

**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks
Cabinet with Regenerator and Verts	Fibre Joint	Copper Cable	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks
523m Cable Description	Screening Conductor Joint with/without Earth	Fibre Cable	Manhole	FTN Access Node	Cabinet Routeworks
2034m Cable Description	Screening Conductor	Screening Conductor	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks
30PR/0.63mm Cable Description	Fibre	Screening Conductor	Sheath Gap Copper	Tunnel	Overbridge
	218435-517828/314821-519242 Cable Description	Screening Conductor		Underbridge	Signal
	24 Optic Fibre Cable Description	Screening Conductor		Gantry	Vehicle Access Point
		Screening Conductor		Cable Pull	Pedestrian Access Point
		Screening Conductor		AC Stanchion	Earth Farm
		Screening Conductor			Buffer Stop
		Screening Conductor			Telephone

**Notes**

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
B	09-12-09	Redrawn and Amended as per NR Comments	MT	AEL	SW
A	09-12-09	2nd Issue	MT	AEL	SW
DA	28-08-08	1st Issue	MT	AEL	SW
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

**McNicholas**

Contractor(s)

Scale(s): NTS

ELR & Mileage: NMS1

Designed	Alan Littlefair	Sign.	Date	28-08-08
Drawn	Michal Taraj	Sign.	Date	28-08-08
Checked	Alan Littlefair	Sign.	Date	28-08-08
Approved	Steve Witt	Sign.	Date	28-08-08

Project: FTN / GSM-R Project

Drawing Title: Strawberry Hill (2119) to Norbiton (2120)

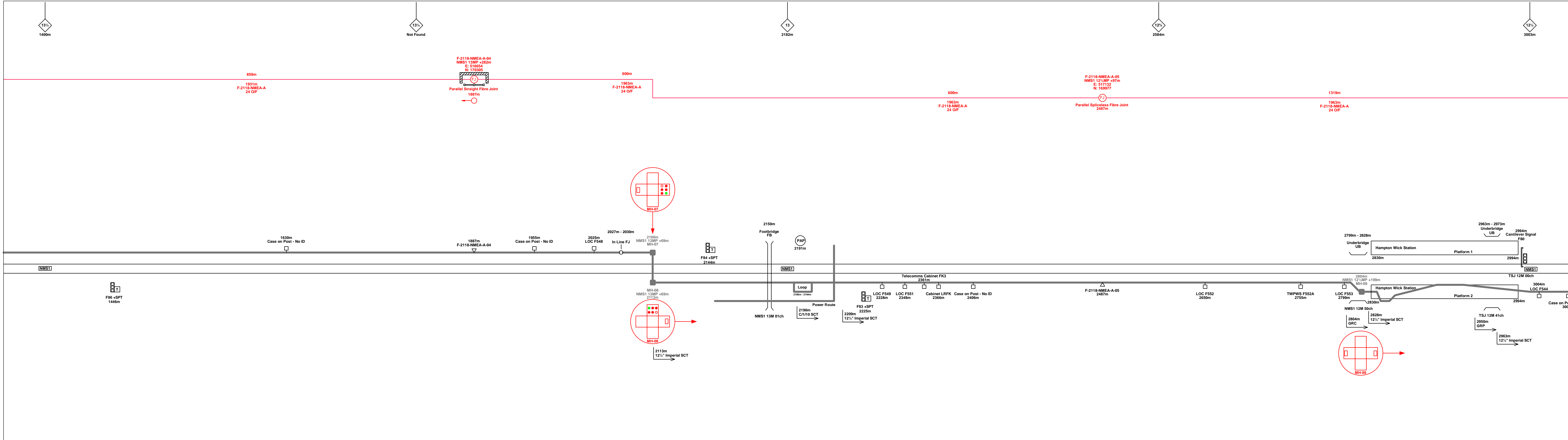
**Network Rail**

Alternative Reference: See Layout Tab A3 Sheets 1 and 2

Drawing Number: NTPO\SLD\2119\2120\001

Sheet: 1 of 3

Revision: B



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks
Cabinet with Regenerator and Verts	Fibre Joint	Copper Cable	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks
523m Cable Description	Screening Conductor Joint with/without Earth	Fibre Cable	Manhole	FTN Access Node	Cabinet Routeworks
2034m Cable Description	Screening Conductor	484m Cable Description	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks
30PR/0.63mm Cable Description	218435-517828/314821-519242 Cable Description	Screening Conductor	Sheath Gap Copper	Tunnel	Overbridge
				Underbridge	Signal
				Earth Farm	Vehicle Access Point
				Buffer Stop	Pedestrian Access Point
				Telephone	Engineer's Line Reference
					Crossing
					Gantry
					Cable Pull
					AC Stanchion

**Notes**

B	09-12-09	Redrawn and Amended as per NR Comments	MT	AEL	SW
A	09-12-09	2nd Issue	MT	AEL	SW
DA	28-08-08	1st Issue	MT	AEL	SW
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

**McNicholas**

Contractor(s)

Status: NTS

Scale(s): NTS

ELR & Mileage: NMS1

Designed	Alan Littlefair	Sign.	Date	28-08-08
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Approved	Steve Witt	Sign.	Date	28-08-08
Project	FTN / GSM-R Project			
Drawing Title	Strawberry Hill (2119) to Norbiton (2120)			

