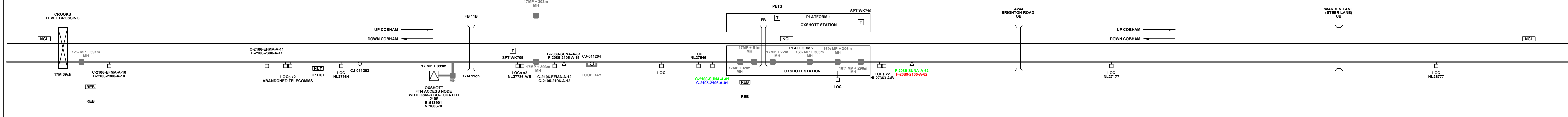


Intermediate Works Bill of Quantities			7.380	reroute cable	metre	62	
7.72	Install 50 Pair Copper Cable into ducts by hand (Daytime)	metre	7	10.08	Moisture Barrier Termination Kit	each	1
7.344	Re-number DC cabinet	each	8	10.13	Delid, install 50 pair copper cable by hand and relid (Daytime)	metre	45
7.359	Re-number Fibre Joint	each	3	10.34	Terminate 50 pair cable including kit and label	each	1
7.373	Rename Cable (Fibre)	each	3	10.40	Install Sheath Gap between 3m and 30m of node entry point	each	1
7.373	Rename Cable (Copper)	each	10	10.43	Test base station to base station	each	1



**Legend**

- Cabinet and Verts**: DC A/B
- Cabinet with Regenerator and Verts**: DC A/B
- Copper Joint**: CJ
- Fibre Joint**: FJ
- Screening Conductor Joint with/without Earth**: SJ
- Trough Duct Cable Tray**: 1988m
- Signal Box**: SB
- Electrical Control Room**: ECR
- Manhole**: MH
- Mid Length Sheath Gap Fibre**: ||
- Sheath Gap Copper**: ||
- FTN Core Node**: Circle with dot
- Core Node with GSM-R Colocated**: Circle with triangle
- FTN Access Node**: Square
- FTN Access Node with GSM-R Colocated**: Square with triangle
- Screen Joint Routeworks**: Circle with cross
- Copper Joint Routeworks**: Circle
- Cabinet Routeworks**: Square
- Fibre Joint Routeworks**: Square with triangle
- Overbridge**: Double line
- Underbridge**: Single line
- Earth Form**: Triangle
- Signal**: Triangle with cross
- Vehicle Access Point**: VAP
- Pedestrian Access Point**: PAP
- Engineer's Line Reference**: MLNI
- Mile Post**: Diamond
- Platform**: Rectangle
- Telephone**: T
- Crossing**: X
- Gantry**: Vertical line
- Cable Pull**: Circle with arrow
- Gas Line**: Dashed line
- HV Cable**: Solid line
- LV Cable**: Dotted line
- Sewer**: Solid line with 'S'
- Telecoms**: Solid line with 'T'
- Water**: Solid line with 'W'
- Copper Blue**: Circle
- Fibre Red**: Circle
- Screen Green**: Circle
- Mast**: X

**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: Dashed line
- Existing Copper Cable: Dotted line
- Existing Screen Cable: Dashed line with cross

**Notes**

Contractor(s):

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

Status: **Design**

ELR & Mileage: NGL, BML1, HAM

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

Drawn	Sign.	Date
Stephen Holder		22/11/2012
Checked	Sign.	Date
Joe Winter		22/11/2012
Approved	Sign.	Date
Chris Tappenden		22/11/2012

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

Drawing Title: **Hampton Court Junction (2105) to Oxshott (2106)**

**Network Rail**

FTN/GSM-R Project  
Tournament House  
Passington  
London  
W12 1HA

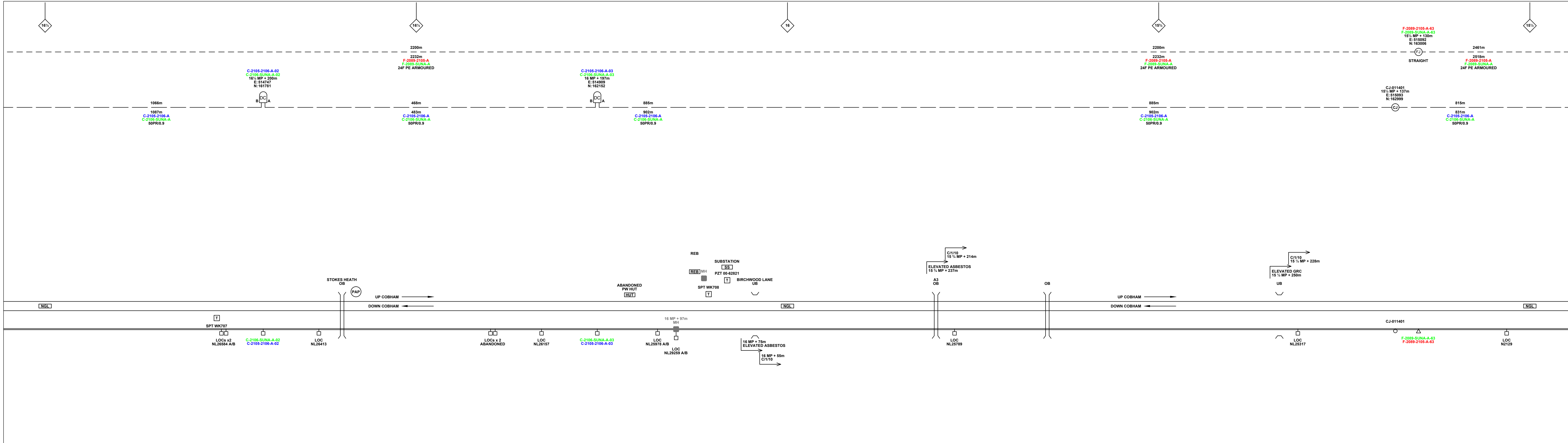
Alternative Reference: **See Layout Tab A3 Sheets 1 and 2**

Drawing Number: **NTP0\SLD\2105\2106\001**

Sheet: **1 of 5**

Revision: **A**

Sheet Size 841x297



**Notes**

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

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

**Contractor(s)**

**Status** Design

**Scale(s)** NTS

**ELR & Mileage** NGL, BML1, HAM

Designed	Stephen Holder	Sign.	[Signature]	Date	22/11/2012
Checked	Joe Winter	Sign.	[Signature]	Date	22/11/2012
Approved	Chris Tappenden	Sign.	[Signature]	Date	22/11/2012

