

2328 to 2329 Intermediate Works Bill of Quantities			
7.359	Renumber Fibre Joint	each	4
7.373	Rename Cable (Fibre)	each	4

Legend

Proposed Fibre & Civils Elements are shown in RED
 Proposed Copper Elements are shown in BLUE
 Proposed Screening Elements are shown in MAGENTA
 All Recoveries are shown in GREEN

All Existing Elements are shown in BLACK
 Existing Fibre Cable
 Existing Copper Cable
 Existing Screen Cable

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	

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Contractor(s):

Scale(s): NTS

ELR & Mileage: PAA2

Designated	Sign.	Date
Drawn	Mike Bonner	24.11.10
Checked	Joe Winter	24.11.10
Approved	Chris Tappendan	24.11.10

Project: FTN / GSM-R Project Stage 2 Design

Drawing Title: Farnham Station 1 (2328) to Bentley Station (2329)

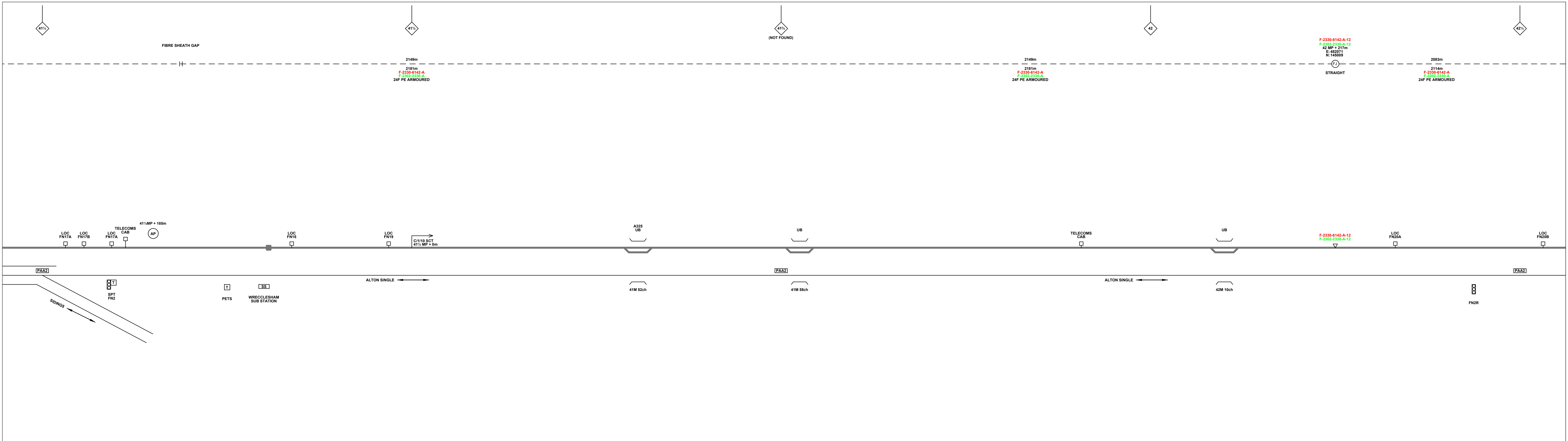
Network Rail

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

Alternative Reference: See Layout Tab A3 Sheets 1 and 2

Drawing Number: NTP0\SLD\2328\2329\001

Sheet 1 of 5
 Revision C



Legend

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Overbridge	Signal	Engineer's Line Reference	Crossing	GAS — GAS — Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Underbridge	Vehicle Access Point	Mile Post	Gantry	MV — HV — HV Cable
Screening Conductor Joint with/without Earth	Status - as per Key Below	Mid Length Sheath Gap Fibre	Manhole	FTN Access Node	Cabinet Routeworks	Sheath Gap Copper	Pedestrian Access Point	Platform	Telephone	SEW — SEW — Sewer	LV — LV — LV Cable
Existing Fibre Cable	Existing Copper Cable	Existing Screen Cable	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	TEL — TEL — Telecoms	Cable Pull	AC Stanchion	v — v — Water	Copper Blue Fibre Red Screen Green

KEY

- Proposed Fibre & Civils Elements are shown in RED
- Proposed Copper Elements are shown in BLUE
- Proposed Screening Elements are shown in MAGENTA
- All Recoveries are shown in GREEN
- All Existing Elements are shown in BLACK
- Existing Fibre Cable
- Existing Copper Cable
- Existing Screen Cable

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

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Design
ELR & Mileage
PAA2

Designed	Sign.	Date
Drawn	Mike Bonner	24.11.10
Checked	Joe Winter	24.11.10
Approved	Chris Tappendan	24.11.10
Project	FTN / GSM-R Project Stage 2 Design	
Drawing Title	Farnham Station 1 (2328) to Bentley Station (2329)	

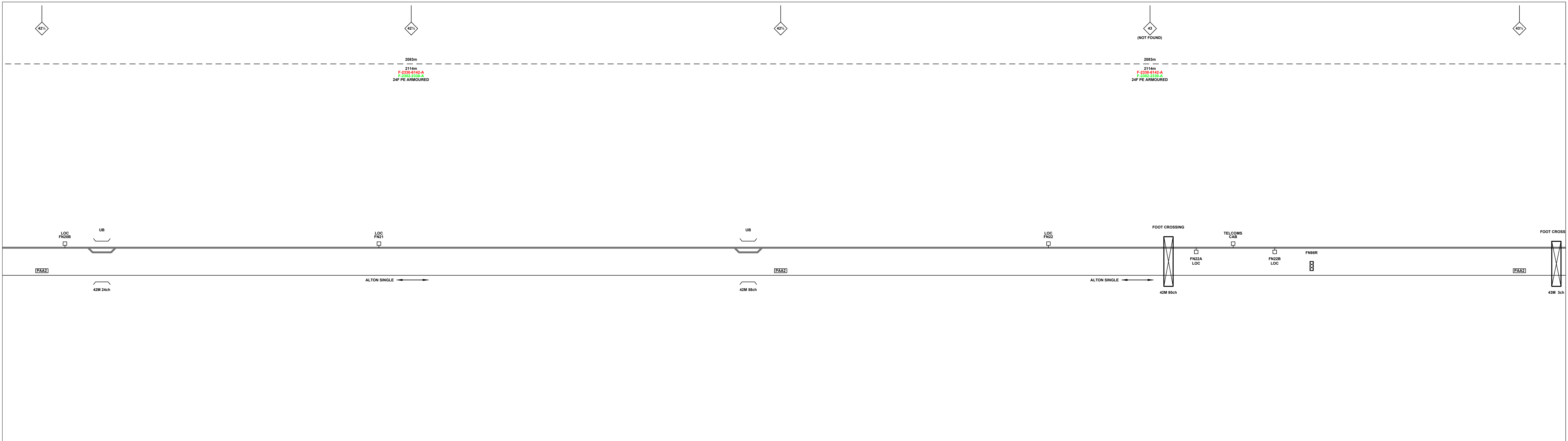
Network Rail

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

Alternative Reference: See Layout Tab A3 Sheets 3 and 4

Drawing Number: NTP0\SLD\2328\2329\001

Sheet: 2 of 5
Revision: C



Legend

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Manhole details: Cross-To be used Filled-In use Clear-Empty	Overbridge	Signal	Engineer's Line Reference	Crossing	GAS — GAS — Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable — Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Underbridge	VAP Access Point	Mile Post	Gantry	HV — HV — HV Cable
Screening Conductor Joint with/without Earth	Status — as per Key Below	Mid Length Sheath Gap Fibre	Manhole with Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Sheath Gap Copper	Platform	PAP Access Point	Telephone	SEW — SEW — Sewer	LV — LV — LV Cable
KEY	All Existing Elements are shown in BLACK	Existing Fibre Cable	Existing Copper Cable	Existing Screen Cable	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	Tunnel	Cable Pull	TEL — TEL — Telecoms
Proposed Fibre & Civils Elements are shown in RED	Existing Fibre Cable	Existing Copper Cable	Existing Screen Cable							Copper Blue Fibre Red Screen Green	v — v — Water
Proposed Copper Elements are shown in BLUE											AC Stanchion
Proposed Screening Elements are shown in MAGENTA											
All Recoveries are shown in GREEN											

