

# WELDING PROCEDURE SPECIFICATION SHEET (W.P.S.S.)



Name of Project- "Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Name of the Work- Fabrication of 02x56.0m Clear Span R.O.B. Bow String Steel Girder Bridge

Drawing No.- RDSO/B-10428

No. of Span/Girder - 02x56.0m Span R.O.B. Bow String Steel Girder Bridge

Total Approximate Tonnage Involved- 1400 MT

Name of the Contractor - M/s R&C Infra Engineers Pvt. Ltd., Lucknow

Client- National Highways Authority of India (NHAI)

Inspection Authority- RDSO, Lucknow & Northern Railway, Lucknow Division

Fabrication Agency- M/s ARJIT TRADERS, Lucknow.

Add. of Fabrication Agency- Khasra No. 844, Kali Paschim, Near SGPGI, Raebareli Road, Lucknow, Uttar Pradesh-226301





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Team Leader C

Prepared by
M/s Arjit Traders
19-20A, SARVODAYA NAGAR

AWADHPURI, Lucknow, U. P. – 226016 INDIA Sr. Div

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Sr. Divisional Engineer /VI Northern Railway, Lucknow

#### (W.P.S.S.)

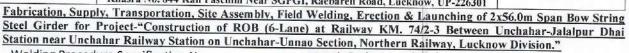
#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/01

Drawing No.

RDSO/B-10428/1

1.0Weld Joint Description

Fillet-Bottom Long Beam

1.1Base Metal

Grade: IS: 2062, E350B0- Fully Killed and Normalized &

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel

Base Metal Thickness (25x20)mm

1.2Welding Process 1.3Welding Position

SAW Flat

1.4Weld Location

Workshop

1.5Weld Size

10mm

1.6Welding Consumable a) Electrode Wire

Wire Dia. 4mm

b) Drying Method

N/A

Flux Class c)

F2 as per IRS M-39 2001

d) Type

Agglomerated

e) Drying Method

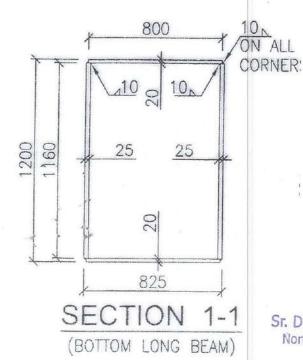
As per manufacturer's recommendation

f) Shielding Gas

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



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Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

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Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-2001 & IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Electrode Stick Out (mm)	Gas Flow (Ltr./ min.)
1	2	3	4	5	6	7	8
1	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
2	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
3	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

N/A

1.15 Root preparation before welding other side of groove weld1.16 Pre-heating & Interpass temperature

N/A 100-150°C

1.17 Peening

: N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification

IRS M-28.2 after conducting

D.P. Test

1.20 Inspection of weld

V

Visual, D.P. Test & Macro Etching,

Weld Size and weld profile.

1.21 Any other relevant detail

N/A

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Sr. Divisional Engineer /VI Northern Railway, Lucknow





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Team Leader Cum'Sr. Highway Eng





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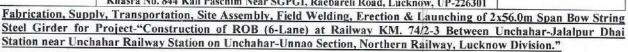
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Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/02

Drawing No.

RDSO/B-10428/1

1.0Weld Joint Description

Fillet-Arch Beam

1.1Base Metal

Grade: IS: 2062, E350B0- Fully Killed and Normalized &

Base Metal Thickness (28x28)mm

1.2Welding Process 1.3Welding Position 1.4Weld Location

SAW Flat

1.5Weld Size

Workshop

1.6Welding Consumable

10mm

a) Electrode Wire

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel Wire Dia. 4mm

N/A

Drying Method c) Flux Class

F2 as per IRS M-39 2001

d) Type

Agglomerated

e) Drying Method

As per manufacturer's recommendation

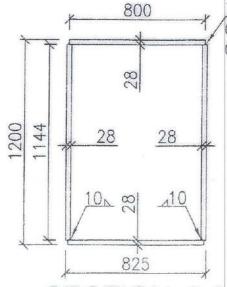
f) Shielding Gas

N/A

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



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SECTION

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001 & IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Electrode Stick Out (mm)	Gas Flow (Ltr./ min.)
1	2	3	4	5	6	7	8
1	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
2	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
3	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

N/A N/A

**1.15** Root preparation before welding other side of groove weld **1.16** Pre-heating & Interpass temperature

100-150°C

1.17 Peening

: N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting

D.P. Test

1.20 Inspection of weld

Visual, D.P. Test & Macro Etching,

Weld Size and weld profile.

1.21 Any other relevant detail

N/A

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Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/03

Drawing No.

: RDSO/B-10428/1

1.0Weld Joint Description

: Fillet-Hanger

1.1Base Metal

Grade: IS: 2062, E350B0- Fully Killed and Normalized &

Base Metal Thickness (25x28)mm

**1.2**Welding Process **1.3**Welding Position

SAW Flat

1.4Weld Location 1.5Weld Size : Workshop : 10mm

1.6Welding Consumable

a) Electrode Wire

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel

Wire Dia. 4mm

b) Drying Method

: N/A

c) Flux Class

F2 as per IRS M-39 2001

d) Type

: Agglomerated

e) Drying Method

As per manufacturer's recommendation

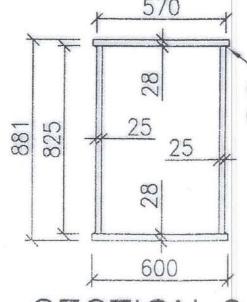
f) Shielding Gas

: N/A

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



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SECTION 2-2

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1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-2001 & IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Electrode Stick Out (mm)	Gas Flow (Ltr./ min.)
1	2	3	4	5	6	7	8
1	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
2	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
3	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

N/A 100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting

D.P. Test

1.20 Inspection of weld

Visual, D.P. Test & Macro Etching,

1.21 Any other relevant detail

Weld Size and weld profile.

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/04

Drawing No.

RDSO/B-10428/9

1.0Weld Joint Description

Fillet-Hanger

1.1Base Metal

Grade: IS: 2062, E350B0- Fully Killed and Normalized &

Base Metal Thickness (25x28)mm

1.2Welding Process 1.3Welding Position 1.4Weld Location 1.5Weld Size

SAW Flat Workshop 16mm

1.6Welding Consumable

a) Electrode Wire

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel

Wire Dia. 4mm

b) Drying Method

c) Flux Class

F2 as per IRS M-39 2001

d) Type

Agglomerated

N/A

e) Drying Method

As per manufacturer's recommendation

Shielding Gas

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.

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1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

1.9 Joint Preparation

2001 & IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Stick Out (mm)	Gas Flow (Ltr./ min.)
1	2	3	4	5	6	7	8
1	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
2	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
3	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

N/A N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting

D.P. Test

N/A

1.20 Inspection of weld

Visual, D.P. Test & Macro Etching,

Weld Size and weld profile.

1.21 Any other relevant detail

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Sr. Divisional Engineer /VI Northern Railway, Lucknow

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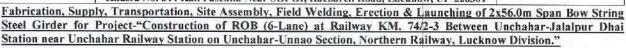
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#### Head Office-

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<u>Factory Address-</u> Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/05

Drawing No.

RDSO/B-10428/1

1.0Weld Joint Description

Fillet-Top Tie Beam

1.1Base Metal

Grade: IS: 2062, E350B0- Fully Killed and Normalized &

Base Metal Thickness (20x20)mm

1.2Welding Process 1.3Welding Position 1.4Weld Location

Flat Workshop

SAW

1.5Weld Size

8mm

1.6Welding Consumable

a) Electrode Wire

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel

Wire Dia. 4mm

**Drying Method** b)

N/A

c) Flux Class

F2 as per IRS M-39 2001

d) Type

Agglomerated

e) Drying Method

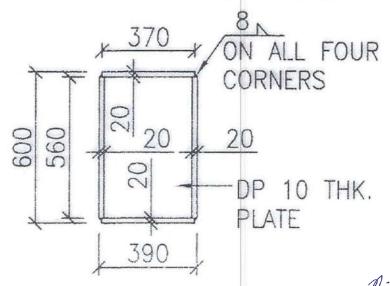
As per manufacturer's recommendation

f) Shielding Gas

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



(TOP TIE BEAM)

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Page 9 of 78

Sr. Divisional Engineer /VI Northern Railway, Lucknow



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1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001 & IS: 9595-20

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Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Electrode Stick Out (mm)	Gas Flow (Ltr./ min.)
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4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

N/A N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification

IRS M-28.2 after conducting

D.P. Test

N/A

1.20 Inspection of weld

Visual, D.P. Test & Macro Etching,

Weld Size and weld profile.

1.21 Any other relevant detail

स०अ० अधिर्वे धातु एवं रसा० Assit. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ाञ्जि॰मा॰सं॰, लखनऊ / R.D.S.O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

ay Engineer

10 of 78

Team Leader Curb Sh Hig



(W.P.S.S.)

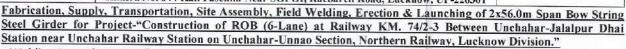
#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/06

Drawing No.

