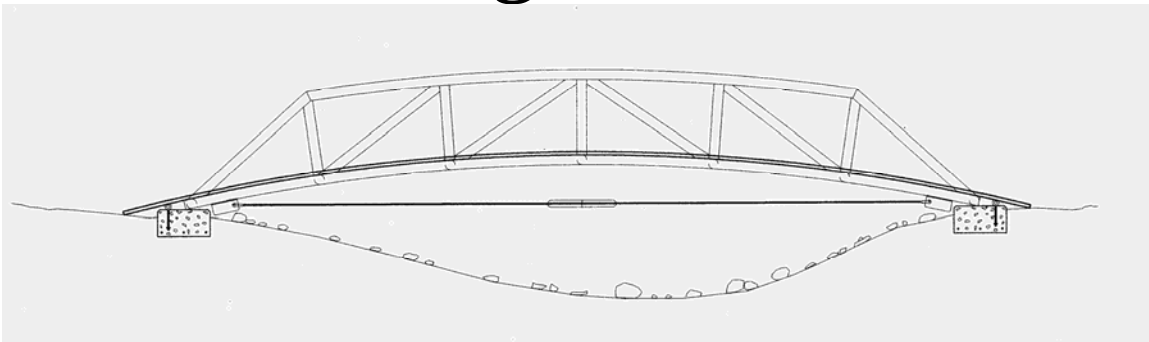




Snowmachine & ATV Bridges

Kugluktuk



Drawings 24 ft span 30 ft span & Product Information

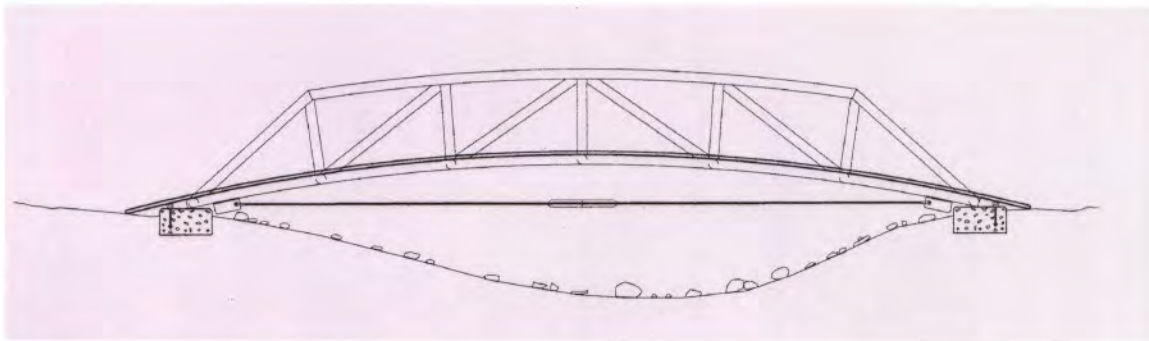
Thomas G. Livingston, P.Eng. September 3, 2007
Community and Government Services, Government of Nunavut

Kugluktuk Snowmachine & ATV Bridge



Kugluktuk

Snowmachine & ATV Bridges

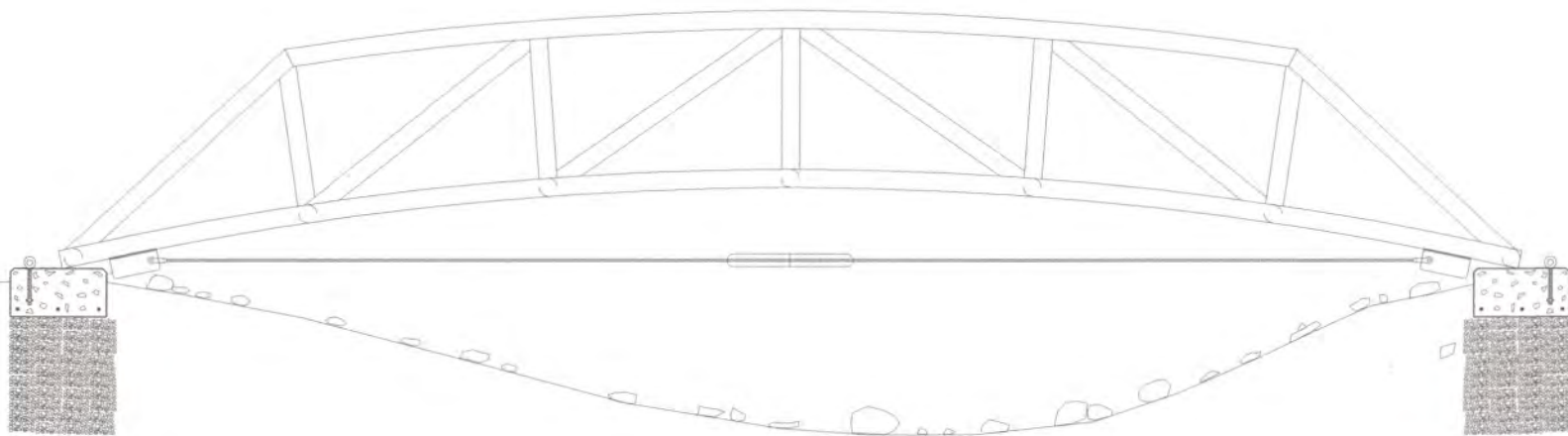


Drawings: 24 ft span



Thomas G. Livingston, P.Eng. September 3, 2007
Community and Government Services, Government of Nunavut

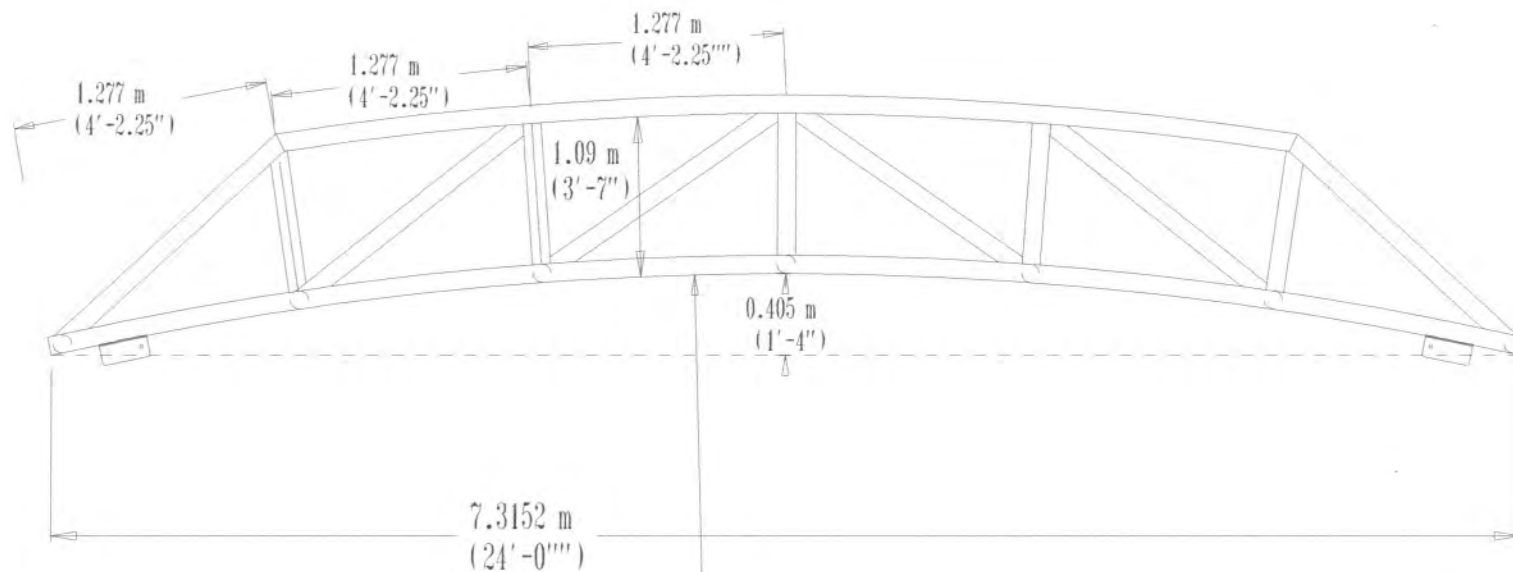
Location: $67^{\circ} 49.65' \text{ N}$, $115^{\circ} 10.80' \text{ W}$



SEPT. 3, 2007

Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 24 feet
Side Elevation	
Thomas G. Livingston, P.Eng.	Drwg No. 1



Radius = 16.717 m
(54'-10 1/8")