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

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Contractor(s)

Design
ELR & Mileage
PAA2

Status
NTS

Designed	Sign.	Date
Drawn	Mike Bonner	24.11.10
Checked	Joe Winter	24.11.10
Approved	Chris Tappendan	24.11.10
Project	FTN / GSM-R Project Stage 2 Design	
Drawing Title	Farnham Station 1 (2328) to Bentley Station (2329)	

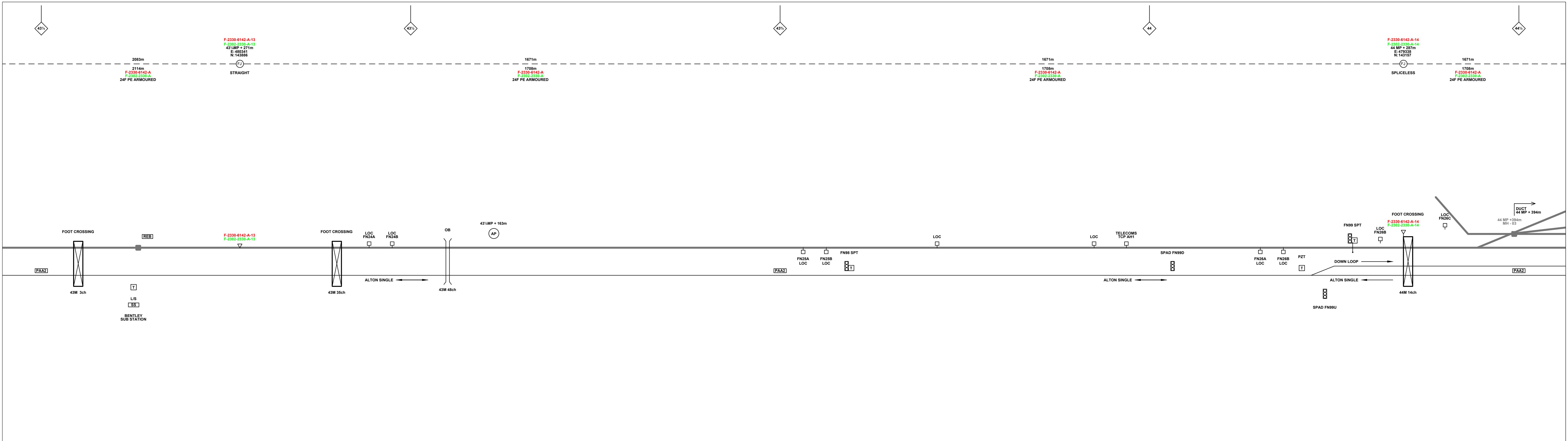
Network Rail

FTN/GSM-R Project
Tournament House
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W2 1HA

Alternative Reference: See Layout Tab A3 Sheets 5 and 6

Drawing Number: NTP0\SLD\2328\2329\001

Sheet 3 of 5
Revision C



Legend

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Manhole details: Cross - To be used Filled - In use Clear - Empty	Overbridge	Signal	MLNT	Engineer's Line Reference	Crossing	GAS — GAS — Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Underbridge	VAP	Mile Post	Platform	Gantry	HV — HV — HV Cable
Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole Sheath Gap Fibre	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Sheath Gap Copper	PAP	Telephone	Earth Farm	Buffer Stop	Cable Pull	LV — LV — LV Cable
KEY Proposed Fibre & Civils Elements are shown in RED Proposed Copper Elements are shown in BLUE Proposed Screening Elements are shown in MAGENTA All Recoveries are shown in GREEN	All Existing Elements are shown in BLACK Existing Fibre Cable Existing Copper Cable Existing Screen Cable	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telephone	Copper Blue Fibre Red Screen Green	AC Stanchion	SEW — SEW — Sewer	TEL — TEL — Telecoms	W — W — Water

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

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Contractor(s)

Scale(s): NTS

Design
ELR & Mileage
PAA2

Designed	Sign.	Date
Drawn	Mike Bonner	24.11.10
Checked	Joe Winter	24.11.10
Approved	Chris Tappendan	24.11.10
Project	FTN / GSM-R Project Stage 2 Design	
Drawing Title	Farnham Station 1 (2328) to Bentley Station (2329)	

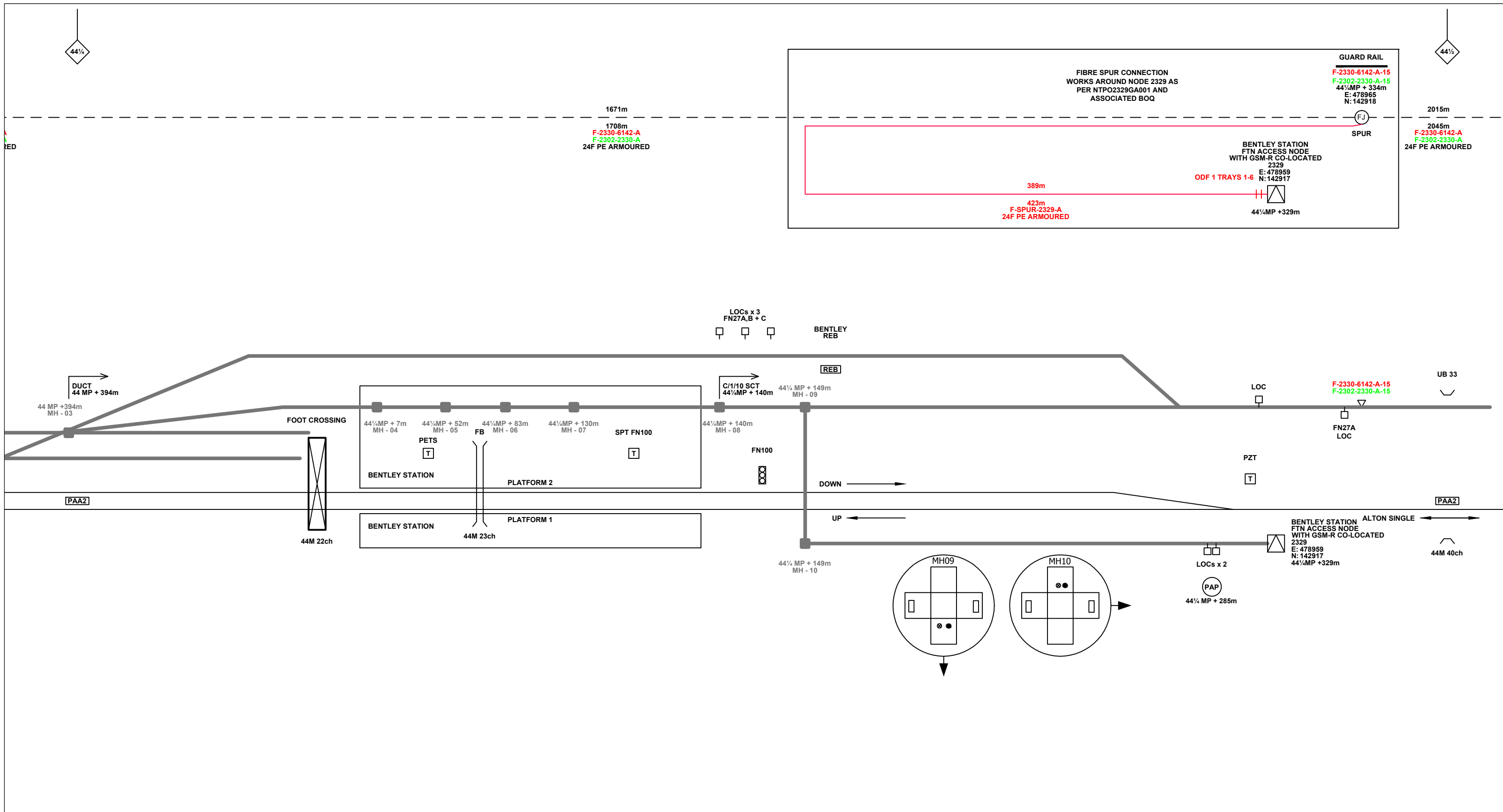
Network Rail

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Tournament House
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W2 1HA