**Project** FTN/GSM-R Project  
Tournament House  
Paschington  
London  
W12 1HA

**Drawing Title** Hampton Court Junction (2105) to Oxshott (2106)

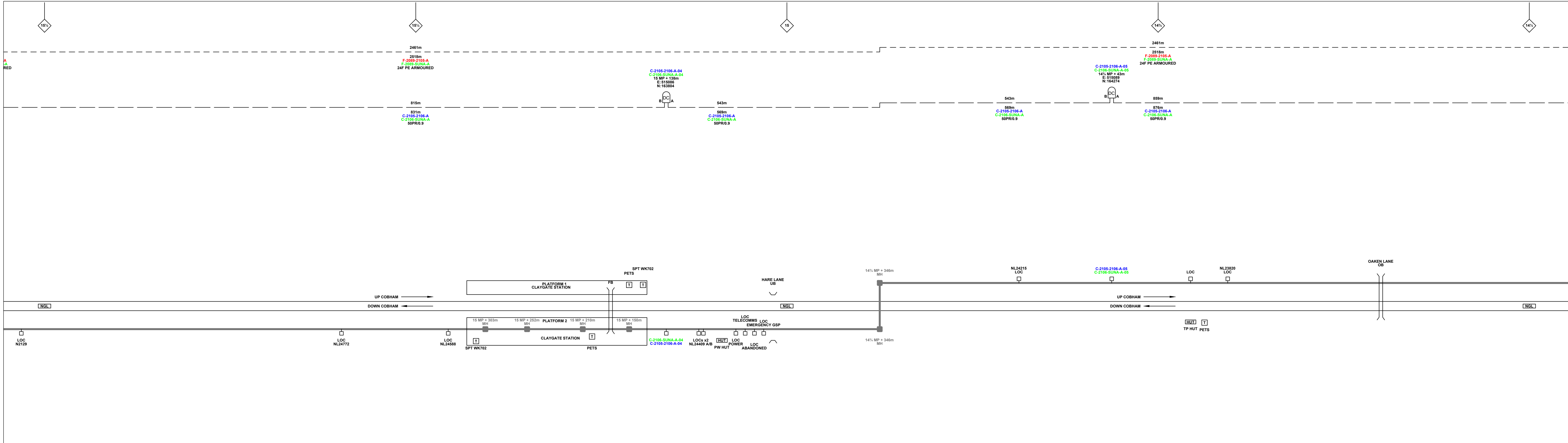
**Network Rail**

**Alternative Reference** See Layout Tab A3 Sheets 3 and 4

**Drawing Number** NTPO\SLD\2105\2106\001

**Sheet** 2 of 5

**Revision** A



**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
	Cabinet with Regenerator and Verts		Fibre Joint		Cable - Type Identified by FTN Code Status - as per Key Below		Electrical Control Room		Core Node with GSM-R Colocated		Copper Joint Routeworks		Manhole		Underbridge		Vehicle Access Point		Mile Post
	KEY		Screening Conductor Joint with/without Earth		Manhole		Mid Length Sheath Gap Fibre		FTN Access Node		Cabinet Routeworks		Tunnel		Earth Form		Pedestrian Access Point		Platform
	Proposed Fibre & Civils Elements are shown in RED		Proposed Copper Elements are shown in BLUE		Proposed Screening Elements are shown in MAGENTA		All Existing Elements are shown in BLACK		FTN Access Node with GSM-R Colocated		Fibre Joint Routeworks		Copper Blue Fibre Red Screen Green		Buffer Stop		Telephone		Mast
	Existing Fibre Cable		Existing Copper Cable		Existing Screen Cable		Sheath Gap Copper												

**Notes**

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

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

Status: **Design**

ELR & Mileage: NGL, BML1, HAM

Designed	Sign.	Date
Drawn	Sign.	Date
Checked	Sign.	Date
Approved	Sign.	Date
Project		
Drawing Title		

**Network Rail**

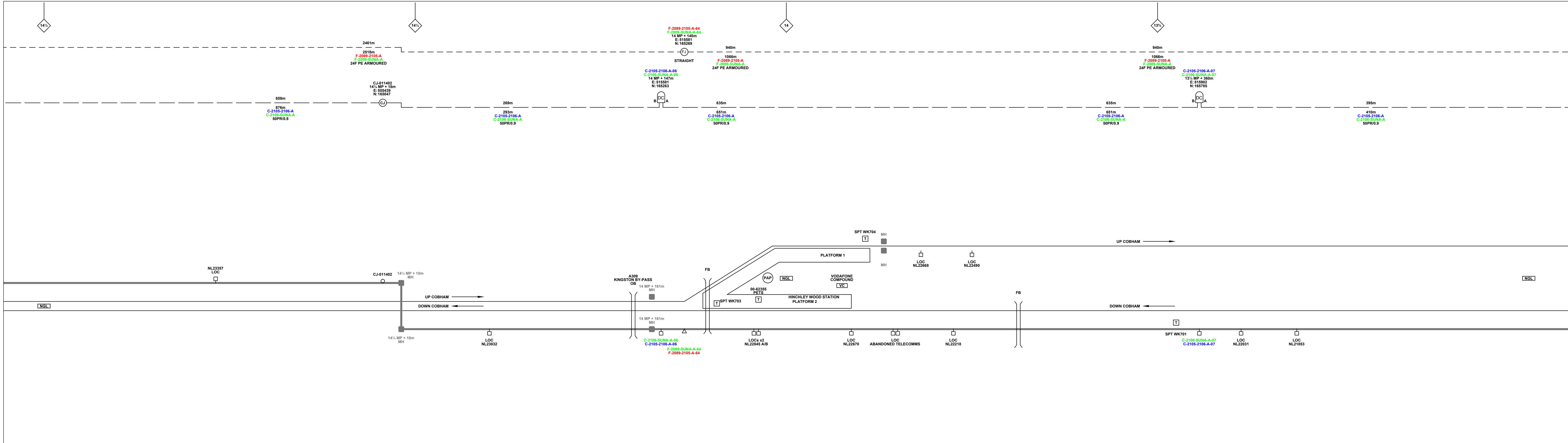
FTN/GSM-R Project  
 Stage 2 Design

Hampton Court Junction (2105) to Oxshott (2106)

See Layout Tab A3 Sheets 5 and 6

Sheet 3 of 5

Revision A



**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				
	Cabinet with Regenerator and Verts		Fibre Joint		Cable - Type Identified by FTN Code Status - as per Key Below		Electrical Control Room		Core Node with GSM-R Colocated		Copper Joint Routeworks		Manhole		Underbridge		Vehicle Access Point		Mile Post				
	<b>KEY</b> 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		Manhole		Mid Length Sheath Gap Fibre		FTN Access Node		Cabinet Routeworks		Tunnel		Crossing		Pedestrian Access Point		Platform				
			Existing Fibre Cable		Manhole		Sheath Gap Copper		FTN Access Node with GSM-R Colocated		Fibre Joint Routeworks		Earth Form		Gantry		Cable Pull		Buffer Stop		Telephone		Mast

**Notes**

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

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

**Status**  
Design

**Contractor(s)**  
ELR & Mileage  
NGL, BML1, HAM

Designed	Drawn	Checked	Approved
Stephen Holder	Joe Winter	Chris Tappenden	

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

**Drawing Title**  
Hampton Court Junction (2105) to Oxshott (2106)

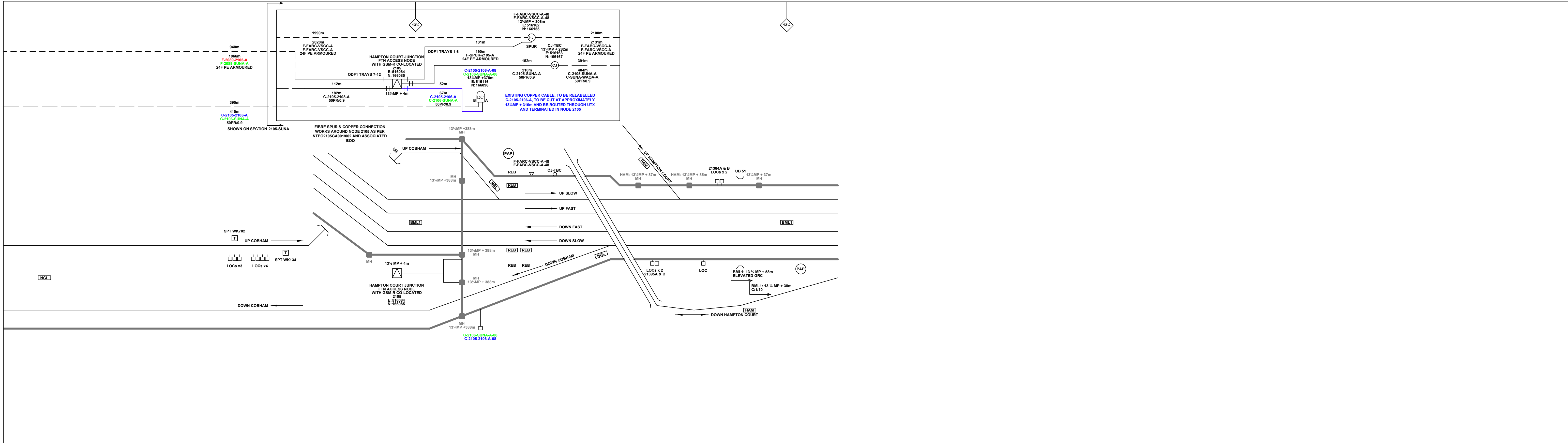
FTN/GSM-R Project  
Tournament House  
Passington  
London  
W2 1HA

