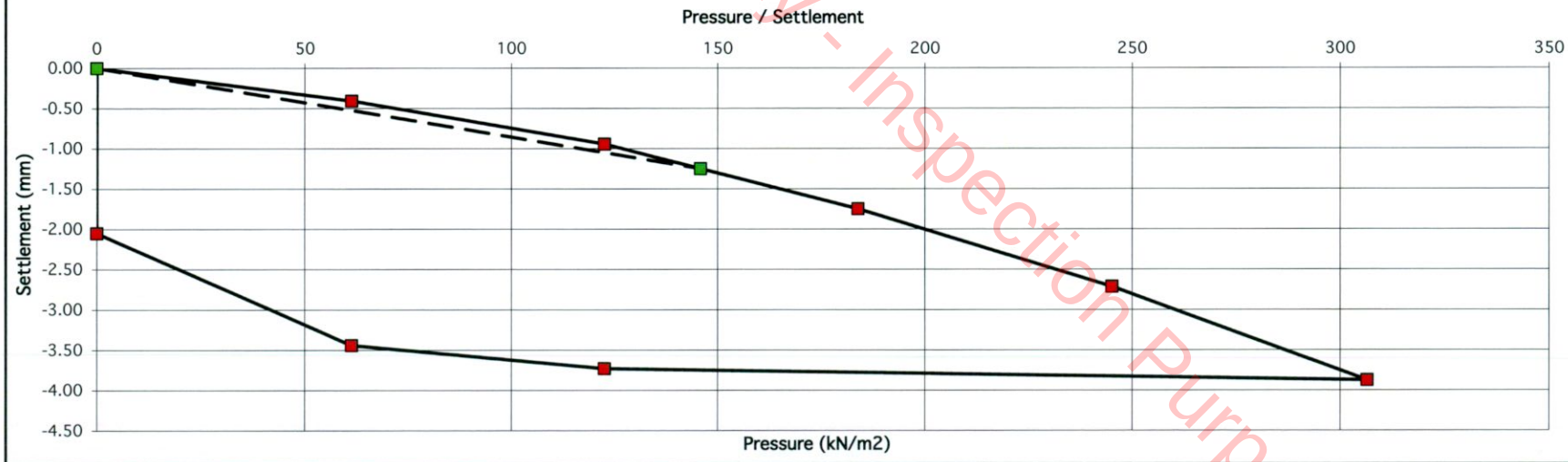
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135135
Contract	24083 - Tesco, Co. Cavan
Test No.	PT15 - Load
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 117
Modulus of subgrade reaction = 75 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 17.1 %

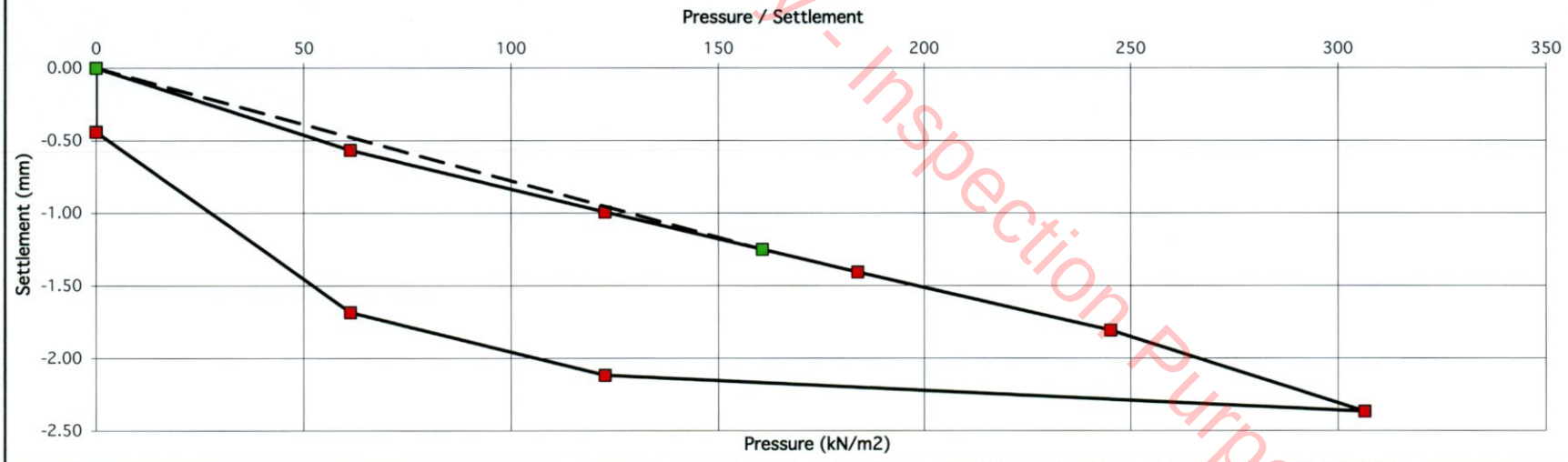
PLATE TEST REPORT SHEET (F3.1)

Applied Pressure/Settlement Curve

Reference No.	R135135
Contract	24083 - Tesco, Co. Cavan
Test No.	PT15 - Reload
Location	See Map For Reference
Depth	Ground Level
Client	Tesco
Plate Diameter:	450 mm
Test Method	BS 1377: Part 9: 1990 Test4 - Incremental Loading Test
Technician	S.Cunningham
Authorised by	
Date	26/05/2022

Description of soil under test
(natural soil, placed fill, sub-base)
MADE GROUND - Grey sandy GRAVEL (804)

Sample Ref No. _____
Depth _____ m bgl



Gradient at 1.25 mm settlement intersection = 129
Modulus of subgrade reaction = 83 MPa/m
Correction factor applied = 0.64 as per HD 25-26/10

Equivalent CBR value in accordance with NRA HD25-26/10 20.3 %

Appendix 4

Groundwater & Gas Monitoring Records

Gas & Groundwater Monitoring

Site Location	Tesco, Co. Cavan
Project No.	24083
Client	Tesco Ireland
Date	29-Jun-22
Engineer	Pinnacle C.E.
Equipment	Geotech GA5000
	Peak / Steady State Readings

Location ID	BH03					
Time (sec)	30	60	90	120	180	Peak
Water Level (mbgl)	1.24					
Gas Flow (l/hr)	0.1	0.1	0.1	0.1	0.1	0.1
CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1
CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1
O2 (%)	20.7	20.7	20.7	20.7	20.7	20.7
CO (ppm)	0	0	0	0	0	0
H2S (ppm)	0	0	0	0	0	0
Balance (%)	79.1	79.1	79.1	79.1	79.1	79.1
Barometric Pressure (mb	1014					
Weather/Temp.	Cloudy with sunny spells, 12°					