Alternative Reference: See Layout Tab A3 Sheets 7 and 8

Drawing Number: NTP0\SLD\2328\2329\001

Sheet 4 of 5
Revision C



Legend

Cabinet and Verts	Copper Joint	Trough Duct Cable Tray	Signal Box	FTN Core Node	Screen Joint Routeworks	Manhole details: Cross-To be used Filled-In use Clear-Empty	Overbridge	Signal	MLNT	Engineer's Line Reference	Crossing	GAS — GAS — Gas Line
Cabinet with Regenerator and Verts	Fibre Joint	Cable — Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Underbridge	VAP	Mile Post	Platform	Gantry	HV — HV — HV Cable
KEY Proposed Fibre & Civils Elements are shown in RED Proposed Copper Elements are shown in BLUE Proposed Screening Elements are shown in MAGENTA All Recoveries are shown in GREEN	Screening Conductor Joint with/without Earth	Status — as per Key Below	Manhole Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Manhole Sheath Gap Copper	Earth Form	PAP	Telephone	Cable Pull	AC Stanchion	LV — LV — LV Cable
	Existing Fibre Cable	Existing Copper Cable	Existing Screen Cable	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Buffer Stop	Water	Copper Blue Fibre Red Screen Green			SEW — SEW — Sewer
												TEL — TEL — Telecoms
												W — W — Water

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

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Design
 ELR & Mileage
 PAA2

Designed	Sign.	Date
Drawn	Mike Bonner	24.11.10
Checked	Joe Winter	24.11.10
Approved	Chris Tappendan	24.11.10
Project	FTN / GSM-R Project Stage 2 Design	
Drawing Title	Farnham Station 1 (2328) to Bentley Station (2329)	

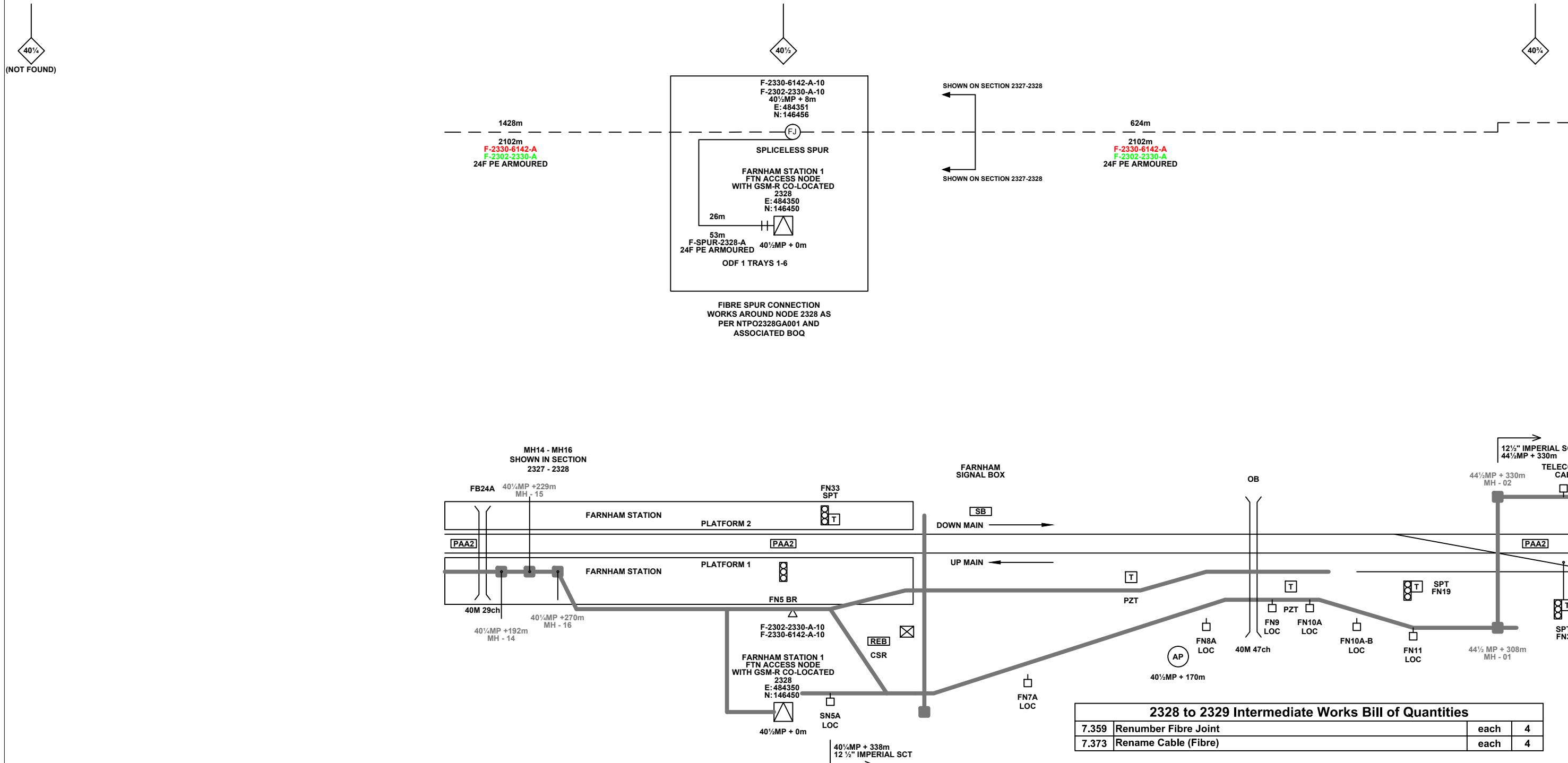
Network Rail

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

Alternative Reference: See Layout Tab A3 Sheet 9

Drawing Number: NTP0\SLD\2328\2329\001

Sheet 5 of 5
 Revision C



2328 to 2329 Intermediate Works Bill of Quantities			
7.359	Renumber Fibre Joint	each	4
7.373	Rename Cable (Fibre)	each	4

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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV	HV	HV Cable
KEY	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used Filled-In use Clear-Empty	Pedestrian Access Point	Platform	Water	LV	LV	LV Cable
Proposed Fibre & Civils Elements are shown in RED		Existing Fibre Cable	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Cable Pull	SEW	SEW	Sewer
Proposed Copper Elements are shown in BLUE		Existing Copper Cable	Sheath Gap Copper				Telephone		AC Stanchion	TEL	TEL	Telecoms
Proposed Screening Elements are shown in MAGENTA		Existing Screen Cable								W	W	Water
All Recoveries are shown in GREEN												

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	

Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS

ELR & Mileage: PAA2

Designed	Sign.	Date
Drawn: Mike Bonner	Sign.	Date: 24.11.10
Checked: Joe Winter	Sign.	Date: 24.11.10
Approved: Chris Tappendan	Sign.	Date: 24.11.10