RDSO/B-10428/1 Fillet-Top Diagonal Tie Beam

1.0Weld Joint Description 1.1Base Metal

Grade: IS: 2062, E350B0- Fully Killed and Normalized &

Base Metal Thickness (25x25)mm

1.2Welding Process

SAW Flat

1.3Welding Position 1.4Weld Location

Workshop

1.5Weld Size

10mm

1.6Welding Consumable

a) Electrode Wire

Wire Dia. 4mm

N/A

Drying Method c) Flux Class

d) Type

F2 as per IRS M-39 2001

e) Drying Method

Agglomerated

f) Shielding Gas

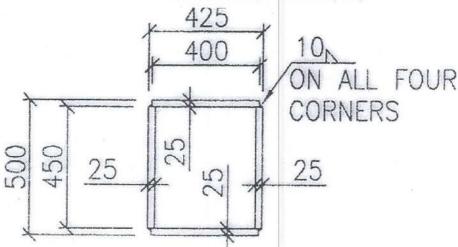
As per manufacturer's recommendation

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel

Rust etc. which may affect weld quality.



SECTION

स०अ० अधि <mark>धातु एवं रसा</mark>० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ।०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

DIAGONAL TIE BEAM)

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Team Leader Cum 3r. I



## (W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details 1.9 Joint Preparation

Sketch Showing arrangements of Parts, Weld Details As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001 & IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Electrode Stick Out (mm)	Gas Flow (Ltr./ min.)
1	2	3	4	5	6	7	8
1	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
2	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
3	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

1.14 Cleaning of weld bead before laying of next weld bead

1.15 Root preparation before welding other side of groove weld

1.16 Pre-heating & Interpass temperature

1.17 Peening

1.18 Post weld treatment

1.19 Rectification of weld defect

Yes N/A

N/A 100-150°C

N/A

By Grinding of the defective weld

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting

D.P. Test

1.20 Inspection of weld

Visual, D.P. Test & Macro Etching,

Weld Size and weld profile.

1.21 Any other relevant detail

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow





Engineer

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Team Leader Cum

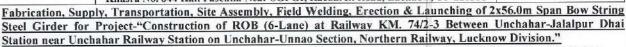


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<u>Factory Address-</u> Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/07

Drawing No.

RDSO/B-10428/6

SAW

Flat

Workshop

10mm

1.0Weld Joint Description

Fillet-Int. Bottom Cross Beam

1.1Base Metal

Grade: IS: 2062, E350B0 Fully Killed and Normalized & Base

Metal Thickness (20x16)mm

1.2Welding Process 1.3Welding Position 1.4Weld Location 1.5Weld Size

1.6Welding Consumable

a) Electrode Wire

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel

Wire Dia. 4mm

b) Drying Method N/A

c) Flux Class

d) Type

Drying Method e)

Shielding Gas

1.7Base Metal Preparation

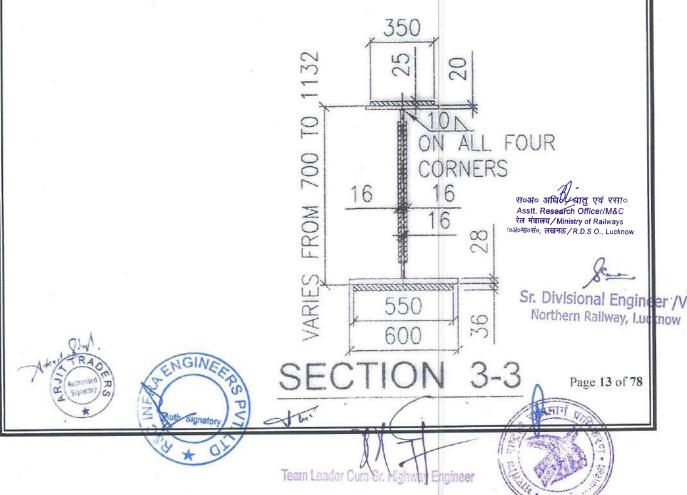
F2 as per IRS M-39 2001 Agglomerated

As per manufacturer's recommendation

Material to be cut straight & square by controlled gas

Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





# (W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP-226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details 1.9 Joint Preparation

Sketch Showing arrangements of Parts, Weld Details

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001 & IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Electrode Stick Out (mm)	Gas Flow (Ltr./ min.)
1	2	3	4	5	6	7	8
1	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
2	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
3	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

N/A N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting

D.P. Test

1.20 Inspection of weld

Visual, D.P. Test & Macro Etching,

Weld Size and weld profile.

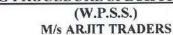
1.21 Any other relevant detail

स०अ० अधि **थातु एवं रसा**० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S.O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Team Leader Cum





19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301 Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String

Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai

Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/08

Welding Procedure Specification No.

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Fillet-Int. Bottom Cross Beam

1.1Base Metal

Grade: IS: 2062, E350B0 Fully Killed and Normalized & Base

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel

Metal Thickness (28x16)mm

1.2Welding Process 1.3Welding Position 1.4Weld Location

Flat Workshop

SAW

1.5Weld Size

10mm

1.6Welding Consumable

a) Electrode Wire

Wire Dia. 4mm N/A

b) Drying Method

Flux Class c)

F2 as per IRS M-39 2001

d) Type Agglomerated

e) Drying Method

As per manufacturer's recommendation

Shielding Gas

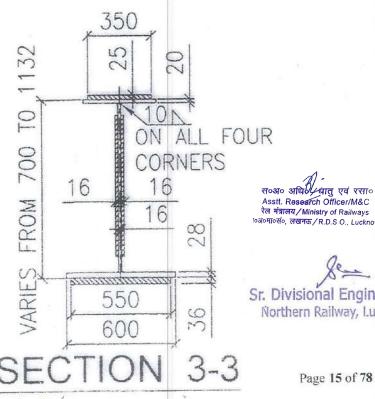
Team Leader C

1.7Base Metal Preparation

GINE

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



Sr. Divisional Engineer /V Northern Railway, Lucknow

Page 15 of 78



(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details 1.9 Joint Preparation

Sketch Showing arrangements of Parts, Weld Details

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001 & IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Electrode Stick Out (mm)	Gas Flow (Ltr./ min.)
1	2	3	4	5	6	7	8
1	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
2	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
3	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

N/A N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment 1.19 Rectification of weld defect N/A

By Grinding of the defective weld And rectifying the weld as per

Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting

D.P. Test

1.20 Inspection of weld

Visual, D.P. Test & Macro Etching,

Weld Size and weld profile.

1.21 Any other relevant detail

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

Page 16 of 78

Team Leader Cum Sr. Highway Engineer

(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/9

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Fillet Weld- Shear Stud Welding on Top of the Int. & End

**Bottom Cross Beam** 

1.1Base Metal

Grade: IS: 2062, E350B0 & Shear Stud as per SD1/UF BS EN

1.2Welding Process

Drawn Arc Stud Welding with Ceramic Ferrule Technique

1.3Welding Position 1.4Weld Location

Downward Workshop

1.5Weld Size

7 mm

1.6Welding Consumable

N/A

a) Electrode Wire/ Class b) Drying Method

N/A

c) Flux Type

The Stud tip shall be supplied with flux in the form of

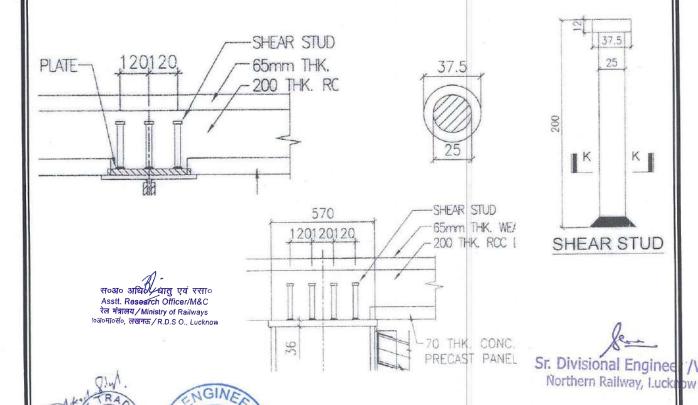
Refitted aluminum ball with ceramic ferrule d) Type

N/A N/A

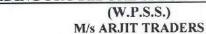
e) Shielding Gas 1.7Base Metal Preparation

Fusion faces and adjacent surfaces are cleaned and Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



Team Leader Cum Sr. Highway Eng





19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse As per IS: 7310 (Part-I)-1974

1.11 Welder Qualification 1.12 Welding Parameters & Technique

(As Below)-

Weld	Stud Dia.	Current	Arc	Tim	ne	Lift (mm)	Plunge
Pass No.	(mm)	(Amp.)	(Volts)	Second	Cycle		
1	25	2000	N/A	1.4	85	0.125	N/A

(As per Sketch) 1.13 Welding Sequence and technique

N/A 1.14 Provision of Run-on & Run-off tabs N/A 1.15 Cleaning of weld bead before laying of next weld bead

1.16 Root preparation before welding other side of groove weld N/A N/A

1.17 Pre-heating & Interpass temperature N/A 1.18 Peening N/A 1.19 Post weld treatment

By Grinding of the defective weld 1.20 Rectification of weld defect

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B2 Class electrodes of specification IRS M-28.2 after conducting D.P.

