

NOTES:

F1	3/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	13/3/2020	Revised further to decision to include Under-bridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	12/11/2020	Minor alterations to layout	JL	CD	GJ
F6	22/4/2020	Further alterations to layout further to TII review	JL	AM	GJ
F7	23/2/2022	Further alterations to layout on final review	JL	CD	GJ
F8	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ
F9	24/08/2022	Further alterations to layout further to Client review	JL	CD	GJ

DO NOT SCALE

Client  
**KILKENNY COUNTY COUNCIL**  
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Approved by: G.Jones (GJ)  
 Checked by: C.Daly (CD)  
 Drawn by: J.Leacy (JL)  
 Scale: NTS  
 Rev. Date: 24/08/2022

Project Title:  
**N24 Carrick Road Improvement Scheme**

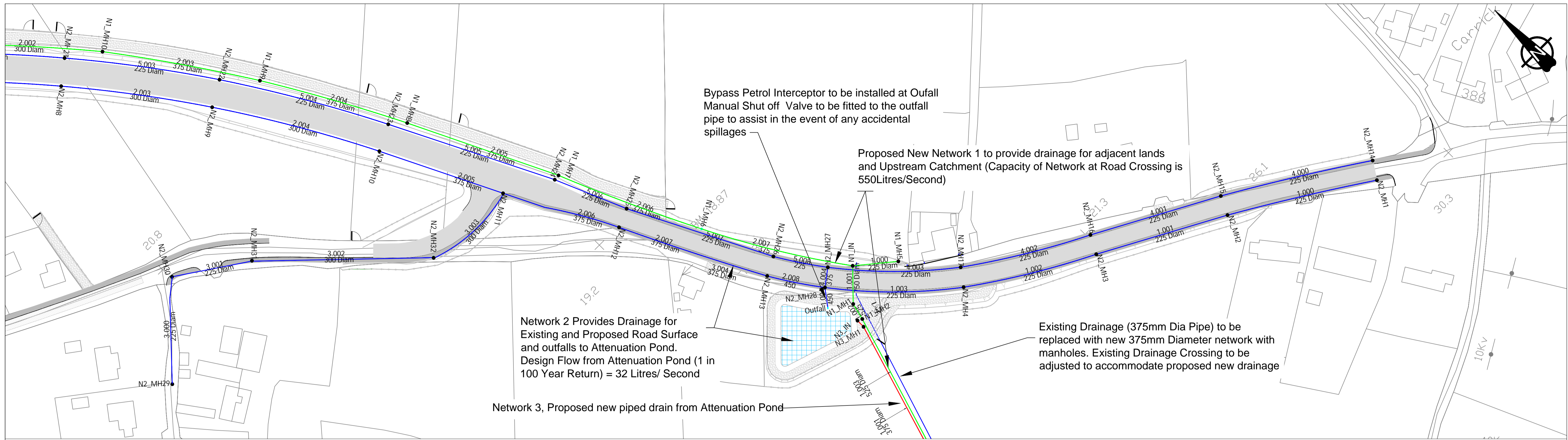
Drawing Title:  
**Drainage Layout.  
 Key Map**

Drawing Number: KK1613403-P3-DR-001

NRA Project No.: **KK/16/13403**  
 TH Project No.: **TH/16/030**  
 Project Folder No.: **7.6.1** Rev.: **F9**

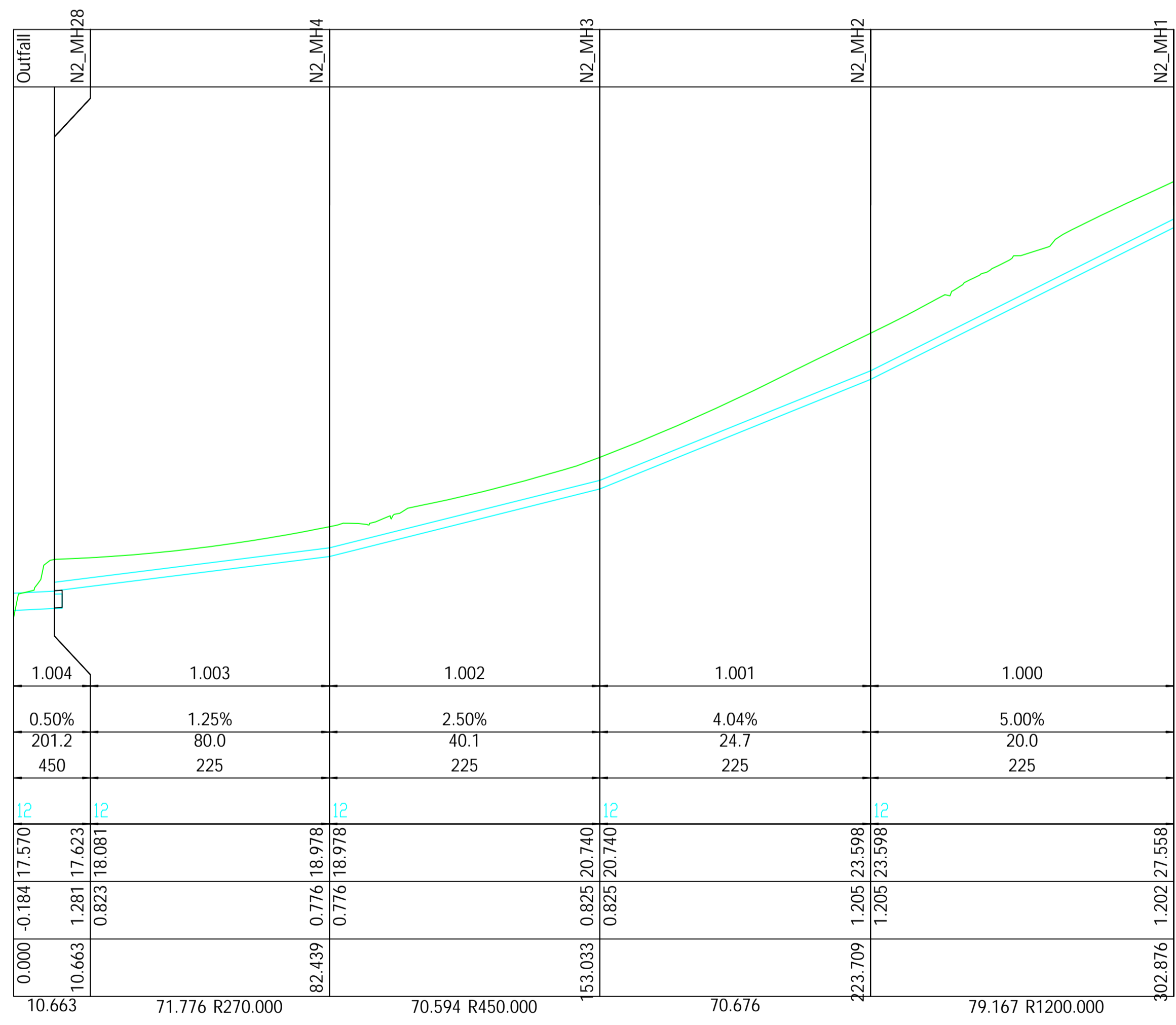
(Sheet 1 of 8)