Alternative Reference  
See Layout Tab A3 Sheets 7 and 8

Drawing Number  
NTPO\SLD\2105\2106\001

Sheet  
4 of 5

Revision  
A



**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
	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
			Screening Conductor Joint with/without Earth		Manhole		Mid Length Sheath Gap Fibre		FTN Access Node		Cabinet Routeworks		Tunnel		Earth Form		Pedestrian Access Point		Platform
			Manhole		Sheath Gap Copper		FTN Access Node with GSM-R Colocated		Fibre Joint Routeworks		Cable Pull		Mast		Gas Line		HV Cable		LV Cable
			Existing Fibre Cable		Existing Copper Cable		Existing Screen Cable		Gas Line		HV Cable		LV Cable		Sewer		Telecoms		Water

**Notes**

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

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

Status: **Design**

ELR & Mileage: NGL, BML1, HAM

Designed	Stephen Holder	Sign.	[Signature]	Date	22/11/2012
Checked	Joe Winter	Sign.	[Signature]	Date	22/11/2012
Approved	Chris Tappenden	Sign.	[Signature]	Date	22/11/2012

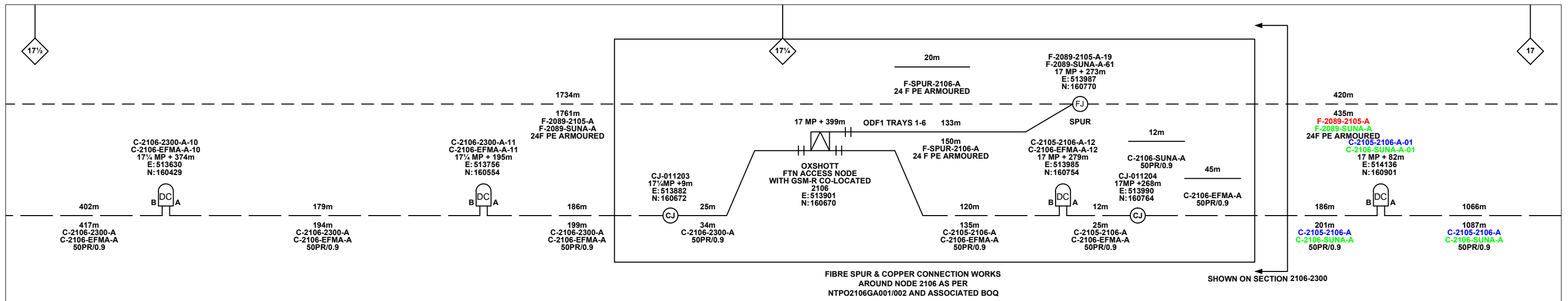
Project: FTN/GSM-R Project  
Drawing Title: Hampton Court Junction (2105) to Oxshott (2106)

**Network Rail**

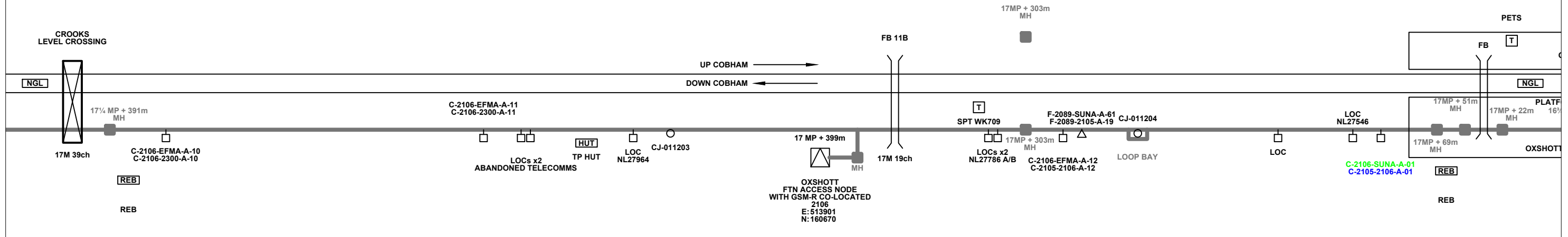
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Drawing Number: NTPO\SLD\2105\2106\001

Sheet: 5 of 5  
Revision: A



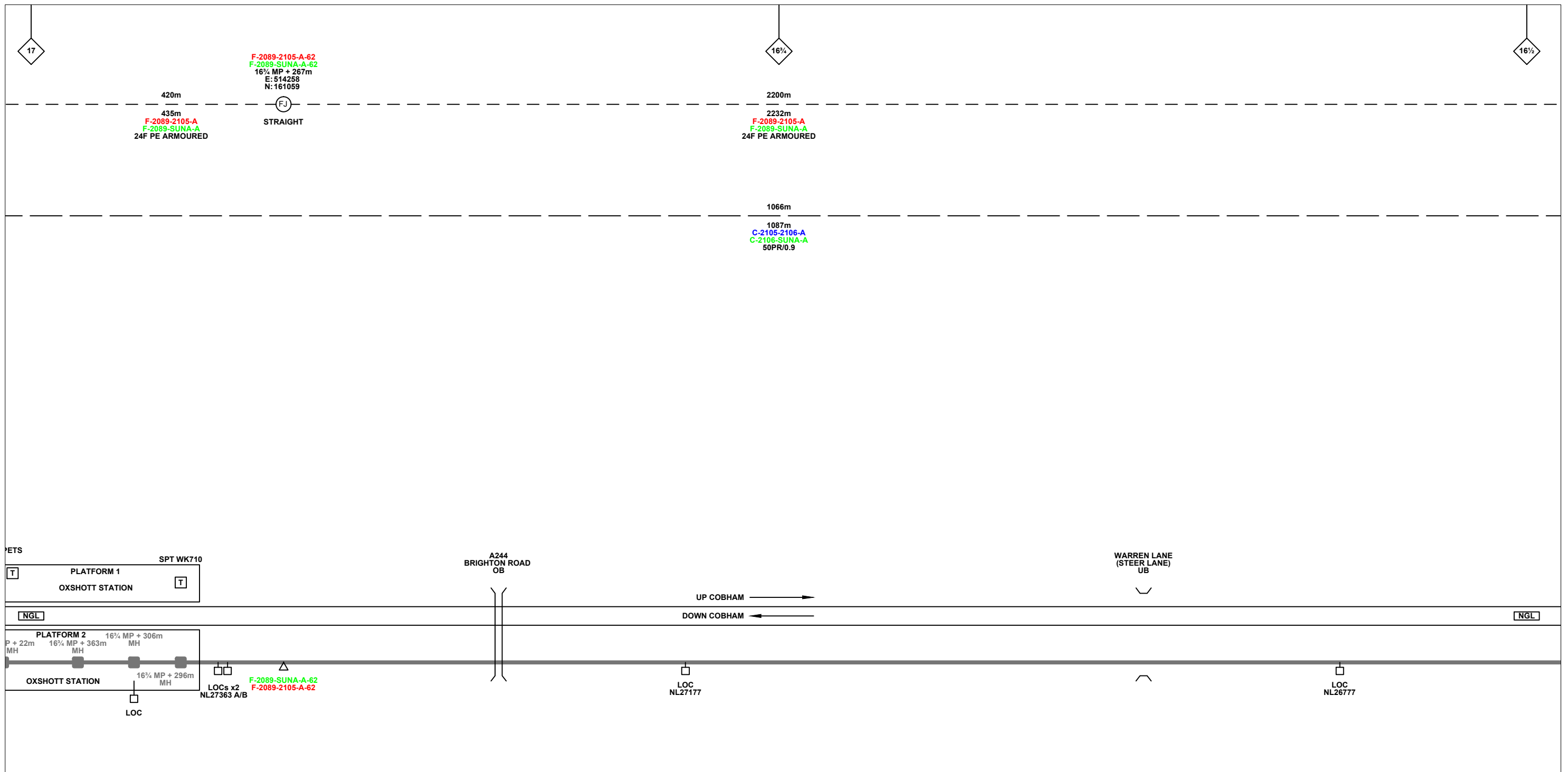
Intermediate Works Bill of Quantities				7.380	reroute cable	metre	62
7.72	Install 50 Pair Copper Cable into ducts by hand (Daytime)	metre	7	10.08	Moisture Barrier Termination Kit	each	1
7.344	Renumber DC cabinet	each	8	10.13	Delid, install 50 pair copper cable by hand and relid (Daytime)	metre	45
7.359	Renumber Fibre Joint	each	3	10.34	Terminate 50 pair cable including kit and label	each	1
7.373	Rename Cable (Fibre)	each	3	10.40	Install Sheath Gap between 3m and 30m of node entry point	each	1
7.373	Rename Cable (Copper)	each	10	10.43	Test base station to base station	each	1