**Network Rail**

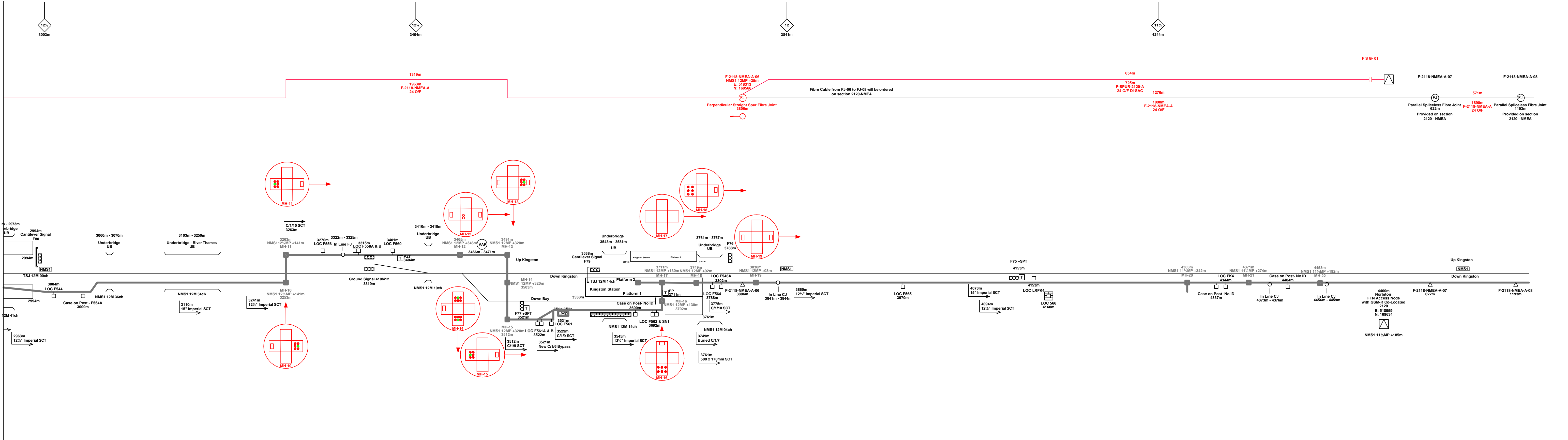
FTN/GSM-R Project  
Tournament House  
Reading  
London  
W2 1HA

Alternative Reference: See Layout Tab A3 Sheets 3 and 4

Drawing Number: NTPO\SLD\2119\2120\001

Sheet: 2 of 3

Revision: B



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks
Cabinet with Regenerator and Verts	Fibre Joint	Copper Cable	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks
Cable Description	Screening Conductor Joint with/without Earth	Fibre Cable	Manhole	FTN Access Node	Cabinet Routeworks
523m Cable Description	2034m Cable Description	484m Cable Description	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks
540m Cable Description	1988m Cable Description	492m Cable Description	Sheath Gap Copper	Tunnel	Overbridge
30PR/0.63mm Cable Description	218435-517828/314821-519242 Cable Description	150sq mm 19/3.25mm Cable Description	Manhole details: Green-To be used Red-In use Clear-Empty	Underbridge	Signal
			Tunnel	Vehicle Access Point	Engineer's Line Reference
			Tunnel	Pedestrian Access Point	Mile Post
			Tunnel	Earth Form	Platform
			Tunnel	Buffer Stop	Telephone
			Tunnel	Cable Pull	AC Stanchion

**Notes**

B	09-12-09	Redrawn and Amended as per NR Comments	MT	AEL	SW
A	09-12-09	2nd Issue	MT	AEL	SW
DA	28-08-08	1st Issue	MT	AEL	SW
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

**McNicholas**

Contractor(s)

Status: NTS

Scale(s): NTS

ELR & Mileage: NMS1

Designed	Alan Littlefair	Sign.	Date	28-08-08
Drawn	Michal Taraj	Sign.	Date	28-08-08
Checked	Alan Littlefair	Sign.	Date	28-08-08
Approved	Steve Witt	Sign.	Date	28-08-08

Project: FTN / GSM-R Project

Drawing Title: Strawberry Hill (2119) to Norbiton (2120)