Visual, Ring Test & Bend Test. 1.21 Inspection of weld

N/A 1.22 Any other relevant detail

> स०अ० अधिमधातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

hway Engineer Team Leader C

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# ARJIT TRADERS

#### WELDING PROCEDURE SPECIFICATION SHEET

(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/10

Drawing No.

RDSO/B-10428/1
Fillet-End Bottom Cross Beam

1.0Weld Joint Description1.1Base Metal

Grade: IS: 2062, E350BO- Fully Killed and Normalized &

Base Metal Thickness (25x36)mm

1.2Welding Process
1.3Welding Position

Flat

1.4Weld Location
1.5Weld Size

Workshop 16mm

SAW

1.6Welding Consumable

.

a) Electrode Wire

Class: W2 of IRS M-39 2001, Copper Coated Mild Steel

Wire Dia. 4mm

b) Drying Method

: N/A

c) Flux Class

F2 as per IRS M-39 2001

d) Type

: Agglomerated

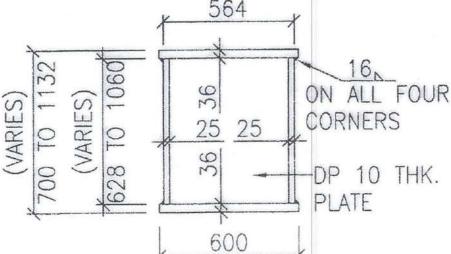
e) Drying Methodf) Shielding Gas

As per manufacturer's recommendation

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.

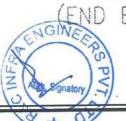


स०अ० अधिर्ण हातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०सं०, लखनऊ/R.D.S.O., Lucknow

SECTION 5-5

Sr. Divisional Engine er /VI Northern Railway, Lucenow





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Team Leader Cum Sr. Highway Engineer

CROSS BEAM)



(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8Joint Design Details :

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001 & IS: 9595-20

1.10 Welding Current

: Type, DC, Polarity: Reverse

1.11 Welder Qualification

SAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./ min.)	Stick Out (mm)	Gas Flow (Ltr./ min.)
1	2	3	4	5	6	7	8
1	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
2	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
3	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A
4	4.0	500-550	28-32	1.6-1.8	0.40-0.45	10-15	N/A

1.13 Provision of Run-on & Run-off tabs

: Yes

1.14 Cleaning of weld bead before laying of next weld bead

N/A N/A

**1.15** Root preparation before welding other side of groove weld **1.16** Pre-heating & Interpass temperature

100-150°C

1.17 Peening

: N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification

IRS M-28.2 after conducting

D.P. Test

1.20 Inspection of weld :

Visual, D.P. Test & Macro Etching,

Weld Size and weld profile.

1.21 Any other relevant detail : N/A

संठअः अधिर्ण हातु एवं रसाठ Asstt. Research Officer/M&C रेत मंत्रालय/Ministry of Railways ाठ्यानावर्सं०, लखनक / R.D.S O., Lucknow

Sr. Divisional Engineer /VI
Northern Railway, Lucknow



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der Curn St Hahway E

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Team Leader Culn St. High way Enginee



(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/11

Drawing No.

RDSO/B-10428/5

1.0Weld Joint Description

Fillet - Diaphragm Plate (DP2) in Bottom Long Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (20x25)mm

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal & Vertical

1.4Weld Location 1.5Weld Size

Workshop 10mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

Drying Method Flux Class c)

N/A N/A

d) Type

N/A

e) Drying Method Shielding Gas

N/A

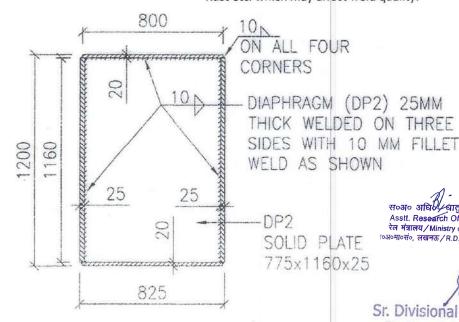
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7 Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



SECTION A-A

Sr. Divisional Engineer / Northern Railway, Lucknow

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C

रेल मंत्रालय/Ministry of Railways १०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

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Team Leader Cum





(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

1.9Joint Preparation 2001

& IS: 9595-20

1.10 Welding Current

: Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

: Yes

**1.14** Cleaning of weld bead before laying of next weld bead **1.15** Root preparation before welding other side of groove weld

N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A N/A

1.18 Post weld treatment
1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

Test

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि जातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ाञाणमार्जन, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Team Leader Cum Sn. Highway Engineer/

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# A

#### WELDING PROCEDURE SPECIFICATION SHEET

(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/12

Drawing No.

: RDSO/B-10428/5

1.0Weld Joint Description

Fillet – Diaphragm Plate (DP1) in Bottom Long Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (16x25)mm

1.2Welding Process

:

1.3Welding Position

Horizontal & Vertical

1.4Weld Location

Workshop

**FCAW** 

1.5Weld Size

10mm

1.6Welding Consumable

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia. 1.2mm, FCAW Wire

a) Electrode Wire

: N/A

b) Drying Methodc) Flux Class

: N/A

d) Type

N/A

e) Drying Method

N/A N/A

f) Shielding Gas

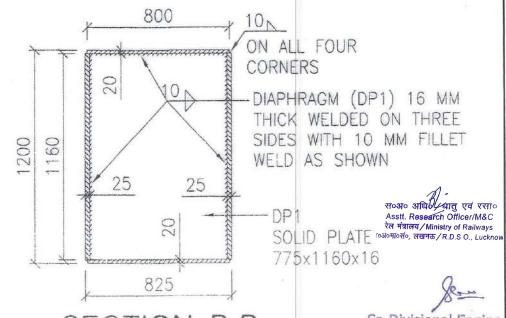
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



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SECTION B-B

Sr. Divisional Engineer /\
Northern Railway, Luck ow

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(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

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Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

: Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique : (As Below

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1 -	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

: N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

Test

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधिर्मिन् एवं रसा० Assit. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Team Leader Cum Sr. Highway Engineer



(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

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Factory Address-Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/13

Drawing No.

RDSO/B-10428/2

1.0Weld Joint Description

Fillet - Diaphragm Plate (DP) in Arch Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (25x28)mm

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal & Vertical

1.4Weld Location

Workshop

1.5Weld Size

10mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

Drying Method c) Flux Class

N/A N/A

d) Type e) Drying Method N/A N/A

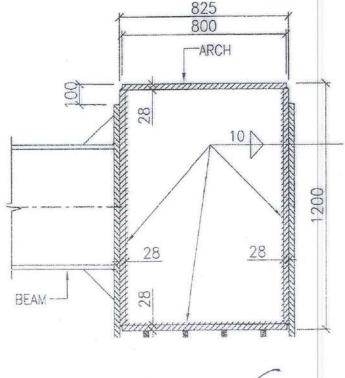
Shielding Gas

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



स०अ० अधि <mark>⁄धातु एवं रसा</mark>० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

DIAPHRAGM (DP) 25MM THICK WELDED ON THREE SIDES WITH 10MM FILLET WELD AS SHOWN

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Team Leader Cum Si





(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP-226016

Factory Address-

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

: Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique :

(As Below)-	

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes

1.15 Root preparation before welding other side of groove weld

N/A 100-150°C

1.16 Pre-heating & Interpass temperature

100-150°

1.17 Peening

N/A

1.18 Post weld treatment
1.19 Rectification of weld defect

N/A

By Grinding of the defective weld

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification

IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स**्अ० अधि**र्णातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Team Leader Cum Sr. Highway Engineer

(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

<u>Factory Address-</u> Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/14

Drawing No.

RDSO/B-10428/9

1.0Weld Joint Description

Fillet - Diaphragm Plate (DP1) in Hanger

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (16x25x28)mm

1.2Welding Process

1.3Welding Position

Horizontal & Vertical

1.4Weld Location

Workshop

1.5Weld Size

10mm

1.6Welding Consumable

1.2mm, FCAW Wire

a) Electrode Wire

N/A

b) Drying Method c) Flux Class

N/A

Type

N/A

e) Drying Method N/A

**Shielding Gas** 

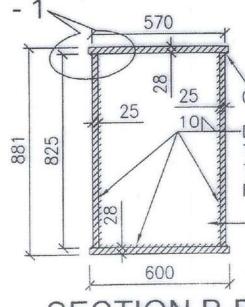
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



N ON ALL FOUR CORNERS

DIAPHRAGM (DP1) 16 MM THICK WELDED ON THREE SIDES WITH 10 MM FILLET WELD AS SHOWN

-DP1 16 THK. PLATE

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ०सं०, ल**खन**ऊ / R.D.S O., Lucknow

SECTION B-B

Sr. Divisional Engineer /VI Northern Railway, Lucknow

Rage 27 of 78

Team Leader Cum Sr.







## (W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP-226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8Joint Design Details

Sketch Showing arrangements of Parts, Weld Details As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

1.9Joint Preparation 2001

1.10 Welding Current

& IS: 9595-20

1.11 Welder Qualification

Type, DC, Polarity: Reverse

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment 1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per

Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि **्धातु** एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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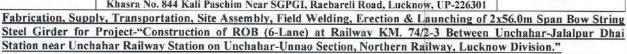
#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/16

Drawing No.