**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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Vehicle Access Point	Mile Post	HV Cable	LV Cable
<b>KEY</b>	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	Pedestrian Access Point	Platform	Sewer	Telecoms
Proposed Fibre & Civils 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	Buffer Stop	Water	Mast
Proposed Copper Elements are shown in BLUE		--- Existing Fibre Cable								
Proposed Screening Elements are shown in MAGENTA		--- Existing Copper Cable								
All Recoveries are shown in GREEN		--- Existing Screen Cable								

Notes		Contractor(s)		Designed		Sign.		Date			
				Drawn		Stephen Holder		Date 22/11/2012			
		Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000		Checked		Joe Winter		Date 22/11/2012			
				Approved		Chris Tappenden		Date 22/11/2012			
Status				Project				Drawing Title			
Design				FTN/GSM-R Project Stage 2 Design				Hampton Court Junction (2105) to Oxshott (2106)			
Scale(s)				Alternative Reference				Drawing Number			
NTS				See Layout Tab 841 x 297 Sheet 1				NTPO\SLD\2105\2106\001			
ELR & Mileage				Revision				Sheet			
NGL, BML1, HAM				A				1 of 9			
Rev		Date		Description of Revisions		Drawn		Chkd		Appr	
A		22/11/12		Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg		SH		JW		CT	



**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	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 Cable
<b>KEY</b>	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	Sewer	LV Cable
Proposed Fibre & Civils Elements are shown in RED		Existing Fibre Cable	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Telephone	Telecoms	Water
Proposed Copper Elements are shown in BLUE		Existing Copper Cable					Buffer Stop		Cable Pull	Mast
Proposed Screening Elements are shown in MAGENTA		Existing Screen Cable								
All Recoveries are shown in GREEN										

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

Contractor(s)

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

Status: **Design**

Scale(s): NTS

ELR & Mileage: NGL, BML1, HAM

Designed		Sign.		Date	
Drawn	Stephen Holder	Sign.		Date	22/11/2012
Checked	Joe Winter	Sign.		Date	22/11/2012
Approved	Chris Tappenden	Sign.		Date	22/11/2012
Project	FTN/GSM-R Project Stage 2 Design				
Drawing Title	Hampton Court Junction (2105) to Oxshott (2106)				

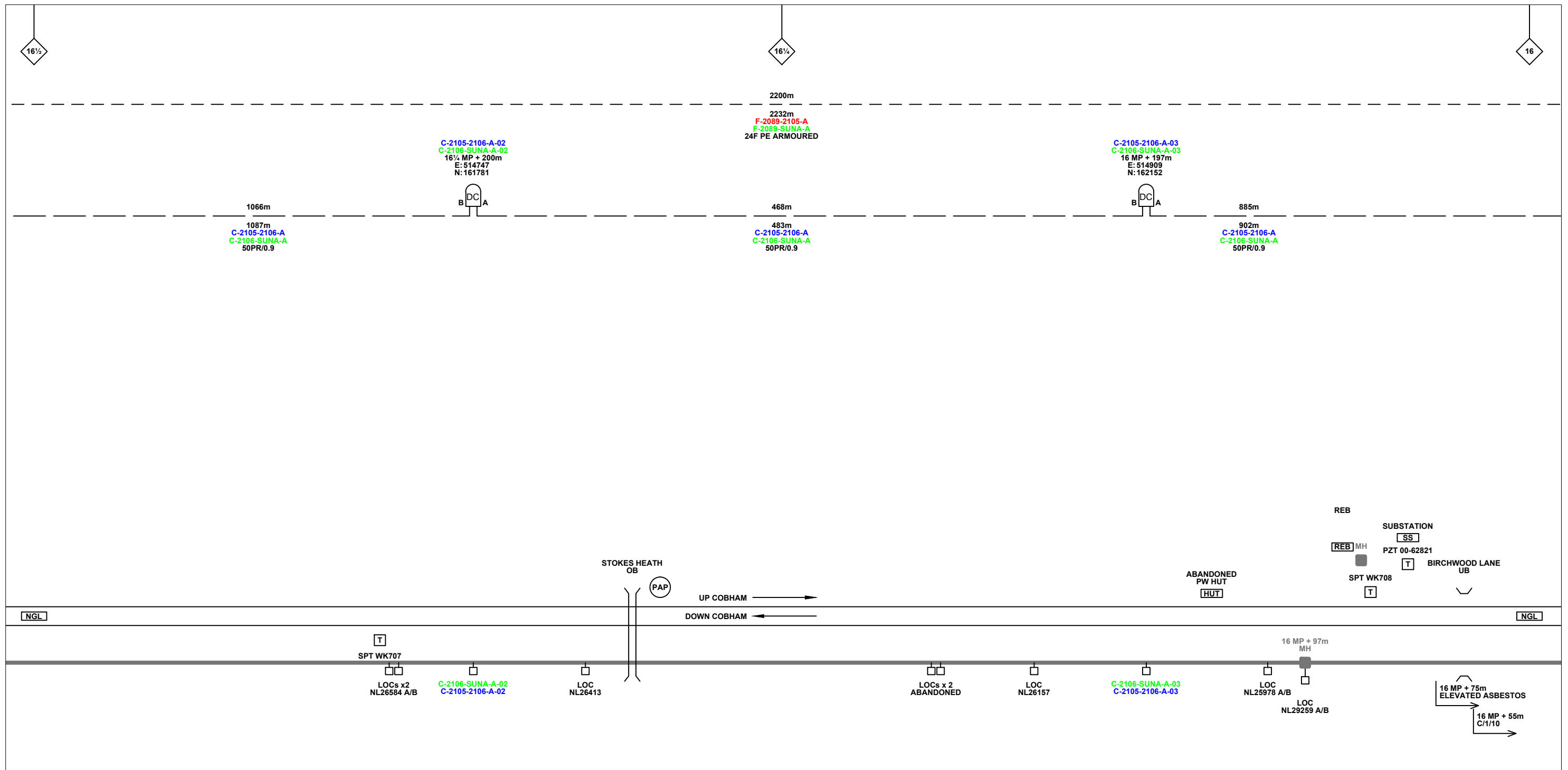
FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 1

Drawing Number: NTPO\SLD\2105\2106\001

Sheet: 2 of 9

Revision: A



**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		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		HV Cable
	KEY		Screening Conductor Joint with/without Earth		Status - as per Key Below		Mid Length Sheath Gap Fibre		FTN Access Node		Cabinet Routeworks		Tunnel		Pedestrian Access Point		Platform		Gantry		LV Cable
	Proposed Fibre & Civils Elements are shown in RED		All Existing Elements are shown in BLACK		Existing Fibre Cable		Sheath Gap Copper		FTN Access Node with GSM-R Colocated		Fibre Joint Routeworks		Earth Farm		Buffer Stop		Telephone		Cable Pull		Sewer
	Proposed Copper Elements are shown in BLUE		Existing Copper Cable		Existing Screen Cable		Mast						Gas Line		HV Cable		LV Cable		Sewer		Telecoms
	Proposed Screening Elements are shown in MAGENTA																				Water
	All Recoveries are shown in GREEN																				Copper Blue
																					Fibre Red
																					Screen Green
																					Mast