File Drawing: **KK1613403-P3-DR-001F9**

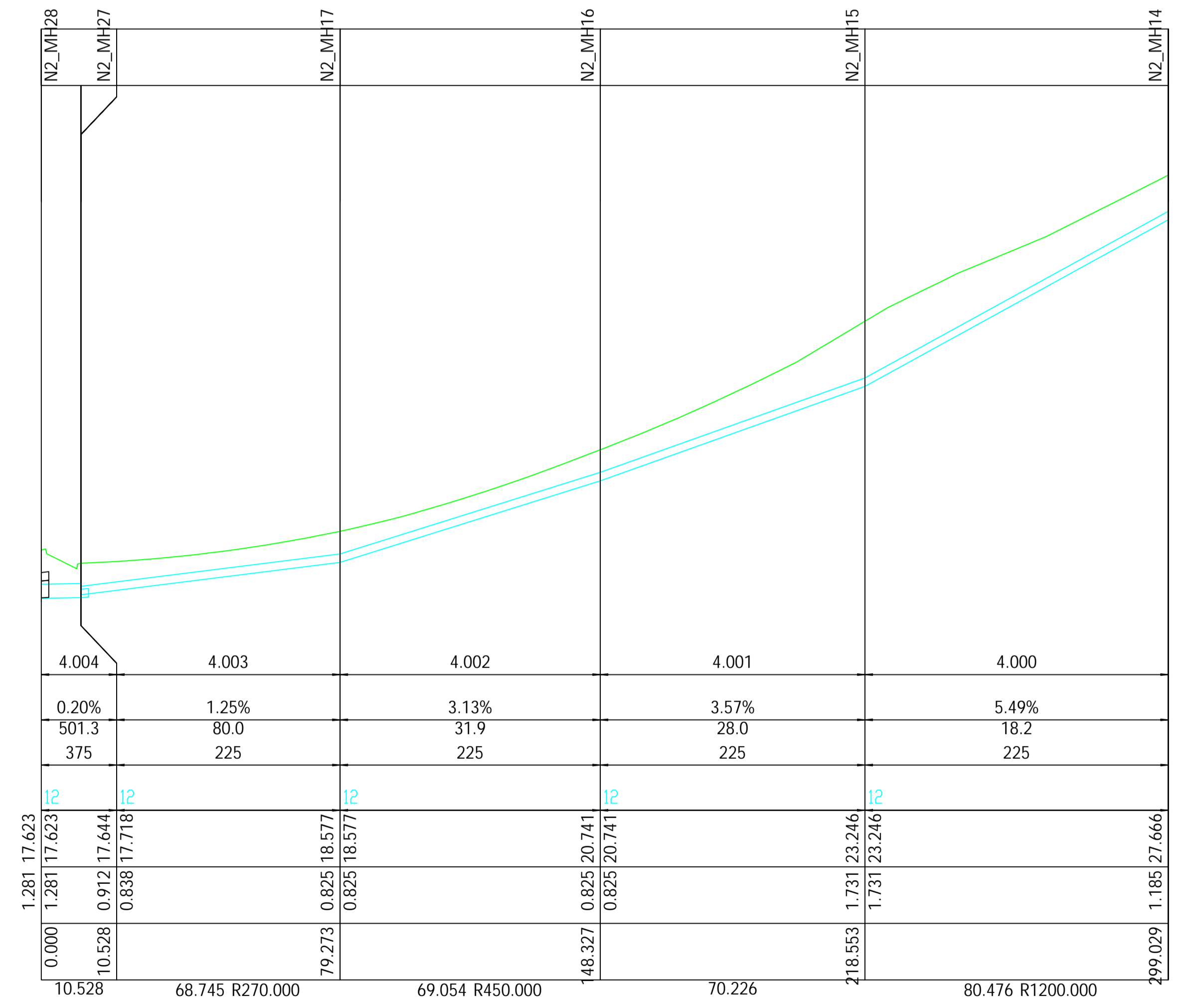


STRUCTURE NAME

PIPE NUMBER  
 PIPE GRADE %  
 PIPE SLOPE 1 in X  
 PIPE SIZE (mm)  
 DATUM  
 INVERT  
 DEPTH TO INVERT  
 CHAINAGE



Longsection Drainage Network 2; Pipe-run 1.000 to 1.004



Longsection Drainage Network 2; Pipe-run 4.000 to 4.004

NOTES:  
 DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	3/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
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F7	31/1/2022	Inclusion of Note with respect to accidental spillages	JL	CD	GJ
F8	23/2/2022	Further alterations to layout on final review	JL	CD	GJ
F9	24/08/2022	Further alterations to layout on final review	JL	CD	GJ

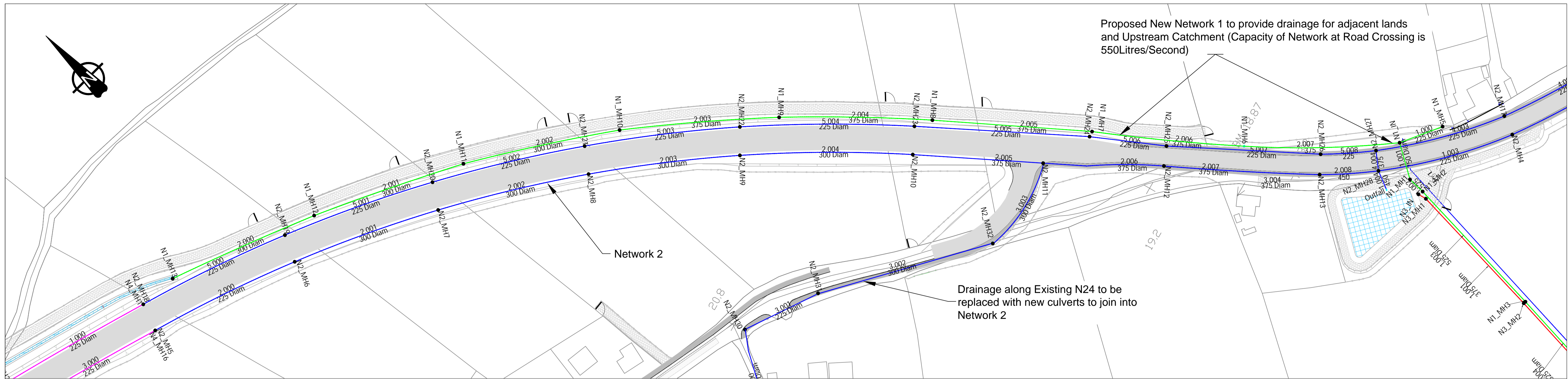
Client  
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Approved by: G.Jones (GJ)  
 Checked by: C.Daly (CD)  
 Drawn by: J.Leacy (JL)  
 Scale:  
 Horizontal: 1:1000 (A1)  
 Vertical: 1:100 (A1)  
 Rev. Date: 24/08/2022

Project Title:  
 N24 Carrick Road Improvement Scheme  
 Drawing Title:  
 Drainage Layout  
 Network 2 Details  
 Drawing Number: KK1613403-P3-DR-002

NRA Project No.: KK/16/13403  
 TH Project No.: TH/16/030  
 Project Folder No.: 7.6.1  
 Rev.: F9  
 (Sheet 2 of 8)



Proposed New Network 1 to provide drainage for adjacent lands and Upstream Catchment (Capacity of Network at Road Crossing is 550Litres/Second)

Network 2

Drainage along Existing N24 to be replaced with new culverts to join into Network 2

STRUCTURE NAME	N2_MH18	N2_MH19	N2_MH20	N2_MH21	N2_MH22	N2_MH23	N2_MH24	N2_MH25	N2_MH26	N2_MH27	N2_MH33	N2_MH13
PIPE NUMBER	5.000	5.001	5.002	5.003	5.004	5.005	5.006	5.007	5.008	5.008	3.004	
PIPE GRADE %	0.20%	0.40%	0.40%	0.50%	0.56%	0.87%	0.59%	0.67%	0.67%	0.67%	0.20%	
PIPE SLOPE 1 in X	499.4	251.4	251.4	199.9	179.9	114.9	170.1	150.0	150.0	150.0	497.5	
PIPE SIZE (mm)	225	225	225	225	225	225	225	225	225	225	375	
DATUM		16	16	15	15	14	14	13	13	13	13	13
INVERT	1.009 21.100	1.263 20.937 1.263 20.937	1.150 20.615 1.150 20.615	1.063 20.294 1.063 20.294	0.929 19.890 0.929 19.890	0.829 19.389 0.829 19.389	0.829 18.601 0.829 18.601	0.829 18.366 0.829 18.366	0.744 17.835 0.744 17.835	0.912 17.644 0.912 17.644	0.900 17.878	1.092 17.789
DEPTH TO INVERT												
CHAINAGE	452.806	571.407	490.456	409.741	328.963	238.839	148.288	108.321	28.651	0.000	44.278	0.000
	R720.000 81.399	R720.000 80.952	R720.000 80.714	R720.000 80.779	R800.000 90.123	90.552	39.967	79.670	R255.000 28.651	44.278		

Longsection Drainage Network 2; Pipe-run 5.000 to 5.008

STRUCTURE NAME	N2_MH5	N2_MH6	N2_MH7	N2_MH8	N2_MH9	N2_MH10	N2_MH11	N2_MH12	N2_MH13	N2_MH28
PIPE NUMBER	2.000	2.001	2.002	2.003	2.004	2.005	2.006	2.007	2.008	
PIPE GRADE %	0.40%	0.40%	0.55%	0.46%	0.66%	0.50%	0.56%	0.32%	0.50%	
PIPE SLOPE 1 in X	252.4	252.4	180.6	216.3	150.8	198.1	178.2	316.9	200.1	
PIPE SIZE (mm)	225	300	300	300	300	375	375	375	450	
DATUM		135	135	135	135	13	13	13	13	13
INVERT	0.825 20.925	0.983 20.607 0.983 20.607	1.044 20.295 1.044 20.295	0.900 19.853 0.900 19.853	0.900 19.489 0.900 19.489	0.975 18.897 0.975 18.897	0.975 18.443 0.975 18.443	0.975 18.219 0.975 18.219	0.916 17.965 1.092 17.789	1.261 17.637 1.281 17.623
DEPTH TO INVERT										
CHAINAGE	647.607	567.347	488.593	408.747	330.029	240.751	150.822	10.906	30.415	0.000
	R720.000 80.260	R720.000 78.754	R720.000 79.846	R720.000 78.718	R720.000 89.278	89.929	R255.000 39.916	R1500.000 80.491	R255.000 30.415	