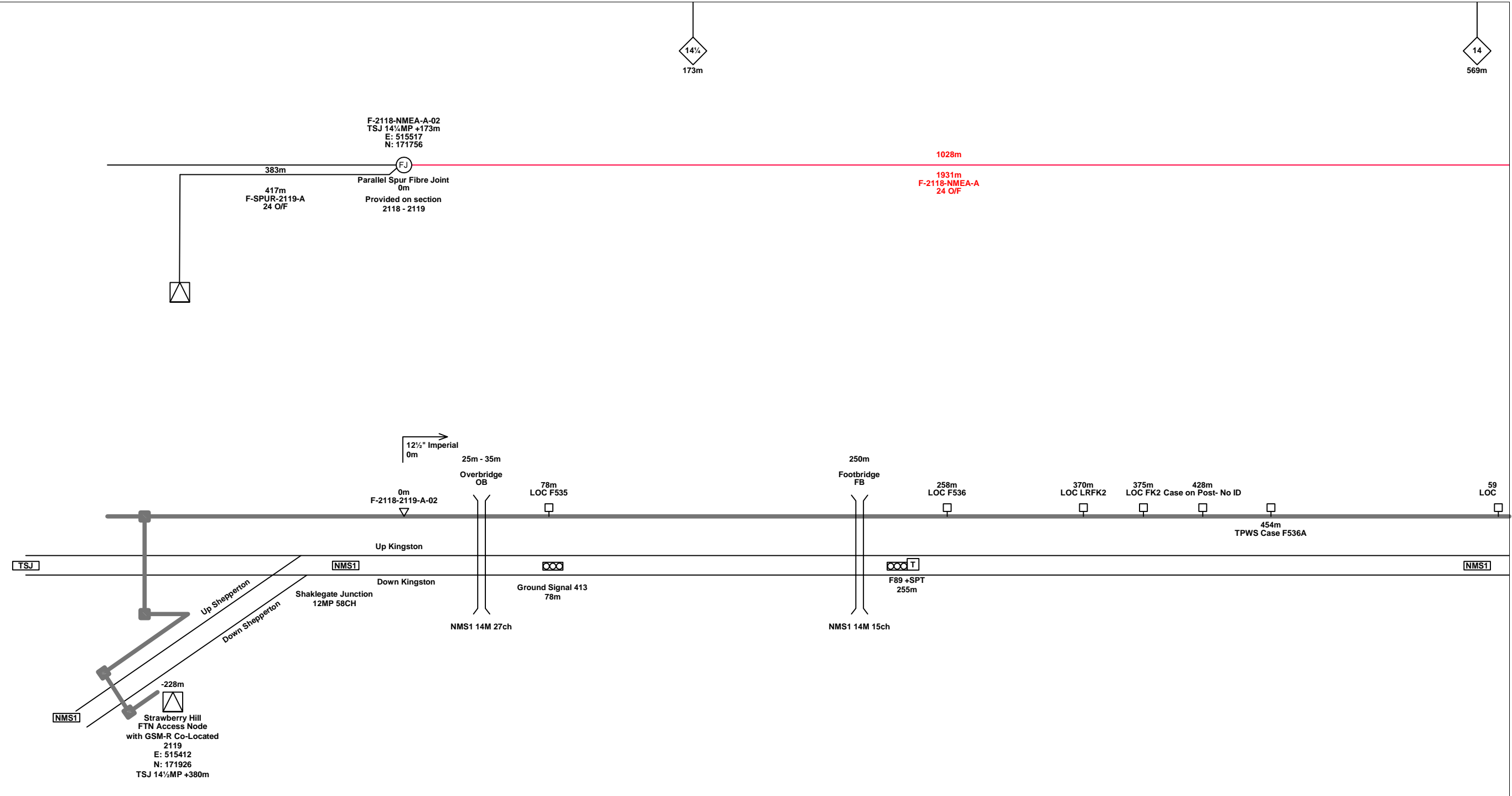
**Network Rail**

Alternative Reference: See Layout Tab A3 Sheets 5 and 6

Drawing Number: NTPO\SLD\2119\2120\001

Sheet: 3 of 3

Revision: B



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Crossing	GAS — GAS — Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Copper Cable	ECR Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	VAP Vehicle Access Point	Mile Post	Gantry	HV — HV — HV Cable
523m Cable Description Copper	Screening Conductor Joint with/without Earth	Fibre Cable	Manhole	FTN Access Node	Cabinet Routeworks		PAP Pedestrian Access Point	Platform	SEW — SEW — Sewer	LV — LV — LV Cable
540m C-DIDC-RGAC-A 30PR/0.63mm	1988m Cable Description Fibre	Screening Conductor	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telephone	v — v — Water
2034m F-DIDC-RGAC-A 24 Optic Fibre	484m Cable Description Screening Conductor									

**Notes**

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DA	28-08-08	1st Issue	MT	AEL	SW
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

**Contractor(s)**

**Status**

NTS

**Scale(s)**

ELR & Mileage

NMS1

Designed	Alan Littlefair	Sign.	Date	28-08-08
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Approved	Steve Witt	Sign.	Date	28-08-08
Project	FTN / GSM-R Project			
Drawing Title	Strawberry Hill (2119) to Norbiton (2120)			

FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

**Alternative Reference**

See Layout Tab 841 x 297 Sheet 1

**Drawing Number**

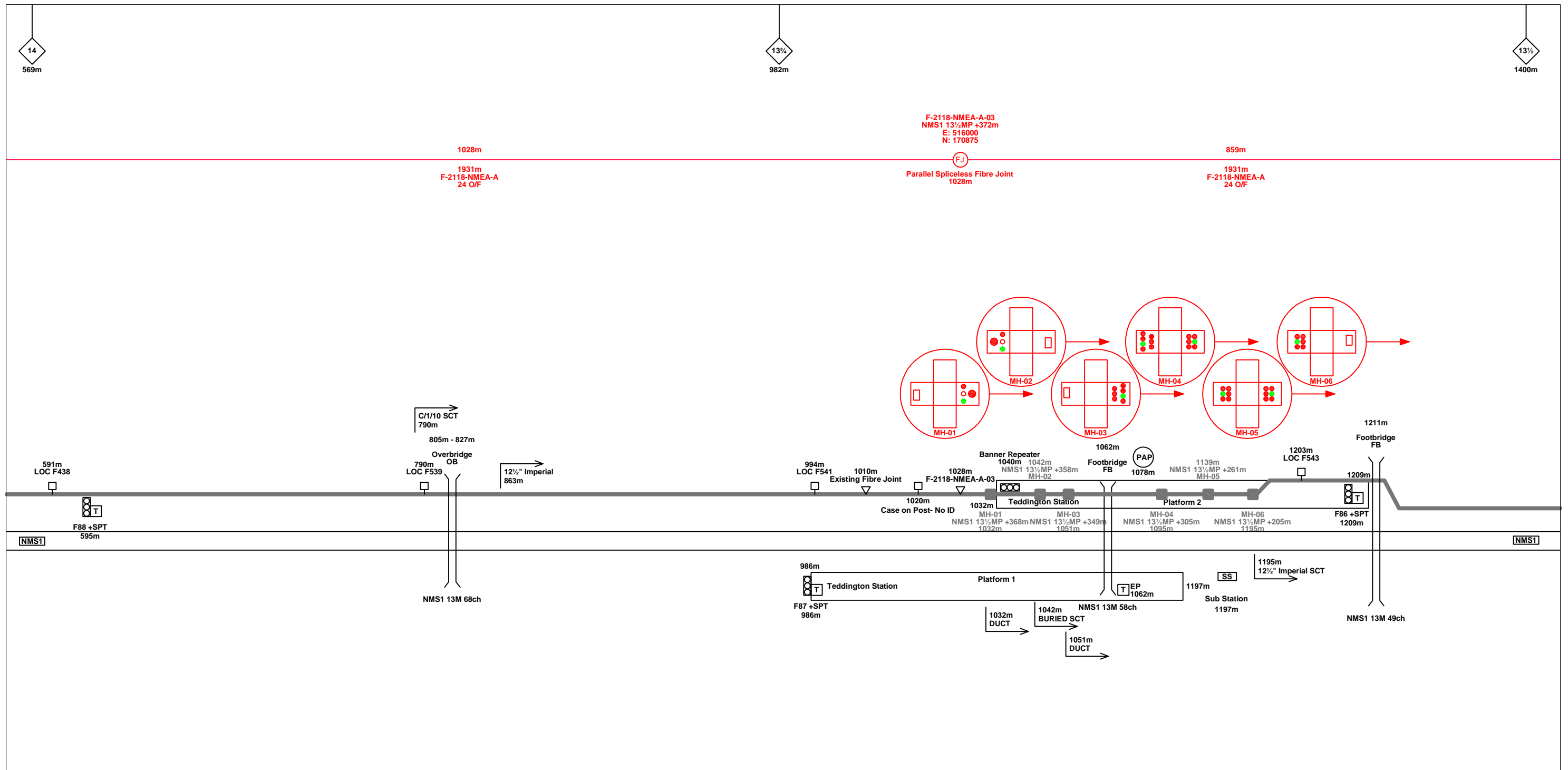
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**Sheet**

1 of 6

**Revision**

B



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Copper Cable	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	HV Cable
523m Cable Description Copper	Screening Conductor Joint with/without Earth	Fibre Cable	Manhole	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	LV Cable
1988m Cable Description Fibre	484m Cable Description Screening Conductor	Screening Conductor	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	Telephone	Sewer
540m Cable Description Copper	2034m Cable Description Fibre	492m Cable Description Screening Conductor	Sheath Gap Copper						Telecoms
30PR/0.63mm	24 Optic Fibre	218435-517828/314821-519242 150sq. mm 19/3.25mm							Water

**Manhole details:**  
 Green - To be used  
 Red - In use  
 Clear - Empty

**Notes**

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
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DA	28-08-08	1st Issue	MT	AEL	SW

**Contractor(s)**

**Status**

NTS

**Scale(s)**

ELR & Mileage  
NMS1

Designed	Alan Littlefair	Sign.	Date	28-08-08
Drawn	Michal Taraj	Sign.	Date	28-08-08
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Project	FTN / GSM-R Project			
Drawing Title	Strawberry Hill (2119) to Norbiton (2120)			