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

Contractor(s)

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

Status: **Design**

Scale(s): NTS

ELR & Mileage: NGL, BML1, HAM

Designed	Stephen Holder	Sign.		Date	22/11/2012
Checked	Joe Winter	Sign.		Date	22/11/2012
Approved	Chris Tappenden	Sign.		Date	22/11/2012
Project: FTN/GSM-R Project Stage 2 Design					
Drawing Title: Hampton Court Junction (2105) to Oxshott (2106)					

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

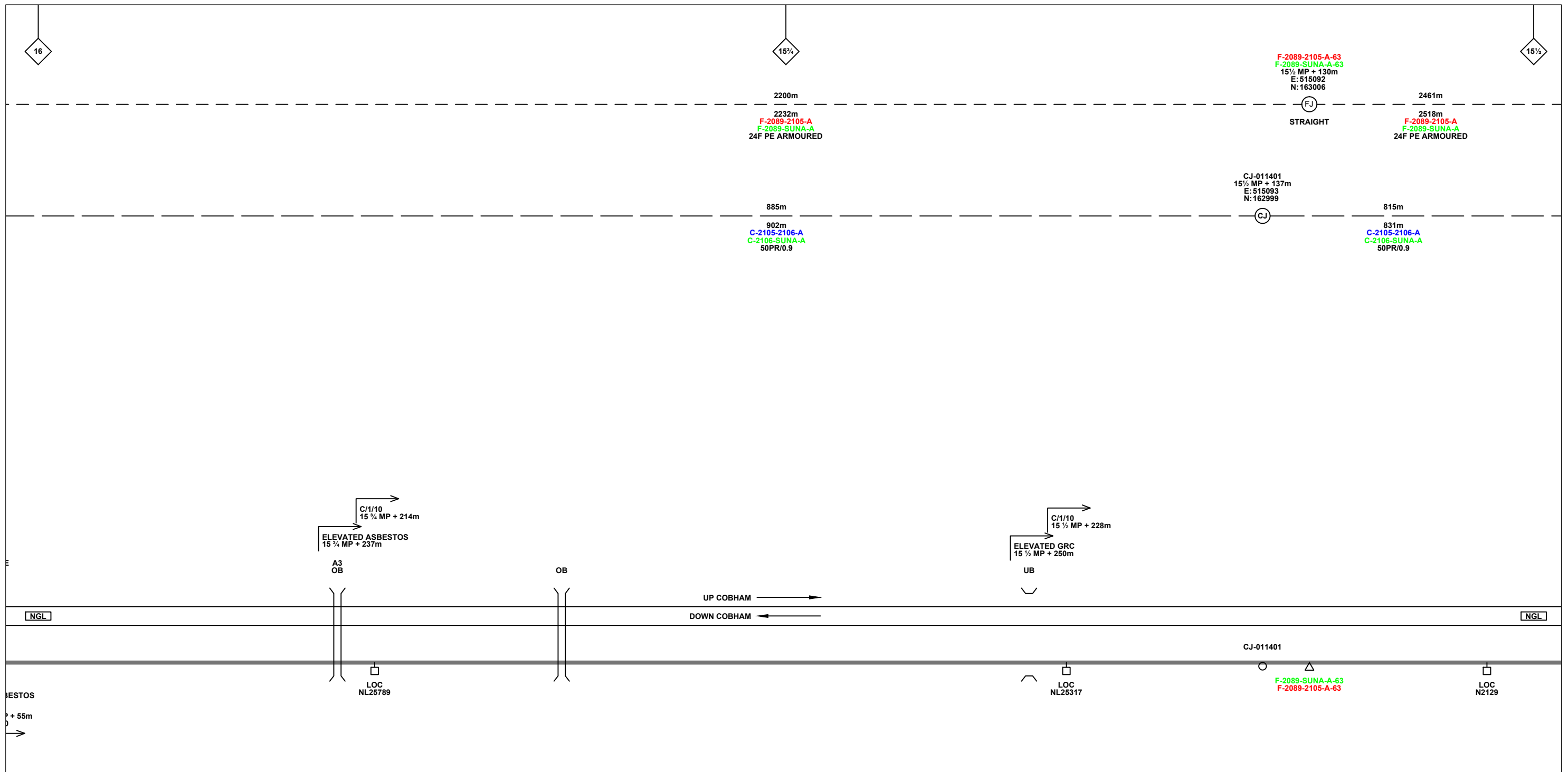
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Sheet: 3 of 9

Revision: A

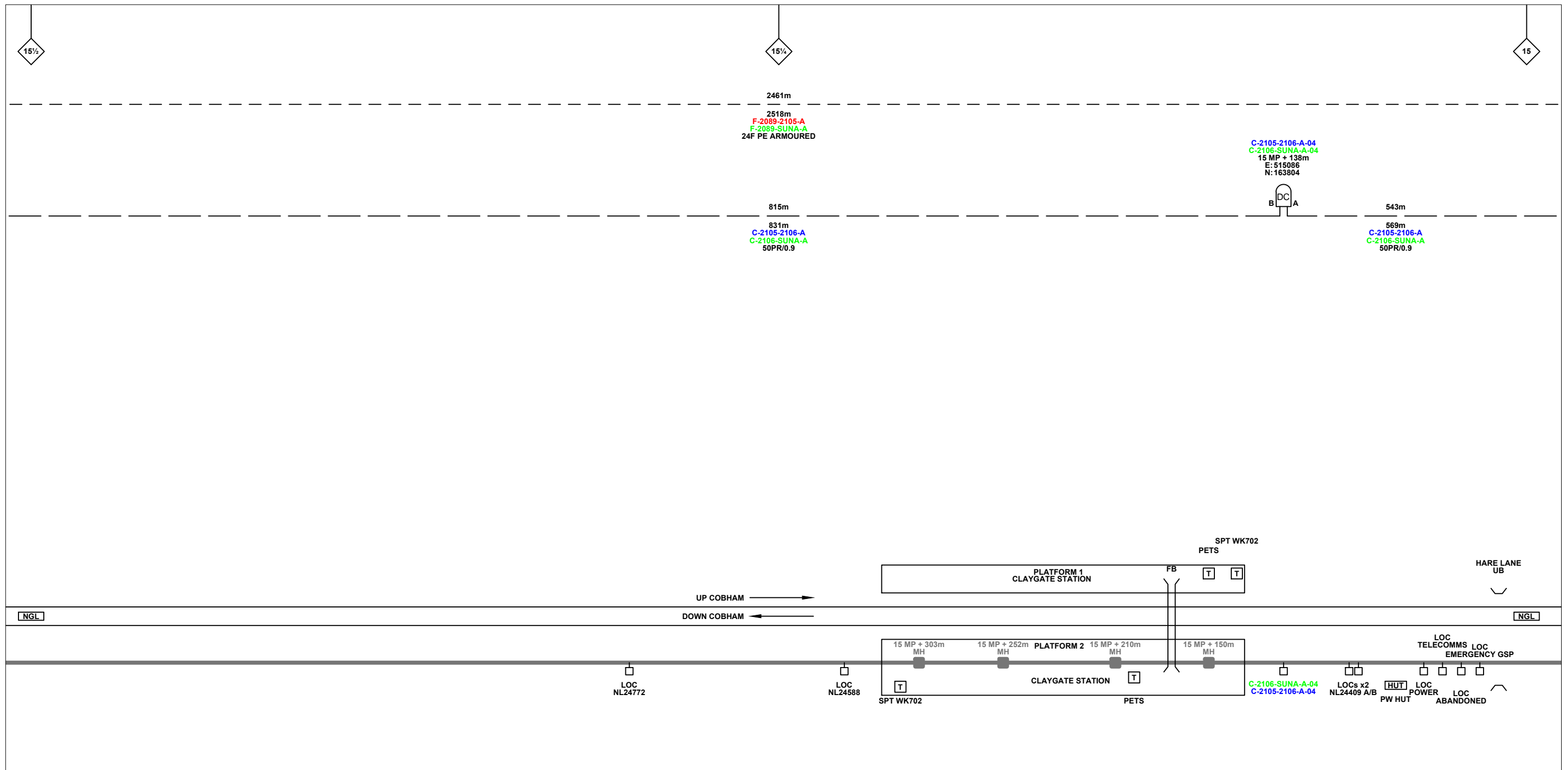




**Legend**

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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Vehicle Access Point	Mile Post	HV Cable	LV Cable
<b>KEY</b>	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	Pedestrian Access Point	Platform	Sewer	Telecoms
Proposed Fibre & Civils 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	Buffer Stop	Water	Mast
Proposed Copper Elements are shown in BLUE		Existing Fibre Cable								
Proposed Screening Elements are shown in MAGENTA		Existing Copper Cable								
All Recoveries are shown in GREEN		Existing Screen Cable								