Project: **FTN / GSM-R Project Stage 2 Design**

Drawing Title: **Farnham Station 1 (2328) to Bentley Station (2329)**

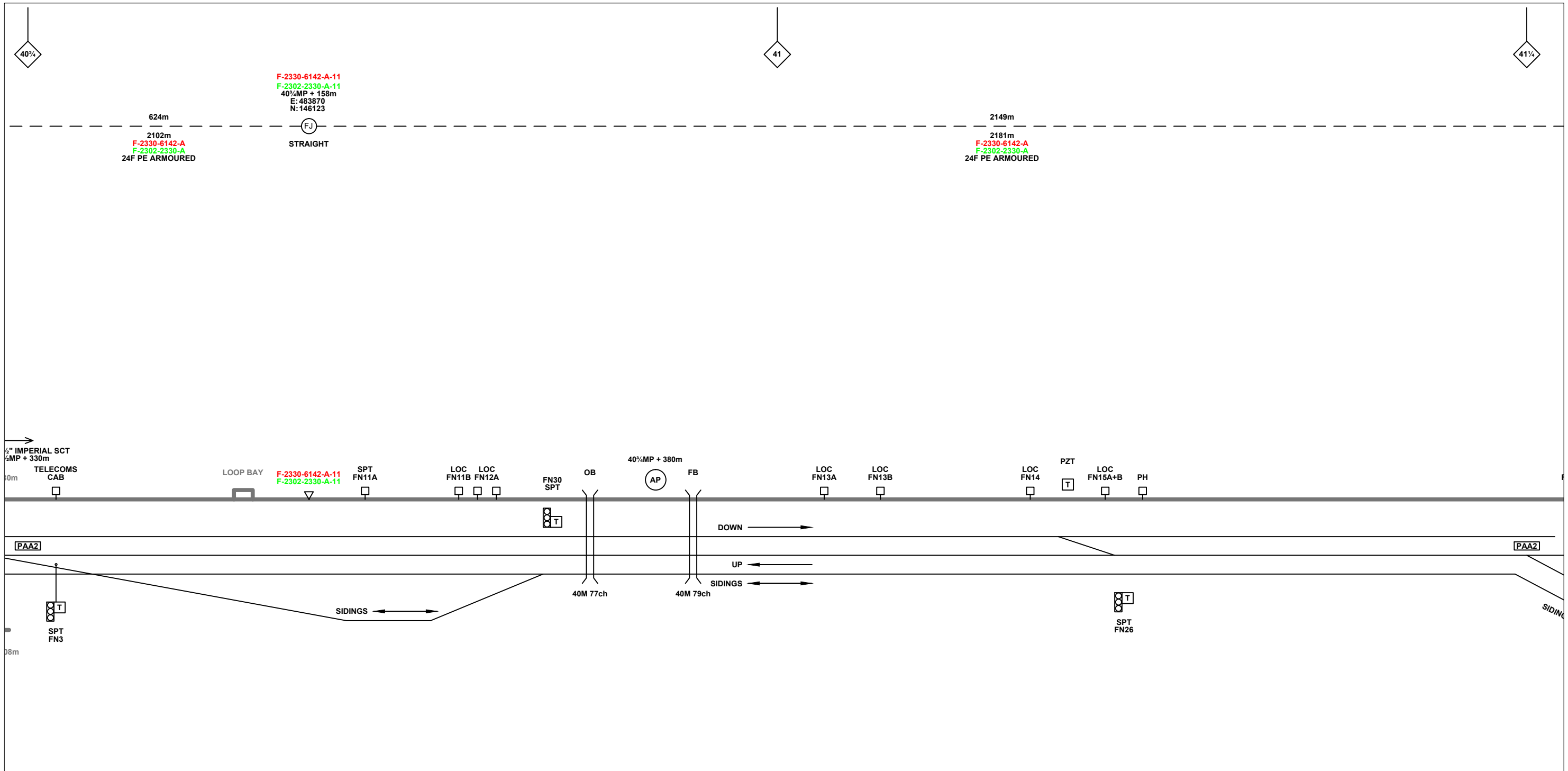
FTN/GSM-R Project
Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 1

Drawing Number: NTPO\SLD\2328\2329\001

Sheet: 1 of 9

Revision: C



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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV	HV	HV Cable
KEY	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	Water	SEW	SEW	Sewer
Proposed Fibre & Civils Elements are shown in RED	Existing Fibre Cable	Manhole	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telephone	Copper Blue Fibre	Fibre Red	Screen Green
Proposed Copper Elements are shown in BLUE	Existing Copper Cable	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	AC Stanchion	AC Stanchion	AC Stanchion
Proposed Screening Elements are shown in MAGENTA	Existing Screen Cable	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole
All Recoveries are shown in GREEN	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole	Manhole

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS, ELR & Mileage: PAA2

Designed	Sign.	Date
Drawn	Sign.	Date 24.11.10
Checked	Sign.	Date 24.11.10
Approved	Sign.	Date 24.11.10
Project: FTN / GSM-R Project Stage 2 Design		
Drawing Title: Farnham Station 1 (2328) to Bentley Station (2329)		

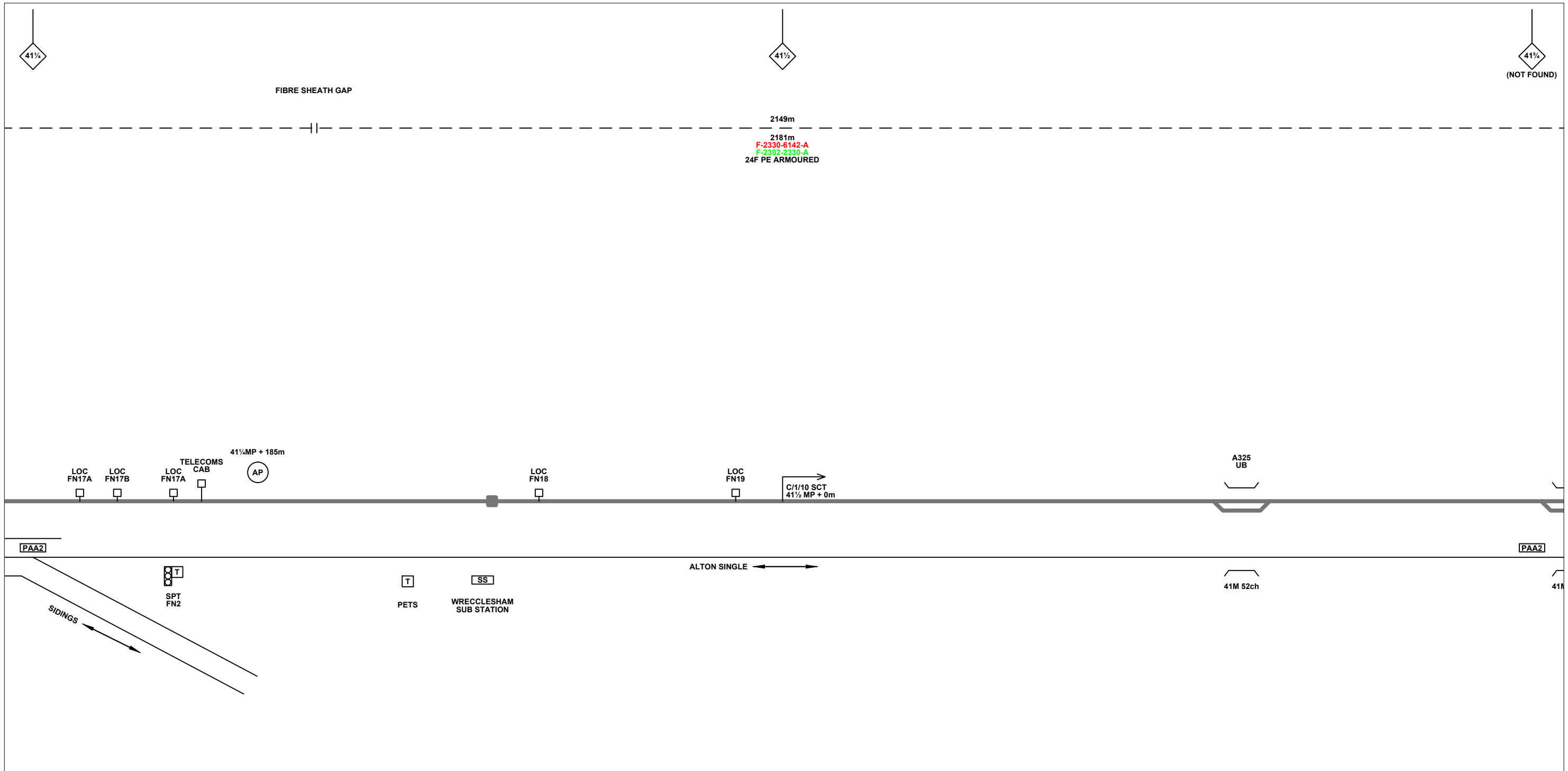
FTN/GSM-R Project
Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 1