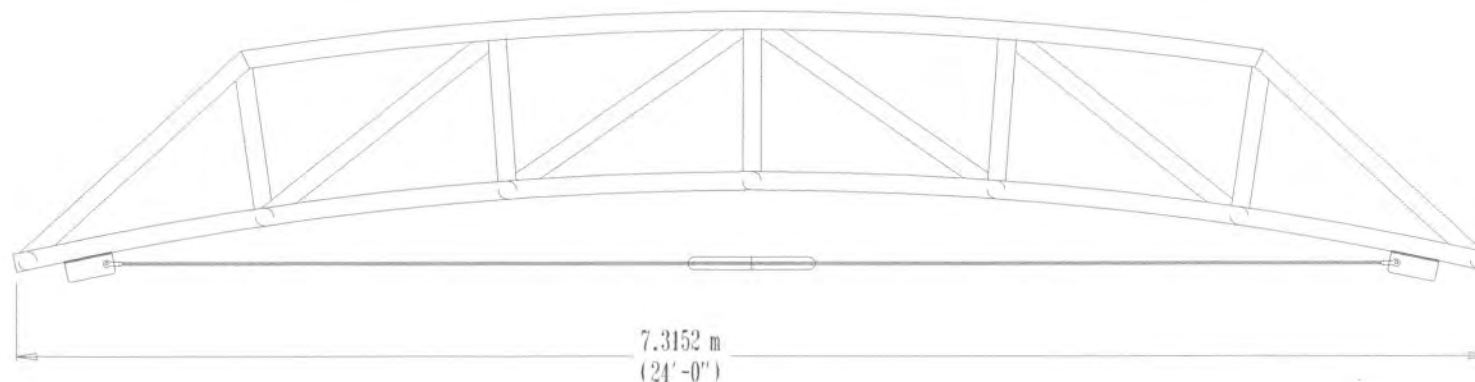
Do not scale drawing



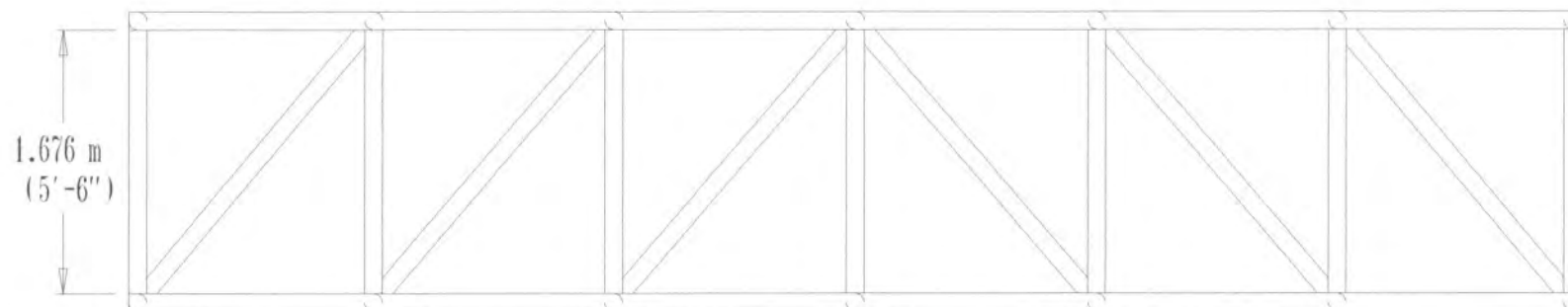
SEPT 3, 2007

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 24 feet
Side Drawing Dimensions	
Thomas G. Livingston, P.Eng.	Drwg No. 2

SIDE VIEW



TOP VIEW



Note: Place sign at either side of bridge:
 "Maximum Allowable Load:
 6,000 lbs = 2,700 kg
 One vehicle at a time."



Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 24 feet
Side and Top Views	
Thomas G. Livingston, P.Eng.	Drwg No. 3

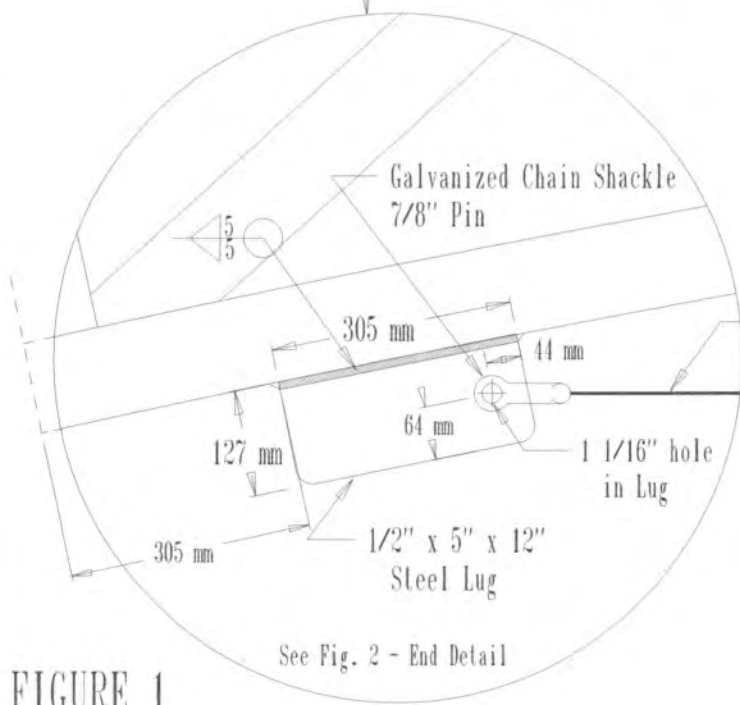
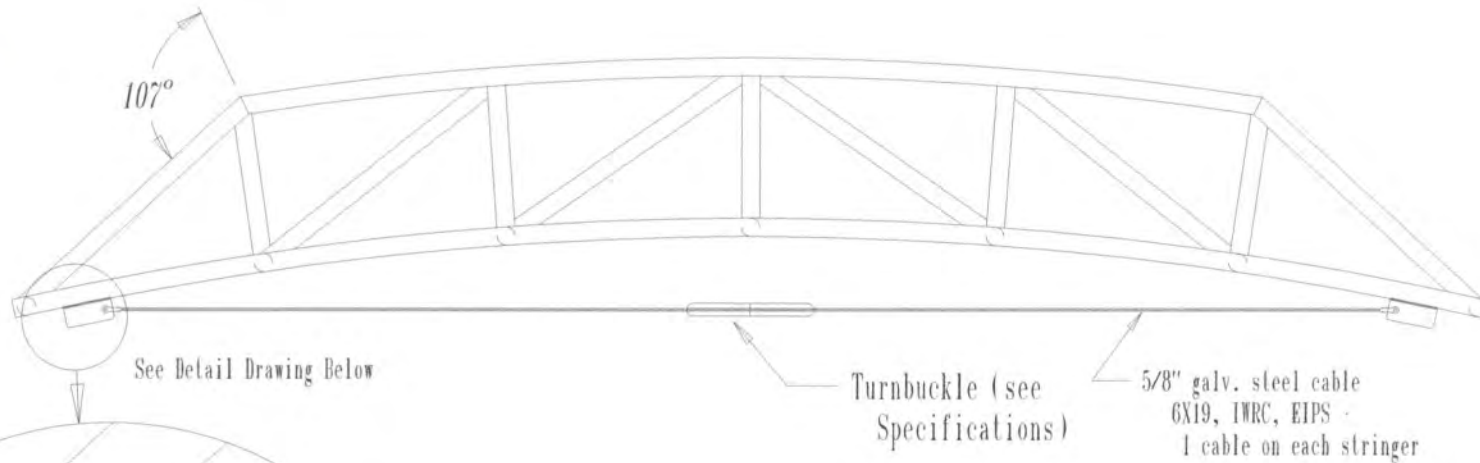
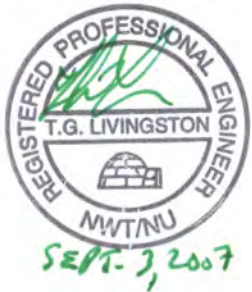


FIGURE 1

5/8" Galvanized
wire rope 6X19
IWRC, EIPS
- 4 rope clips +
thimble

Drill 3/8" holes in the underside of all pipes
with closed ends for condensation drainage

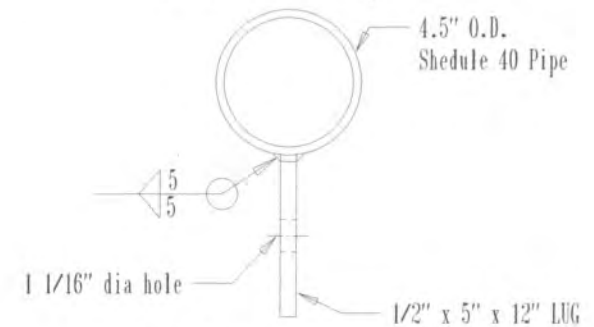
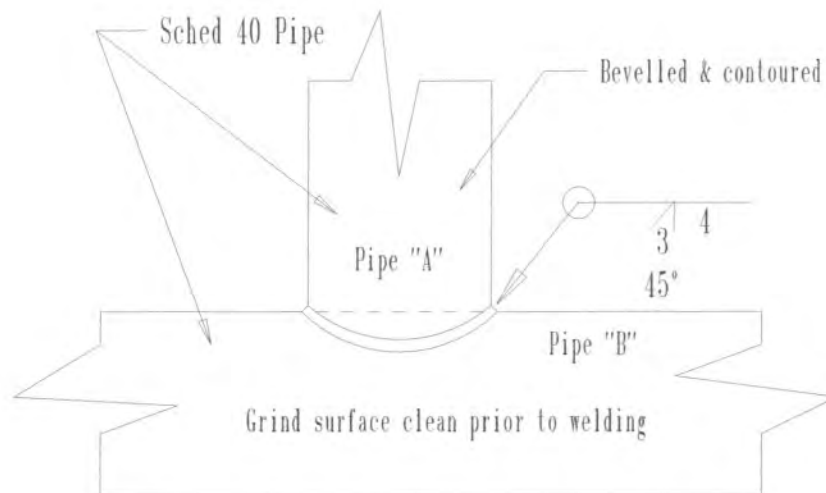


FIGURE 2

Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 24 feet
Side View Details	
Thomas G. Livingston, P.Eng.	Drwg No. 4

FIG. 3 Welding details: one pipe $\perp$ to another



Welding:

Fig. 3 - Welding pipes at an angle to each other:

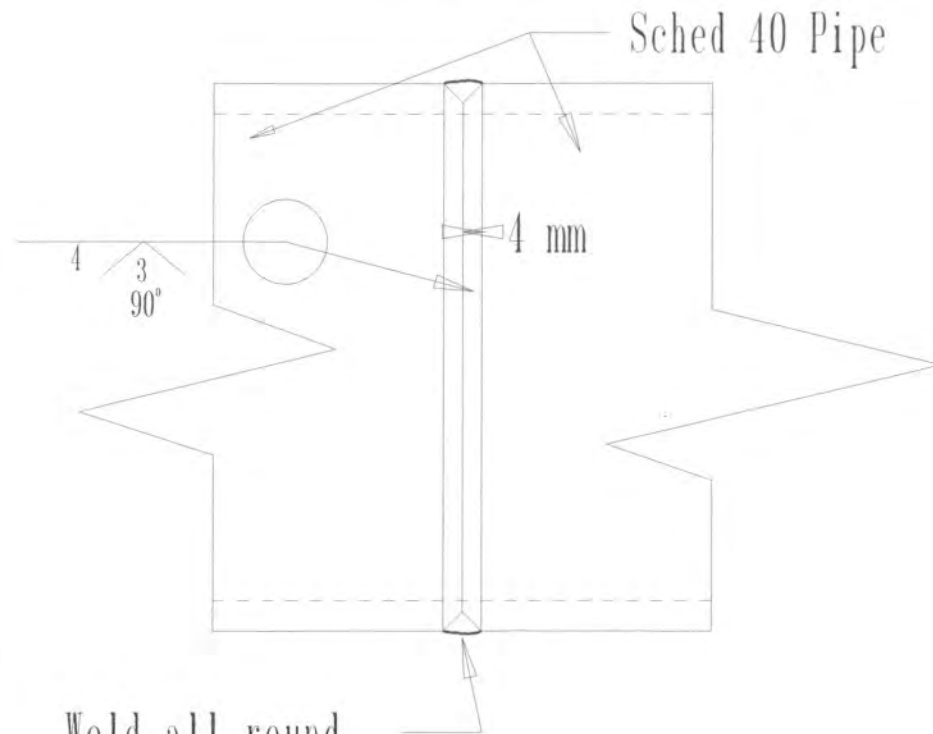
- Chamfer Pipe "A" 45 degrees
- Chamfer depth: 4 mm
- Root opening: 3 mm
- Grind clean surface of Pipe "B"

Fig. 4 - Welding pipes end-to-end:

- Chamfer each pipe 45 degrees
- Chamfer depth: 4 mm
- Root opening: 3 mm



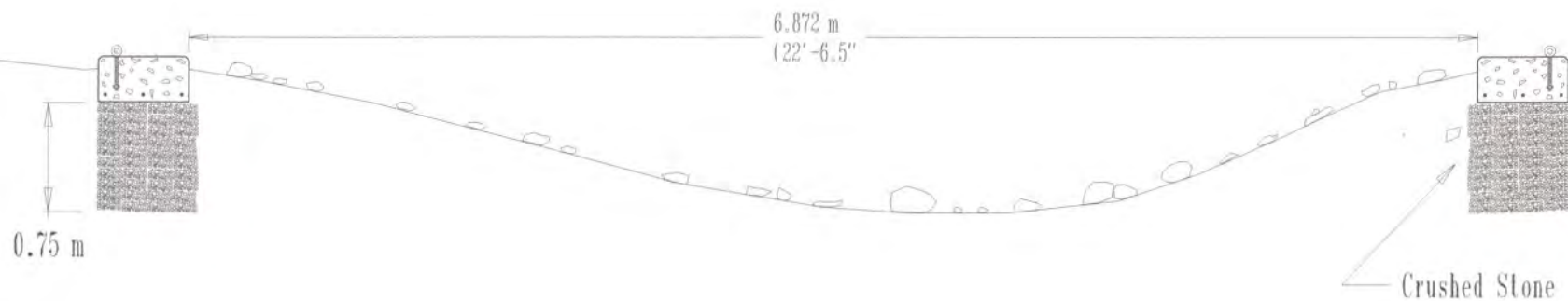
FIG. 4 Butt Welds



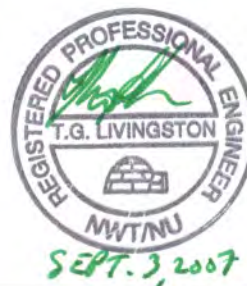
Weld all round
4 mm groove weld
E480XX (E70XX)

Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 24 feet
Pipe Welding Details	
Thomas G. Livingston, P.Eng.	Drwg No. 5

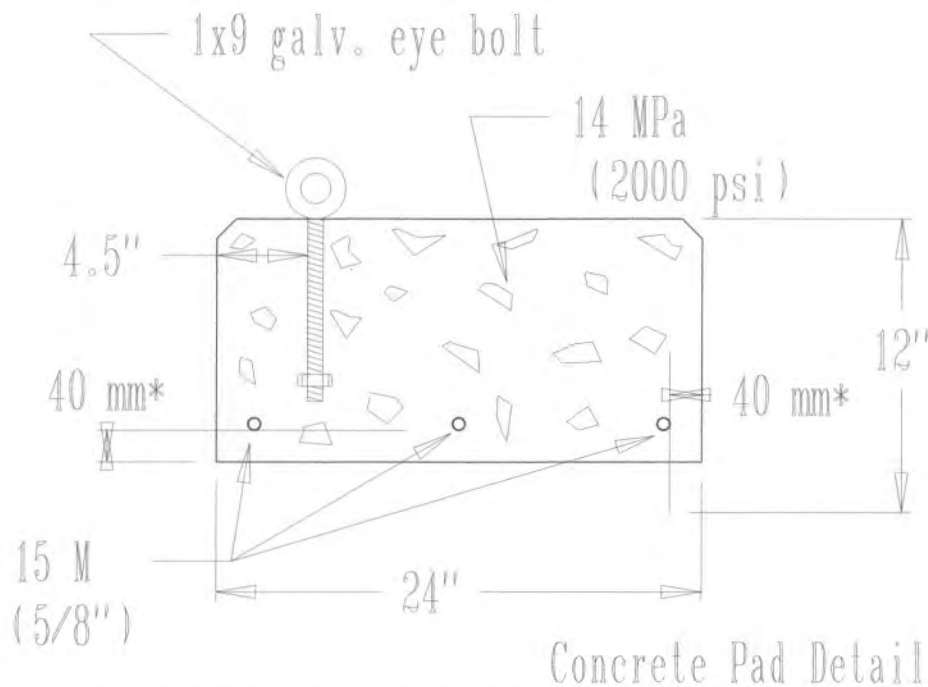


Do not scale drawing



ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 24 feet
Concrete Pad Dimensions	
Thomas G. Livingston, P.Eng.	Drwg No. 6

FIGURE 5



SPECIFICATIONS for BRIDGE:

(See accompanying Product Data Sheets):

4.5" Schedule 40 pipe, shop-primed, field painted

Wire Rope: 6x26, 5/8" diameter: Wire Rope Industries

Turnbuckles: Jaw & Jaw: 1"x12", #TBJJ100-2: Cleveland City Forge

Wire Rope Clips: 5/8", # 22SS-20, Four per end: Wesco Industries

Thimbles: galv. heavy duty, 5/8", # 76HD-G20: Wesco Industries

Chain Shackles: 7/8" # 51LSA-G28CM: Wesco Industries

Shoulder Nut Eyebolts: 1x9, # 28BSH-15: Wesco Industries

Carriage bolts (3/8" x 6.5"), nuts, lock washers: Portland Bolt & Mfg Co.

Concrete: 2000 psi

Reinforcing bar: 15M (5/8")

1/2" steel plate (Lugs for wire rope)

Follow all manufacturers' instructions

QUANTITIES:

* Note: 40 mm cover at ends also

Wire Rope: 60 ft.

Turnbuckles: 2

Wire Rope Clips: 32

Thimbles: 8

Chain Shackles: 4

Shoulder Nut Eyebolts: 4

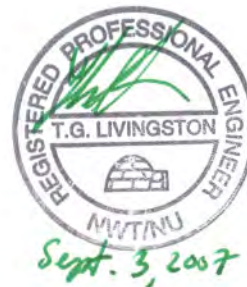
Concrete: 1.2 cu M (1.5 cu yd)

Re-bar: 15 m (30 ft)

3/8"x6.5" galvanized carriage bolts, nuts, lock washers: 100 ea

2x4 (various lengths)

3/4" exterior grade plywood, painted



Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 24 feet
Concrete Pad Detail & General Specifications	
Thomas G. Livingston, P.Eng.	Drwg No. 7

2x4 planking,
3/4" ply deck

SIDE VIEW

TOP VIEW

7 2x4s

9 2x4s

End planks continuous with butt joints

2x4x bolted to cross-rails with
3/8" x 6.5" galvanized carriage bolts,
Lock washers and nuts.



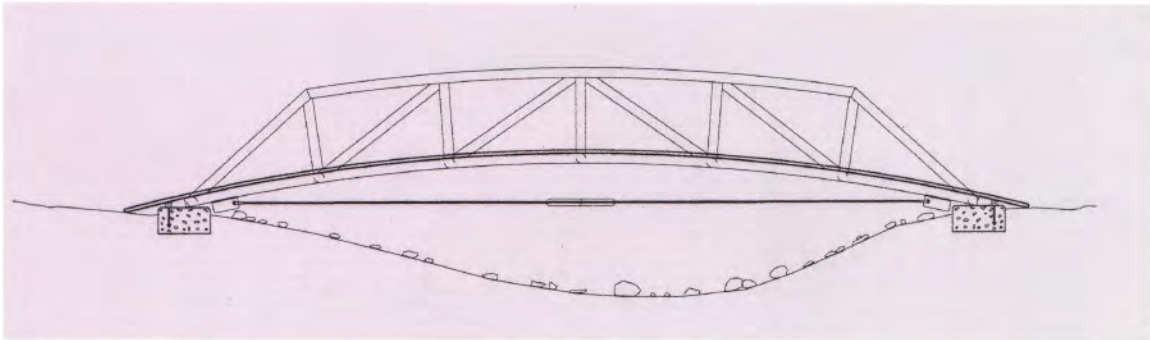
SEPT. 3, 2007

Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 24 feet
Planking: Side & Top Views	
Thomas G. Livingston, P.Eng.	Drwg No. 8