RDSO/B-10428/3

1.0Weld Joint Description

Fillet - Diaphragm Plate (DP) in Top Tie Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (10x20)mm

1.2mm, FCAW Wire

1.2Welding Process

1.3Welding Position

Horizontal & Vertical Workshop

1.4Weld Location

1.5Weld Size

8mm

1.6Welding Consumable a) Electrode Wire

b) Drying Method

N/A

c) Flux Class

N/A

d) Type

N/A

e) Drying Method

N/A

f) Shielding Gas

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

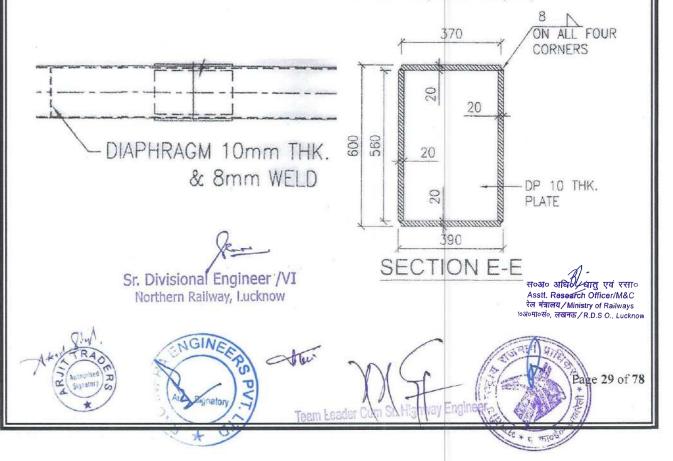
Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





(W.P.S.S.)

#### M/s ARJIT TRADERS

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

N/A 100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification

IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधिमधातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways oअoमाoसंo, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow





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#### M/s ARJIT TRADERS

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19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

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Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56,0m/BSG/Unchahar/WPSS/16

Drawing No.

RDSO/B-10428/3

1.0Weld Joint Description

Fillet - Diaphragm Plate (DP) in Top Diagonal Tie Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (10x25)mm

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal & Vertical

1.4Weld Location

Workshop

1.5Weld Size

8mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia. 1.2mm, FCAW Wire

b) Drying Method

N/A

c) Flux Class

N/A

d) Type

N/A

**Drying Method** e)

N/A

Shielding Gas

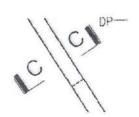
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



DIAPHRAGM 10mm THK. & 8mm WELD

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow







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(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP-226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." Sketch Showing arrangements of Parts, Weld Details

1.8 Joint Design Details

24-31

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Gas Flow **Travel Speed** Electrode Wire Feed Arc Electrode/ Current Weld Stick Out (Ltr./min.) (mtr./min.) Speed (mtr. Voltage Wire Dia. (Amp.) Pass (mm) /min.) (Volts) (mm) No. 8 7 6 5 4 2 12 16 N/A 24-31 8.6 180-270 1.2 1 16 12 N/A 8.6 24-31 180-270 1.2

8.6

1.13 Provision of Run-on & Run-off tabs

1.2

1.14 Cleaning of weld bead before laying of next weld bead

180-270

1.15 Root preparation before welding other side of groove weld

1.16 Pre-heating & Interpass temperature

1.17 Peening

2

3

1.18 Post weld treatment

1.20 Inspection of weld

1.21 Any other relevant detail

1.19 Rectification of weld defect

Yes

Yes

N/A

N/A 100-150°C

N/A

N/A

By Grinding of the defective weld

12

16

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

Visual, D.P. Test, weld Size & weld

Profile.

N/A

स॰अ॰ अधिः 🔑 धातु एवं रसा॰ Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S.O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Team Leader Cum

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(W.P.S.S.)

#### M/s ARJIT TRADERS

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19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/17

Drawing No.

RDSO/B-10428/5

1.0Weld Joint Description

Fillet – Top & Bottom Splice Plate in Bottom Long Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (25x20)mm

1.2Welding Process

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

18mm

1.6Welding Consumable

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

a) Electrode Wire

1.2mm, FCAW Wire

Drying Method b)

N/A

Flux Class c)

N/A

d) Type

N/A

e) Drying Method

N/A

Shielding Gas f)

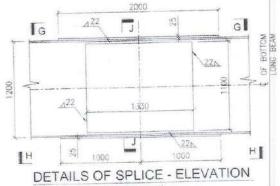
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

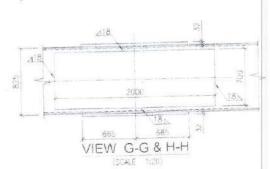
307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





10h 700 ON ALL FOUR CORNERS 2 2 100 SECTION (SCALE 1:20)

स०अ० अधिर्व एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S.O., Lucknow

Sr. Divisional Engineer /V Northern Railway, Lucknow

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Sr. Hithway Engineer Team Leader Cum

(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

: 1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि / धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S.O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow







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(W.P.S.S.)

#### M/s ARJIT TRADERS

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19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

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Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." ARJIT/R&C/NR-LKO/2x56 0m/BSG/Unchahar/WPSS/18

Welding Procedure Specification No.

RDSO/B-10428/5

Drawing No.

1.0Weld Joint Description

Fillet – Side Splice Plate in Bottom Long Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (25x32)mm

1.2Welding Process

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location 1.5Weld Size

Field 22mm

1.6Welding Consumable

:

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

a) Electrode Wire

1.2mm, FCAW Wire

b) Drying Method Flux Class c)

N/A N/A

d) Type

N/A

e) Drying Method

N/A

Shielding Gas f)

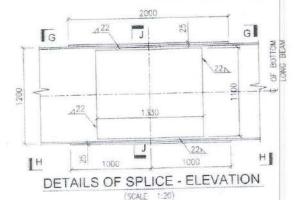
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

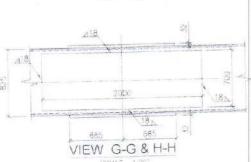
307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





10h 700 ON ALL FOUR CORNERS 25 8 100 32 SECTION J-J (SCALE 1:20)

स०अ० अधिर्वेधातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ाञ्जानार्सं०, लखनऊ/R.D.S O., Lucknow

जयाग

Sr. Divisional Engineer /V Northern Railway, Lucknow

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Page 35 of 78



Sr. Highway Engin



(W.P.S.S.)

#### M/s ARJIT TRADERS Head Office-

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Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
1	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

Yes N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A By Grinding of the defective weld

1.19 Rectification of weld defect

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि 🔑 धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

Team Leader

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(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/19

Drawing No.

RDSO/B-10428/2

1.0 Weld Joint Description

Fillet - Splice Plate in Arch Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness (28x36)mm

1.2Welding Process

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

b)

24mm

1.6Welding Consumable

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia. 1.2mm, FCAW Wire

a) Electrode Wire

Drying Method

N/A

c) Flux Class N/A

d) Type N/A

e) Drying Method

N/A

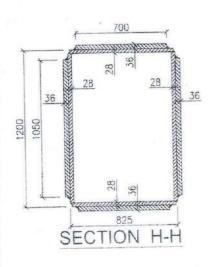
**Shielding Gas** 

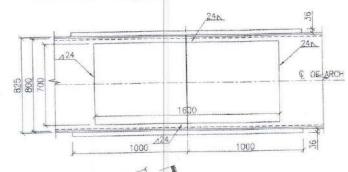
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai

Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division.

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
140.	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
1	1.2	THE PROPERTY OF THE PARTY OF TH		1000000	N/A	12	16
2	1.2	180-270	24-31	8.6		5-898	
2	1.2	180-270	24-31	8.6	N/A	12	16
	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification

IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि प्धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

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### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/20

Drawing No.

RDSO/B-10428/5 & 2

1.0Weld Joint Description

Fillet - Hanger Welding with Arch Beam & Bottom Long

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

22mm

1.6Welding Consumable a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

Drying Method

N/A

c) Flux Class N/A

d) Type

N/A

e) Drying Method

Shielding Gas

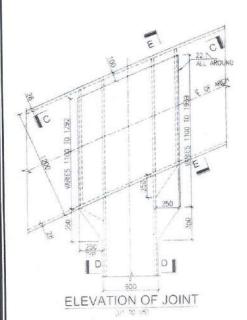
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



OF HANGER (REFER SEPARATE DRG.) 25 THK STIFFENER 122 D D

JOINT DETAILS - ELEVATION (L1, L2, L3, L4 & L5)

स॰अ॰ अधि धातु एवं रसा॰ Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

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Sr. Divisional Engineer /VI Northern Railway, Lucknow



(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301 Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(11111)	2	4	5	6	7	8
1	2	3		2.0	NI/A	12	16
1	1.2	180-270	24-31	8.6	N/A	20000	
-		180-270	24-31	8.6	N/A	12	16
2	1.2	100-270		6		12	16
3	1.2	180-270	24-31	8.6	N/A		
	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes

1.15 Root preparation before welding other side of groove weld

N/A 100-150°C

1.16 Pre-heating & Interpass temperature

N/A

1.17 Peening

N/A

1.18 Post weld treatment 1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per

Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि 🔑 धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways

Sr. Divisional Engineer /VI Northern Railway, Lucknow





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ge 40 of 78



### (W.P.S.S.) M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/21

Drawing No.