Drawing Number: NTPO\SLD\2328\2329\001

Sheet: 2 of 9

Revision: C



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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	HV — HV — HV Cable	LV — LV — LV Cable
KEY	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	SEW — SEW — Sewer	TEL — TEL — Telecoms
Proposed Fibre & Civils Elements are shown in RED		All Existing Elements are shown in BLACK	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telephone	W — W — Water
Proposed Copper Elements are shown in BLUE		Existing Fibre Cable	Sheath Gap Copper							Cable Pull
Proposed Screening Elements are shown in MAGENTA		Existing Copper Cable								AC Stanchion
All Recoveries are shown in GREEN		Existing Screen Cable								

Notes

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Rev	Date	Description of Revisions	Drawn	Chkd	Appr

Contractor(s)

ndcconsultants

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS, ELR & Mileage: PAA2

Designed	Sign.	Date
Drawn	Sign.	Date 24.11.10
Checked	Sign.	Date 24.11.10
Approved	Sign.	Date 24.11.10
Project: FTN / GSM-R Project Stage 2 Design		
Drawing Title: Farnham Station 1 (2328) to Bentley Station (2329)		

Network Rail

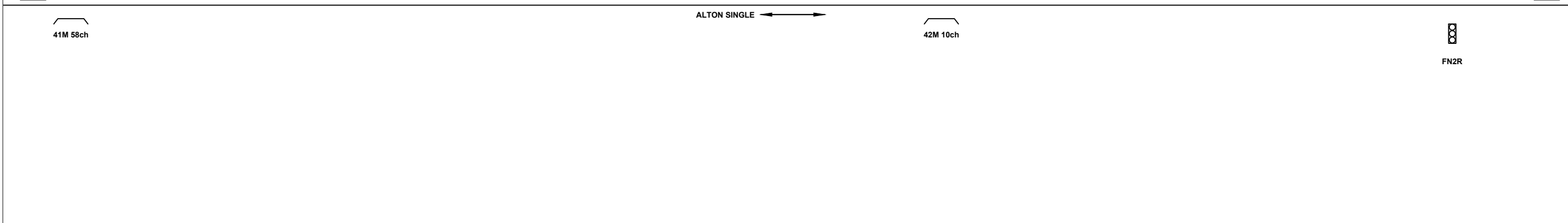
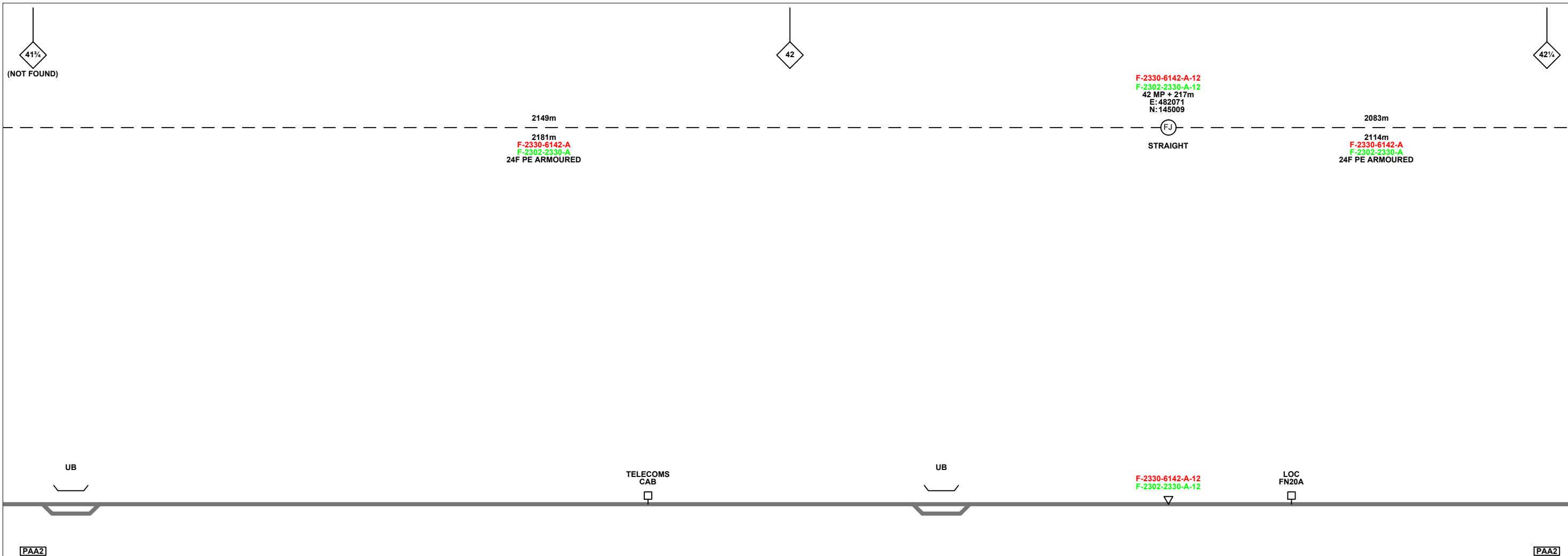
FTN/GSM-R Project
Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 2

Drawing Number: NTPO\SLD\2328\2329\001

Sheet: 3 of 9

Revision: C



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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV	HV	HV Cable
KEY Proposed Fibre & Civils Elements are shown in RED Proposed Copper Elements are shown in BLUE Proposed Screening Elements are shown in MAGENTA All Recoveries are shown in GREEN	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	Water	Cable Pull	Copper Blue Fibre Red Screen Green	AC Stanchion
	1988m	2034m F-DIDC-RGAC-A	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Telephone			

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
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DA	22.09.08	1st Issue		AEL	

Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS

ELR & Mileage: PAA2

Designed	Sign.	Date
Drawn	Sign.	Date 24.11.10
Checked	Sign. <i>M.L.</i>	Date 24.11.10
Approved	Sign. <i>Chris Tappendan</i>	Date 24.11.10
Project: FTN / GSM-R Project Stage 2 Design		
Drawing Title: Farnham Station 1 (2328) to Bentley Station (2329)		