Kugluktuk

Snowmachine & ATV Bridges

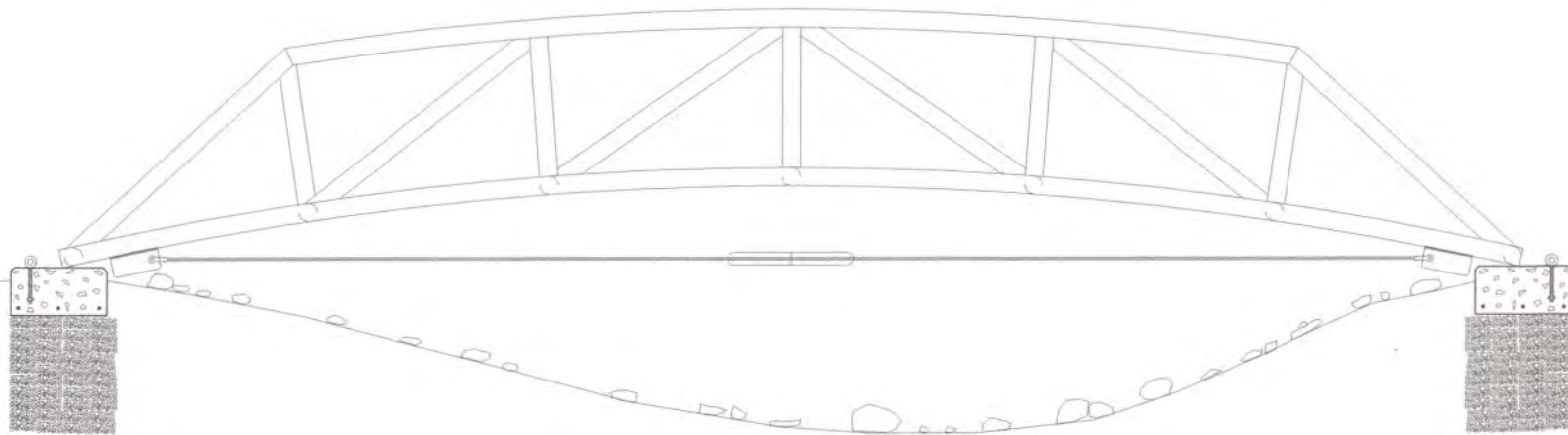


Drawings: 30 ft span



Thomas G. Livingston, P.Eng. September 3, 2007
Community and Government Services, Government of Nunavut

Location: $67^{\circ} 49.51' \text{ N}$, $115^{\circ} 10.42' \text{ W}$

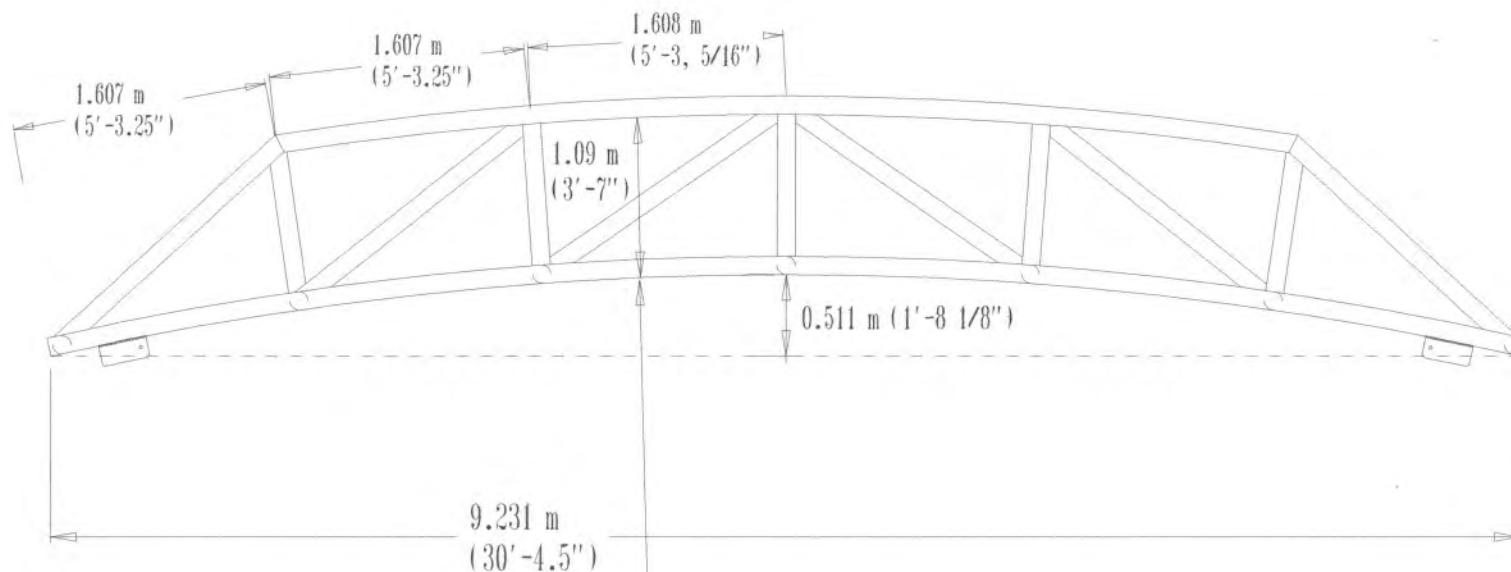


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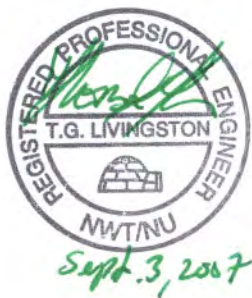
SEPT. 3, 2007

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 30 feet
Side Elevation	
Thomas G. Livingston, P.Eng.	Drwg No. 1



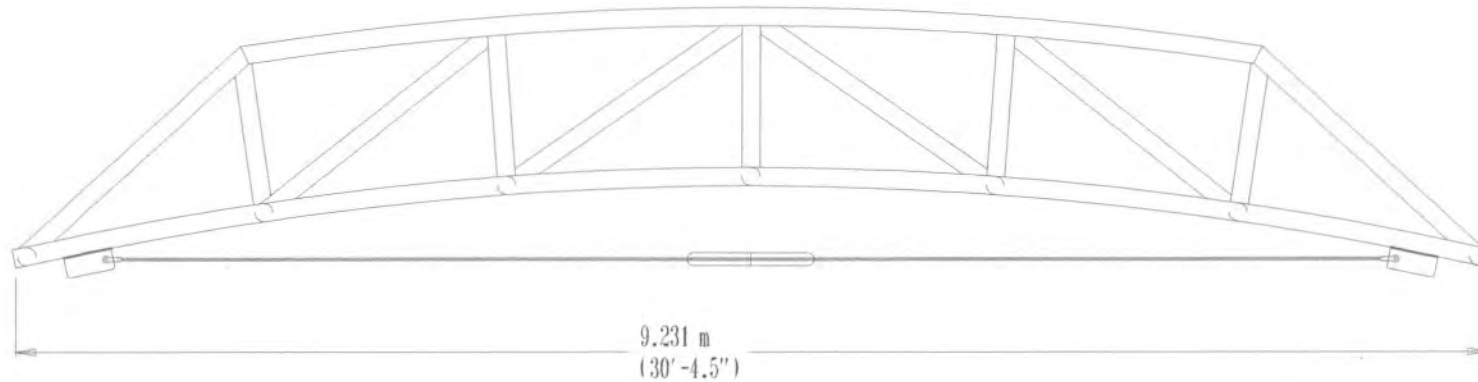
Radius = 21.096 m
(69'-2.5")

Do not scale drawing

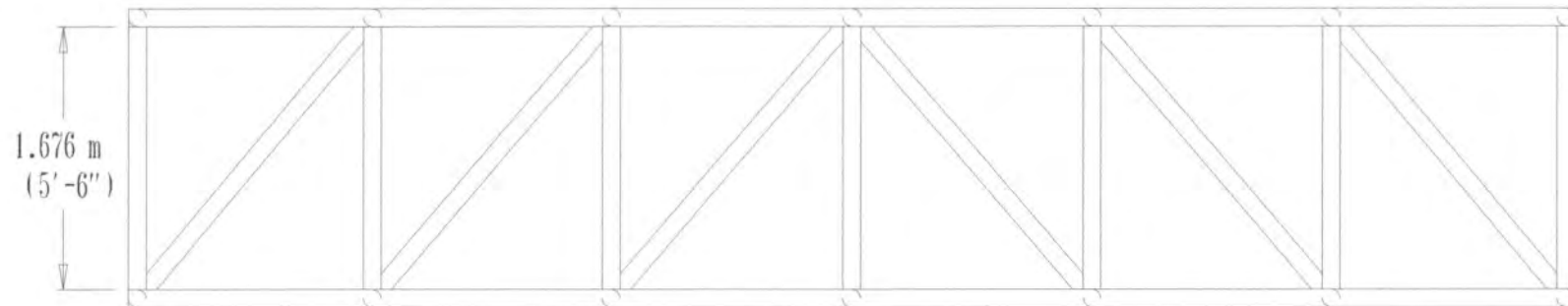


ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 30 feet
Side Drawing Dimensions	
Thomas G. Livingston, P.Eng.	Drwg No. 2

SIDE VIEW



TOP VIEW

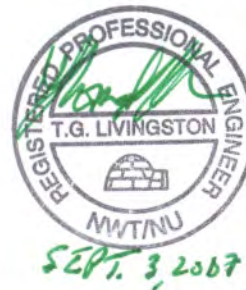


Note: Place sign at either side of bridge:

"Maximum Allowable Load:

6,000 lbs = 2,700 kg

One vehicle at a time."



Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 30 feet
Side and Top Views	
Thomas G. Livingston, P.Eng.	Drwg No. 3

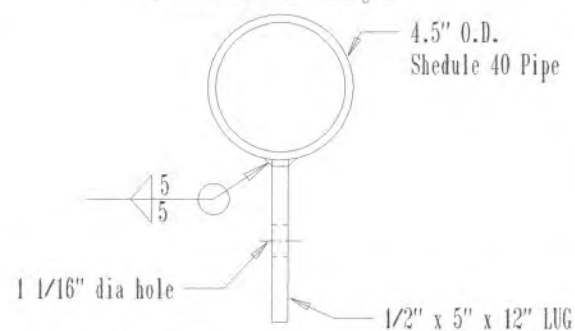
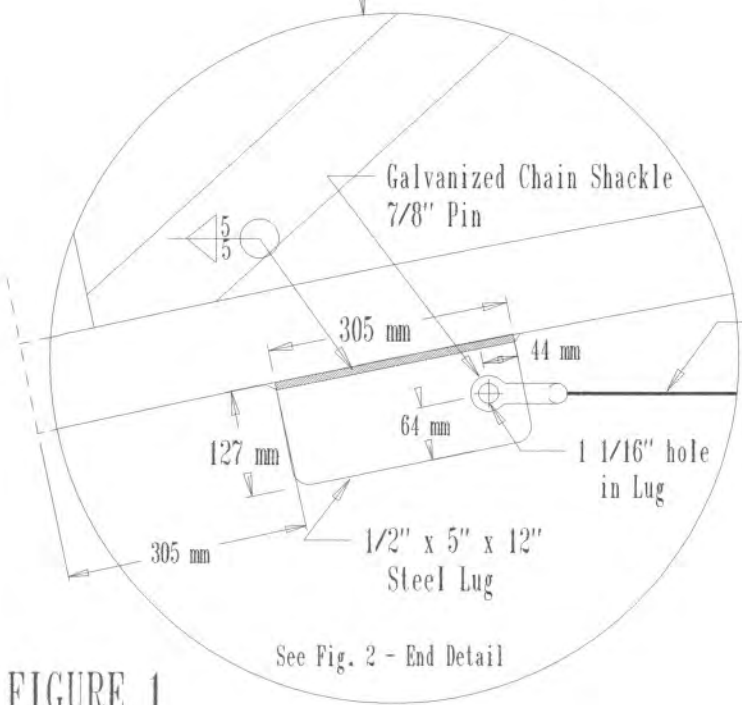
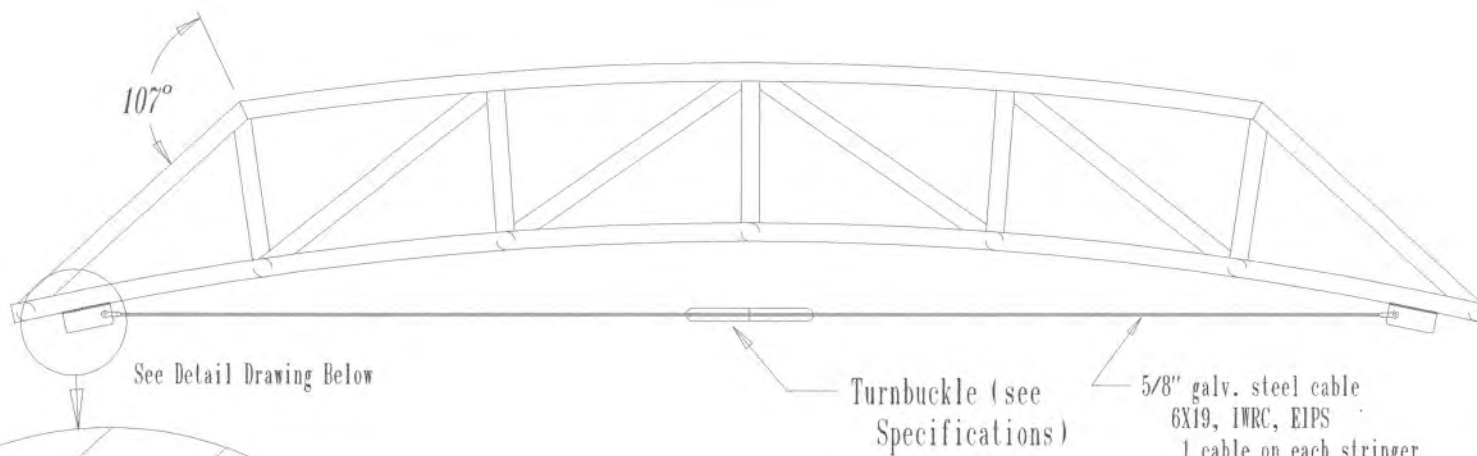


FIGURE 2

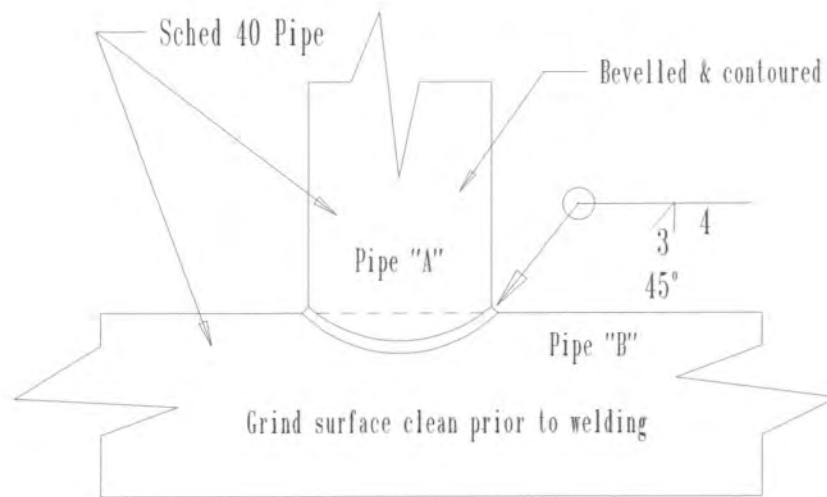
Do not scale drawing

FIGURE 1

Drill 3/8" holes in the underside of all pipes with closed ends for condensation drainage

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 30 feet
Side View Details	
Thomas G. Livingston, P.Eng.	Drwg No. 4

FIG. 3 Welding details: one pipe $\perp$ to another



Welding:

Fig. 3 - Welding pipes at an angle to each other:

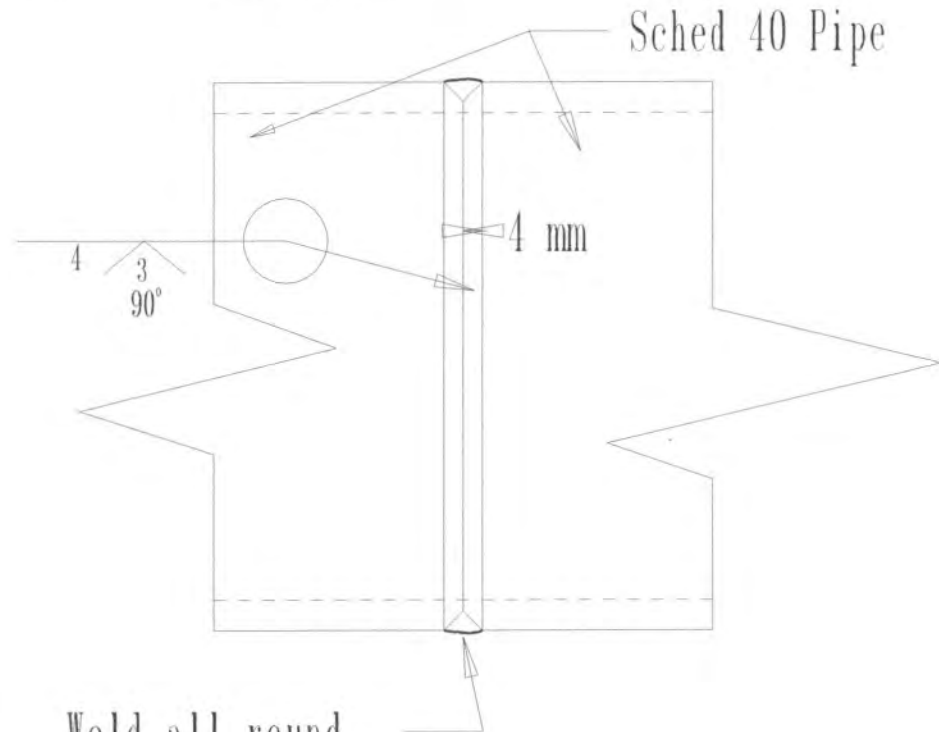
- Chamfer Pipe "A" 45 degrees
- Chamfer depth: 4 mm
- Root opening: 3 mm
- Grind clean surface of Pipe "B"

Fig. 4 - Welding pipes end-to-end:

- Chamfer each pipe 45 degrees
- Chamfer depth: 4 mm
- Root opening: 3 mm



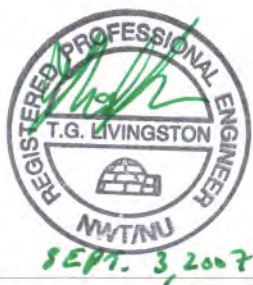
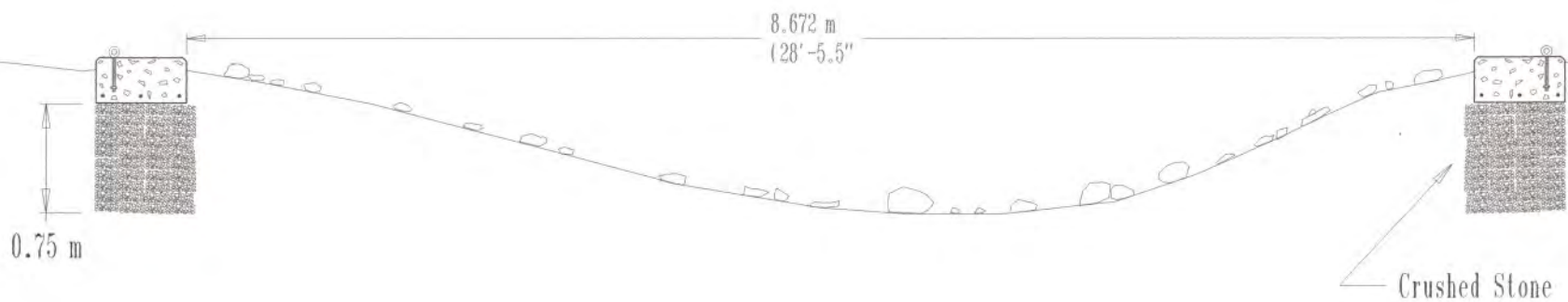
FIG. 4 Butt Welds



Weld all round
4 mm groove weld
E480XX (E70XX)