RDSO/B-10428/2

1.0 Weld Joint Description

Fillet – Stiffener Welding in Hanger with Arch Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

b)

20mm

1.6Welding Consumable

a) Electrode Wire

1.2mm, FCAW Wire

Drying Method

N/A

Flux Class c)

N/A

N/A

d) Type

e) Drying Method N/A

**Shielding Gas** 

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

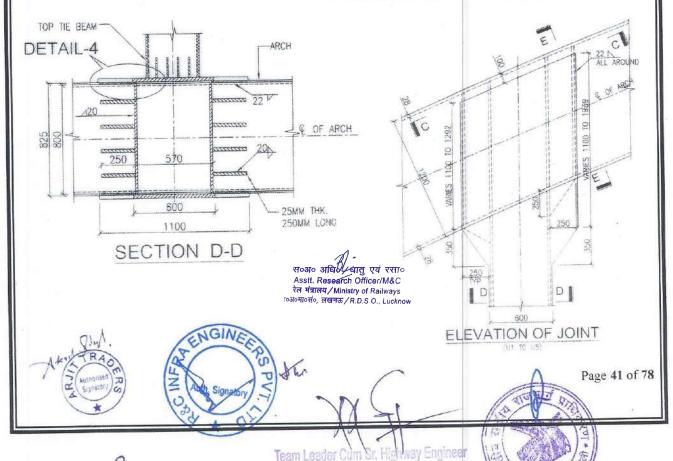
307 GR.1

1.7Base Metal Preparation

Sr. Divisional Engineer /VI Northern Railway, Lucknow

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	7	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
1	1.2		CONTROL 1		N/A	12	16
2	1.2	180-270	24-31	8.6			0.500
3	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

1.14 Cleaning of weld bead before laying of next weld bead

1.15 Root preparation before welding other side of groove weld

1.16 Pre-heating & Interpass temperature

100-150°C N/A

Yes

Yes

N/A

1.17 Peening

N/A

1.18 Post weld treatment 1.19 Rectification of weld defect

By Grinding of the defective weld

And rectifying the weld as per CI. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि /धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow





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(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/22

Welding Procedure Specification No.

Drawing No.

RDSO/B-10428/5

1.0Weld Joint Description

Fillet – Stiffener Welding in Hanger with Bottom Long

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal & Vertical Field

1.4Weld Location

1.5Weld Size

18mm

1.6Welding Consumable

a) Electrode Wire

1.2mm, FCAW Wire

Drying Method b)

N/A N/A

Flux Class c)

N/A

d) Type e) Drying Method

N/A

Shielding Gas

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

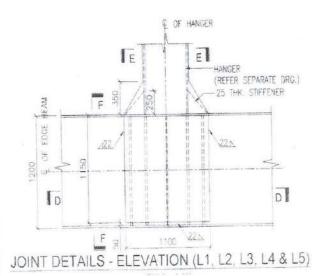
Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

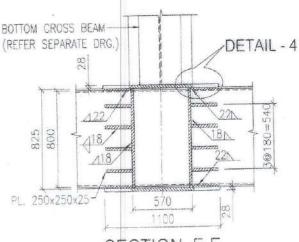
307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





SECTION

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow



way Engineer Team Leader







(W.P.S.S.) M/s ARJIT TRADERS

### Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP-226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

Arc



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

Weld

& IS: 9595-20

(As Below)-

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

Electrode/

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Electrode Gas Flow Travel Speed Wire Feed (Ltr./min.) Stick Out (mtr./min.) Speed (mtr.

Pass No.	Wire Dia. (mm)	(Amp.)	Voltage (Volts)	Speed (mtr. /min.)	(mtr./min.)	Stick Out (mm)	(Ltr./min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	100-270	27 31	5.0			

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Current

Yes N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

: By Grinding of the defective weld 1.19 Rectification of weld defect

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि 🔑 धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow









(W.P.S.S.)

### M/s ARJIT TRADERS

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19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301 Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/23

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Fillet – Bottom Cross Beam (BCB1 & BCB2) Welding With

Bottom Long Beam & Hanger

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness **FCAW** 

1.2Welding Process

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

12mm

1.5Weld Size

1.6Welding Consumable

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

b) Drying Method

a) Electrode Wire

N/A N/A

Flux Class c) d) Type

N/A

**Drying Method** e)

N/A

Shielding Gas

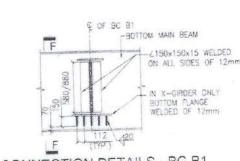
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



CONNECTION DETAILS - BC B1

BOTTOM MAIN BEAM G ∠150×150×15 WELDED ON ALL SIDES OF 12mm IN X-GIRDER ONLY BOTTOM FLANGE WELDED OF 12mm G 9

© OF BC B2 HANGER

CONNECTION DETAILS - BC B2 SCALE 1:25

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow 🚉

E OF BOTTOM LONG BEAM BOTTOM CROSS BEAM 180 150 15 5 Nos. 25 M.S. PLATE SECTION-F-F

BOTTOM LONG BEAM -BOTTOM CROSS BEAM 7130×150×15 AROUND SECTION G-G

Page 45 of 78

Sr. Divisional Engineer /VI Northern Railway, Lucknow



Team Leader Cum Sr. Highway Engineer





(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM, 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(11111)	3	4	5	6	7	8
1			24.24	8.6	N/A	12	16
1	1.2	180-270	24-31	8.0			16
2	1.2	180-270	24-31	8.6	N/A	12	16
2				8.6	N/A	12	16
3	1.2	180-270	24-31			12	16
А	1.2	180-270	24-31	8.6	N/A	12	10

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

Yes N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile. N/A

1.21 Any other relevant detail

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow







Page 46 of 78



(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/24

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Fillet – ISA (150x150x15)mm welding With Bottom Long

Beam & Hanger for BCB1 & BCB2

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

1.5Weld Size 1.6Welding Consumable 12mm

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia. 1.2mm, FCAW Wire

a) Electrode Wire

N/A

b) Drying Method c) Flux Class

N/A

Type

N/A

**Drying Method** e)

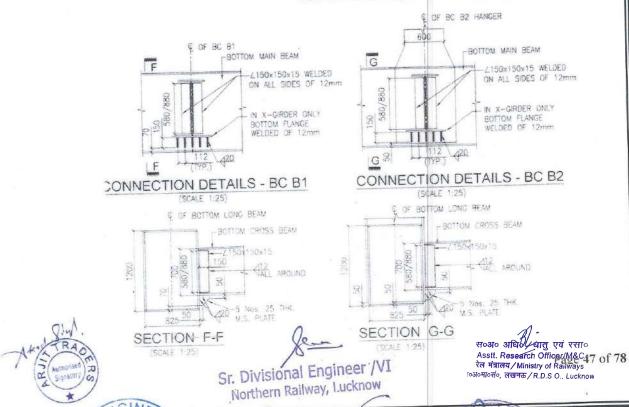
Shielding Gas f)

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS: 307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



Team Leader Cum Sr. Highway Engineer



(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(min)	2	4	5	6	7	8
1	2	3		0.0	N/A	12	16
1	1.2	180-270	24-31	8.6		75.00.00	100000
-	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2				N/A	12	16
3	1.2	180-270	24-31	8.6		No.	16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

1.14 Cleaning of weld bead before laying of next weld bead

1.15 Root preparation before welding other side of groove weld

1.16 Pre-heating & Interpass temperature

100-150°C N/A

Yes

Yes

N/A

1.17 Peening

N/A

1.18 Post weld treatment 1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधिर्व धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow









(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/25

Welding Procedure Specification No.

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Fillet – Stiffener of Bottom Cross Beam (BCB1 & BCB2)

Welding With Bottom Long Beam & Hanger

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

1.5Weld Size

20mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia. 1.2mm, FCAW Wire

b) Drying Method

N/A N/A

c) Flux Class

N/A

Type d) Drying Method e)

Shielding Gas f)

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

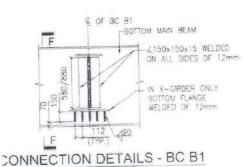
& OF BC B2 HANGER

Z150x150x15 WELDED

IN X-GIRDER ONLY BOTTOM FLANGE WELDED OF 12mm

ON ALL SIDES OF 12mm

Rust etc. which may affect weld quality.

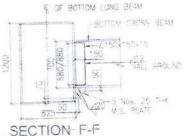


-BOTTOM MAIN BEAM G 580, G B

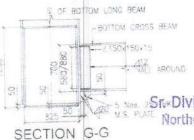
SCALE 1-25

CONNECTION DETAILS - BC B2

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा॰मा॰सं॰, लखनऊ / R.D.S O., Lucknow



(SCALE 1.25)



(SCALE 1:25)

Nos. 2 Sr. Divisional Engineer Northern Railway, Lucktow

SCALE 1.25

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Team Leader Cum Sr.





(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

:



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes N/A

1.15 Root preparation before welding other side of groove weld
1.16 Pre-heating & Interpass temperature

100-150°C

N/A

1.17 Peening

N/A

1.18 Post weld treatment

1

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification RS M-28.2 after conducting D.P.