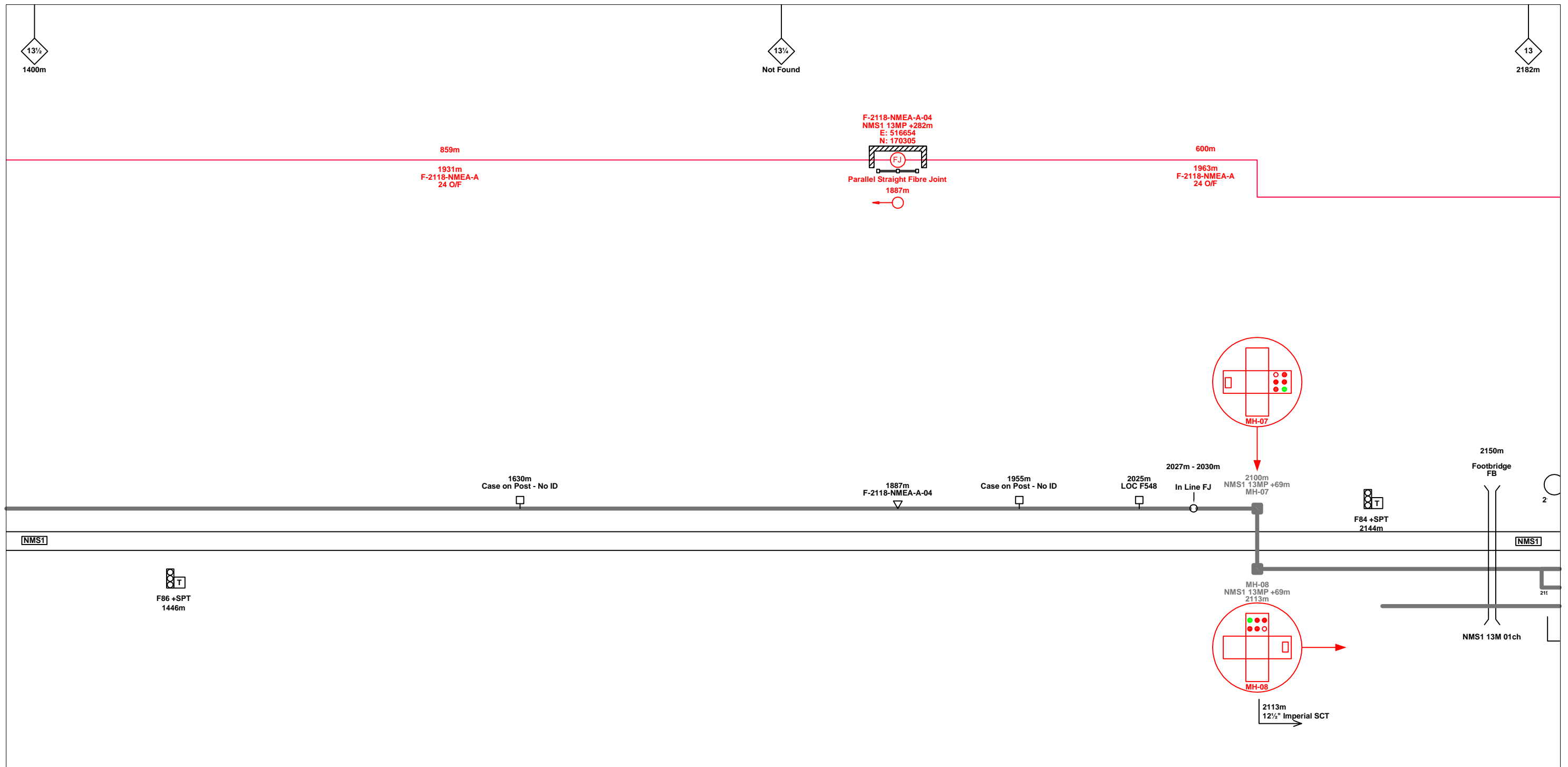
FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

**Alternative Reference**  
See Layout Tab 841 x 297 Sheet 1

**Drawing Number**  
NTPO\SLD\2119\2120\001

**Sheet**  
2 of 6

**Revision**  
B



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	Crossing	Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Copper Cable	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV Cable
523m Cable Description Copper	Screening Conductor Joint with/without Earth	Fibre Cable	Manhole	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	Sewer	LV Cable
540m C-DIDC-RGAC-A 30PR/0.63mm	1988m Cable Description Fibre	Screening Conductor	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	Telephone	Water	Cable Pull
2034m F-DIDC-RGAC-A 24 Optic Fibre	484m Cable Description Screening Conductor	218435-517828/314821-519242 150sq mm 19/3.25mm	Sheath Gap Copper		Manhole details: Green-To be used, Red-In use, Clear-Empty					AC Stanchion

**Notes**

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
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**Contractor(s)**

**Status**

NTS

**Scale(s)**

ELR & Mileage  
NMS1

Designed	Alan Littlefair	Sign.	Date	28-08-08
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Approved	Steve Witt	Sign.	Date	28-08-08
Project	FTN / GSM-R Project			
Drawing Title	Strawberry Hill (2119) to Norbiton (2120)			