Do not scale drawing

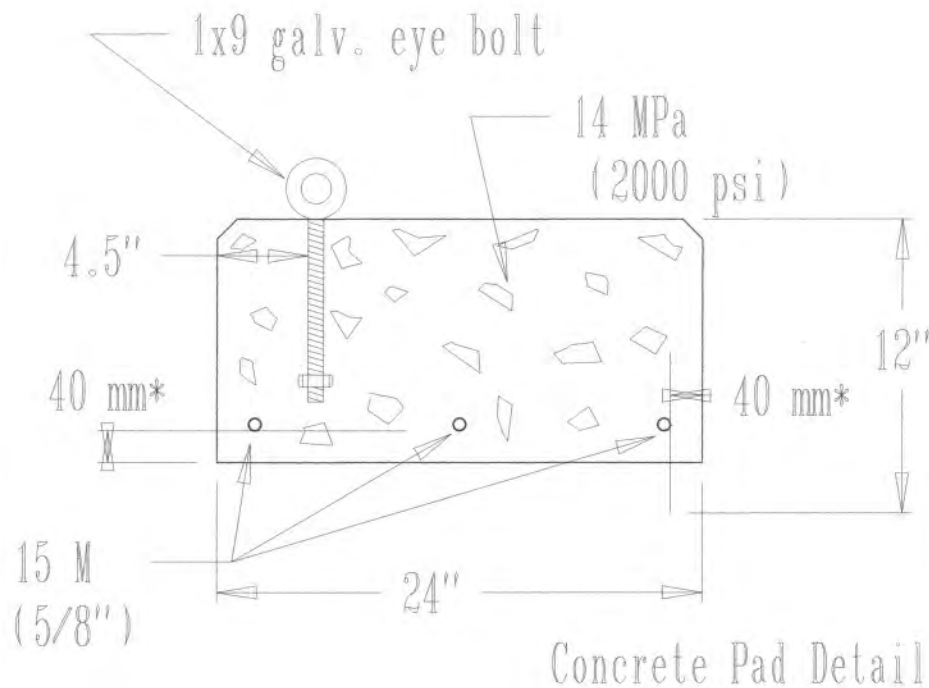
ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 30 feet
Pipe Welding Details	
Thomas G. Livingston, P.Eng.	Drwg No. 5



Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 30 feet
Concrete Pads & Gravel Fill	
Thomas G. Livingston, P.Eng.	Drwg No. 6

FIGURE 5



SPECIFICATIONS for BRIDGE:

(See accompanying Product Data Sheets):

4.5" Schedule 40 pipe, shop-primed, field painted
 Wire Rope: 6x26, 5/8" diameter: Wire Rope Industries
 Turnbuckles: Jaw & Jaw: 1"x12", #TBJJ100-2: Cleveland City Forge
 Wire Rope Clips: 5/8", # 22SS-20, Four per end: Wesco Industries
 Thimbles: galv. heavy duty, 5/8", # 76HD-G20: Wesco Industries
 Chain Shackles: 7/8" # 51LSA-G28CM: Wesco Industries
 Shoulder Nut Eyebolts: 1x9, # 28BSH-15: Wesco Industries
 Carriage bolts (3/8" x 6.5"), nuts, lock washers: Portland Bolt & Mfg Co.

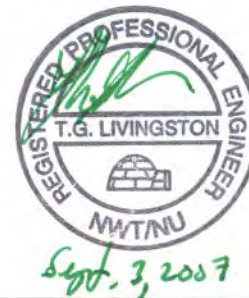
Concrete: 2000 psi
 Reinforcing bar: 15M (5/8")
 1/2" steel plate (Lugs for wire rope)

Follow all manufacturers' instructions

QUANTITIES:

* Note: 40 mm cover at ends also

Wire Rope: 70 ft.
 Turnbuckles: 2
 Wire Rope Clips: 32
 Thimbles: 8
 Chain Shackles: 4
 Shoulder Nut Eyebolts: 4
 Concrete: 1.2 cu M (1.5 cu yd)
 Re-bar: 15 m (30 ft)
 3/8"x6.5" galvanized carriage bolts, nuts, lock washers: 100 ea
 2x4 (various lengths)
 3/4" exterior grade plywood, painted



Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 30 feet
Concrete Pad Details & General Specifications	
Thomas G. Livingston, P.Eng.	Drwg No. 7

2x4 planking,
3/4" ply deck

SIDE VIEW

TOP VIEW

7 2x4s

9 2x4s

End planks continuous with butt joints

2x4x bolted to cross-rails with
3/8" x 6.5" galvanized carriage bolts,
Lock washers and nuts.

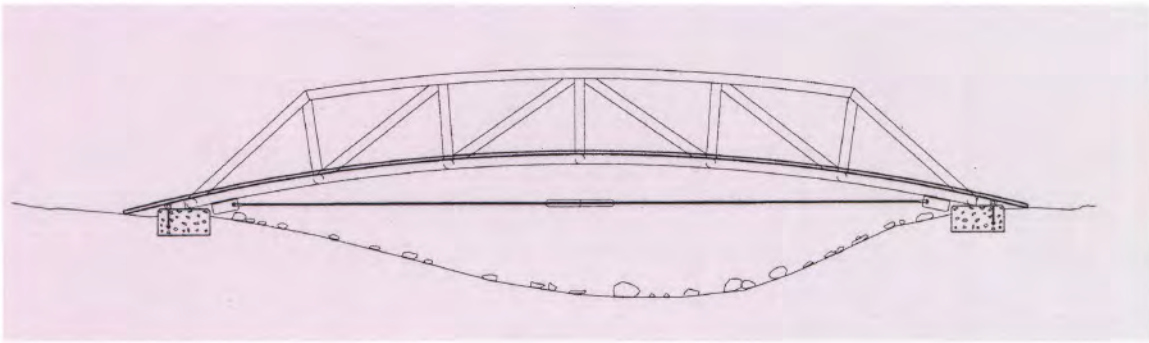


Do not scale drawing

ATV & Snowmobile Bridge, Kugluktuk, NU	Date: July 3, 2007
Material: 4.5" dia Schedule 40 Pipe	Revised: Aug. 30, '07
Maximum Allowable Load: 6,000 Lb	Span: 30 feet
Planking: Side and Top Views	
Thomas G. Livingston, P.Eng.	Drwg No. 8

Kugluktuk

Snowmachine & ATV Bridges



Product Information



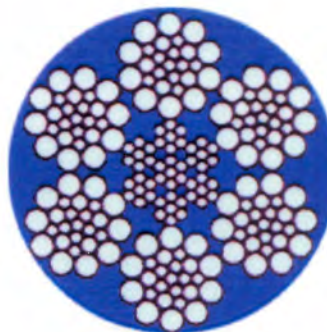
Thomas G. Livingston, P.Eng. September 3, 2007
Community and Government Services, Government of Nunavut

PRODUCT INDEX

[Back to Thumbnails](#)

High Performance Ropes Cushion™ 6

Woodlander™ - Cushion™ 6
Drilltech™ - Cushion™ 6
Trawl-Mor® - Cushion™ 6



Weights and Breaking Loads Table

Diameter Inches (mm)	Rope Construction	Approximate Weight lbs/ft (kg/m)	Nominal Breaking Load Tons (kN)
3/8 (10)	6x19 RRL Cushion Rope	0.26 (0.38)	6.6 (59)
7/16 (11)	6x19 RRL Cushion Rope	0.35 (0.52)	9.0 (81)
1/2 (13)	6x26 RRL Cushion Rope	0.45 (0.67)	11.7 (104)
9/16 (14)	6x26 RRL Cushion Rope	0.58 (0.86)	15.0 (133)
* 5/8 (16)	6x26 RRL Cushion Rope	0.72 (1.07)	18.6 (165)
3/4 (19)	6x26 RRL Cushion Rope	1.02 (1.51)	26.3 (234)
7/8 (22)	6x26 RRL Cushion Rope	1.41 (2.09)	36.4 (324)
1 (25)	6x26 RRL Cushion Rope	1.82 (2.71)	47.1 (419)
1-1/8 (29)	6x36 RRL Cushion Rope	2.18 (3.24)	57.2 (510)
1-1/4 (32)	6x36 RRL Cushion Rope	2.88 (4.29)	69.6 (663)
1-3/8 (35)	6x36 RRL Cushion Rope	3.52 (5.24)	85.7 (763)
1-1/2 (38)	6x36 RRL Cushion Rope	4.18 (6.21)	101.5 (904)

Breaking load values are subject to a minus tolerance of 2.5%.

Wire Rope Industries Ltd.