Location ID	BH08					
Time (sec)	30	60	90	120	180	Peak
Water Level (mbgl)	6.22					
Gas Flow (l/hr)	0.4	0.3	0.5	0.4	0.4	0.4
CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1
CO2 (%)	0.1	0.1	0.1	0.1	0.1	0.1
O2 (%)	20.7	20.7	20.7	20.8	20.7	20.7
CO (ppm)	0	0	0	0	0	0
H2S (ppm)	0	0	0	0	0	0
Balance (%)	79.1	79.1	79.1	79.0	79.1	79.1
Barometric Pressure (mb	1011					
Weather/Temp.	Cloudy with sunny spells, 12°					

Location ID	BH09					
Time (sec)	30	60	90	120	180	Peak
Water Level (mbgl)	6.91					
Gas Flow (l/hr)	0.5	0.5	0.5	0.5	0.6	0.6
CH4 (%)	0.1	0.1	0.1	0.1	0.1	0.1
CO2 (%)	0.3	0.3	0.3	0.3	0.2	0.3
O2 (%)	20.5	20.5	20.5	20.5	20.5	20.5
CO (ppm)	1	1	2	2	2	2
H2S (ppm)	0	0	0	0	0	0
Balance (%)	79.1	79.1	79.1	79.1	79.1	79.1
Barometric Pressure (mb	1011					
Weather/Temp.	Cloudy with sunny spells, 12°					

Comments	

Appendix 5

Geotechnical Laboratory Test Records

IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2, 4.3, 4.4 & 5.3**

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

Report No. **R135292** Contract No. 24083 Contract Name: Tesco , Cavan

Customer Tesco Irl / Pinnacle

Samples Received: 20/06/22 Date Tested: 28/06/22

BH/TP*	Sample No.	Depth* (m)	Lab. Ref	Sample Type*	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
TP02	AA178457	0.7	A22/3546	B	9.7	30	12	18	64	WS	4.4	C L	Brown slightly sandy, slightly gravelly, CLAY
TP05	AA178464	0.6	A22/3548	B	5.6	33	14	19	65	WS	4.4	C L	Brown slightly sandy, slightly gravelly, CLAY with many cobbles
TP05	AA178465	1.8	A22/3549	B	12								Brown slightly sandy, slightly gravelly, SILT/CLAY
TP05	AA178466	2.6	A22/3550	B	8.2								Brown slightly sandy, slightly gravelly, SILT/CLAY
TP06	AA178462	0.9	A22/3551	B	10								Brown slightly sandy, slightly gravelly, SILT/CLAY
TP07	AA178460	1.3	A22/3552	B	9.9	30	14	16	61	WS	4.4	C L	Brown slightly sandy, gravelly, CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information.
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IGSL Ltd Materials Laboratory

Persons authorized to approve reports
H Byrne (Laboratory Manager)

Approved by	Date	Page
H Byrne	06/07/22	1 of 1

IGSL Ltd
Materials Laboratory
Unit J5, M7 Business Park
Newhall, Naas
Co. Kildare
045 846176

Test Report

Determination of Moisture Content, Liquid & Plastic Limits

Tested in accordance with BS1377:Part 2:1990, clauses 3.2, 4.3, 4.4 & 5.3**

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

Report No. **R135294** Contract No. 24083 Contract Name: Tesco , Cavan

Customer Tesco Irl / Pinnacle

Samples Received: 20/06/22 Date Tested: 20/06/22

BH/TP*	Sample No.	Depth* (m)	Lab. Ref	Sample Type*	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity Index	% <425µm	Preparation	Liquid Limit Clause	Classification (BS5930)	Description
BH01	AA172991	1.0	A22/3553	B	9.8	33	14	19	59	WS	4.4	C L	Grey/brown slightly sandy, gravelly, CLAY
BH01	AA172992	2.0	A22/3554	B	11								Brown sandy gravelly SILT/CLAY
BH03	AA172982	2.0	A22/3555	B	11	32	13	19	66	WS	4.4	C L	Brown slightly sandy, slightly gravelly, CLAY
BH03	AA172984	4.0	A22/3556	B	12	32	15	17	50	WS	4.4	C L	Brown slightly sandy, gravelly, CLAY
BH05	AA177951	1.0	A22/3557	B	9.2	30	14	16	68	WS	4.4	C L	Grey/brown slightly sandy, gravelly, CLAY
BH05	AA177953	3.0	A22/3558	B	13	28	12	16	58	WS	4.4	C L	Brown slightly sandy, slightly gravelly, CLAY
BH06	AA177961	1.0	A22/3559	B	8.4	31	14	17	52	WS	4.4	C L	Grey/brown slightly sandy, slightly gravelly, CLAY
BH06	AA177963	3.0	A22/3560	B	14	35	15	20	70	WS	4.4	C L	Brown slightly sandy, gravelly, CLAY
BH06	AA177965	5.0	A22/3561	B	19	44	19	25	77	WS	4.4	C I	Grey/brown sandy gravelly CLAY
BH07	AA177987	1.0	A22/3562	B	9.4	28	13	15	51	WS	4.4	C L	Grey/brown slightly sandy, slightly gravelly, CLAY
BH07	AA177990	3.0	A22/3563	B	21	41	16	25	74	WS	4.4	C I	Brown slightly sandy, gravelly, CLAY
BH09	AA177971	2.0	A22/3564	B	11	29	13	16	52	WS	4.4	C L	Brown slightly sandy, gravelly, CLAY
BH09	AA177975	5.0	A22/3565	B	9.9	36	16	20	66	WS	4.4	C I	Brown slightly sandy, gravelly, CLAY

Preparation: WS - Wet sieved
AR - As received
NP - Non plastic

Liquid Limit Clause: 4.3 Cone Penetrometer definitive method
4.4 Cone Penetrometer one point method

Sample Type: B - Bulk Disturbed
U - Undisturbed

Remarks:
Results relate only to the specimen tested,in as received condition unless otherwise noted.
NOTE: **These clauses have been superceded by EN 17892-1 and EN17892-12.
Opinions and interpretations are outside the scope of accreditation. * denotes Customer supplied information.
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	H Byrne (Laboratory Manager)	H Byrne	06/07/22	1 of 1

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	97	
20	88	
14	78	
10	69	
6.3	57	
5	52	
3.35	43	
2	36	
1.18	29	SAND
0.6	23	
0.425	21	
0.3	19	
0.15	16	
0.063	12	SILT/CLAY

Contract No. 24083 Report No. R135329

Contract Name : Tesco , Cavan

BH/TP* : TP01

Sample No.* AA178448 Lab. Sample No. A22/3545

Sample Type: B

Depth* (m) 0.50 Customer: Tesco Irl./ Pinnacle

Date Received 20/06/2022 Date Testing started 20/06/2022

Description: Grey/brown clayey, very sandy, GRAVEL

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.