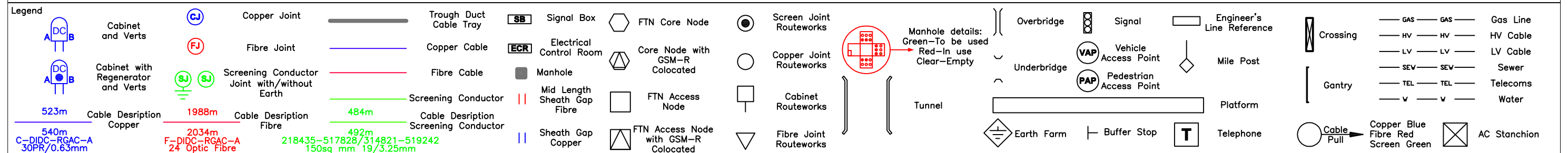
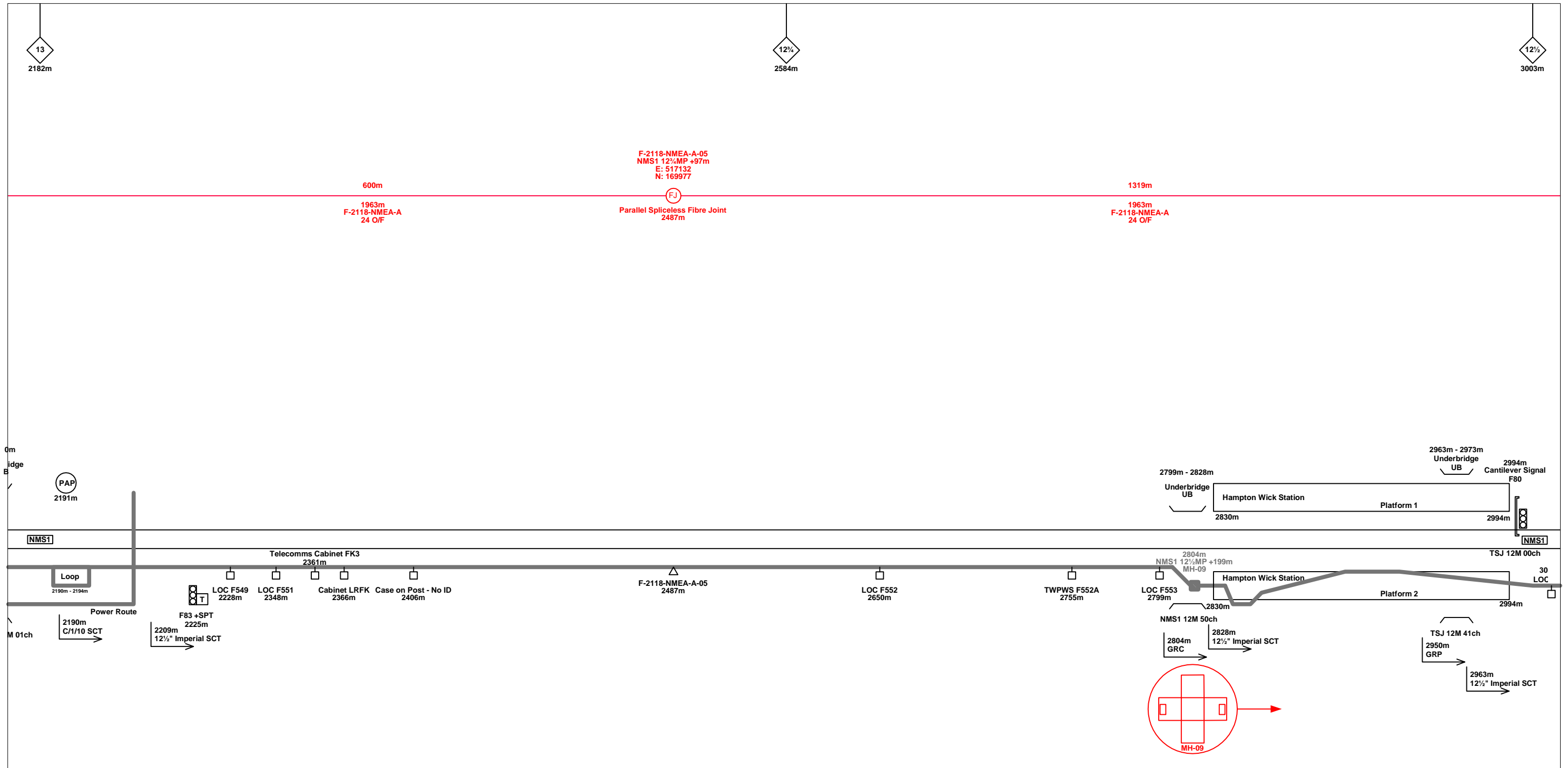
FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

**Alternative Reference**  
See Layout Tab 841 x 297 Sheet 2

**Drawing Number**  
NTPO\SLD\2119\2120\001

**Sheet**  
3 of 6

**Revision**  
B



Rev	Date	Description of Revisions	Drawn	Chkd	Appr
B	09-12-09	Redrawn and Amended as per NR Comments	MT	AEL	SW
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DA	28-08-08	1st Issue	MT	AEL	SW

Contractor(s)

Status: NTS

Scale(s): NTS

ELR & Mileage: NMS1

Designed	Alan Littlefair	Sign.		Date	28-08-08
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Project	FTN / GSM-R Project				
Drawing Title	Strawberry Hill (2119) to Norbiton (2120)				