Test

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स0310 अधि प्यातु एवं रसा0 Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways 1030मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

Authorised Bigoaleily Co

AND Signatory

eam Leader Cum Sr. Highway

Page 50 of 78



(W.P.S.S.)

#### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016 Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No. : ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/26

Drawing No. : RDSO/B-10428/3

1.0 Weld Joint Description : Fillet – Top Tie Beam welding with Hanger Top Side

1.1Base Metal : IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process : FCAW

1.3Welding Position : Horizontal, Vertical & Overhead

1.4Weld Location : Field 1.5Weld Size : 18mm

1.6Welding Consumable

a) Electrode Wire : Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

b) Drying Method : N/A
c) Flux Class : N/A
d) Type : N/A
e) Drying Method : N/A

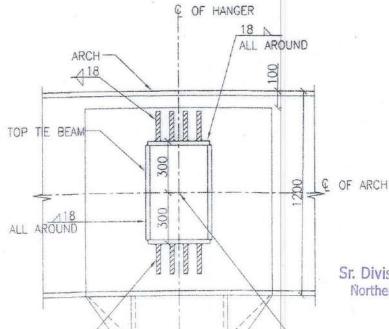
f) Shielding Gas : CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation : Material to be cut straight & square by controlled gas

Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



स**०अ० अधिर्ण धातु** एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways <sup>10अ०मा०सं</sup>०, लखनऊ / R.D.S O., Lucknow

> Sr. Divisional Engineer /VI Northern Railway, Lucenow

> > Page 51 of 78

UNA Signatory

Team Leader Culn Sr. Highway Engineer



### (W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division.

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per

Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

Page 52 of 78

hway Engineer · Team Leader



(W.P.S.S.) M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/27

Drawing No.

RDSO/B-10428/3

1.0Weld Joint Description

Fillet – Stiffener of Top Tie Beam welding with Hanger &

Top Tie Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

1.5Weld Size

18mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

**Drying Method** b)

N/A

c) Flux Class N/A

d) Type N/A

Drying Method

Shielding Gas

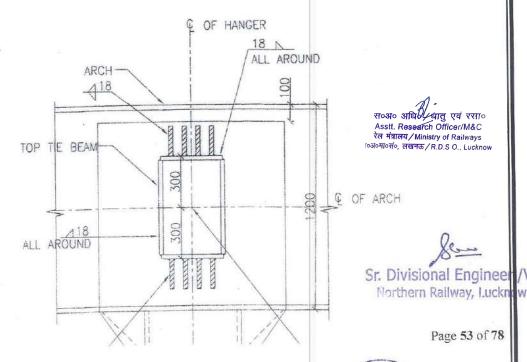
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





Team Leader Curn Sr. Highway Engi



Page 53 of 78

(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

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Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes N/A

**1.15** Root preparation before welding other side of groove weld **1.16** Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

Test

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

सञ्जञ अधिमें धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०सॅ०, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow





Team Leader Cush Sr Highway E



Page 54 of 78



(W.P.S.S.)

### M/s ARJIT TRADERS

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Welding Procedure Specification No.

Drawing No.

RDSO/B-10428/3

1.0Weld Joint Description

Fillet – Top Lateral Tie Beam Welding with Hanger, Arch

Beam & Top Tie Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead Field

1.4Weld Location 1.5Weld Size

18mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

b) Drying Method

N/A N/A

c) Flux Class

N/A

d) Type **Drying Method** 

e) f) Shielding Gas CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

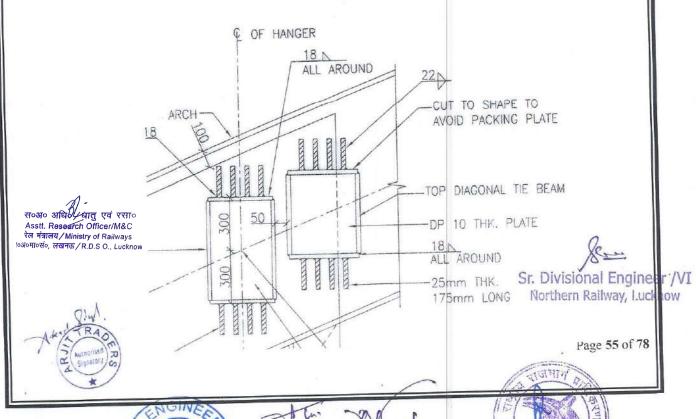
307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Engineer

Rust etc. which may affect weld quality.





(W.P.S.S.)

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1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld Yes N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

By Grinding of the defective weld 1.19 Rectification of weld defect

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification RS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile. N/A

1.21 Any other relevant detail

:

स०अ० अधिमधातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow







(W.P.S.S.)

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Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/29

Drawing No.

RDSO/B-10428/3

1.0Weld Joint Description

Fillet – Stiffener of Top Lateral Tie Beam Welding with

Hanger, Arch Beam & Top Tie Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

1.5Weld Size

22mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

Drying Method

N/A

Flux Class c)

N/A

d) Type

N/A

**Drying Method** 

N/A CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

Shielding Gas

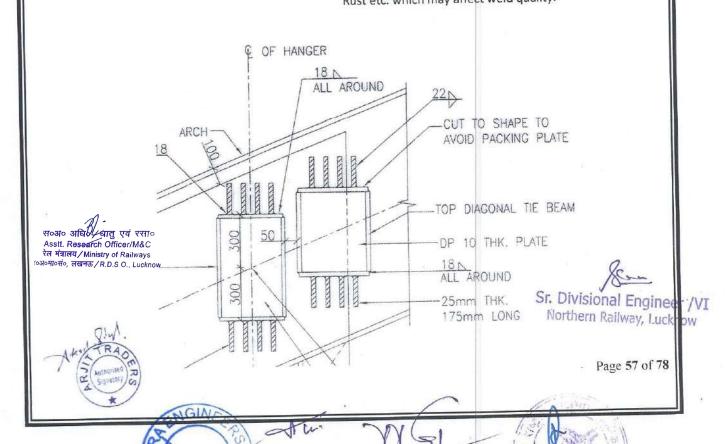
1.7Base Metal Preparation

307 GR.1 Material to be cut straight & square by controlled gas

Cutting machine, Edge preparation to be done as per

Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



Team Leader C



(W.P.S.S.)

### M/s ARJIT TRADERS

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1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
NO.	(11111)	3	4	5	6	7	8
1		3		8.6	N/A	12	16
1	1.2	180-270	24-31	0.0		-	1.0
2	1.2	180-270	24-31	8.6	N/A	12	16
		240000000000000000000000000000000000000	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	- VIETO 1720		4.7	16
4	1.2	180-270	24-31	8.6	N/A	12	10

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes N/A

1.15 Root preparation before welding other side of groove weld

100-150°C

1.16 Pre-heating & Interpass temperature

N/A

1.17 Peening 1.18 Post weld treatment

N/A

:

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow









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(W.P.S.S.)

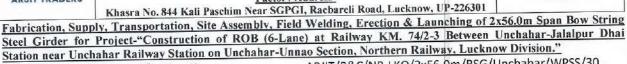
### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

:



Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/30

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Fillet - End Bottom Cross Beam (BCB3) welding with

Bottom Long Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

1.5Weld Size

12mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

Drying Method b)

N/A

Flux Class c)

N/A N/A

d) Type N/A

Drying Method e) Shielding Gas

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

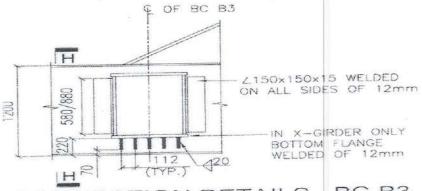
307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned,

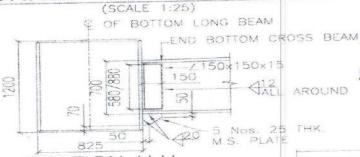
Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



CONNECTION DETAILS - BC B3

स०अ० अधिर्व एवं एसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways अ॰मा॰सं॰, लखनऊ / R.D.S O., Lucknow



Sr. Divisional Engineer /VI Northern Railway, Lucknow

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SECTION (SCALE



Highway Enginee Team Lead





(W.P.S.S.)

#### M/s ARJIT TRADERS

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1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
NO.	(11111)	2	4	5	6	7	8
_1	Z	3		0.0	N/A	12	16
1	1.2	180-270	24-31	8.6			1 2 2 2 2
2	1.2	180-270	24-31	8.6	N/A	12	16
				8.6	N/A	12	16
3	1.2	180-270	24-31				16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld Yes N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

By Grinding of the defective weld 1.19 Rectification of weld defect

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि / धातु एवं रसा० Assit. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ाञ्जि॰मा॰सं॰, लखनऊ / R.D.S.O., Lucknow

> Sr. Divisional Engineer /VI Northern Railway, Lucknow



Sr. Highway Engineer Team Lea

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(W.P.S.S.)