Contractor(s)		Designed		Sign.		Date		
 Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000		Drawn	Stephen Holder	Sign.		Date	22/11/2012	
		Checked	Joe Winter	Sign.		Date	22/11/2012	
		Approved	Chris Tappenden	Sign.		Date	22/11/2012	
Status		Project		Drawing Title		Alternative Reference		
Design		FTN/GSM-R Project Stage 2 Design		Hampton Court Junction (2105) to Oxshott (2106)		See Layout Tab 841 x 297 Sheet 2		
Scale(s)		Drawing Number		Revision		Sheet		
NTS		NTPO\SLD\2105\2106\001		A		4 of 9		
Rev		Date		Description of Revisions		Drawing Number		
A		22/11/12		Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg		NTPO\SLD\2105\2106\001		
Drawn		Chkd		Appr		Sheet		
SH		JW		CT		4 of 9		

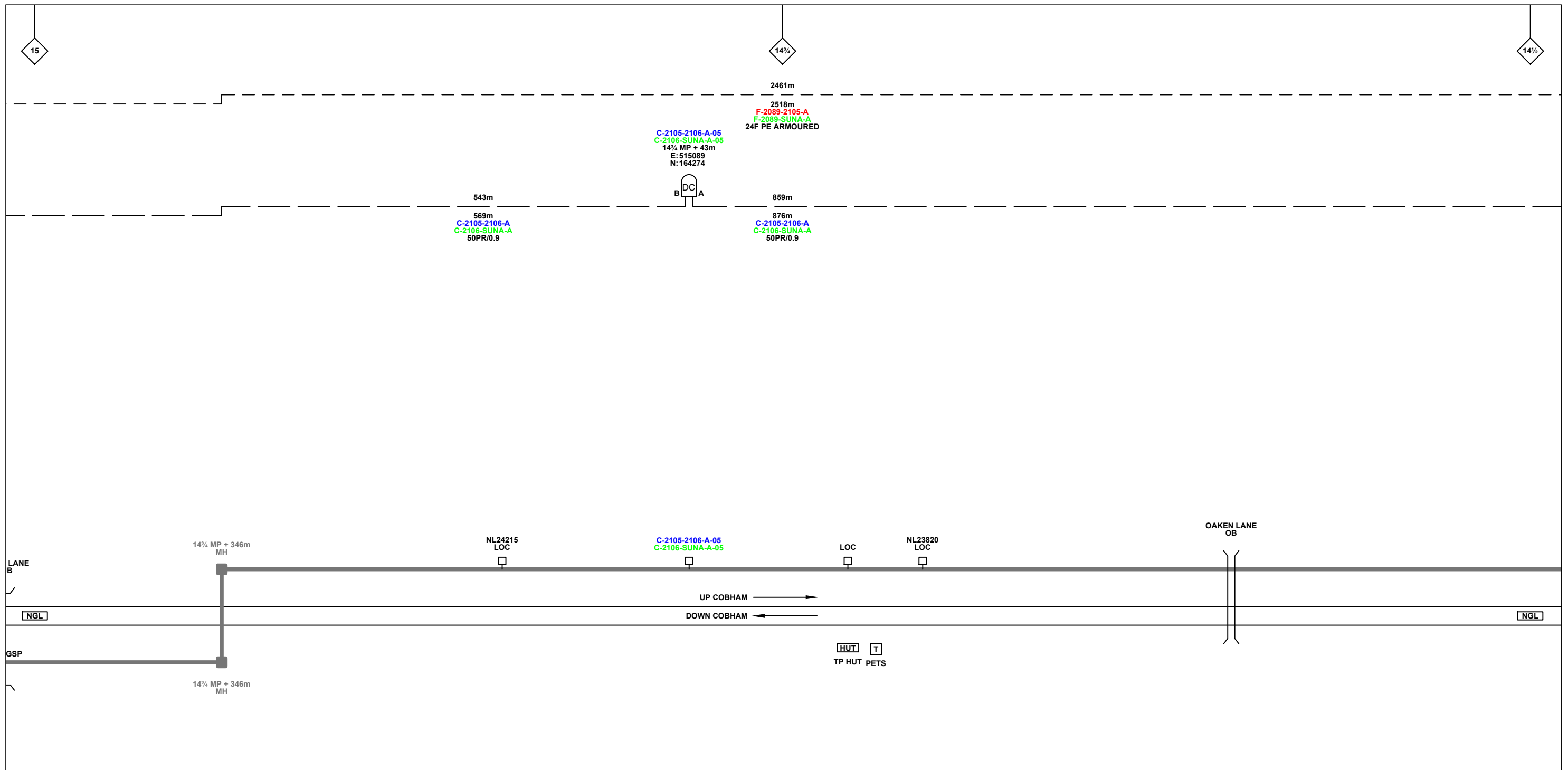


**Legend**

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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole	Vehicle Access Point	Mile Post	HV Cable	Gas
<b>KEY</b> 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	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	LV Cable	Sewer
All Existing Elements are shown in BLACK	Existing Fibre Cable	Existing Copper Cable	Sheath Gap Copper	FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Water	Mast

Notes			Contractor(s)			Designed			Sign.			Date		
			 Unit 4 Apex Park, Wainwright Road, Worcester, Worcestershire, WR4 9FN. Tel: 01905 756000			Drawn			Stephen Holder			Date 22/11/2012		
						Checked			Joe Winter			Date 22/11/2012		
						Approved			Chris Tappenden			Date 22/11/2012		
						Project			FTN/GSM-R Project			Stage 2 Design		
			Status			Design			Drawing Title			Alternative Reference		
			Scale(s)			NTS			ELR & Mileage			See Layout Tab 841 x 297 Sheet 3		
			Drawn			SH			JW			CT		
			Description of Revisions			NGL, BML1, HAM			Hampton Court Junction (2105) to Oxshott (2106)			Drawing Number		
			Rev			Date			NTPO\SLD\2105\2106\001			Sheet		
												5 of 9		
												Revision		
												A		





**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 Access Point	Mile Post	HV — HV — HV Cable	LV — LV — LV Cable
<b>KEY</b>	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	PAP Access Point	Platform	SEW — SEW — Sewer	v — v — Water
Proposed Fibre & Civils 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	Filled-In use	Earth Farm	Telephone	Buffer Stop	Mast
Proposed Copper Elements are shown in BLUE		Existing Fibre Cable				Clear-Empty				Cable Pull
Proposed Screening Elements are shown in MAGENTA		Existing Copper Cable								
All Recoveries are shown in GREEN		Existing Screen Cable								

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

Contractor(s)

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

Status: **Design**

Scale(s): NTS

ELR & Mileage: NGL, BML1, HAM

Designed		Sign.		Date	
Drawn	Stephen Holder	Sign.		Date	22/11/2012
Checked	Joe Winter	Sign.		Date	22/11/2012
Approved	Chris Tappenden	Sign.		Date	22/11/2012
Project	FTN/GSM-R Project Stage 2 Design				
Drawing Title	Hampton Court Junction (2105) to Oxshott (2106)				