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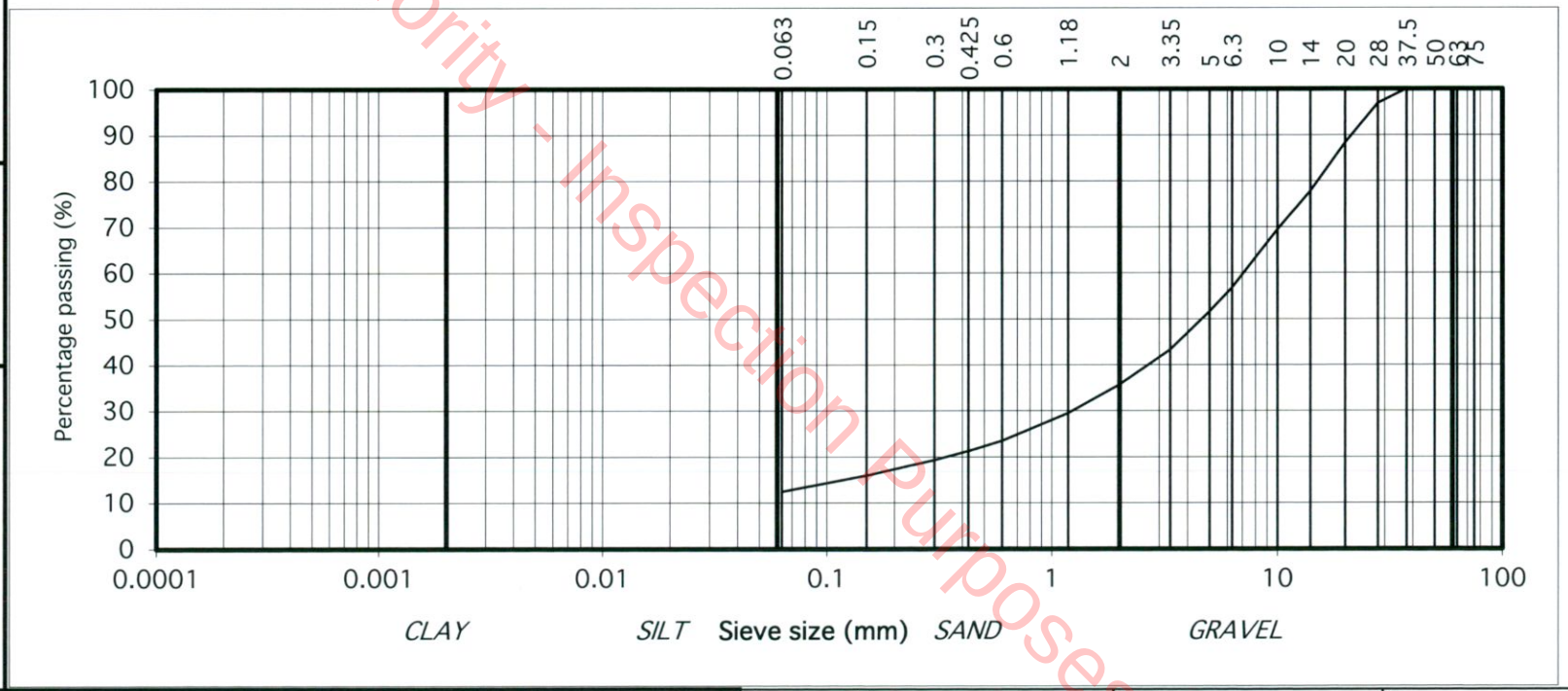

IGSL Ltd Materials Laboratory

Approved by:	Date:	Page no:
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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	98	
20	97	
14	90	
10	86	
6.3	81	
5	80	
3.35	74	
2	67	
1.18	63	SAND
0.6	58	
0.425	56	
0.3	54	
0.15	51	
0.063	46	SILT/CLAY

Contract No. 24083 Report No. R135330

Contract Name : Tesco , Cavan

BH/TP* : TP02

Sample No.* AA178457 Lab. Sample No. A22/3546

Sample Type: B

Depth* (m) 0.70 Customer: Tesco Irl./ Pinnacle

Date Received 20/06/2022 Date Testing started 21/06/2022

Description: Brown slightly sandy, slightly gravelly, CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.

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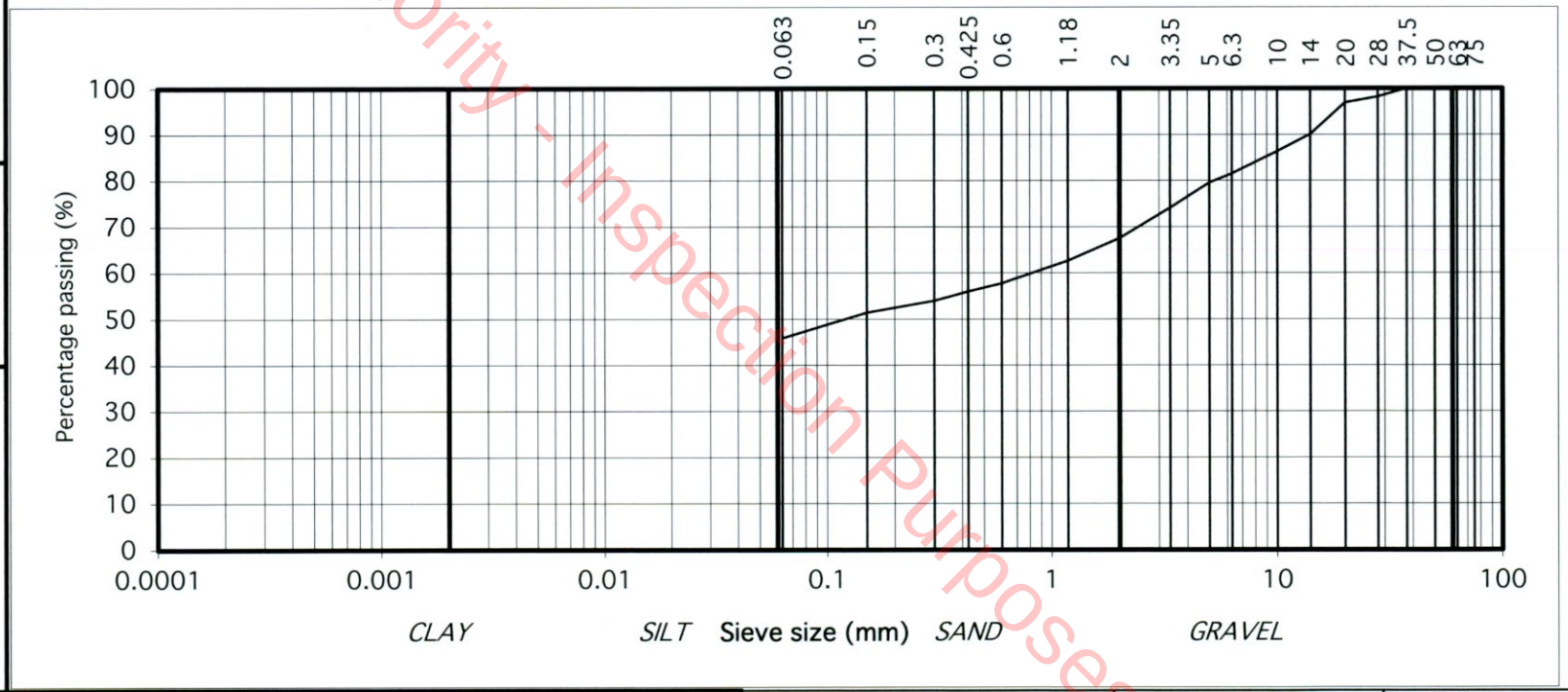

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	99	
20	89	
14	74	
10	64	
6.3	49	
5	44	
3.35	36	
2	28	
1.18	22	SAND
0.6	17	
0.425	15	
0.3	13	
0.15	12	
0.063	9	SILT/CLAY

Contract No. 24083 Report No. R135331

Contract Name : Tesco , Cavan

BH/TP* : TP03

Sample No.* AA178451 Lab. Sample No. A22/3547

Sample Type: B

Depth* (m) 0.40 Customer: Tesco Irl./ Pinnacle

Date Received 20/06/2022 Date Testing started 20/06/2022

Description: Grey clayey/silty, sandy, GRAVEL

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.