Longsection Drainage Network 2; Pipe-run 2.000 to 2.008

NOTES:

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	3/12/2019	First Issue	JL	DR	GJ
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F8	24/08/2022	Further alterations to layout on final review	JL	CD	GJ

Client  
**KILKENNY COUNTY COUNCIL**  
 COUNTY HALL  
 JOHN STREET  
 KILKENNY



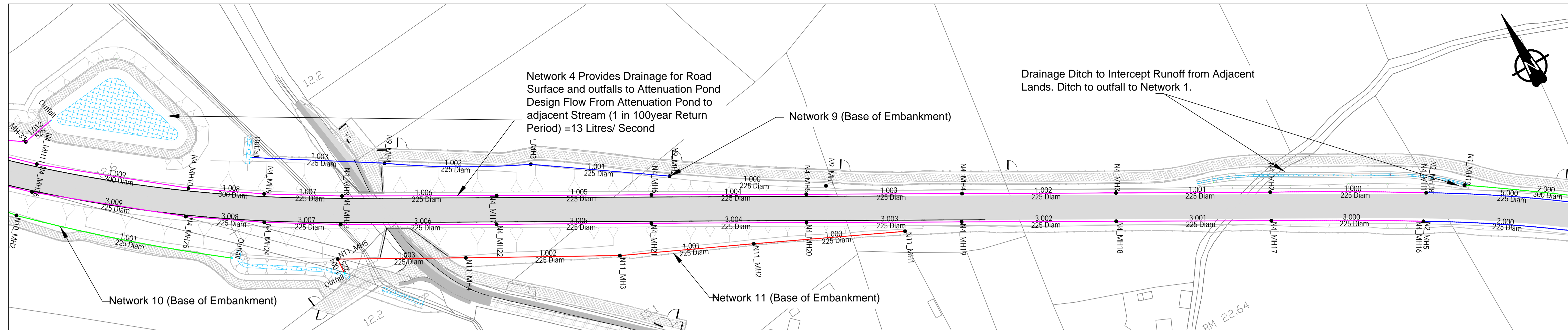
Design  
**TRAMORE HOUSE**  
 REGIONAL DESIGN OFFICE  
 TRAMORE  
 CO. WATERFORD



Approved by: G.Jones (GJ)  
 Checked by: C.Daly (CD)  
 Drawn by: J.Leacy (JL)  
 Scale: Horizontal: 1:1000 (A1)  
 Vertical: 1:100 (A1)  
 Rev. Date: 24/08/2022

Project Title:  
**N24 Carrick Road Improvement Scheme**  
 Drawing Title:  
**Drainage Layout  
 Network 2 Details**  
 Drawing Number: KK1613403-P3-DR-003

NRA Project No.: **KK/16/13403**  
 TH Project No.: **TH/16/030**  
 Project Folder No.: **7.6.1**  
 Rev.: **F8**  
 (Sheet 3 of 8)



STRUCTURE NAME
PIPE NUMBER
PIPE GRADE %
PIPE SLOPE 1 in X
PIPE SIZE (mm)
DATUM
DEPTH TO INVERT
INVERT
CHAINAGE

STRUCTURE NAME	N4_MH10	N4_MH9	N4_MH8	N4_MH7	N4_MH6	N4_MH5	N4_MH4	N4_MH3	N4_MH2	N4_MH1
PIPE NUMBER	1.008	1.007	1.006	1.005	1.004	1.003	1.002	1.001	1.000	
PIPE GRADE %	0.28%	2.31%	1.17%	0.55%	0.40%	0.40%	0.40%	0.40%	0.40%	0.40%
PIPE SLOPE 1 in X	355.6	43.3	85.6	180.3	251.8	251.8	251.8	251.8	251.8	251.8
PIPE SIZE (mm)	300	225	225	225	225	225	225	225	225	225
DATUM	12	12	14	14	14	15	15	15	15	15
DEPTH TO INVERT	1.208	1.200	1.125	1.125	1.351	1.544	1.765	1.634	1.349	1.175
INVERT	17.404	17.514	18.518	19.451	19.894	20.212	20.532	20.847	21.164	21.484
CHAINAGE	39.251	40.259	79.890	79.913	80.000	80.480	79.488	79.740	80.565	864.152

Longsection Drainage Network 4; Pipe-run 1.000 to 1.008

STRUCTURE NAME
PIPE NUMBER
PIPE GRADE %
PIPE SLOPE 1 in X
PIPE SIZE (mm)
DATUM
DEPTH TO INVERT
INVERT
CHAINAGE

STRUCTURE NAME	N4_MH26	N4_MH25	N4_MH24	N4_MH23	N4_MH22	N4_MH21	N4_MH20	N4_MH19	N4_MH18	N4_MH17	N4_MH16
PIPE NUMBER	3.009	3.008	3.007	3.006	3.005	3.004	3.003	3.002	3.001	3.000	
PIPE GRADE %	1.82%	1.00%	0.51%	0.51%	0.51%	0.40%	0.40%	0.40%	0.40%	0.64%	0.64%
PIPE SLOPE 1 in X	55.0	100.0	195.0	195.0	195.5	252.9	252.9	252.9	252.9	155.1	155.1
PIPE SIZE (mm)	225	225	225	225	225	225	225	225	225	225	225
DATUM	12	12	12	14	14	14	14	14	14	14	14
DEPTH TO INVERT	1.037	0.796	0.848	-0.867	1.125	1.401	1.587	1.622	1.680	1.395	0.678
INVERT	16.958	18.421	18.827	19.030	19.443	19.852	20.169	20.485	20.801	21.118	21.625
CHAINAGE	86.302	166.763	207.362	246.958	327.454	407.383	487.556	567.666	647.530	727.671	806.295

Longsection Drainage Network 4; Pipe-run 3.000 to 3.009

NOTES:

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	3/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	13/3/2020	Revised further to decision to include Under-bridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	12/11/2020	Minor alterations to layout	JL	CD	GJ
F6	22/4/2020	Further alterations to layout further to TIL review	JL	AM	GJ
F7	18/8/2022	Further alterations to layout further to Client review	JL	CD	GJ
F8	24/08/2022	Further alterations to layout further to Client review	JL	CD	GJ

Client  
**KILKENNY COUNTY COUNCIL**  
 COUNTY HALL  
 JOHN STREET  
 KILKENNY

Design  
**TRAMORE HOUSE**  
 REGIONAL DESIGN OFFICE  
 TRAMORE  
 CO. WATERFORD

Approved by: G.Jones (GJ)  
 Checked by: C.Daly (CD)  
 Drawn by: J.Leacy (JL)

Scale:  
 Horizontal: 1:1000 (A1)  
 Vertical: 1:100 (A1)

Rev. Date:  
 24/08/2022

Project Title:  
**N24 Carrick Road Improvement Scheme**

Drawing Title:  
**Drainage Layout  
 Network 4 Details**  
 (Sheet 4 of 8)