5501 Trans-Canada Highway, Pointe-Claire, Quebec, Canada

H9R 1B7

Ph: 514-697-9711

Fax: 514-697-3534

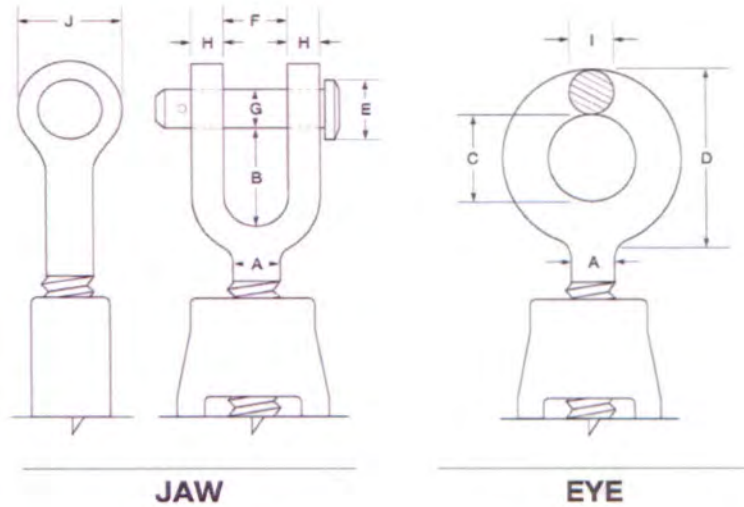
E-Mail: mail@wirerope.com

TURNBUCKLE ASSEMBLIES

Material: C-1030

Threads: U.N.C. Class 2A, Right or Left Hand

Finish: Galvanized



ASSEMBLY: JAW & JAW



Part No.	Turnbuckle		Jaw					Overall Closed Length	Rated Capacity (Lbs.)	Unit Weight (Lbs.)
	Thd. Dia.	Take Up T	F	B	G	H	J			
TBJJ004	1/4	X 4	7/16	5/8	1/4	7/32	5/8	8	500	0.28
TBJJ005	5/16	X 4 1/2	1/2	3/4	1/4	1/4	11/16	9	800	0.49
TBJJ006	3/8	X 6	9/16	13/16	5/16	5/16	13/16	12	1200	0.85
TBJJ008	1/2	X 6	5/8	1	7/16	3/8	1	13	2100	1.64
TBJJ008-2	1/2	X 9	5/8	1	7/16	3/8	1	16	2100	1.95
TBJJ008-3	1/2	X 12	5/8	1	7/16	3/8	1	19	2100	2.40
TBJJ010	5/8	X 6	3/4	1 5/16	1/2	7/16	1 5/16	16	3200	2.75
TBJJ010-2	5/8	X 9	3/4	1 5/16	1/2	7/16	1 5/16	19	3200	3.25
TBJJ010-3	5/8	X 12	3/4	1 5/16	1/2	7/16	1 5/16	22	3200	4.00
TBJJ012	3/4	X 6	15/16	1 1/2	5/8	7/16	1 5/8	17	5000	4.50
TBJJ012-2	3/4	X 9	15/16	1 1/2	5/8	7/16	1 5/8	20	5000	4.98
TBJJ012-3	3/4	X 12	15/16	1 1/2	5/8	7/16	1 5/8	23	5000	5.78
TBJJ014	7/8	X 12	1 1/16	1 3/4	3/4	1/2	1 3/4	25	7000	8.75
TBJJ100	1	X 6	1 3/16	2	1	5/8	2 1/8	18	10000	9.20
* TBJJ100-2	1	X 12	1 3/16	2	1	5/8	2 1/8	24	10000	12.10

Safety Factor = 5 : 1

ASSEMBLY: JAW & EYE



Part No.	Turnbuckle										Overall Closed Length	Rated Capacity (Lbs.)	Unit Weight (Lbs.)
	Thread Dia.	Take Up	Eye				Jaw						
	A	T	C	D	I	F	B	G	H	J			
TBEJ004	1/4	x 4	1/2	1	1/4	7/16	5/8	1/4	7/32	5/8	8	500	0.26
TBEJ005	5/16	x 4 1/2	5/8	1 1/4	5/16	1/2	3/4	1/4	1/4	11/16	9	800	0.45
TBEJ006	3/8	x 6	3/4	1 1/2	3/8	9/16	13/16	5/16	5/16	13/16	12	1200	0.78
TBEJ008	1/2	x 6	1	1 15/16	7/16	5/8	1	7/16	3/8	1	13	2100	1.51
TBEJ008-2	1/2	x 9	1	1 15/16	7/16	5/8	1	7/16	3/8	1	16	2100	1.79
TBEJ008-3	1/2	x 12	1	1 15/16	7/16	5/8	1	7/16	3/8	1	19	2100	2.20
TBEJ010	5/8	x 6	1 3/8	2 1/2	9/16	3/4	1 15/16	1/2	7/16	1 5/16	16	3200	2.53
TBEJ010-2	5/8	x 9	1 3/8	2 1/2	9/16	3/4	1 15/16	1/2	7/16	1 5/16	19	3200	2.99
TBEJ010-3	5/8	x 12	1 3/8	2 1/2	9/16	3/4	1 15/16	1/2	7/16	1 5/16	22	3200	3.68
TBEJ012	3/4	x 6	1 1/2	2 13/16	21/32	15/16	1 1/2	5/8	7/16	1 5/8	17	5000	4.14
TBEJ012-2	3/4	x 9	1 1/2	2 13/16	21/32	15/16	1 1/2	5/8	7/16	1 5/8	20	5000	4.58
TBEJ012-3	3/4	x 12	1 1/2	2 13/16	21/32	15/16	1 1/2	5/8	7/16	1 5/8	23	5000	5.32
TBEJ014	7/8	x 12	1 11/16	3 1/4	3/4	1 1/16	1 3/4	3/4	1/2	1 3/4	25	7000	8.05
TBEJ100	1	x 6	1 13/16	3 9/16	7/8	1 3/16	2	1	5/8	2 1/8	18	10000	8.05
TBEJ100-2	1	x 12	1 13/16	3 9/16	7/8	1 3/16	2	1	5/8	2 1/8	24	10000	11.13



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Stainless Steel Drop Forged Wire Rope Clips

Wesco's Stainless Steel Drop Forged Clips are manufactured from grade 304 Stainless material. They are generally used in corrosive or harsh environments. Please see installation instructions for standard drop forged wire rope clips on page 6.



Stock Code	Size Inches	Weight per 100 Pieces Pounds	Minimum Number of Clips per Eye	Amount of Rope to Turn Back Inches	Torque in Foot-Pounds
22SS-04	1/8	5	2	3 1/4	4.5
22SS-06	3/16	10	2	3 3/4	7.5
22SS-08	1/4	18	2	4 3/4	15
22SS-10	5/16	31	2	5 1/4	30
22SS-12	3/8	46	2	6 1/2	45
22SS-16	1/2	65	3	11 1/2	65
* 22SS-20	5/8	100	3	12	95
22SS-24	3/4	142	4	18	130



WARNING

Strictly adhere to manufacturers instructions on installation. Failure to understand and install wire rope clips incorrectly could result in death, serious injury or property damage.

Wesco Industries Ltd.

Head Office: Unit 1, 9663-199A Street,
Langley, BC, V1M 2X7
Ph: 604-881-3000
Fax: 604-881-3010
<http://www.wescovan.com/>
e-mail: info@wescovan.com

THIMBLES are designed and manufactured to protect wire rope from wear and damage when using shackles and hooks. Always ensure that you have the correct thimble for the size of rope being used, for any intermediate size the next size must be used. Always inspect thimbles for abuse, damage, cracks and deformation (stretch) before use. Heavy duty thimbles should be used for any lifting or load bearing applications. Thimbles can be used for wire rope or synthetic rope.

Galvanized Heavy Duty Thimbles

Wesco's heavy duty thimbles should be used in any lifting or load bearing application, especially on wire rope slings which will be used in conjunction with hooks or shackles. They are not load rated and only serves to protect the rope.



Stock Code	Size Inches	Maximum Inside Diameter Inches	Weight per 100 Pieces Pounds
76HD-G08	1/4	11/16	8
76HD-G10	5/16	13/16	14
76HD-G12	3/8	15/16	26
76HD-G14	7/16	1	34
76HD-G16	1/2	1 1/8	44
76HD-G20	5/8	1 3/8	74
76HD-G24	3/4	1 5/8	115
76HD-G28	7/8	1 7/8	150
76HD-G32	1	2 1/2	225
76HD-G36/40	1-1/8 to 1-1/4	2 3/4	336
76HD-G40/44	1-1/4 to 1-3/8	3 1/2	817
76HD-G48C	1-3/8 to 1-1/2	3 1/2	1,167
76HD-G56	1 3/4	4 1/2	1,775
76HD-G64	2	6	2,775

Stainless Steel Heavy Duty Thimbles

Wesco's stainless steel heavy duty thimbles should be used in any lifting or load bearing application, especially on wire rope slings which will be used in conjunction with hooks or shackles. They are not load rated and only serves to protect the rope. The Stainless Steel finish make them ideal for many marine applications.



Stock Code	Size Inches	Maximum Inside Diameter Inches	Weight per 100 Pieces Pounds
76SS-08CA	1/4	11/16	8
76SS-10CA	5/16	13/16	14
76SS-12CA	3/8	15/16	26
76SS-16CA	1/2	1 1/8	44
76SS-20H	5/8	1 3/8	74
76SS-24HD	3/4	1 5/8	115

Wesco Industries Ltd.

Head Office: Unit 1, 9663-199A Street,
Langley, BC, V1M 2X7

Ph: 604-881-3000

Fax: 604-881-3010

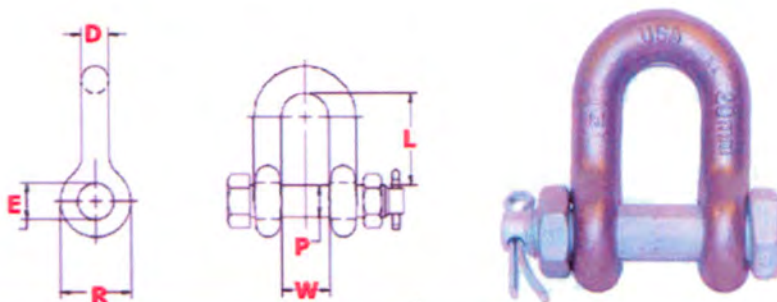
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e-mail: info@wescovan.com



WARNING

This product is not load rated but is designed to protect rope from damage. Remove from service any thimbles that are damaged, cracked, worn or elongated.



CM Big Orange High Strength Galvanized Load Rated Bolt Type Chain Shackles

Stock Code	Size Inches	CM Part Number	WLL Tons*	Dimensions (Inches)			Weight 100 Pieces
				Pin P	Width W	Length L	
51LSA-G16CM	1/2	M950	3	5/8	13/16	1-11/16	78
51LSA-G20CM	5/8	M951	4-1/2	3/4	1-1/16	2	150
51LSA-G24CM	3/4	M952	6-1/2	7/8	1-1/4	2-3/8	220
* 51LSA-G28CM	7/8	M953	8-1/2	1	1-7/16	2-13/16	320
51LSA-G32CM	1	M954	10	1-1/8	1-11/16	3-3/16	500
51LSA-G36CM	1-1/8	M955	12	1-1/4	1-13/16	3-9/16	700
51LSA-G40CM	1-1/4	M956	14	1-3/8	2-1/32	3-11/16	920
51LSA-G44CM	1-3/8	M966	17	1-1/2	2-1/4	4-7/16	1300
51LSA-G48CM	1-1/2	M957	20	1-5/8	2-3/8	4-7/8	1700
51LSA-G56CM	1-3/4	M977	30	2	2-7/8	5-3/4	2850
51LSA-G64CM	2	M958	35	2-1/4	3-1/4	6-3/4	3900

*Ton = 2,000 lbs.