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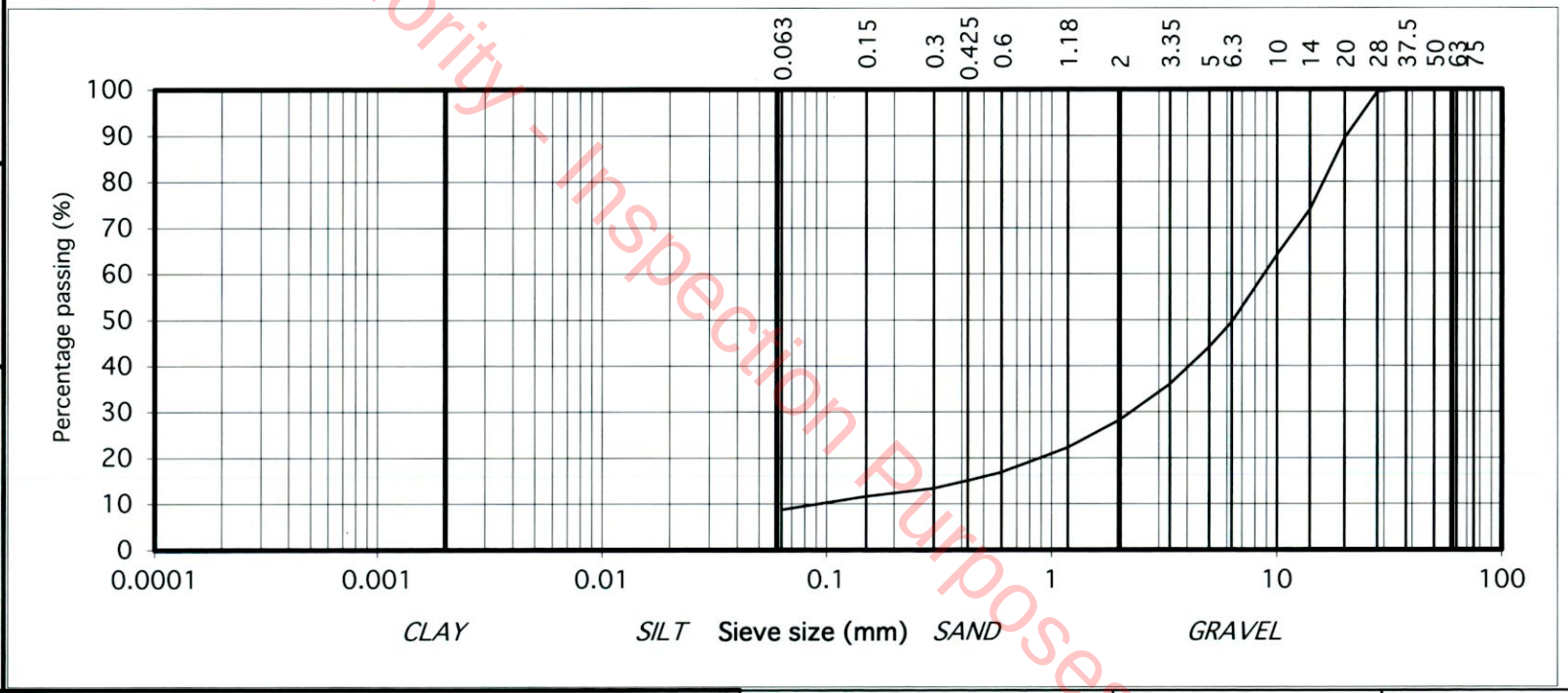

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	70	COBBLES
63	62	
50	60	GRAVEL
37.5	60	
28	59	
20	55	
14	53	
10	51	
6.3	48	
5	46	
3.35	44	
2	41	
1.18	39	SAND
0.6	36	
0.425	35	
0.3	33	
0.15	29	
0.063	24	SILT/CLAY

Contract No. 24083 Report No. R135332

Contract Name : Tesco , Cavan

BH/TP* : TP05

Sample No.* AA178464 Lab. Sample No. A22/3548

Sample Type: B

Depth* (m) 0.60 Customer: Tesco Irl./ Pinnacle

Date Received 20/06/2022 Date Testing started 21/06/2022

Description: Brown slightly sandy, slightly gravelly, CLAY with many cobbles

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2 Sample size di dnot meet the requirements of BS1377

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.