Drawing Number: KK1613403-P3-DR-004

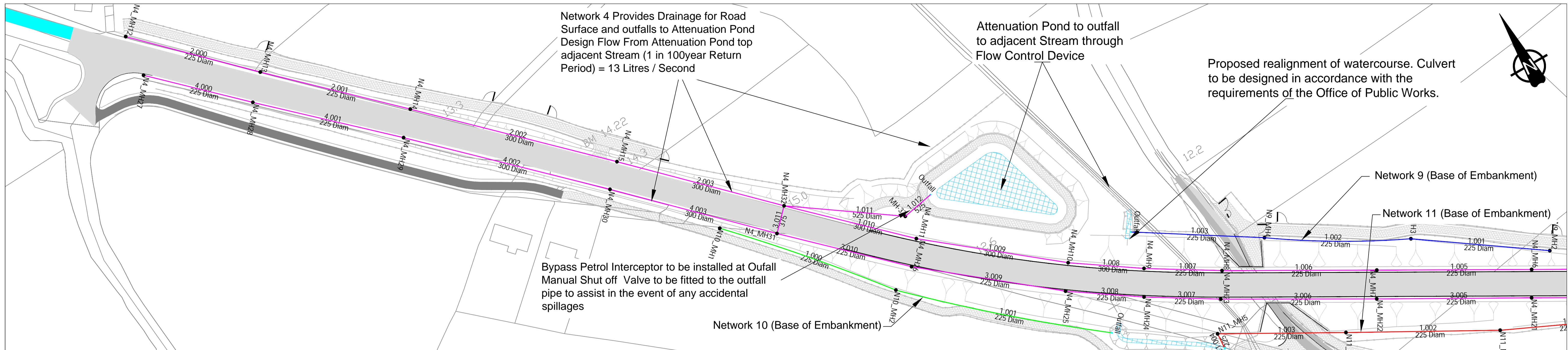
NRA Project No.:  
**KK/16/13403**

TH Project No.:  
**TH/16/030**

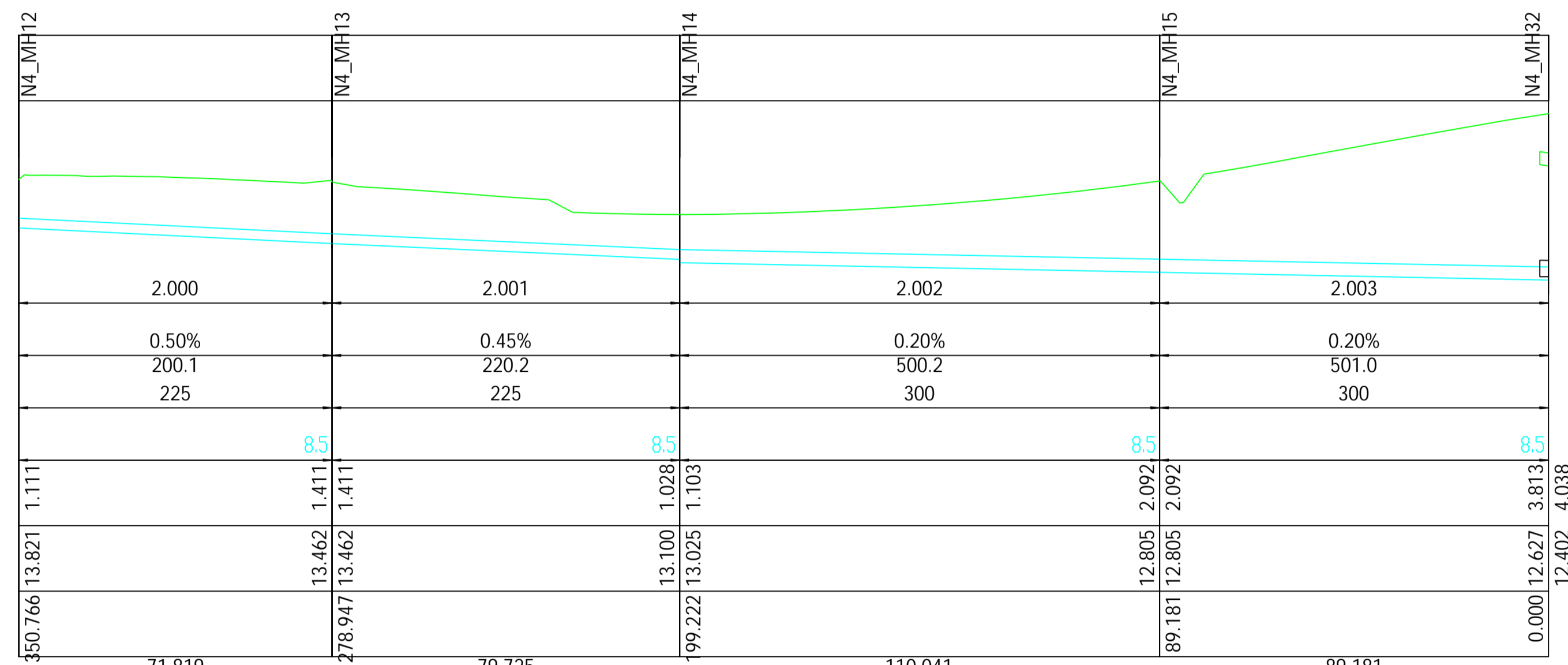
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**7.6.1**

Rev.:  
**F8**

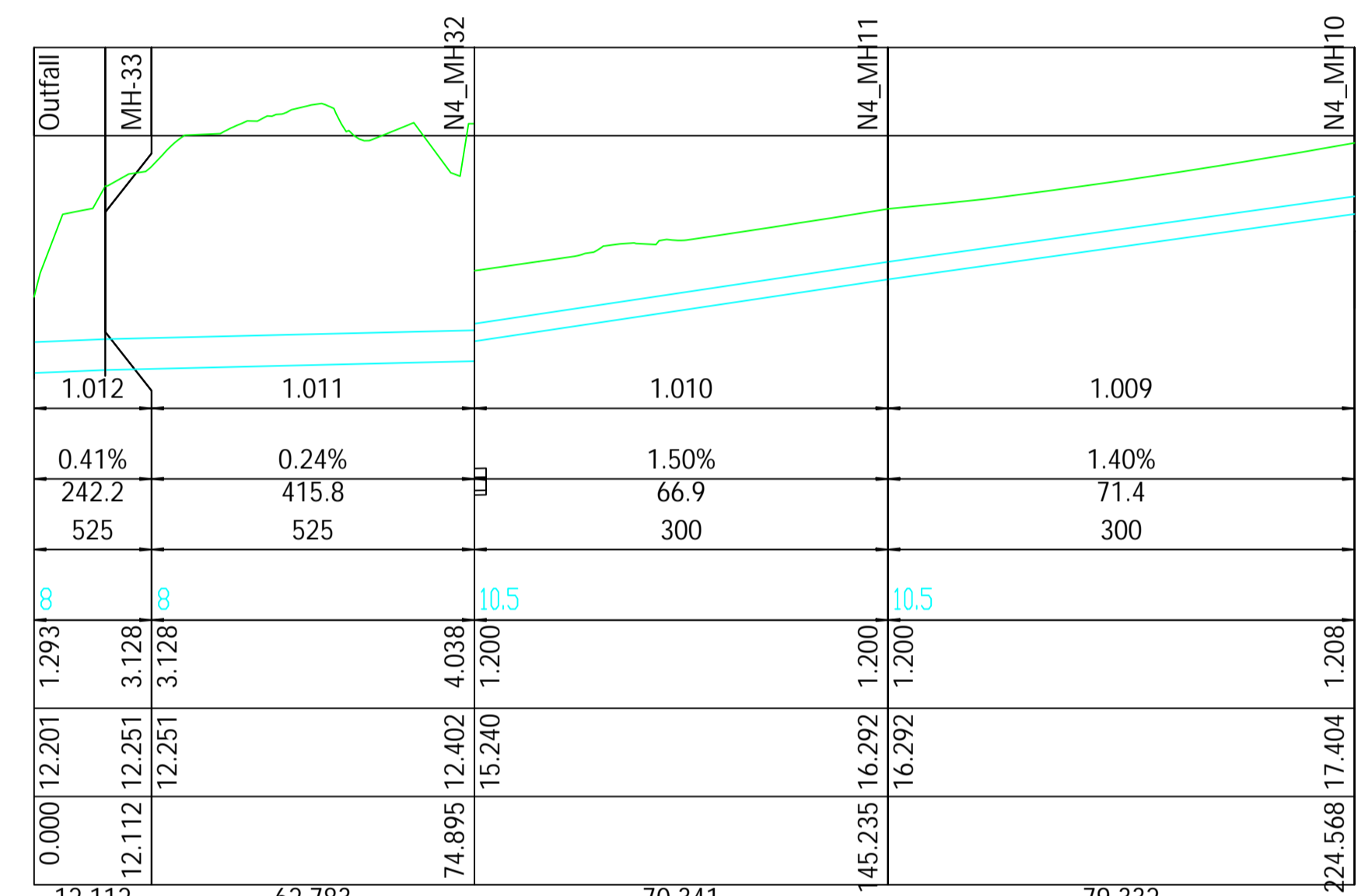
File Drawing:  
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STRUCTURE NAME
PIPE NUMBER
PIPE GRADE %
PIPE SLOPE 1 in X
PIPE SIZE (mm)
DATUM
DEPTH TO INVERT
INVERT
CHAINAGE