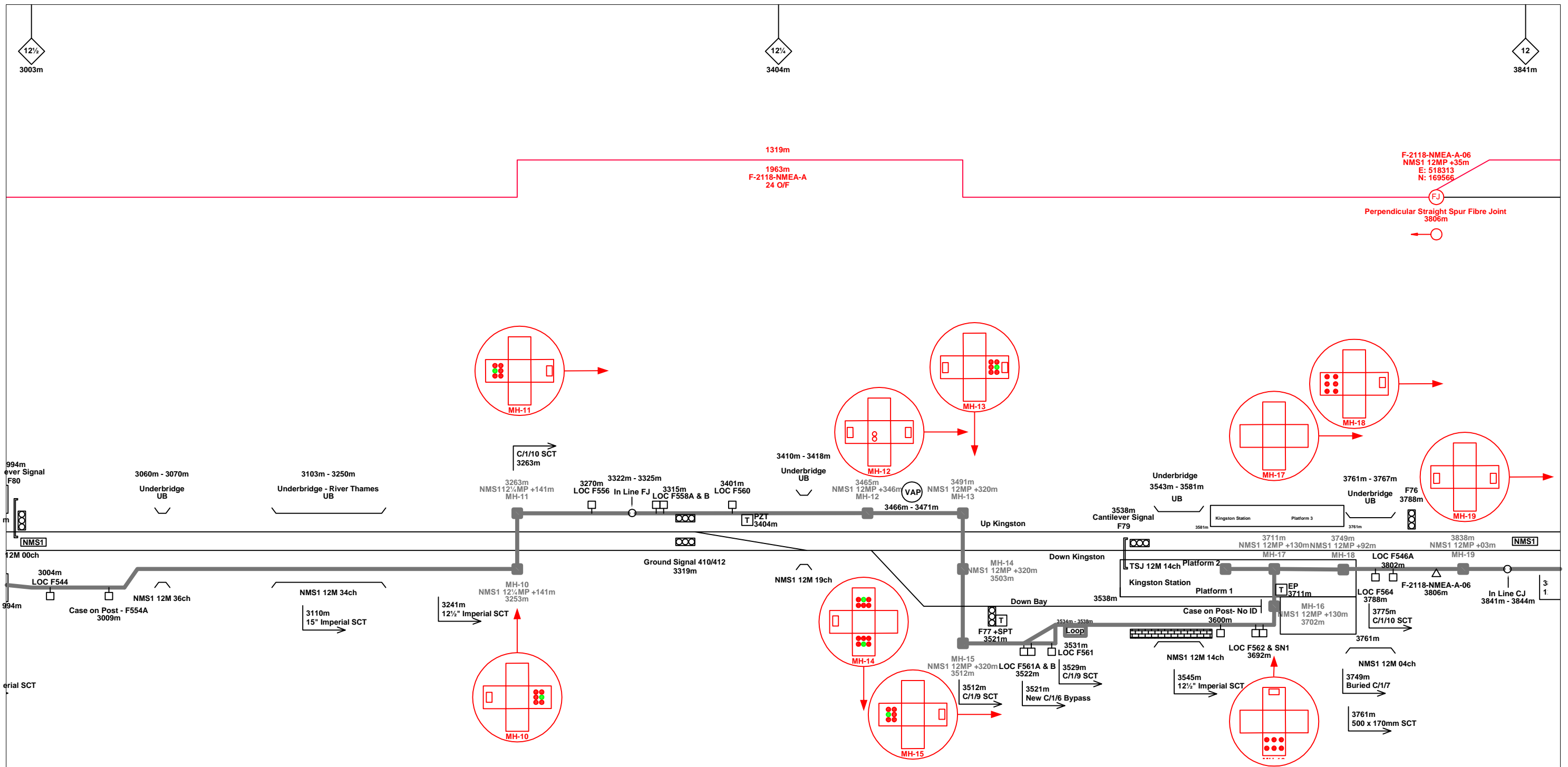
FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 2

Drawing Number: NTPO\SLD\2119\2120\001

Sheet: 4 of 6

Revision: B



**Legend**

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Overbridge	Signal	Engineer's Line Reference	GAS — GAS — Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Copper Cable	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	VAP	Mile Post	HV — HV — HV Cable
523m Cable Description Copper	Screening Conductor Joint with/without Earth	Fibre Cable	Manhole	FTN Access Node	Cabinet Routeworks	Tunnel	PAP	Platform	LV — LV — LV Cable
540m C-DIDC-RGAC-A 30PR/0.63mm	1988m Cable Description Fibre	Screening Conductor	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	Telephone	SEW — SEW — Sewer
2034m F-DIDC-RGAC-A 24 Optic Fibre	484m Cable Description Screening Conductor	218435-517828/314821-519242 150sq mm 19/3.25mm	Sheath Gap Copper		Manhole details: Green-To be used Red-In use Clear-Empty	Crossing	Gantry	Cable Pull	v — v — Water
						AC Stanchion			

**Notes**

B	09-12-09	Redrawn and Amended as per NR Comments	MT	AEL	SW
A	09-12-09	2nd Issue	MT	AEL	SW
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Rev	Date	Description of Revisions	Drawn	Chkd	Appr

**Contractor(s)**

**Status**

NTS

**Scale(s)**

ELR & Mileage  
NMS1

Designed	Alan Littlefair	Sign.		Date	28-08-08
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Project	FTN / GSM-R Project				
Drawing Title	Strawberry Hill (2119) to Norbiton (2120)				

FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

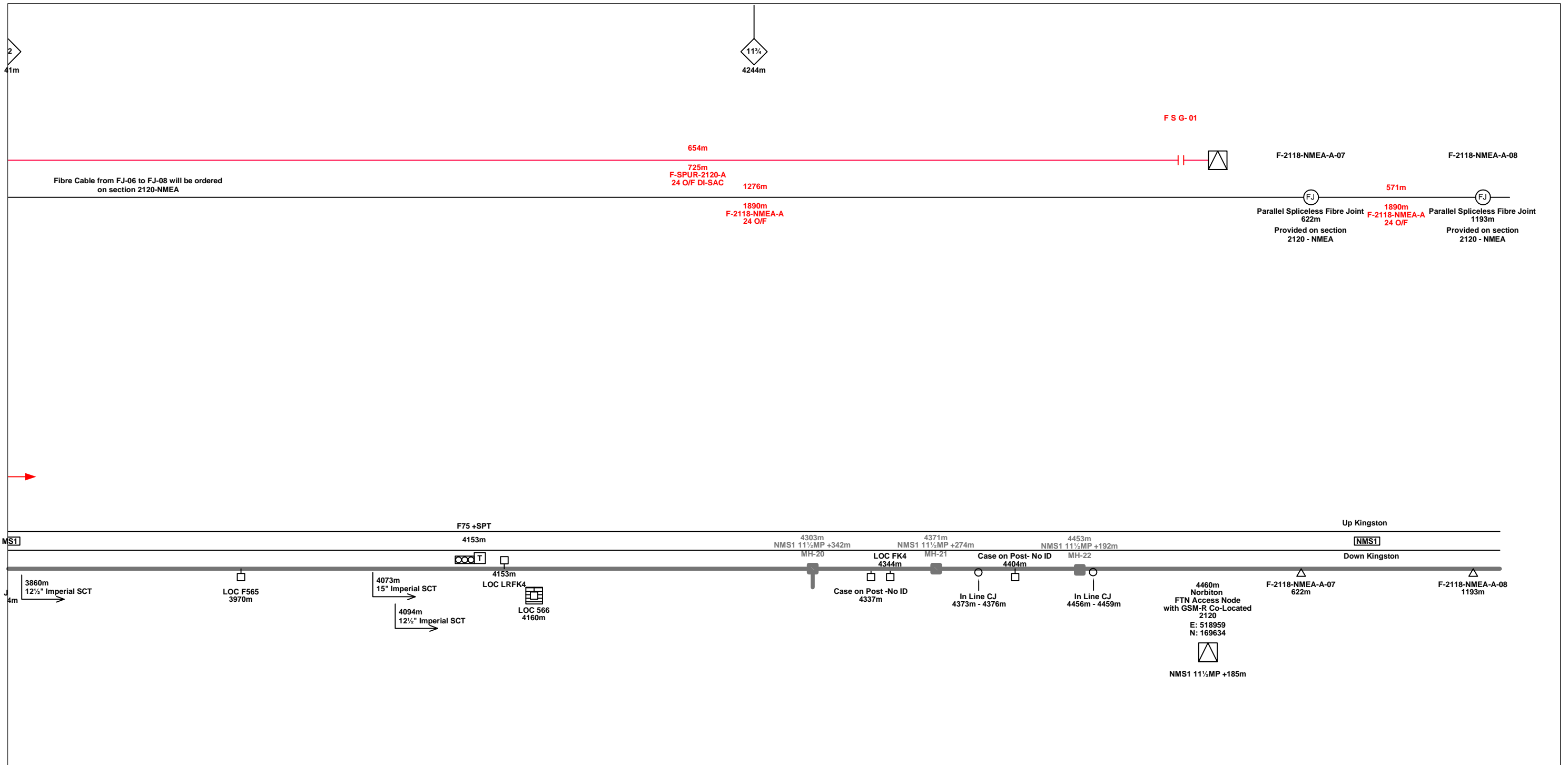
**Alternative Reference**  
See Layout Tab 841 x 297 Sheet 3

**Drawing Number**  
NTPO\SLD\2119\2120\001

**Sheet**  
5 of 6

**Revision**  
B





**Legend**

	Cabinet and Verts		Copper Joint		Trough Duct Cable Tray		Signal Box		FTN Core Node		Screen Joint Routeworks		Overbridge		Signal		Engineer's Line Reference		Crossing		GAS	Gas Line		
	Cabinet with Regenerator and Verts		Fibre Joint		Copper Cable		Electrical Control Room		Core Node with GSM-R Colocated		Copper Joint Routeworks		Underbridge		Vehicle Access Point		Mile Post		Gantry		HV	HV Cable		
	Screening Conductor Joint with/without Earth		Fibre Cable		Fibre Cable		Manhole		FTN Access Node		Cabinet Routeworks		Manhole details: Green-To be used Red-In use Clear-Empty		Pedestrian Access Point		Platform		SEW	Sewer		LV	LV Cable	
	Cable Description Copper		Screening Conductor		Screening Conductor		Mid Length Sheath Gap Fibre		FTN Access Node with GSM-R Colocated		Fibre Joint Routeworks		Tunnel		Earth Farm		Buffer Stop		Telephone		v	Water		Cable Pull
	Cable Description Fibre		Cable Description Copper		Cable Description Fibre		Sheath Gap Copper																	AC Stanchion

**Notes**

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DA	28-08-08	1st Issue	MT	AEL	SW
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

**Contractor(s)**

**Status**

NTS

**Scale(s)**

ELR & Mileage  
NMS1

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FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

**Alternative Reference**  
See Layout Tab 841 x 297 Sheet 3

**Drawing Number**  
NTPO\SLD\2119\2120\001

**Sheet**  
6 of 6

**Revision**  
B