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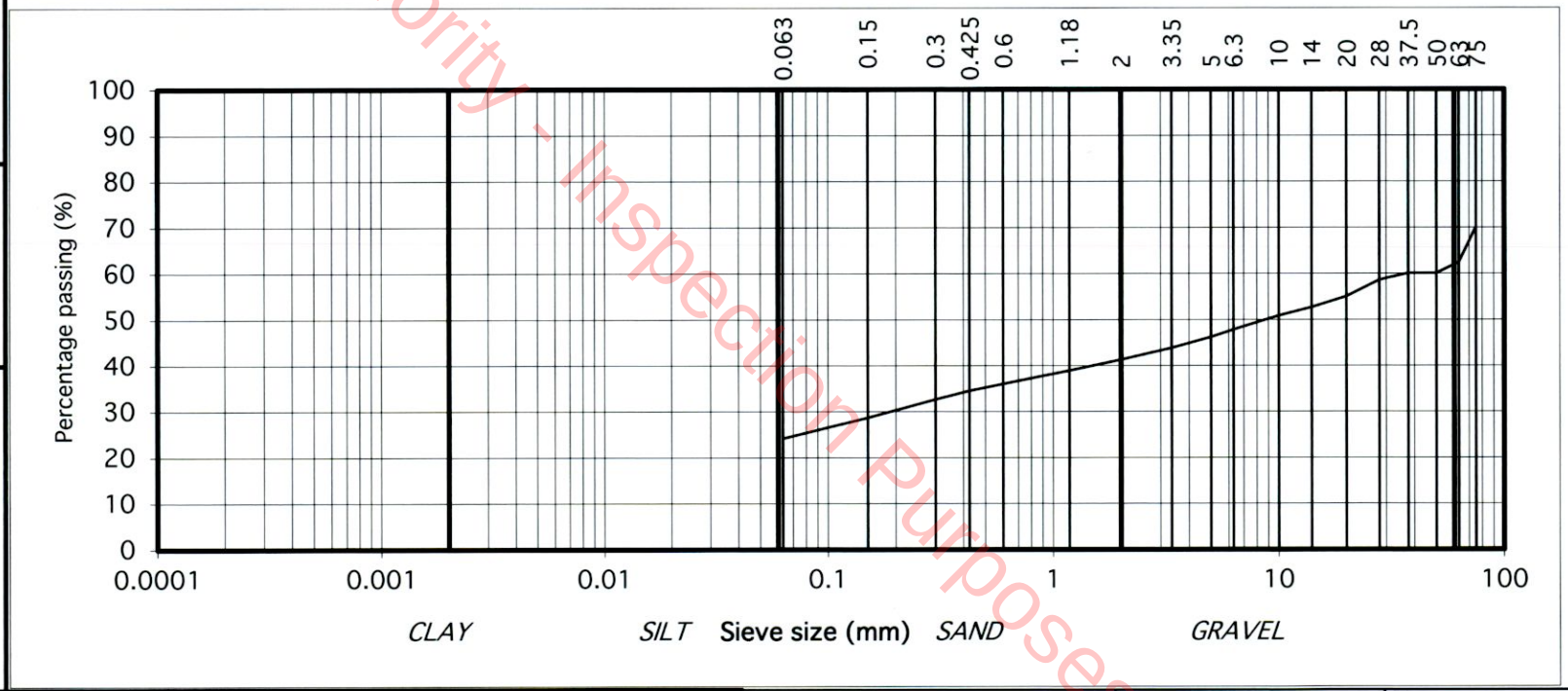

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1331

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	98	
28	96	
20	91	
14	87	
10	84	
6.3	80	
5	78	
3.35	73	
2	68	
1.18	63	SAND
0.6	58	
0.425	56	
0.3	52	
0.15	46	
0.063	42	SILT/CLAY

Contract No. 24083 Report No. R135333

Contract Name : Tesco , Cavan

BH/TP* : TP05

Sample No.* AA178465 Lab. Sample No. A22/3549

Sample Type: B

Depth* (m) 1.80 Customer: Tesco Irl./ Pinnacle

Date Received 20/06/2022 Date Testing started 21/06/2022

Description: Brown slightly sandy, slightly gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.

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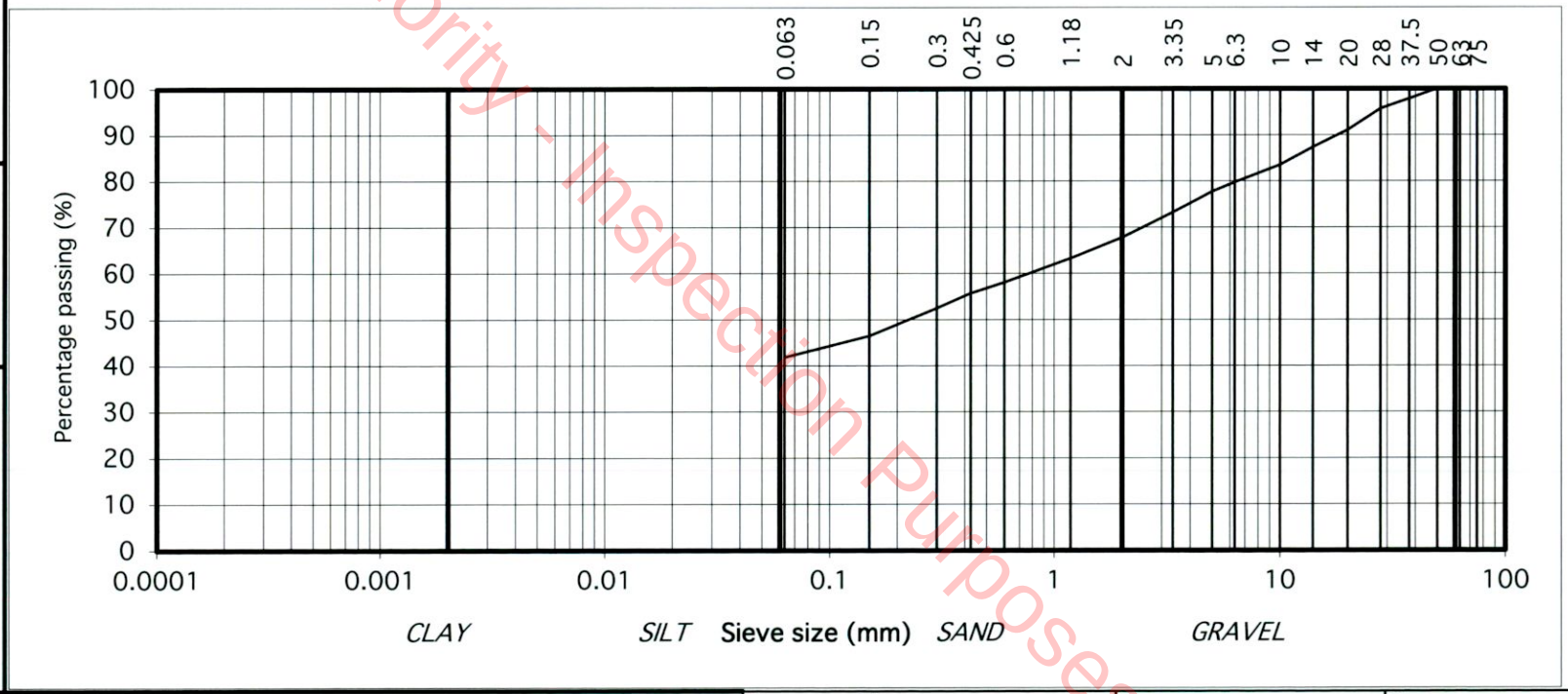

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1331

particle size	% passing	
75	100	COBBLES
63	100	
50	94	GRAVEL
37.5	91	
28	91	
20	86	
14	83	
10	79	
6.3	75	
5	73	
3.35	70	
2	67	
1.18	63	SAND
0.6	59	
0.425	57	
0.3	54	
0.15	47	
0.063	40	SILT/CLAY