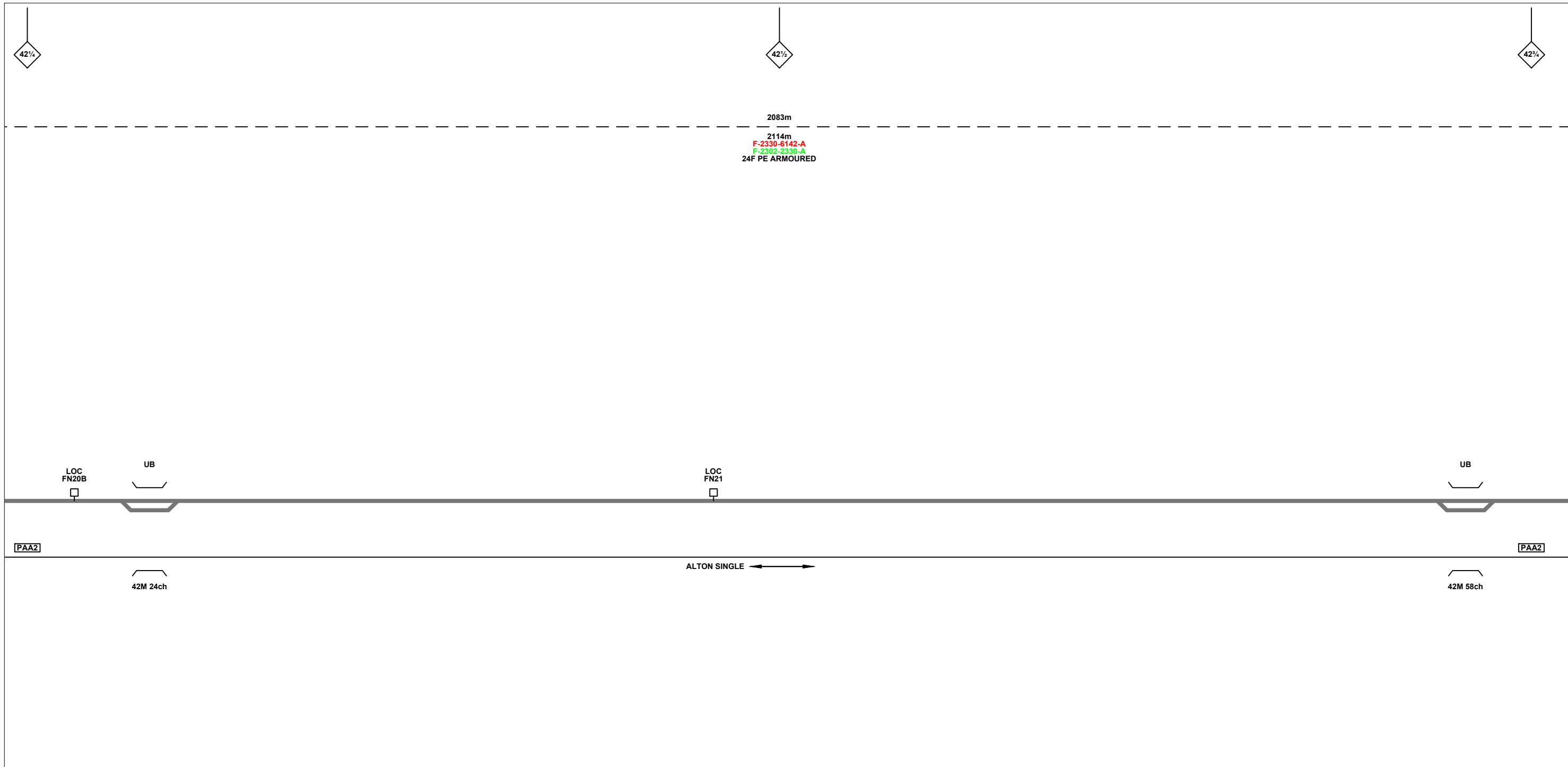
FTN/GSM-R Project
Tournament House
Farringham
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 2

Drawing Number: NTPO\SLD\2328\2329\001

Sheet: 4 of 9

Revision: C



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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	Pedestrian Access Point	Platform	SEW — SEW — Sewer	LV — LV — LV Cable
Proposed Fibre & Civils Elements are shown in RED		1988m	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Telephone	TEL — TEL — Telecoms	W — W — Water
Proposed Copper Elements are shown in BLUE		2034m F-DIDC-RGAC-A	Sheath Gap Copper				Buffer Stop		Cable Pull	AC Stanchion
Proposed Screening Elements are shown in MAGENTA			Existing Fibre Cable						Copper Blue Fibre Red Screen Green	
All Recoveries are shown in GREEN			Existing Copper Cable							
			Existing Screen Cable							

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
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A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS

ELR & Mileage: PAA2

Designed	Sign.	Date
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Approved	Sign.	Date 24.11.10
Project: FTN / GSM-R Project Stage 2 Design		
Drawing Title: Farnham Station 1 (2328) to Bentley Station (2329)		

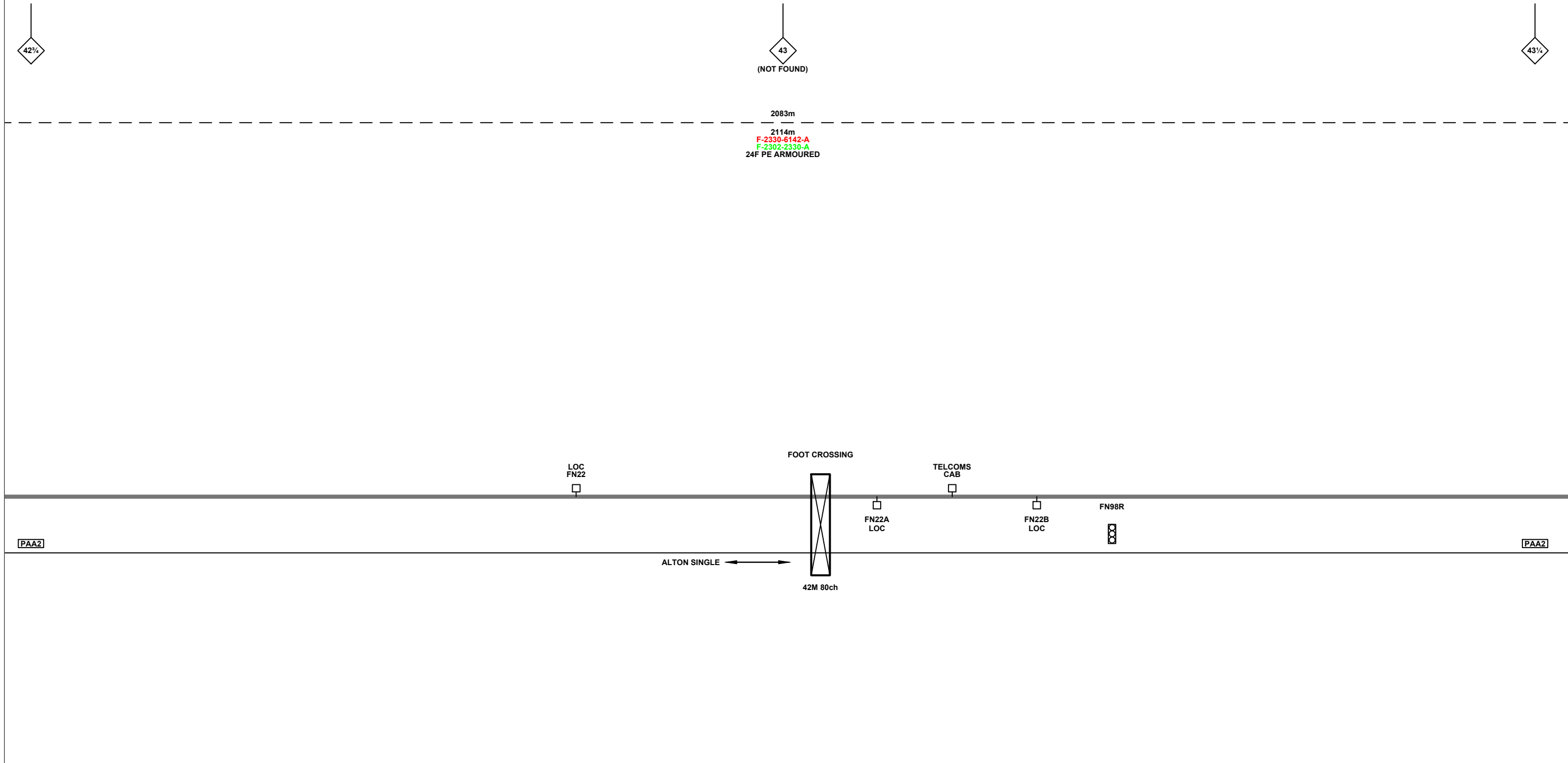
FTN/GSM-R Project
Tournament House
Paddington
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W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 3

Drawing Number: NTPO\SLD\2328\2329\001

Sheet: 5 of 9

Revision: C



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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	VAP	Mile Post	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Status - as per Key Below	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used Filled-In use Clear-Empty	PAP	Platform	SEW — SEW — Sewer	LV — LV — LV Cable
Proposed Fibre & Cables Elements are shown in RED		All Existing Elements are shown in BLACK	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Telephone	TEL — TEL — Telecoms	W — W — Water
Proposed Copper Elements are shown in BLUE		Existing Fibre Cable					Buffer Stop	Cable Pull	AC Stanchion	
Proposed Screening Elements are shown in MAGENTA		Existing Copper Cable								
All Recoveries are shown in GREEN		Existing Screen Cable								