### M/s ARJIT TRADERS

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19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

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Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/31

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Fillet – End Bottom Cross Beam (BCB3)- ISA

(150x150x15)mm welding with Bottom Long Beam & BCB3 IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

1.1Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

12mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

**Drying Method** b)

N/A

Flux Class c)

N/A

Type d)

N/A N/A

Drying Method e) **Shielding Gas** 

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

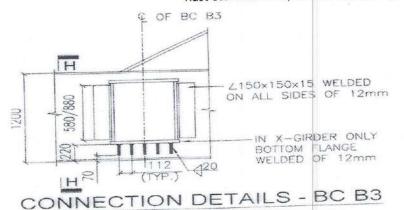
307 GR.1

1.7 Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned,

Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



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(SCALE 1:25 OF BOTTOM LONG BEAM END BOTTOM CROSS BEAM 150×150×15 150 8 Nos. 825

H-H

AROUND Sr. Divisional Enginee Northern Railway, Luckn

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SECTION

(SCALL 1:25)





(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." Sketch Showing arrangements of Parts, Weld Details

1.8 Joint Design Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(11111)	2	4	5	6	7	8
1	2	3	7	0.0	N/A	12	16
1	1.2	180-270	24-31	8.6			23,655
		100 270	24-31	8.6	N/A	12	16
2	1.2	180-270				12	16
2	1.2	180-270	24-31	8.6	N/A		
	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

Yes N/A

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ।०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

> Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Highway Engineer Team Le





(W.P.S.S.) M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/32

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Fillet – End Bottom Cross Beam (BCB3)-Stiffener welding

with Bottom Long Beam & BCB3

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

20mm

1.6Welding Consumable a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

Drying Method b)

N/A

Flux Class c)

N/A

d) Type

f)

N/A N/A

Drying Method e) Shielding Gas

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

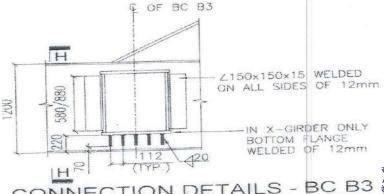
307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per

Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



TION DETAILS - BC B3 Assit. Research Officer/M&C CONNEC

स०अ० अधि धातु एवं रसा० ०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

(SCALE OF BOTTOM LONG BEAM END BOTTOM CROSS BEAM 150 AROUND 8 Nos. 825 H-H

Sr. Divisional Enginee Northern Railway, Luckrow

SECTION (SCALE

Page 63 of 78



Cum Sr. Highway Engineer





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### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String

Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia.	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(mm)	2	4	5	6	7	8
1	2	3	21.04	0.6	N/A	12	16
1	1.2	180-270	24-31	8.6		10000	16
-	1.2	180-270	24-31	8.6	N/A	12	
2			170115 1100	8.6	N/A	12	16
3	1.2	180-270	24-31			12	16
4	1.2	180-270	24-31	8.6	N/A	12	10

1.13 Provision of Run-on & Run-off tabs

Yes Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि 🔑 धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

> Sr. Divisional Engineer /VI Northern Railway, Lucknow





r. Highway Engineer

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19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

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Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/33

Welding Procedure Specification No.

Drawing No.

RDSO/B-10428/4

1.0Weld Joint Description

Fillet - Cover Plate at LO

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

**Thickness** 

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

22mm

1.6Welding Consumable

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

a) Electrode Wire

1.2mm, FCAW Wire

N/A b) Drying Method

Flux Class c)

N/A

d) Type

f)

N/A

Drying Method e) Shielding Gas

N/A CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per

Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



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Team Leader Cum Sr Highway Engineer





(W.P.S.S.)

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Head Office-

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Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM, 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
NO.	(11111)	2	4	5	6	7	8
1	2	3	24.24	8.6	N/A	12	16
1	1.2	180-270	24-31	77.72			16
2	1.2	180-270	24-31	8.6	N/A	12	1.000
			24-31	8.6	N/A	12	16
3	1.2	180-270	24-31			12	16
4	1.2	180-270	24-31	8.6	N/A	12	10

1.13 Provision of Run-on & Run-off tabs

Yes Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

N/A

1.18 Post weld treatment 1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधिर्धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Morthern Railway, Lucknow

Page 66 of 78

Sr. Highway Engineer Team





(W.P.S.S.)

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Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

Factory Address-

Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/34

Drawing No.

RDSO/B-10428/4

1.0Weld Joint Description

Fillet – Stiffener at LO with Bottom Long Beam & Arch

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

1.5Weld Size

18mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

b) Drying Method

N/A

Flux Class c)

N/A

Type d)

N/A

**Drying Method** e) Shielding Gas

N/A CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

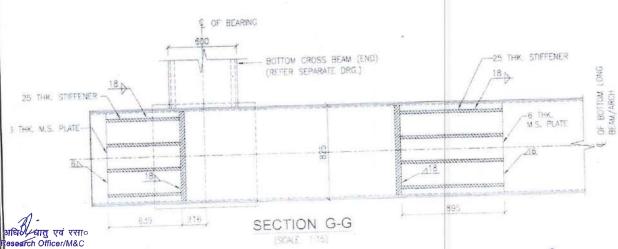
307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per

Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



स०अ० अधिर्णभातु एवं रसा० Assit. Rosearch Officer/M&C रेल मंत्रालय/Ministry of Rose लखनऊ / R.D.S O., Lucknow

Team Le

Sr. Divisional Engineer /VI Northern Railway, Lucknow

Page 67 of 78

r. Highway Engineer





(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String

Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

1.9Joint Preparation

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse :

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia.	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(mm)	-	1	5	6	7	8
1	2	3	4	3	N/A	12	16
1	1.2	180-270	24-31	8.6			
1			24-31	8.6	N/A	12	16
2	1.2	180-270			N/A	12	16
3	1.2	180-270	24-31	8.6			
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

1.14 Cleaning of weld bead before laying of next weld bead

1.15 Root preparation before welding other side of groove weld

1.16 Pre-heating & Interpass temperature

1.17 Peening

1.18 Post weld treatment

1.19 Rectification of weld defect

Yes

Yes N/A

100-150°C

N/A

N/A By Grinding of the defective weld

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification

IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile. N/A

1.21 Any other relevant detail

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S.O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow

way Engineer

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(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM, 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/35 RDSO/B-10428/4

Drawing No.

Fillet - 6mm Cover Plate at LO

1.0Weld Joint Description 1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

1.2Welding Process

**FCAW** 

Thickness

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field 6mm

1.5Weld Size

1.6Welding Consumable a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

b) Drying Method

N/A

c) Flux Class

N/A

d) Type

N/A

Drying Method e)

N/A

**Shielding Gas** f)

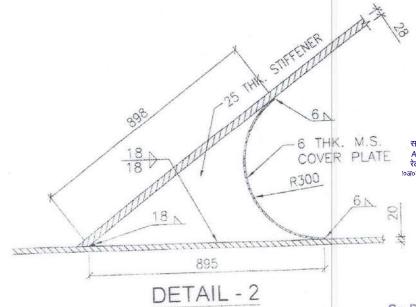
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



स०अ० अधि / धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways 1०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

(SCALE 1:10)

Sr. Divisional Engineer Northern Railway Luckno

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(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

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1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia.	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(mm)	100	(40103)	E .	6	7	8
1	2	3	4	3		12	16
4	1.2	180-270	24-31	8.6	N/A	12	
1		50.0-121.02-1-04.01-0.20-1.		8.6	N/A	12	16
2	1.2	180-270	24-31			12	16
2	1.2	180-270	24-31	8.6	N/A		
5	1.2	Company of the Compan	24.21	8.6	N/A	12	16
4	1.2	180-270	24-31	8.0	.47.		

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld Yes N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification

IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow





w Engineer

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(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP-226016

Factory Address-

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/36

Drawing No.

RDSO/B-10428/6

1.0Weld Joint Description

Splice Joint in End Bottom Cross Beam (BCB-3)

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

20/25mm

1.6Welding Consumable

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia. 1.2mm, FCAW Wire

a) Electrode Wire

N/A

Drying Method c) Flux Class

N/A

d) Type

N/A

e) Drying Method

N/A

Shielding Gas

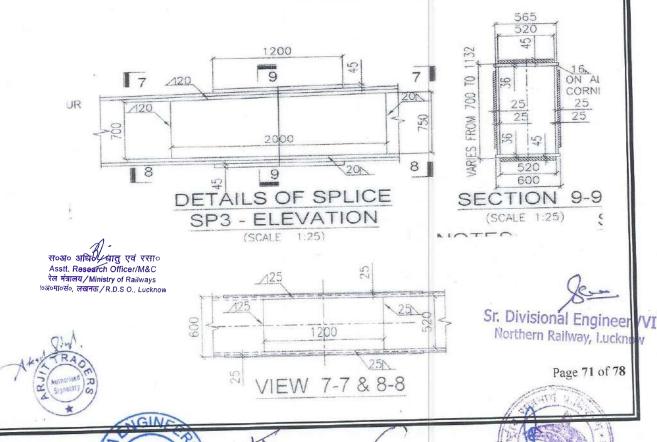
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.





(W.P.S.S.)