Contract No. 24083 Report No. R135334
Contract Name : Tesco , Cavan
BH/TP* : TP05
Sample No.* AA178466 Lab. Sample No. A22/3550
Sample Type: B
Depth* (m) 2.60 Customer: Tesco Irl./ Pinnacle
Date Received 20/06/2022 Date Testing started 21/06/2022
Description: Brown slightly sandy, slightly gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.
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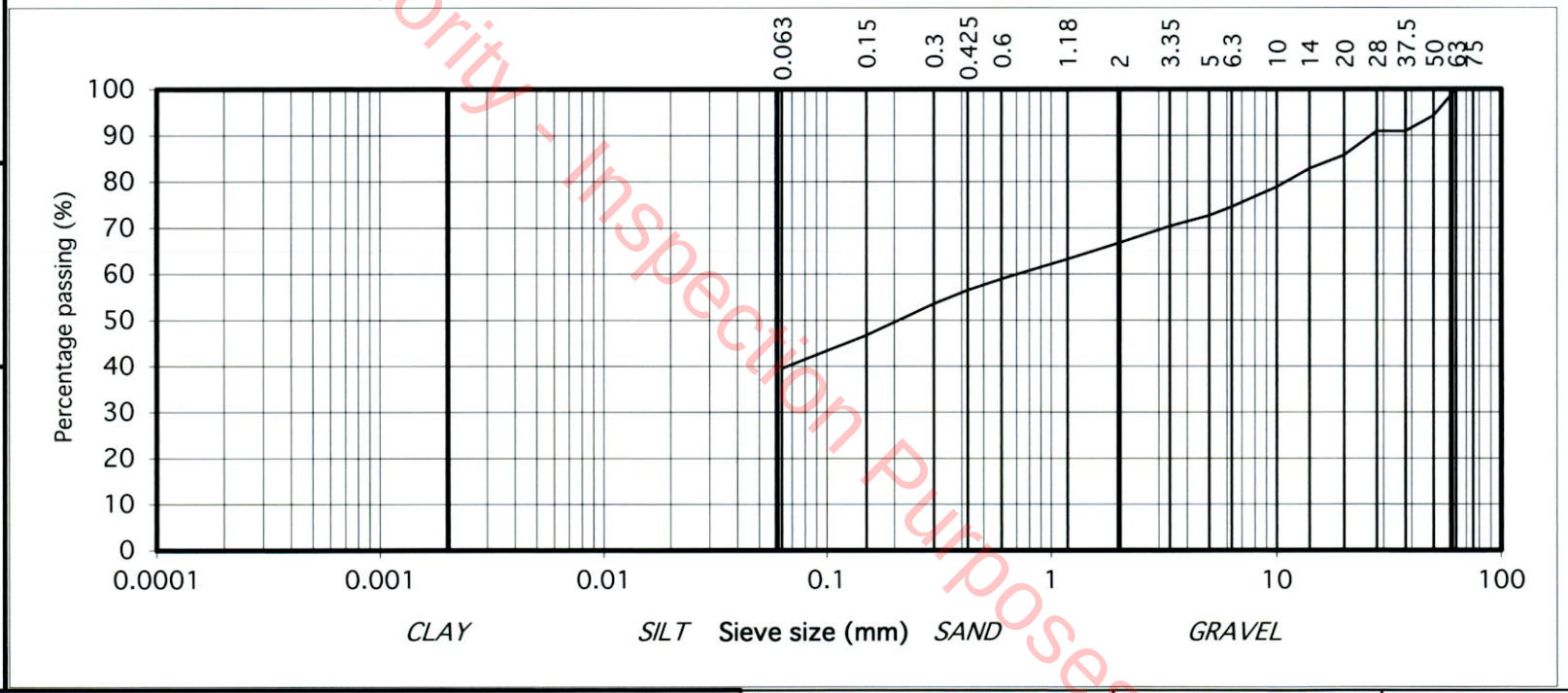

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 IVNAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1331

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	96	
20	89	
14	86	
10	84	
6.3	80	
5	78	
3.35	74	
2	70	
1.18	66	SAND
0.6	61	
0.425	59	
0.3	56	
0.15	50	
0.063	43	SILT/CLAY

Contract No. 24083 Report No. R135335

Contract Name : Tesco , Cavan

BH/TP* : TP06

Sample No.* AA178462 Lab. Sample No. A22/3551

Sample Type: B

Depth* (m) 0.90 Customer: Tesco Irl./ Pinnacle

Date Received 20/06/2022 Date Testing started 21/06/2022

Description: Brown slightly sandy, slightly gravelly, SILT/CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.

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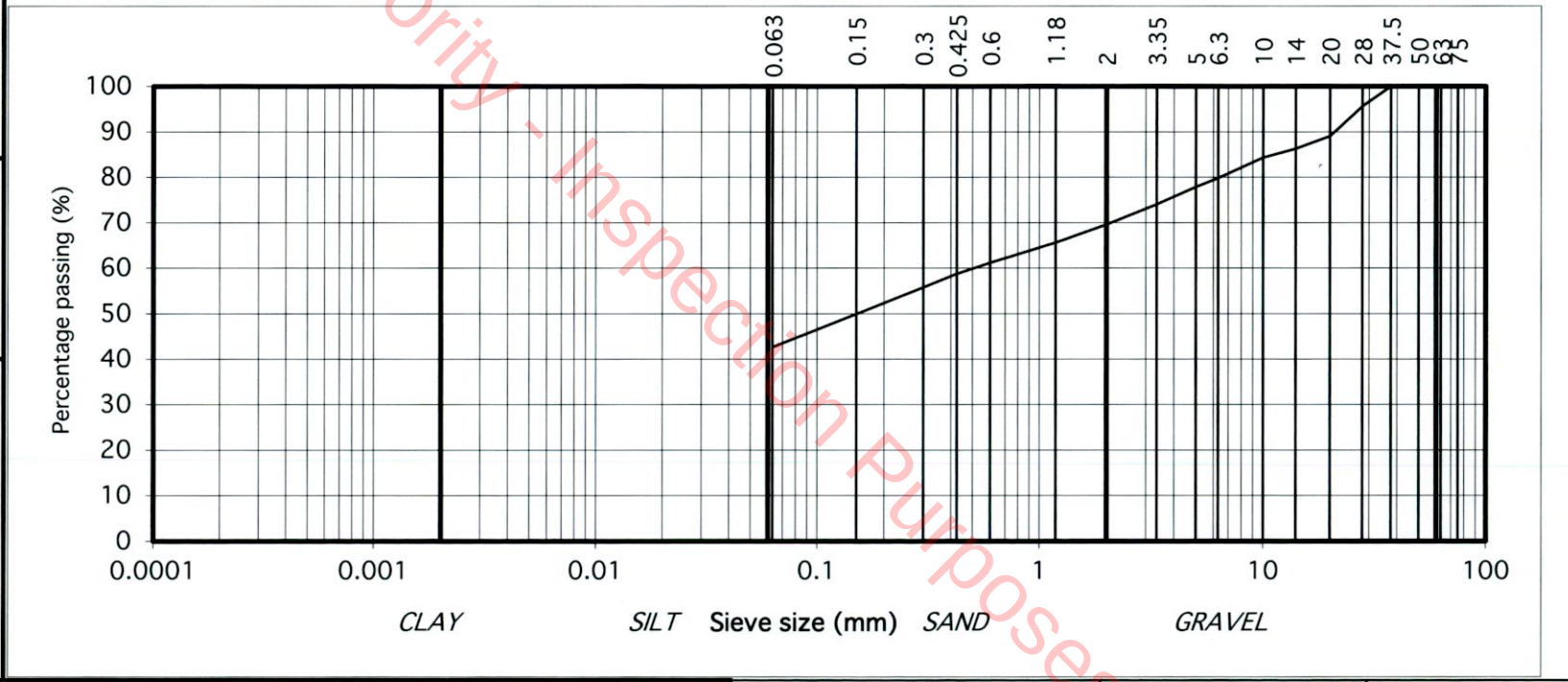