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS

ELR & Mileage: PAA2

Designed	Sign.	Date
Drawn	Mike Bonner	24.11.10
Checked	Joe Winter	24.11.10
Approved	Chris Tappendan	24.11.10
Project	FTN / GSM-R Project Stage 2 Design	
Drawing Title	Farnham Station 1 (2328) to Bentley Station (2329)	

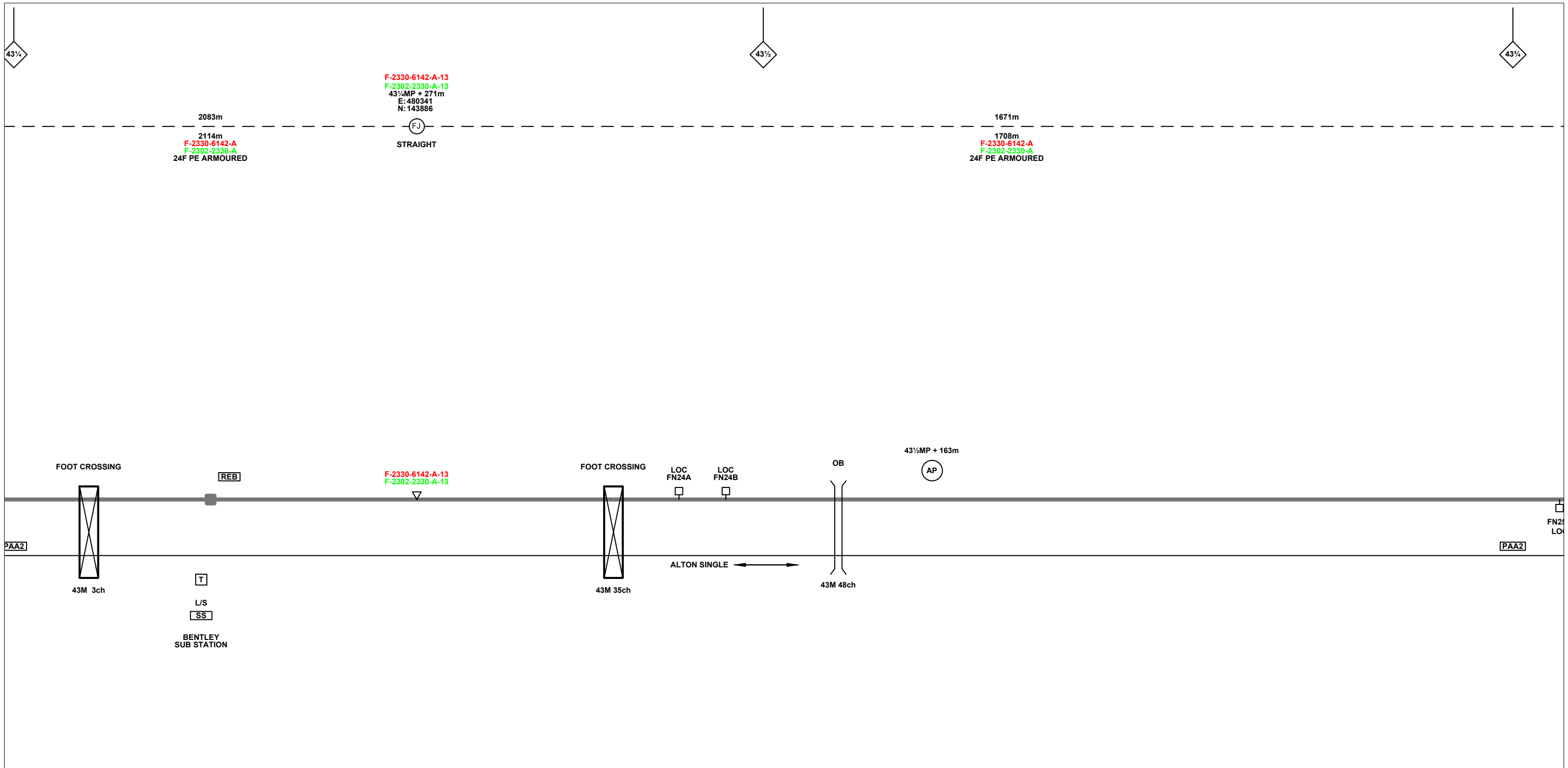
FTN/GSM-R Project
Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 3

Drawing Number: NTPO\SLD\2328\2329\001

Sheet: 6 of 9

Revision: C



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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	SEW — SEW — Sewer	TEL — TEL — Telecoms
Proposed Fibre & Cables Elements are shown in RED				FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Earth Farm	Buffer Stop	Telephone	W — W — Water	AC Stanchion
Proposed Copper Elements are shown in BLUE									Copper Blue	
Proposed Screening Elements are shown in MAGENTA									Fibre Red	
All Recoveries are shown in GREEN									Screen Green	

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	

Contractor(s)

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Status: **Design**

Scale(s): NTS, PAA2

Designed	Sign.	Date
Drawn	Sign.	Date 24.11.10
Checked	Sign.	Date 24.11.10
Approved	Sign.	Date 24.11.10
Project: FTN / GSM-R Project Stage 2 Design		
Drawing Title: Farnham Station 1 (2328) to Bentley Station (2329)		

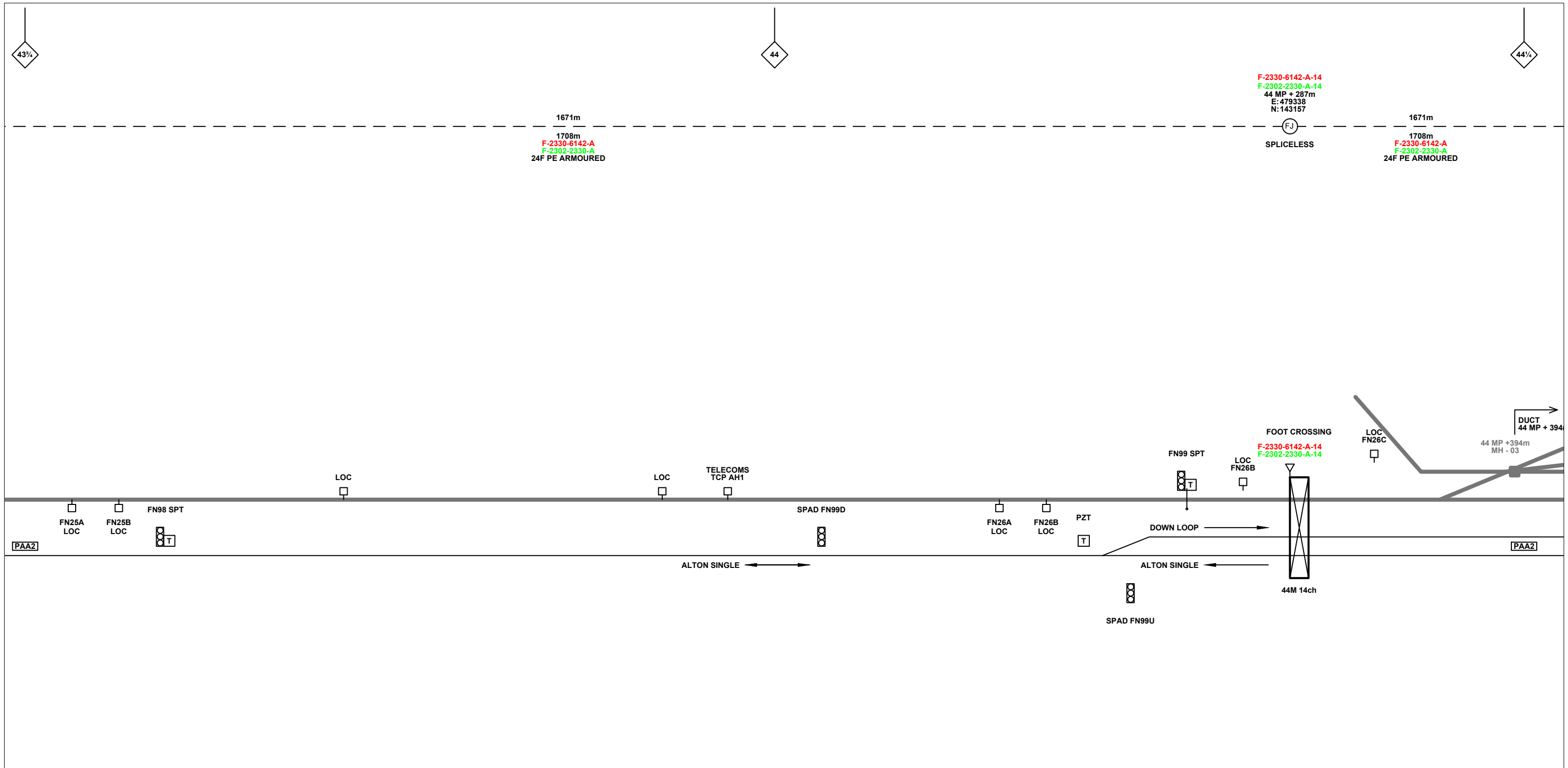
FTN/GSM-R Project
Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 4