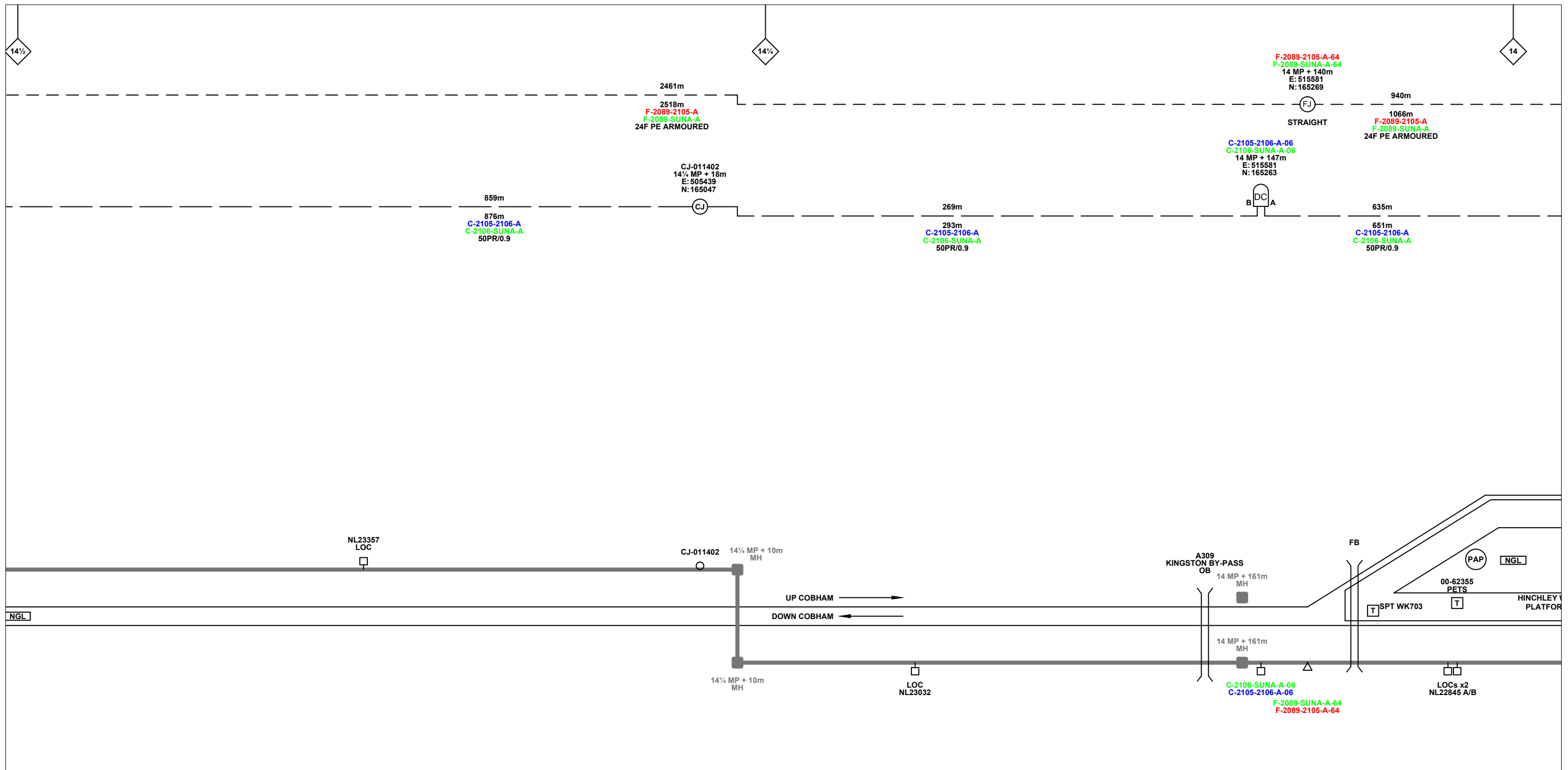
FTN/GSM-R Project  
Tournament House  
Paddington  
London  
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Alternative Reference: See Layout Tab 841 x 297 Sheet 3

Drawing Number: NTPO\SLD\2105\2106\001

Sheet: 6 of 9

Revision: A



**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	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 Cable
<b>KEY</b>	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	LV Cable
Proposed Fibre & Civils Elements are shown in RED				FTN Access Node with GSM-R Colocated	Fibre Joint Routeworks	Tunnel	Earth Farm	Buffer Stop	Sewer
Proposed Copper Elements are shown in BLUE								Telephone	Telecoms
Proposed Screening Elements are shown in MAGENTA								Cable Pull	Water
All Recoveries are shown in GREEN									Mast
									Crossing
									Gantry

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

Contractor(s)

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

Status: **Design**

Scale(s): NTS

ELR & Mileage: NGL, BML1, HAM

Designed	Stephen Holder	Sign.		Date	22/11/2012
Checked	Joe Winter	Sign.		Date	22/11/2012
Approved	Chris Tappenden	Sign.		Date	22/11/2012
Project: FTN/GSM-R Project Stage 2 Design					
Drawing Title: Hampton Court Junction (2105) to Oxshott (2106)					

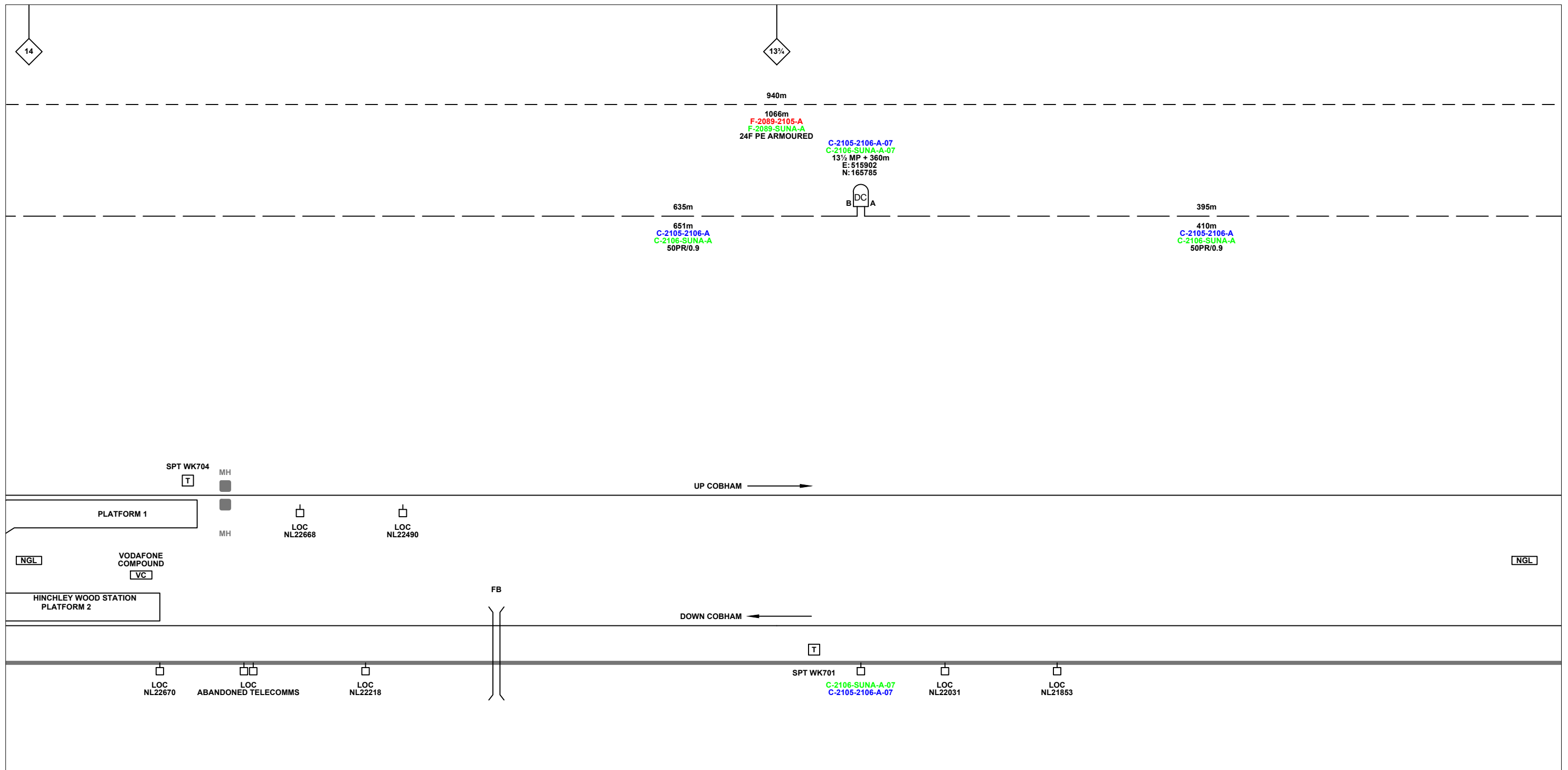
FTN/GSM-R Project  
Tournament House  
Paddington  
London  
W2 1HA