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Persons authorised to approve report: J Barrett (Quality Manager) H Byrne (Laboratory Manager)

TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	95	GRAVEL
37.5	93	
28	93	
20	79	
14	77	
10	75	
6.3	71	
5	69	
3.35	66	
2	62	
1.18	59	SAND
0.6	55	
0.425	53	
0.3	50	
0.15	44	
0.063	38	SILT/CLAY

Contract No. 24083 Report No. R135344
Contract Name : Tesco , Cavan
BH/TP* : TP07
Sample No.* AA178460 Lab. Sample No. A22/3552
Sample Type: B
Depth* (m) 1.30 Customer: Tesco Irl./ Pinnacle
Date Received 20/06/2022 Date Testing started 20/06/2022
Description: Brown slightly sandy, gravelly, CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.
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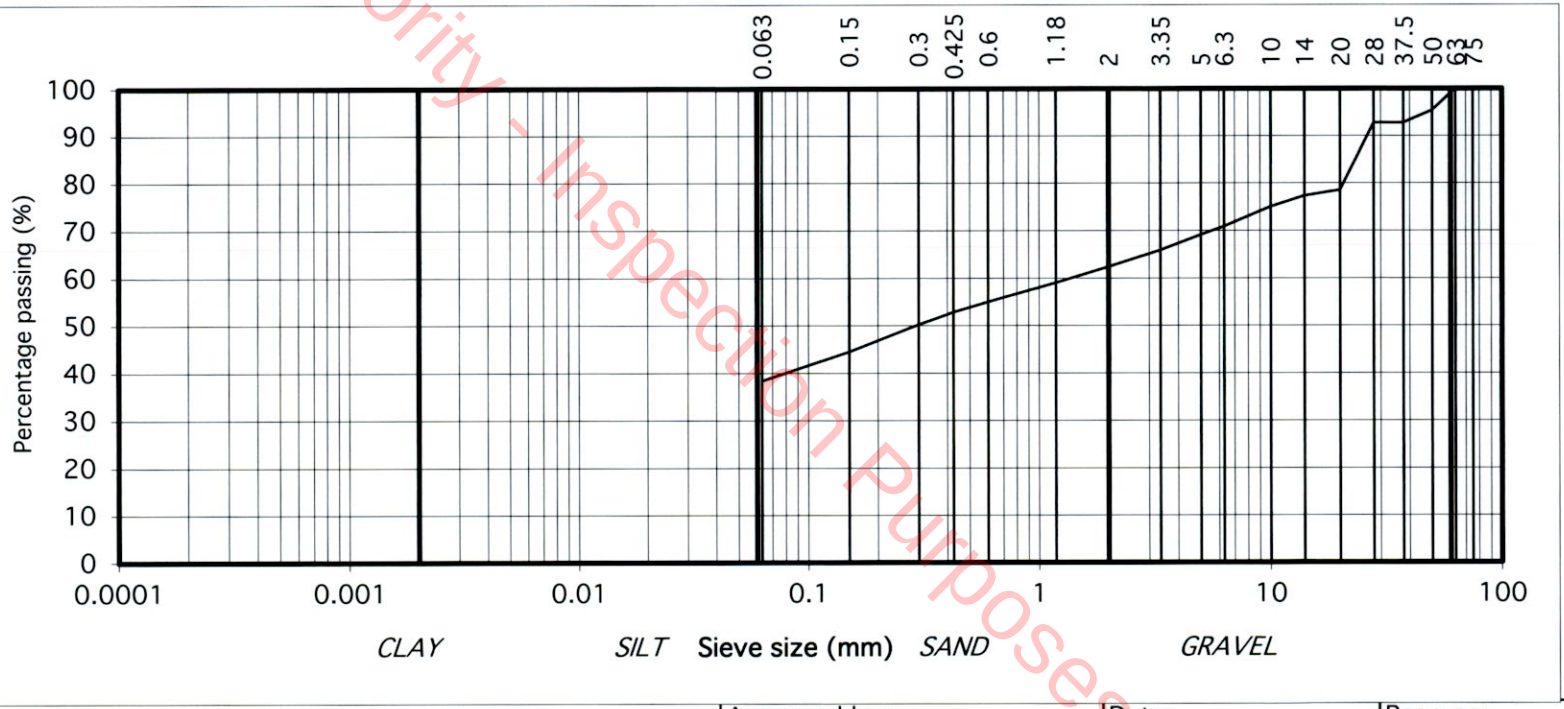

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TEST REPORT

Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**

(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 1331

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	91	
20	89	
14	83	
10	77	
6.3	72	
5	71	
3.35	67	
2	63	
1.18	60	SAND
0.6	56	
0.425	54	
0.3	50	
0.15	44	
0.063	37	SILT/CLAY

Contract No. 24083 Report No. R135336

Contract Name : Tesco , Cavan

BH/TP* : BH01

Sample No.* AA172991 Lab. Sample No. A22/3553

Sample Type: B

Depth* (m) 1.00 Customer: Tesco Irl./ Pinnacle

Date Received 20/06/2022 Date Testing started 20/06/2022

Description: Grey/brown slightly sandy, gravelly, CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