Drawing Number: NTPO\SLD\2328\2329\001

Sheet: 7 of 9

Revision: C



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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	Vehicle Access Point	Mile Post	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Manhole	Mid Length Sheath Gap Fibre	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	— W — W — Water	Copper Blue Fibre Red Screen Green
Proposed Fibre & Civils Elements are shown in RED										AC Stanchion
Proposed Copper Elements are shown in BLUE										
Proposed Screening Elements are shown in MAGENTA										
All Recoveries are shown in GREEN										
All Existing Elements are shown in BLACK										
Existing Fibre Cable										
Existing Copper Cable										
Existing Screen Cable										

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

Contractor(s)

Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000

Status: **Design**

Scale(s): NTS

ELR & Mileage: PAA2

Designed	Sign.	Date
Drawn	Sign.	Date 24.11.10
Checked	Sign.	Date 24.11.10
Approved	Sign.	Date 24.11.10
Project: FTN / GSM-R Project Stage 2 Design		
Drawing Title: Farnham Station 1 (2328) to Bentley Station (2329)		

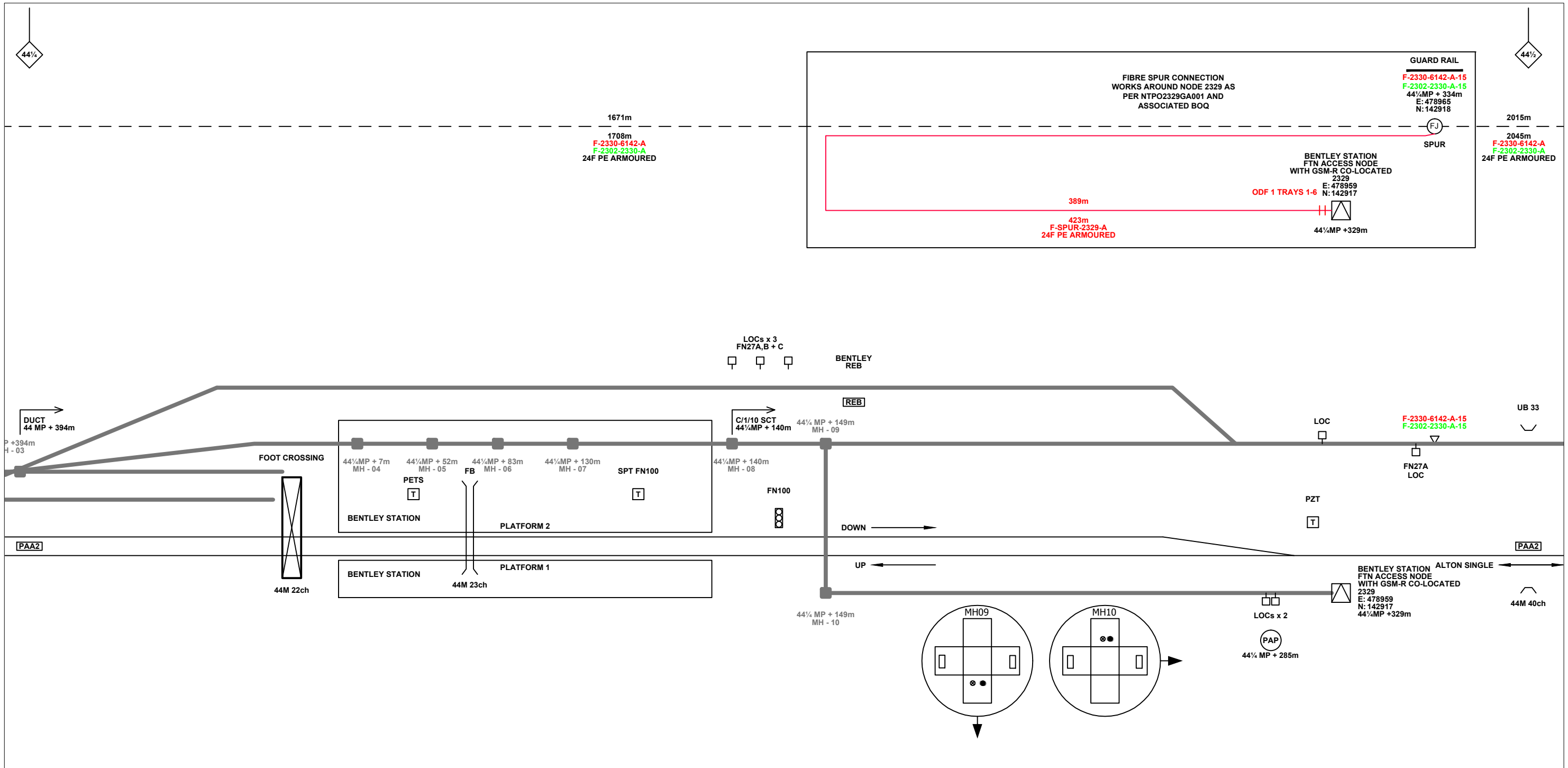
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Tournament House
Paddington
London
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 4

Drawing Number: NTPO\SLD\2328\2329\001

Sheet: 8 of 9

Revision: C



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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Underbridge	VAP	Mile Post	Gantry	HV — HV — HV Cable
KEY	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Manhole details: Cross-To be used, Filled-In use, Clear-Empty	PAP	Platform	SEW — SEW — Sewer	LV — LV — LV Cable
Proposed Fibre & Civils Elements are shown in RED		Existing Fibre Cable	Mid Length Sheath Gap Fibre	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	TEL — TEL — Telecoms	W — W — Water
Proposed Copper Elements are shown in BLUE		Existing Copper Cable	Sheath Gap Copper					Telephone	Cable Pull	AC Stanchion
Proposed Screening Elements are shown in MAGENTA		Existing Screen Cable								
All Recoveries are shown in GREEN										

Notes

C	05.05.11	Amended As Per NWR Design Review	DA	JW	CT
B	24.11.10	Stage 2 Design - First Issue	MB	JW	CT
A	22.09.08	Amended Issue		AEL	
DA	22.09.08	1st Issue		AEL	
Rev	Date	Description of Revisions	Drawn	Chkd	Appr

Contractor(s)

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Status: **Design**

Scale(s): NTS, ELR & Mileage PAA2

Designed	Sign.	Date
Drawn	Sign.	Date 24.11.10
Checked	Sign.	Date 24.11.10
Approved	Sign.	Date 24.11.10
Project		
FTN / GSM-R Project Stage 2 Design		
Drawing Title		
Farnham Station 1 (2328) to Bentley Station (2329)		

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

Alternative Reference: See Layout Tab 841 x 297 Sheet 5

Drawing Number: NTP0\SLD\2328\2329\001

Sheet: 9 of 9

Revision: C