Alternative Reference: See Layout Tab 841 x 297 Sheet 4

Drawing Number: NTPO\SLD\2105\2106\001

Sheet: 7 of 9

Revision: A



**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	Cable - Type Identified by FTN Code	Electrical Control Room	Core Node with GSM-R Colocated	Copper Joint Routeworks	Manhole details: Cross-To be used Filled-In use Clear-Empty	Vehicle Access Point	Mile Post	HV Cable	LV Cable
<b>KEY</b>	Screening Conductor Joint with/without Earth	Status - as per Key Below	Manhole	FTN Access Node	Cabinet Routeworks	Tunnel	Pedestrian Access Point	Platform	Sewer	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	Earth Farm	Buffer Stop	Telephone	Water	Mast
Proposed Copper Elements are shown in BLUE		Existing Fibre Cable	Sheath Gap Copper							
Proposed Screening Elements are shown in MAGENTA		Existing Copper Cable								
All Recoveries are shown in GREEN		Existing Screen Cable								

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

Contractor(s)

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

Status: **Design**

Scale(s): NTS

ELR & Mileage: NGL, BML1, HAM

Designed		Sign.		Date	
Drawn	Stephen Holder	Sign.		Date	22/11/2012
Checked	Joe Winter	Sign.		Date	22/11/2012
Approved	Chris Tappenden	Sign.		Date	22/11/2012
Project	FTN/GSM-R Project Stage 2 Design				
Drawing Title	Hampton Court Junction (2105) to Oxshott (2106)				

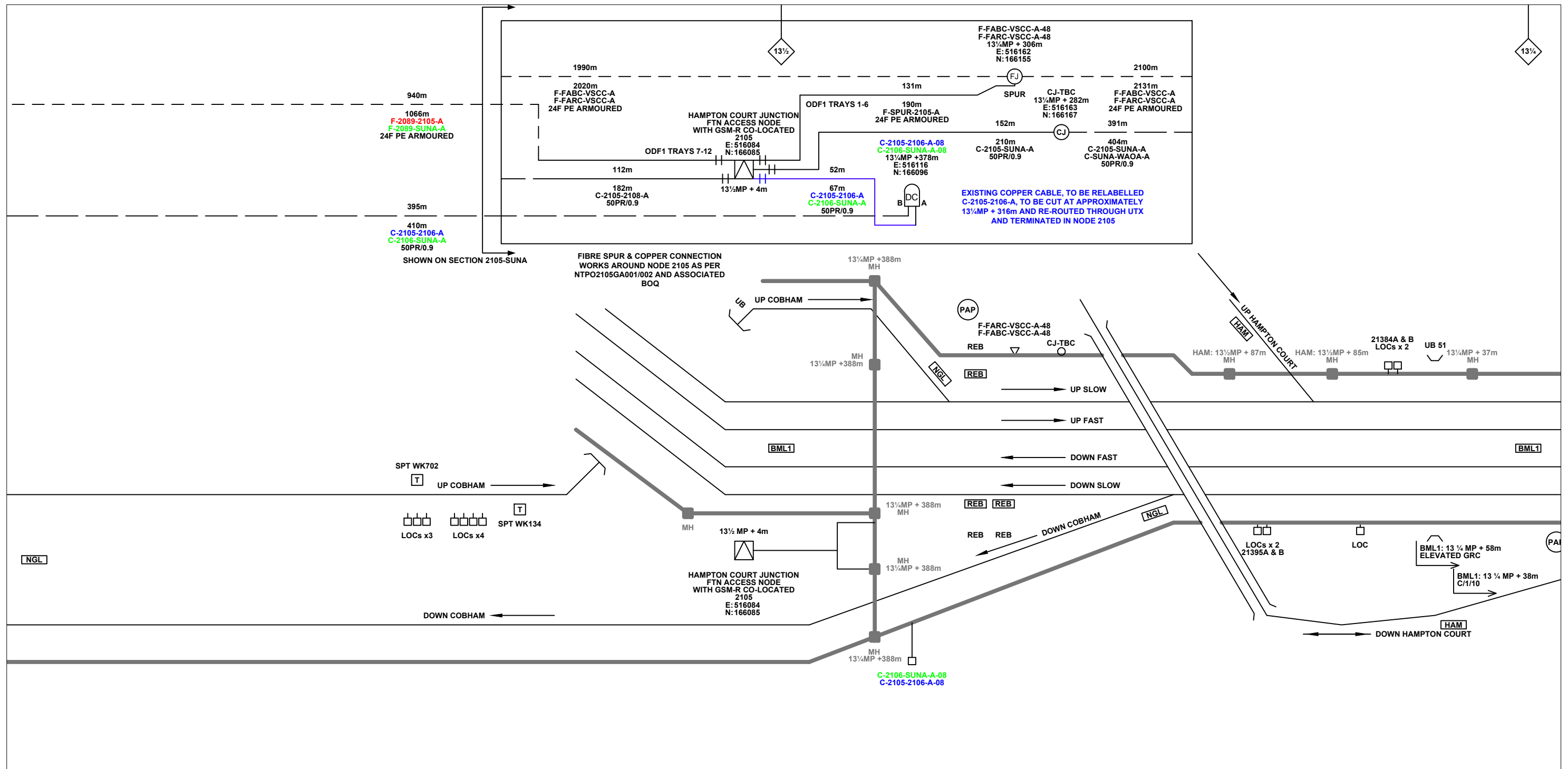
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Alternative Reference: See Layout Tab 841 x 297 Sheet 4

Drawing Number: NTPO\SLD\2105\2106\001

Sheet: 8 of 9

Revision: A



**Legend**

<b>KEY</b>										
Proposed Fibre & Civils Elements are shown in RED	All Existing Elements are shown in BLACK									
Proposed Copper Elements are shown in BLUE	Existing Fibre Cable									
Proposed Screening Elements are shown in MAGENTA	Existing Copper Cable									
All Recoveries are shown in GREEN	Existing Screen Cable									

Notes

Rev	Date	Description of Revisions	Drawn	Chkd	Appr
A	22/11/12	Redrafted from 2106-SUNA FTN001_01310_DRAB_0006 Rev C.dwg & 2106-EFMA FTN001_01310_DRAB_0005 Rev C.dwg	SH	JW	CT

Contractor(s)

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

Status: **Design**

Scale(s): NTS

ELR & Mileage: NGL, BML1, HAM

Designed	Sign.	Date
Drawn: Stephen Holder	Sign. <i>[Signature]</i>	Date: 22/11/2012
Checked: Joe Winter	Sign. <i>[Signature]</i>	Date: 22/11/2012
Approved: Chris Tappenden	Sign. <i>[Signature]</i>	Date: 22/11/2012
Project: FTN/GSM-R Project Stage 2 Design		
Drawing Title: Hampton Court Junction (2105) to Oxshott (2106)		

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Alternative Reference: See Layout Tab 841 x 297 Sheet 5

Drawing Number: NTPO\SLD\2105\2106\001

Sheet: 9 of 9

Revision: A