### M/s ARJIT TRADERS

Head Office-

19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP- 226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." Sketch Showing arrangements of Parts, Weld Details

1.8 Joint Design Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(min)	2	1	5	6	7	8
1	2	3			N/A	12	16
1	1.2	180-270	24-31	8.6		0.0700	16
	1.2	180-270	24-31	8.6	N/A	12	
2		The state of the s		8.6	N/A	12	16
3	1.2	180-270	24-31	1000000		12	16
4	1.2	180-270	24-31	8.6	N/A	12	10

1.13 Provision of Run-on & Run-off tabs

Yes Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

N/A 100-150°C

1.16 Pre-heating & Interpass temperature

N/A

1.17 Peening

N/A

1.18 Post weld treatment 1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1

Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile. N/A

1.21 Any other relevant detail

स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०सं०, लखनऊ/R.D.S O., Lucknow

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### M/s ARJIT TRADERS

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM, 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division." ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/37

Welding Procedure Specification No.

RDSO/B-10428/6

Drawing No.

Splice Joint in Int. Bottom Cross Beam (BCB-1&2)

1.0Weld Joint Description

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

1.1Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

14/22mm

1.6Welding Consumable

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia. 1.2mm, FCAW Wire

a) Electrode Wire

N/A

b) Drying Method

N/A

Flux Class c)

N/A

Type d)

N/A

Drying Method e) Shielding Gas

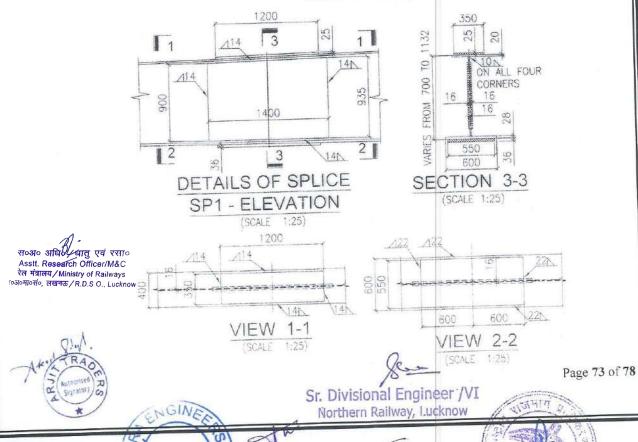
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



Team Leader



(W.P.S.S.)

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(11111)	2	4	5	6	7	8
1		3		0.0	N/A	12	16
1	1.2	180-270	24-31	8.6			7.000
	1.2	180-270	24-31	8.6	N/A	12	16
Z	1.2			0.6	N/A	12	16
3	1.2	180-270	24-31	8.6		10,000	
	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes Yes

1.14 Cleaning of weld bead before laying of next weld bead 1.15 Root preparation before welding other side of groove weld

N/A

1.16 Pre-heating & Interpass temperature

100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

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> Sr. Divisional Engineer /VI Northern Railway, Lucknow

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Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/38

Drawing No.

RDSO/B-10428/1

1.0Weld Joint Description

ISMC-150mm Welding With Bottom Cross Beams

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

**Thickness** 

1.2Welding Process

**FCAW** 

1.3 Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

6mm

1.6Welding Consumable

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

a) Electrode Wire

1.2mm, FCAW Wire N/A

b) Drying Method

N/A

c) Flux Class

N/A

d) Type

N/A

e) Drying Method Shielding Gas

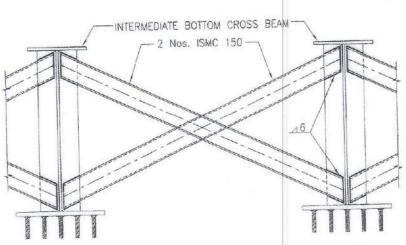
CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

1.7Base Metal Preparation

307 GR.1 Material to be cut straight & square by controlled gas

Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



स०अ० अधि धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ाञ्जान्मार्ग्सं, लखनऊ/R.D.S.O., Lucknow

**ELEVATION SHOWING ISMC 150** 

TO BE PLACED CRISS-CROSS Sr. Divisiónal Engilleer /V

Northern Railway, Lucknow

NGINEE

other

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Team Leader Cum Sr. Hohway Engineer





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### M/s ARJIT TRADERS

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Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8Joint Design Details 1.9Joint Preparation

Sketch Showing arrangements of Parts, Weld Details

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

Weld Pass	Electrode/ Wire Dia.	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr./min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
No.	(mm)		-	5	6	7	8
1	2	3	4		NI/A	12	16
1	1.2	180-270	24-31	8.6	N/A	7,385	
			24-31	8.6	N/A	12	16
2	1.2	180-270	100000000000000000000000000000000000000		N/A	12	16
3	1.2	180-270	24-31	8.6		1995	
1	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

1.14 Cleaning of weld bead before laying of next weld bead

1.15 Root preparation before welding other side of groove weld N/A

1.16 Pre-heating & Interpass temperature

100-150°C N/A

Yes

Yes

1.17 Peening

N/A

1.18 Post weld treatment 1.19 Rectification of weld defect By Grinding of the defective weld

And rectifying the weld as per Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

1.20 Inspection of weld

1.21 Any other relevant detail

Visual, D.P. Test, weld Size & weld

Profile.

N/A

स०अ० अधि 🔑 धातु एवं रसा० Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways ा०अ०मा०सं०, लखनऊ / R.D.S O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow





way Engineer

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(W.P.S.S.)

### M/s ARJIT TRADERS

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19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP-226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

Welding Procedure Specification No.

ARJIT/R&C/NR-LKO/2x56.0m/BSG/Unchahar/WPSS/39

Drawing No.

RDSO/B-10428/4

1.0Weld Joint Description

Fillet – Arch Beam Welding With Bottom Long Beam

1.1Base Metal

IS: 2062, E350B0 Fully Killed and Normalized & Base Metal

Thickness

1.2Welding Process

**FCAW** 

1.3Welding Position

Horizontal, Vertical & Overhead

1.4Weld Location

Field

1.5Weld Size

18mm

1.6Welding Consumable

a) Electrode Wire

Class-1 of IRS M46-2013, Grade-E71T-12, Steel Wire Dia.

1.2mm, FCAW Wire

Drying Method

N/A

Flux Class c)

N/A

d) Type N/A

e) Drying Method

N/A

Shielding Gas

CO2 99.8% Pure, Absolute Dry and Free from N2 as per IS:

307 GR.1

1.7Base Metal Preparation

Material to be cut straight & square by controlled gas Cutting machine, Edge preparation to be done as per Sketch. All Fusion faces and adjacent surfaces are cleaned, Made free from cracks, notches, mill scale, grease, paint,

Rust etc. which may affect weld quality.



Team Leader Cum Sr. Highway Engineer



(W.P.S.S.)

#### M/s ARJIT TRADERS

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19-20A, SARVODAYA NAGARAWADHPURI, Lucknow, UP-226016

Factory Address-

Khasra No. 844 Kali Paschim Near SGPGI, Raebareli Road, Lucknow, UP-226301

:

:



Fabrication, Supply, Transportation, Site Assembly, Field Welding, Erection & Launching of 2x56.0m Span Bow String Steel Girder for Project-"Construction of ROB (6-Lane) at Railway KM. 74/2-3 Between Unchahar-Jalalpur Dhai Station near Unchahar Railway Station on Unchahar-Unnao Section, Northern Railway, Lucknow Division."

1.8 Joint Design Details

Sketch Showing arrangements of Parts, Weld Details

1.9 Joint Preparation

As per IS: 4353-1995, CL-7, IRS B1-2001, CL-17 & WBC-

2001

& IS: 9595-20

1.10 Welding Current

: Type, DC, Polarity: Reverse

1.11 Welder Qualification

FCAW As per IS: 7310 (Part-I)-1974, IS: 7307 (Part-I)-1974

1.12 Welding Parameters & Technique

(As Below)-

Weld Pass No.	Electrode/ Wire Dia. (mm)	Current (Amp.)	Arc Voltage (Volts)	Wire Feed Speed (mtr. /min.)	Travel Speed (mtr. /min.)	Electrode Stick Out (mm)	Gas Flow (Ltr. /min.)
1	2	3	4	5	6	7	8
1	1.2	180-270	24-31	8.6	N/A	12	16
2	1.2	180-270	24-31	8.6	N/A	12	16
3	1.2	180-270	24-31	8.6	N/A	12	16
4	1.2	180-270	24-31	8.6	N/A	12	16

1.13 Provision of Run-on & Run-off tabs

Yes

1.14 Cleaning of weld bead before laying of next weld bead

: Yes

1.15 Root preparation before welding other side of groove weld 1.16 Pre-heating & Interpass temperature

N/A 100-150°C

1.17 Peening

N/A

1.18 Post weld treatment

N/A

1.19 Rectification of weld defect

By Grinding of the defective weld And rectifying the weld as per

Cl. 32.2 of IS: 9595-96 using B1 Class electrodes of specification IRS M-28.2 after conducting D.P.

Test

1.20 Inspection of weld

Visual, D.P. Test, weld Size & weld

Profile.

1.21 Any other relevant detail

N/A

संठ्या अधिर्ण मातु एवं रसाठ Asstt. Research Officer/M&C रेल मंत्रालय/Ministry of Railways १०अ०मा०संठ, लखनऊ / R.D.S.O., Lucknow

Sr. Divisional Engineer /VI Northern Railway, Lucknow





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Leader Curk Sr. Highway Engineer

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