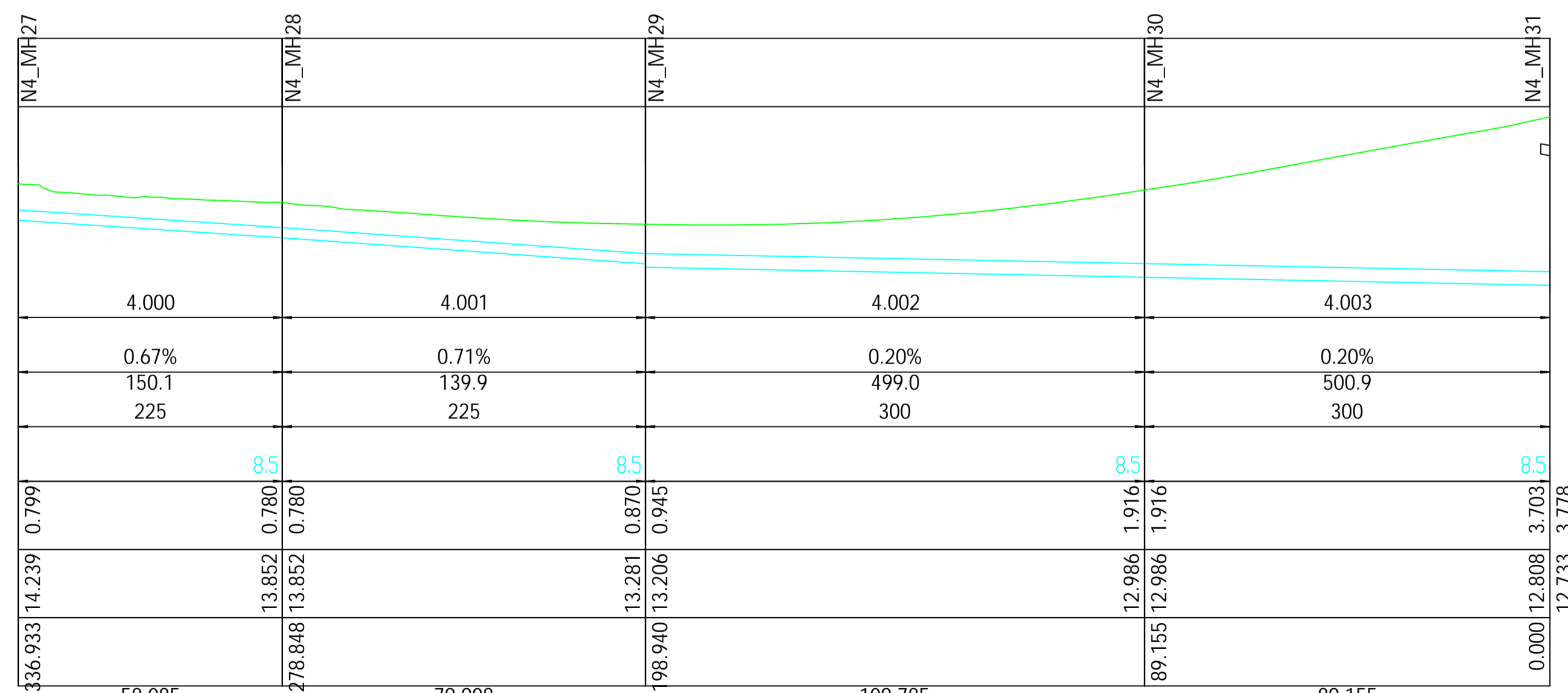


Longsection Drainage Network 4; Pipe-run 2.000 to 2.003

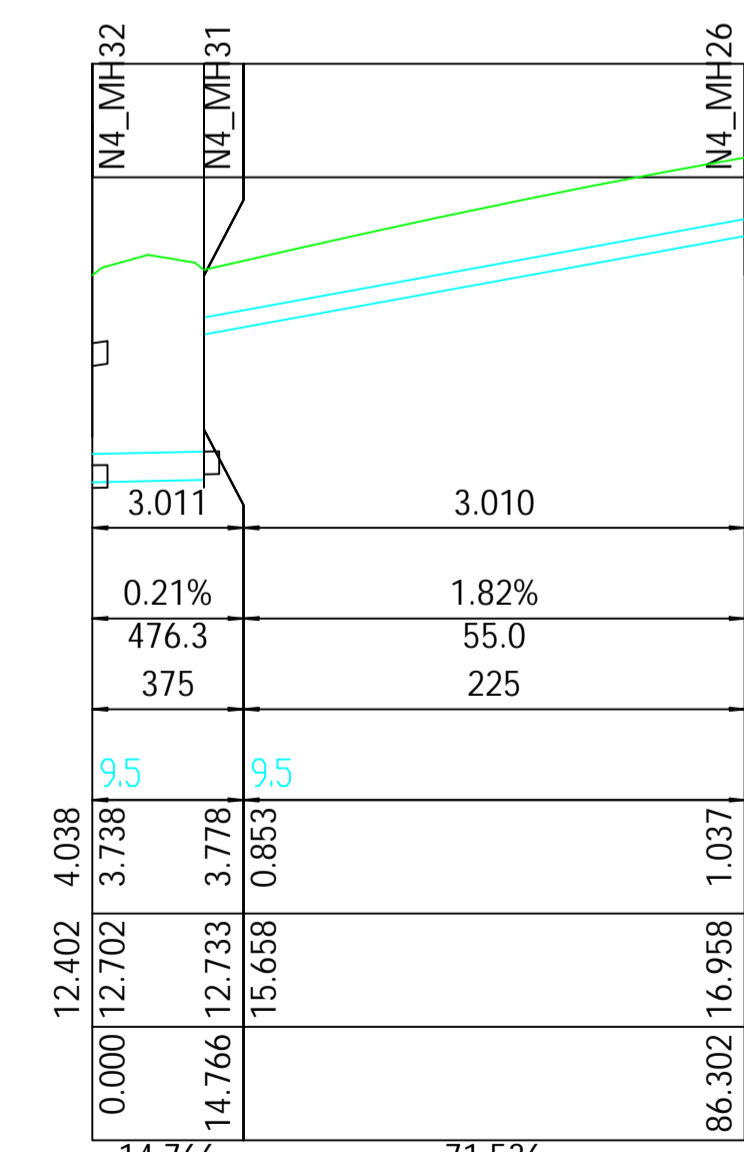


Longsection Drainage Network 4; Pipe-run 1.009 to 1.012

STRUCTURE NAME
PIPE NUMBER
PIPE GRADE %
PIPE SLOPE 1 in X
PIPE SIZE (mm)
DATUM
DEPTH TO INVERT
INVERT
CHAINAGE



Longsection Drainage Network 4; Pipe-run 4.000 to 4.003



Longsection Drainage Network 4; Pipe-run 3.009 to 3.011

NOTES:

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	3/12/2019	First Issue	JL	DR	GJ
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F6	22/4/2020	Further alterations to layout further to TII review	JL	AM	GJ
F7	3/11/2022	Inclusion of note in respect of accidental spillages	JL	CD	GJ
F8	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ

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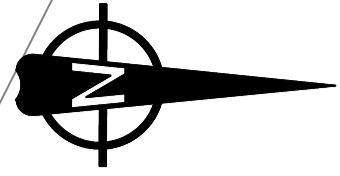
Approved by: G.Jones (GJ)  
 Checked by: C.Daly (CD)  
 Drawn by: J.Leacy (JL)  
 Scale: Horizontal: 1:1000 (A1)  
 Vertical: 1:100 (A1)  
 Rev. Date: 1/06/2022

Project Title:  
**N24 Carrick Road Improvement Scheme**

Drawing Title:  
**Drainage Layout  
 Network 4 Details**  
 (Sheet 5 of 8)

Drawing Number: KK1613403-P3-DR-005

NRA Project No.: **KK/16/13403**  
 TH Project No.: **TH/16/030**  
 Project Folder No.: **7.6.1**  
 Rev.: **F8**  
 File Drawing: **KK1613403-P3-DR-005F8**



Network 2 Provides Drainage for Existing and Proposed Road Surface and outfalls to Attenuation Pond.  
Design Flow from Attenuation Pond (1 in 100 Year Return) = 32 Litres / Second

Location of Open Drain

Network 3, Proposed new piped drain from Attenuation Pond

Existing Drainage (375mm Dia Pipe) to be replaced with new 375mm Diameter Pipe and Manholes. Existing Drainage Crossing to be adjusted to accommodate proposed new drainage

Proposed New Network 1 to provide drainage for adjacent lands and Upstream Catchment (Capacity of Network at Road Crossing and Outfall = 550 Litres/Second)