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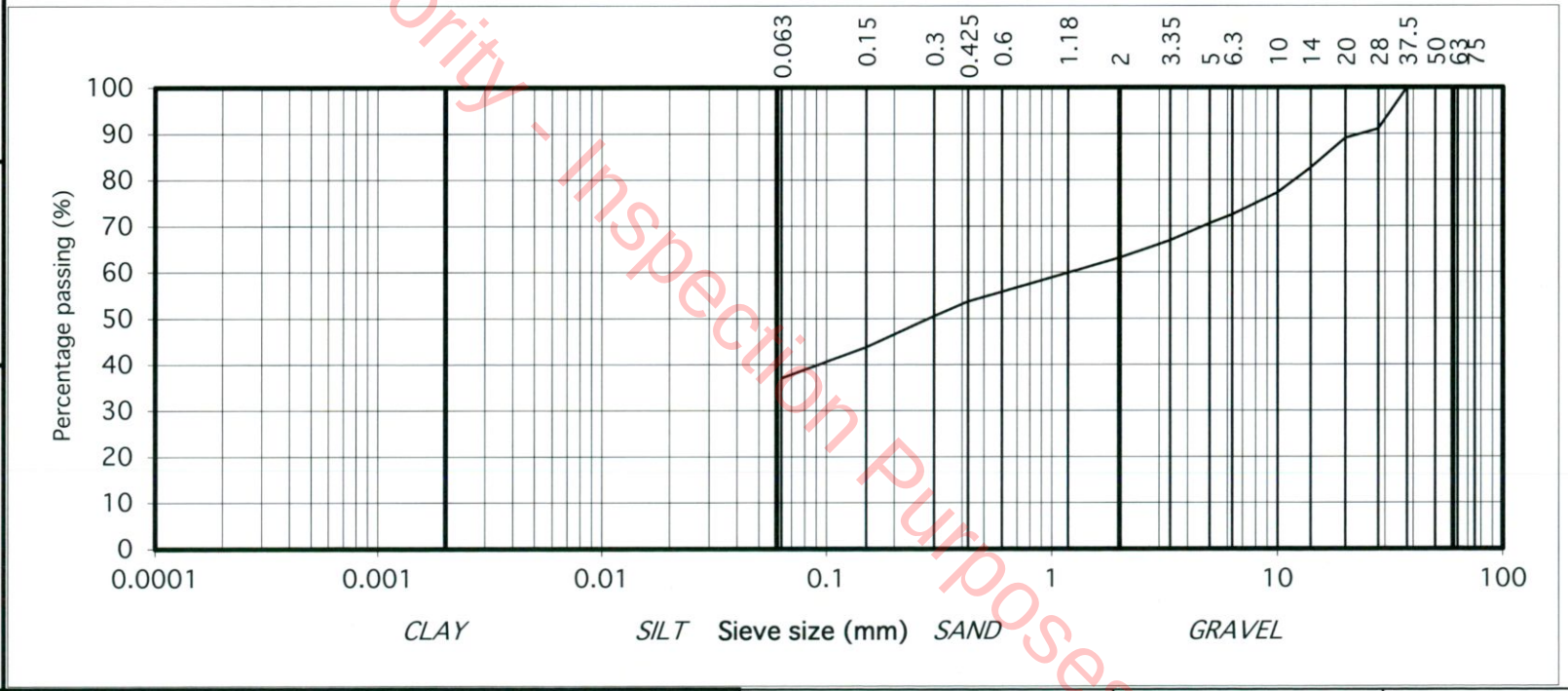

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TEST REPORT
Determination of Particle Size Distribution

Tested in accordance with: BS1377:Part2:1990 , clause 9.2 & 9.5**
(note: Sedimentation stage not accredited)

ISO 17025 INAB ACCREDITED TESTING DETAILED IN SCOPE REG NO. 133T

particle size	% passing	
75	100	COBBLES
63	100	
50	100	GRAVEL
37.5	100	
28	96	
20	86	
14	83	
10	81	
6.3	77	
5	75	
3.35	73	
2	69	
1.18	66	SAND
0.6	62	
0.425	60	
0.3	57	
0.15	49	
0.063	41	SILT/CLAY

Contract No. 24083 Report No. R135337
Contract Name : Tesco , Cavan
BH/TP* : BH03
Sample No.* AA172982 Lab. Sample No. A22/3555
Sample Type: B
Depth* (m) 2.00 Customer: Tesco Irl./ Pinnacle
Date Received 20/06/2022 Date Testing started 20/06/2022
Description: Brown slightly sandy, slightly gravelly, CLAY

Remarks Note: **Clause 9.2 and Clause 9.5 of BS1377:Part 2:1990 have been superseded by ISO17892-4:2016 .

Results relate only to the specimen tested in as received condition unless otherwise noted. * denotes Customer supplied information. Opinions and interpretations are outside the scope of accreditation.
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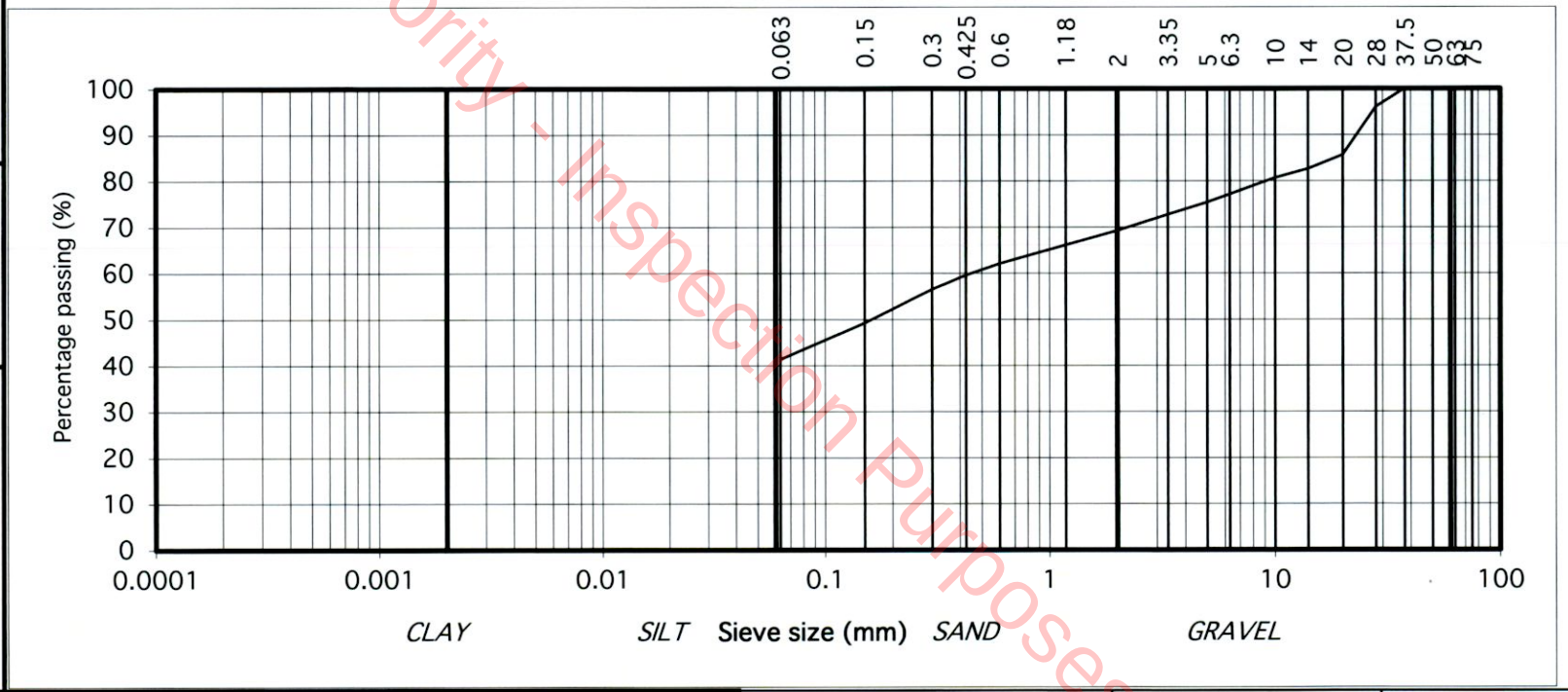

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