STRUCTURE NAME

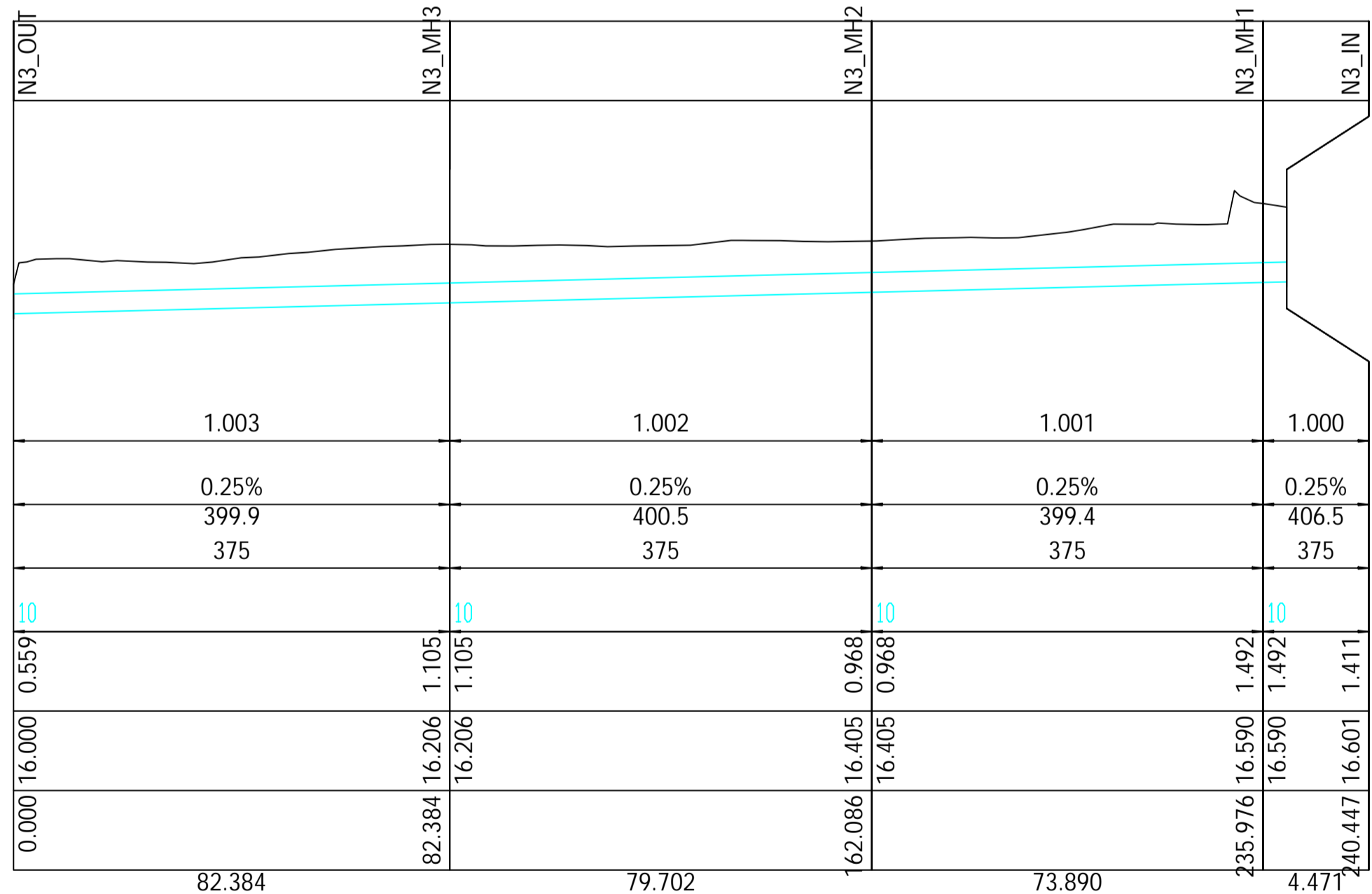
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PIPE GRADE %  
PIPE SLOPE 1 in X  
PIPE SIZE (mm)

DATUM

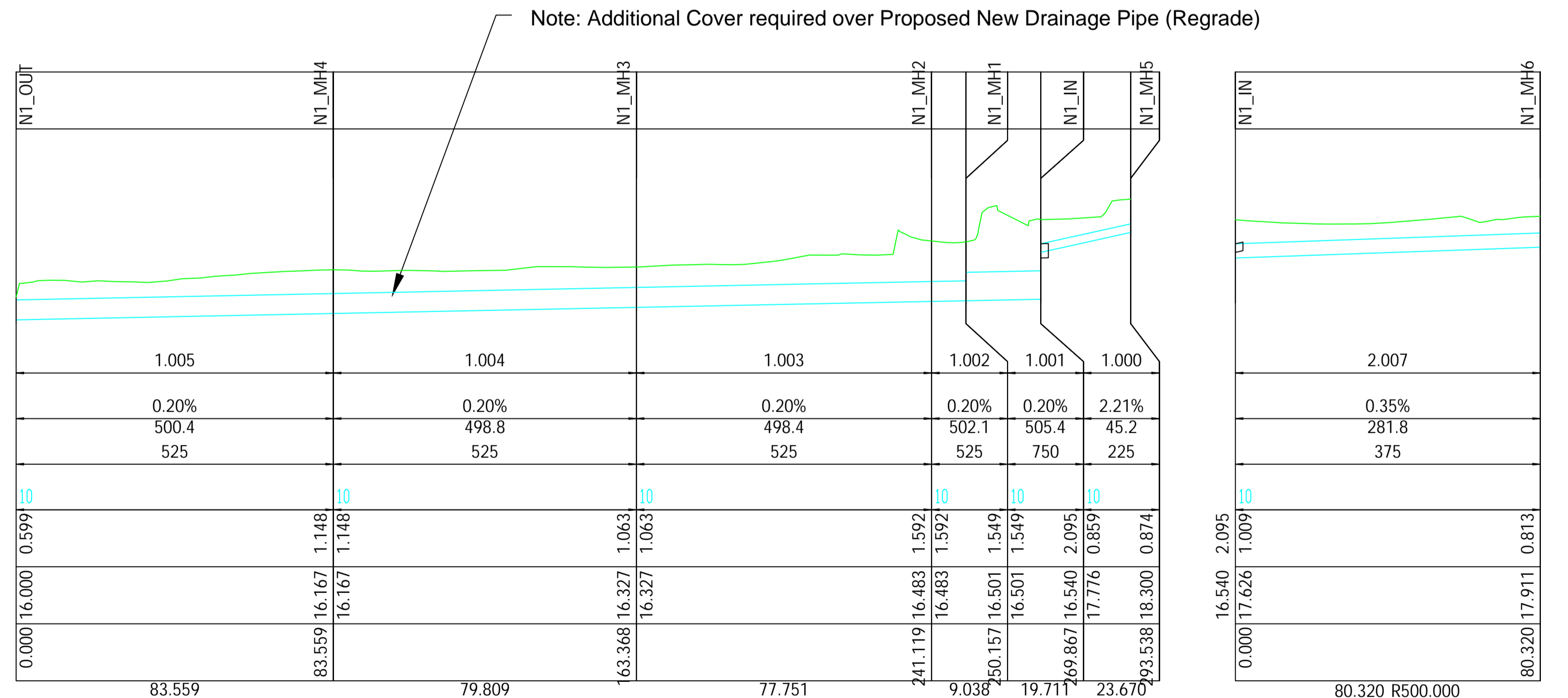
DEPTH TO INVERT

INVERT

CHAINAGE



Longsection Drainage Network 3; Pipe-run 1.000 to 1.003



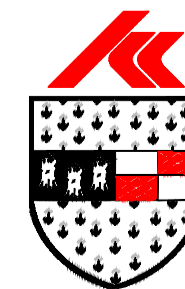
Longsection Drainage Network 1; Pipe-run 1.000 to 1.005 & 2.007

NOTES:

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	3/12/2019	First Issue	JL	DR	GJ
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F8	24/08/2022	Further alterations to layout further to Client review	JL	CD	GJ

DO NOT SCALE

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Checked by: C.Daly (CD)  
Drawn by: J.Leacy (JL)

Scale:  
Horizontal: 1:1000 (A1)  
Vertical: 1:100 (A1)

Rev. Date:  
24/08/2022

Project Title:  
N24 Carrick Road Improvement Scheme

Drawing Title:  
Drainage Layout  
Network 1 & Network 3 Details (Sheet 6 of 8)

Drawing Number: KK1613403-P3-DR-006

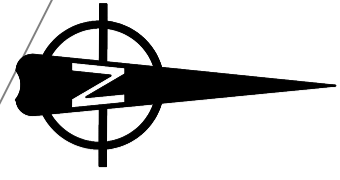
NRA Project No.:  
KK/16/13403

TH Project No.:  
TH/16/030

Project Folder No.:  
7.6.1

Rev.:  
F8

File Drawing:  
KK1613403-P3-DR-006F8



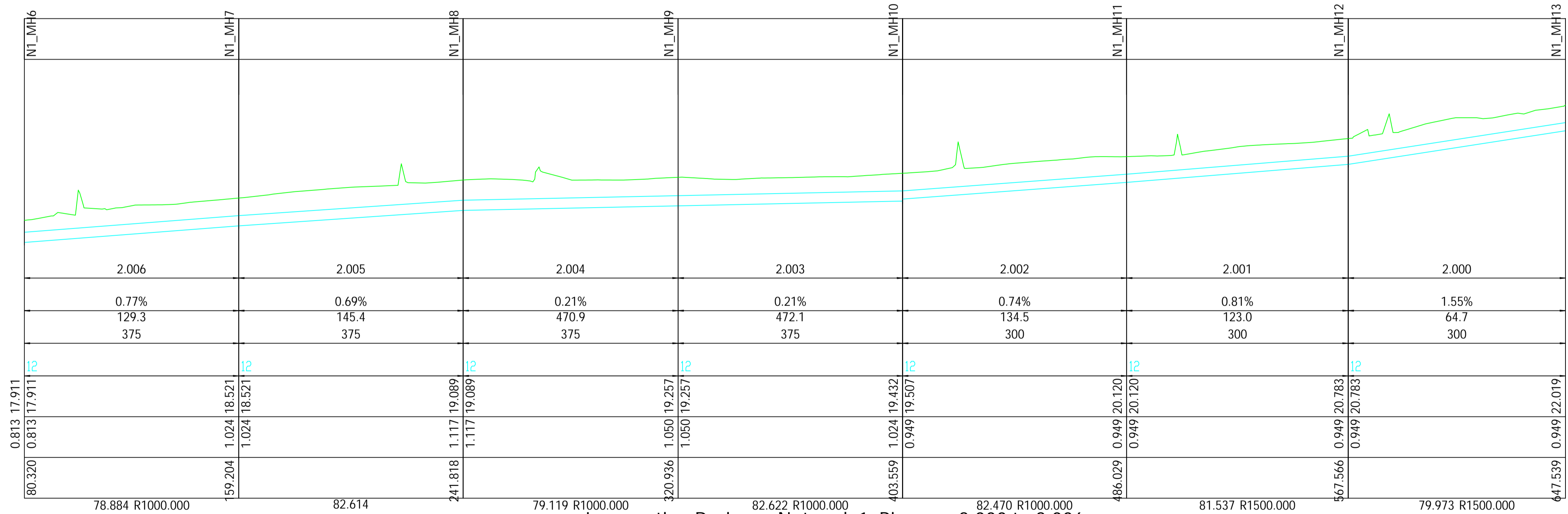
Existing N24 Drainage to be upgraded

Network 1

STRUCTURE NAME

PIPE NUMBER  
PIPE GRADE %  
PIPE SLOPE 1 in X  
PIPE SIZE (mm)

DATUM  
INVERT  
DEPTH TO INVERT  
CHAINAGE

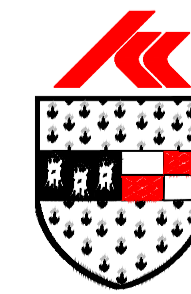


Longsection Drainage Network 1; Pipe-run 2.000 to 2.006

NOTES:

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F8	24/08/2022	Further alterations to layout further to Client review	JL	CD	GJ

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Checked by: C.Daly (CD)  
Drawn by: J.Leacy (JL)

Scale:  
Horizontal: 1:1000 (A1)  
Vertical: 1:100 (A1)

Rev. Date:  
24/08/2022

Project Title:  
N24 Carrick Road Improvement Scheme

Drawing Title:  
Drainage Layout  
Network 1 Details  
(Sheet 7 of 8)

Drawing Number: KK1613403-P3-DR-007

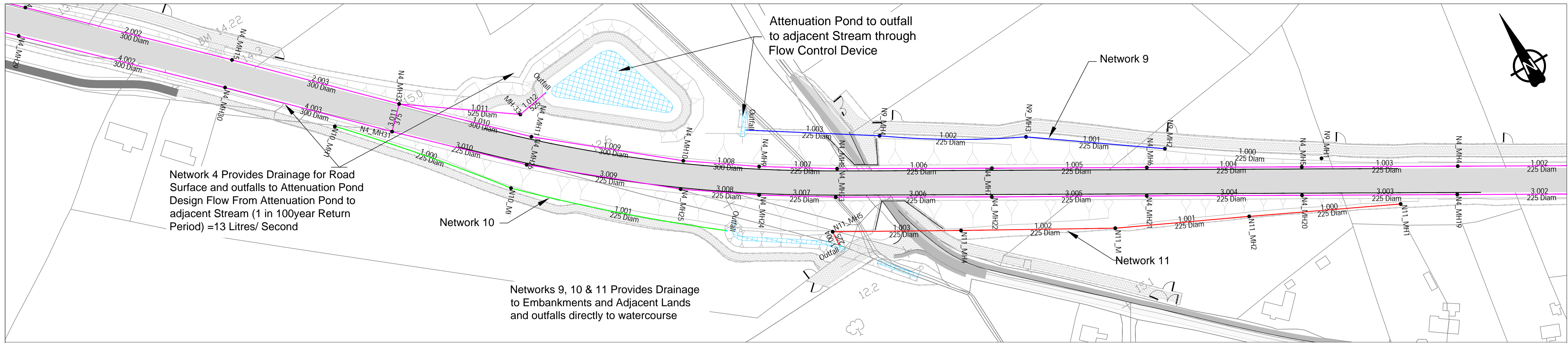
NRA Project No.:  
KK/16/13403

TH Project No.:  
TH/16/030

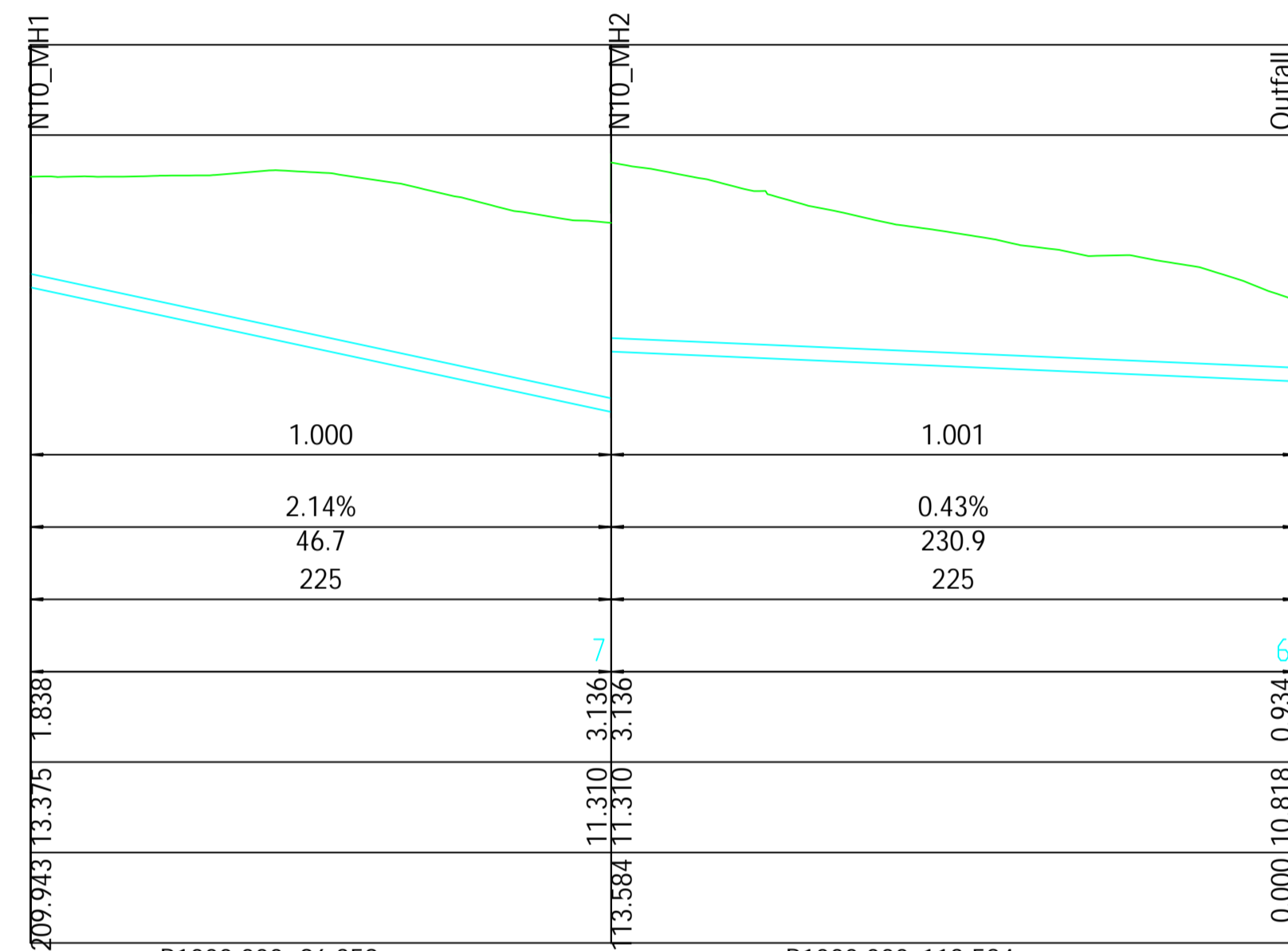
Project Folder No.:  
7.6.1

Rev.:  
F8

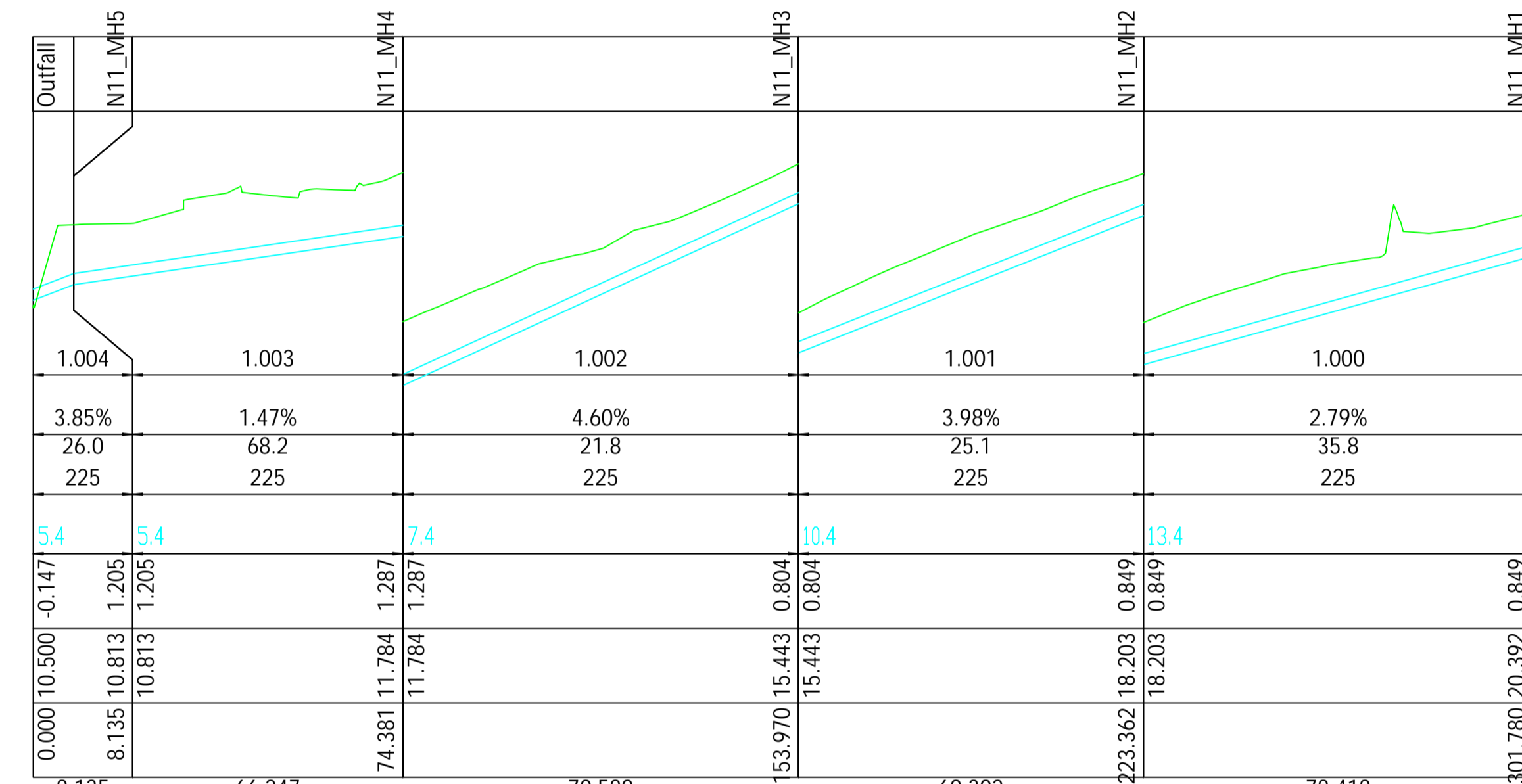
DO NOT SCALE



STRUCTURE NAME
PIPE NUMBER
PIPE GRADE %
PIPE SLOPE 1 in X
PIPE SIZE (mm)
DATUM
DEPTH TO INVERT
INVERT
CHAINAGE

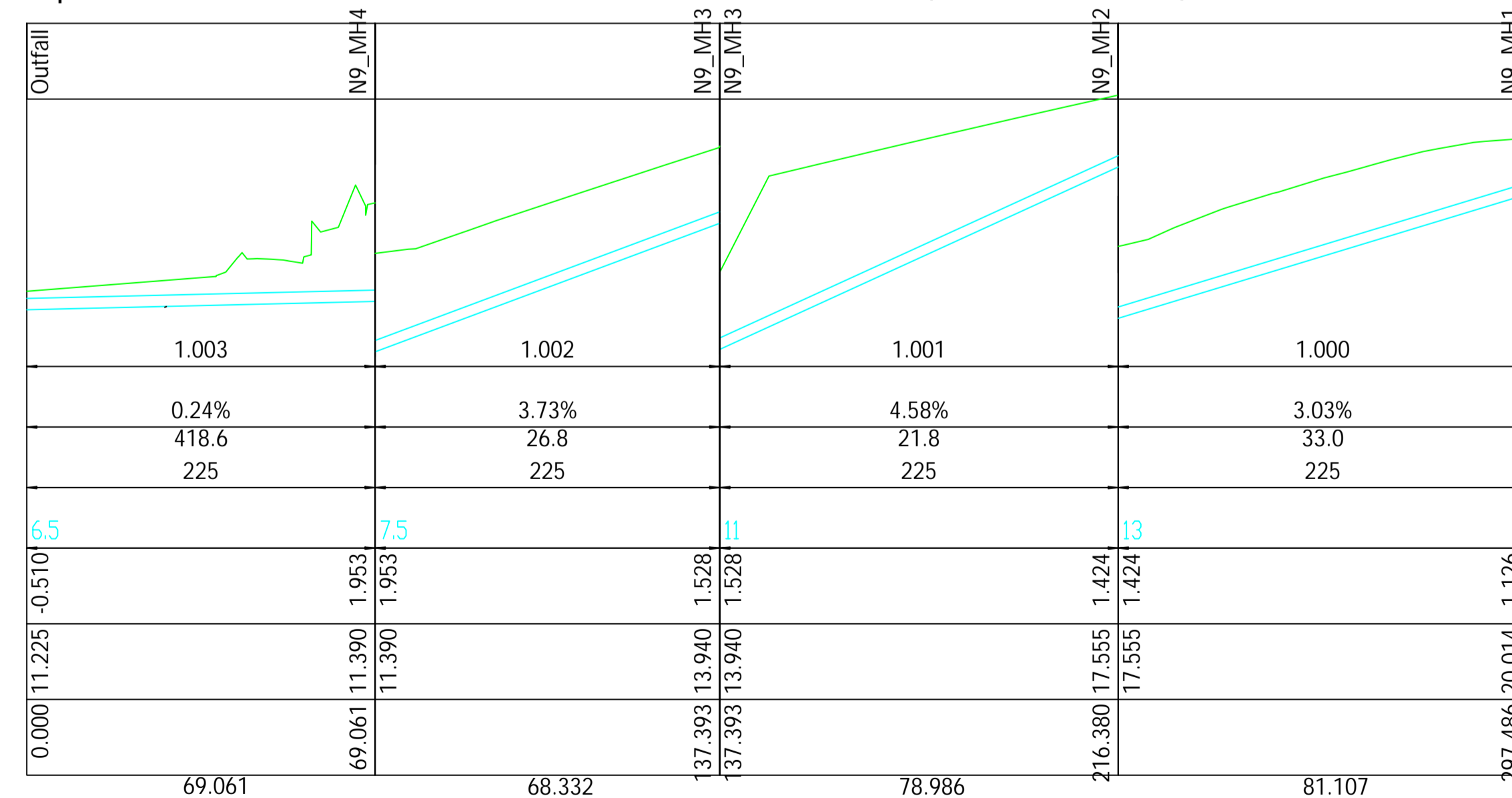


Longsection Drainage Network 10; Pipe-run 1.000 to 1.001



Longsection Drainage Network 11; Pipe-run 1.000 to 1.003

STRUCTURE NAME
PIPE NUMBER
PIPE GRADE %
PIPE SLOPE 1 in X
PIPE SIZE (mm)
DATUM
DEPTH TO INVERT
INVERT
CHAINAGE



Longsection Drainage Network 9; Pipe-run 1.000 to 1.003

NOTES:

DO NOT SCALE

Revision	Date	Description	Drawn by	Checked by	Approved by
F1	3/12/2019	First Issue	JL	DR	GJ
F2	5/2/2020	Revised for issue further to comments received from Client	JL	CD	GJ
F3	13/3/2020	Revised further to decision to include Under-bridge	JL	CD	GJ
F4	24/3/2020	Revised further to comments received from Client	JL	CD	GJ
F5	12/11/2020	Minor alterations to layout	JL	CD	GJ
F6	22/4/2020	Further alterations to layout further to TII review	JL	AM	GJ
F7	1/6/2022	Further alterations to layout further to Client review	JL	CD	GJ

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Checked by: C.Daly (CD)

Drawn by: J.Leacy (JL)

Scale:  
Horizontal: 1:1000 (A1)  
Vertical: 1:100 (A1)

Rev. Date:  
1/06/2022

Project Title:  
N24 Carrick Road Improvement Scheme

Drawing Title:  
Drainage Layout  
Network 9, 10 & 11 Details (Sheet 8 of 8)

Drawing Number: KK1613403-P3-DR-008

NRA Project No.:  
KK/16/13403

TH Project No.:  
TH/16/030

Project Folder No.:  
7.6.1

Rev.:  
F7

File Drawing:  
KK1613403-P3-DR-008F7