All shackles pins are forged from alloy steel, heat treated and tempered to give greater strength.

CM Big Orange high strength shackles meet performance requirements of Federal Spec. RRC-271 D.

All shackles are marked with size and working load limit in tons.

Ultimate strength equals 6 times working load limit.

Proof load equals 2.2 times working load limit.

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<http://www.wescovan.com/>

e-mail: info@wescovan.com

SHOULDER NUT EYEBOLTS are available in a long shank style, a machinery eyebolt and screw type eyebolt. Shoulder nut eyebolts can be used in angular lifting.

Galvanized Shoulder Nut Eyebolts

Wesco shoulder nut eyebolts are galvanized which makes them ideal for marine and outdoor environments. They are available with long shank lengths suitable for inserting through thicker material. The shoulder gives support to the eyebolt and allows for limited angular loading.



Stock Code	Diameter x Thread Length	WLL @ 90° to Load	Eye Diameter	Weight per 100 Pieces Pounds
28BSH-01	1/4 X 2	650	0.50	6.0
28BSH-02	1/4 X 4	650	0.50	9.0
28BSH-03	5/16 X 2 1/4	1,200	0.62	10.0
28BSH-04	5/16 X 4 1/4	1,200	0.62	15.0
28BSH-05	3/8 X 2 1/2	1,550	0.75	20.0
28BSH-06	3/8 X 4 1/2	1,550	0.75	25.0
28BSH-06X	3/8 x 6	1,550	0.75	32.0
28BSH-07	1/2 X 3 1/4	2,600	1.00	40.0
28BSH-08	1/2 X 6	2,600	1.00	70.0
28BSH-08X	1/2 x 8	2,600	1.00	89.0
28BSH-09	5/8 X 4	5,200	1.25	104.0
28BSH-10	5/8 X 6	5,200	1.25	120.0
28BSH-10X	5/8 x 8	5,200	1.25	150.0
28BSH-11	3/4 X 4 1/2	7,200	1.50	125.0
28BSH-12	3/4 X 6	7,200	1.50	150.0
28BSH-12X	3/4 x 8	7,200	1.50	175.0
28BSH-14	1 x 6	13,300	2.00	390.0
28BSH-15	1 x 9	13,300	2.00	470
28BSH-15X	1 x 12	13,300	2.00	525.0

Note: Order must include: nuts and large washer

Machinery Eyebolts

Wesco machinery eyebolts are suitable for equipment lifts. It has a short thread perfect for installing in electric motors, gearboxes, and other type types of equipment with pre sunk holes. this type of eyebolts is also available with a metric thread.



Stock Code	Diameter x Thread Length	Working Load Limit @ 90 Degrees	Weight per 100 Pieces Pounds
28BTH-08	1/4 X 1	500	5
28BTH-10	5/16 X 1 1/8	900	9
28BTH-12	3/8 X 1 1/4	1,300	16
28BTH-16	1/2 X 1 1/2	2,400	34
28BTH-20	5/8 X 1 3/4	4,000	65
28BTH-24	3/4 X 2	5,000	100
28BTH-28	7/8 X 2 1/4	7,000	150
28BTH-32	1 X 3	9,000	220

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WARNING

To avoid injury or property damage ensure that instructions are followed carefully and eyebolts are always inspected before each use. If unsure on instructions or you are using swivel hoist rings please check with Wesco for further details.

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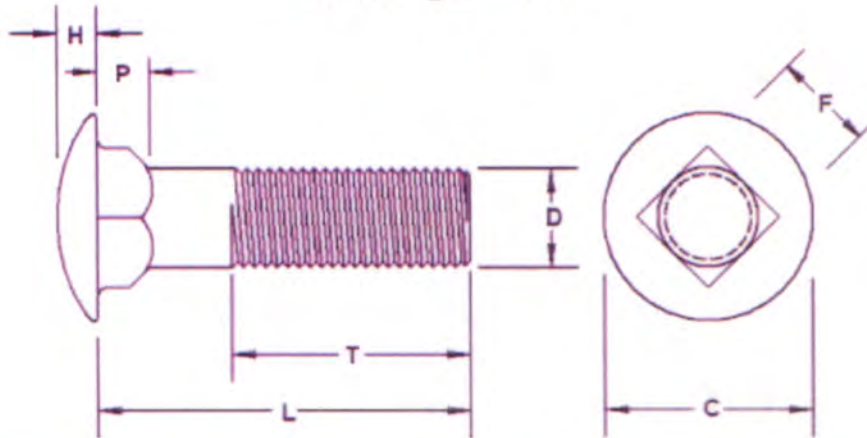
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Carriage Bolts



Bolt Diameter	D		C		H		F		P	
	Body Diameter		Head Diameter		Head Height		Square Width		Square Depth	
	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min
3/8	0.388	0.360	0.844	0.782	0.208	0.188	0.388	0.368	0.219	0.188
1/2	0.515	0.483	1.094	1.032	0.270	0.250	0.515	0.492	0.281	0.250
5/8	0.642	0.605	1.344	1.219	0.344	0.313	0.642	0.616	0.344	0.313
3/4	0.768	0.729	1.594	1.469	0.406	0.375	0.768	0.741	0.406	0.375
7/8	0.895	0.852	1.844	1.719	0.469	0.438	0.895	0.865	0.469	0.438
1	1.022	0.976	2.094	1.969	0.531	0.500	1.022	0.990	0.531	0.500
1-1/4	1.277		2.850		0.531	0.500	1.250		0.625	

Dimensional specifications per ASME B18.5

STANDARD THREAD LENGTH

Bolt lengths ≤ 6": Thread length = (2 X diameter) + 1/4"
Bolt lengths > 6": Thread length = (2 X diameter) + 1/2"

STOCK

Diameters: 3/8" - 3/4"
Lengths: 18" maximum
Origin: Import
Finish: Black and hot dip galvanized

Note: Most stock carriage bolts have extended thread lengths.

MANUFACTURING

Portland Bolt manufactures carriage bolts from 3/8" diameter through 1-1/4" diameter in most **ASTM**, **AASHTO**, and SAE specifications. Special tooling can be created to produce nonstandard head dimensions, carriage bolts larger than 1" in diameter, or bolt heads with your company's name and/or logo.

APPLICATION

Carriage bolts (round head with square neck) are commonly used in wood connections. The square neck under the round head will seat into the hole in the wood to prevent the head from turning. Because they are used with wood, carriage bolts are rarely high strength and virtually always supplied in a standard **ASTM A307** specification.

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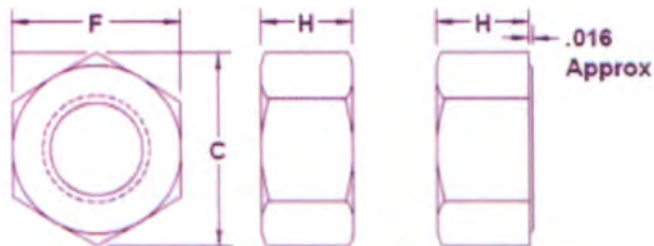
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Finished Hex Nuts



Nominal Size	F			C		H		
	Width Across Flats			Width Across Corners		Thickness		
	Basic	Max	Min	Max	Min	Basic	Max	Min
3/8	9/16	0.562	0.551	0.650	0.628	21/64	0.337	0.320
1/2	3/4	0.750	0.736	0.866	0.840	7/16	0.448	0.427
5/8	15/16	0.938	0.922	1.083	1.051	35/64	0.559	0.535
3/4	1-1/8	1.125	1.088	1.299	1.240	41/64	0.665	0.617
7/8	1-5/16	1.312	1.269	1.516	1.447	3/4	0.776	0.724
1	1-1/2	1.500	1.450	1.732	1.653	55/64	0.887	0.831
1-1/8	1-11/16	1.688	1.631	1.949	1.859	31/32	0.999	0.939
1-1/4	1-7/8	1.875	1.812	2.165	2.066	1-1/16	1.094	1.030
1-3/8	2-1/16	2.062	1.994	2.382	2.273	1-11/64	1.206	1.138
1-1/2	2-1/4	2.250	2.175	2.598	2.480	1-9/32	1.317	1.245

Dimensional specifications per ASME B18.2.2

STOCK

Diameters: 3/8" – 1-1/2"
 Origin: Domestic and import
 Finish: Black and hot dip galvanized

APPLICATION

Hex nuts (also referred to as *finished* hex nuts) are compatible with low carbon steel bolts such as **ASTM A307**, **ASTM F1554 grade 36**, SAE grade 2, and **AASHTO M183**. SAE grade 5 and grade 8 nuts are also available in a finished pattern. Since hot dip galvanizing typically adds 2.2 to 5 mils of thickness to the threaded portion of a fastener, galvanized hex nuts are tapped oversize to compensate for the corrosion resistant coating on the bolts.

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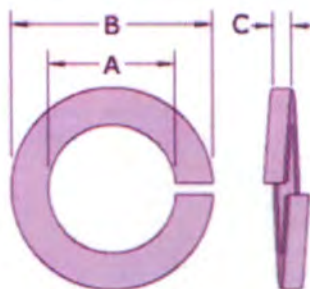
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Lock Washers



Bolt Size	B	A	C	Weight in Pounds Per 1000 Pieces
	Outside Diameter	Inside Diameter	Thickness Min	
1/4	1/2	9/32	.062	2.4
3/8	5/8	12/32	.094	6.0
1/2	7/8	17/32	0.125	13
5/8	1	21/32	0.156	24
3/4	1-1/4	25/32	0.188	43
7/8	1-15/32	29/32	0.219	60
1	1-21/32	1-1/32	0.250	88
1-1/8	2-5/32	1-27/32	0.281	120
1-1/4	2	1-3/8	0.312	160
1-3/8	2-1/4	1-1/2	0.344	219
1-1/2	2-7/16	1-9/16	0.375	282

ANSI B18.21.1 Regular Helical Spring Lock Washer

STOCK

Diameters: 1/4" – 2-1/2"
Finish: Black and hot dip galvanized

APPLICATION

Split lock washers provide greater bolt tensioning for tighter assemblies and provide protection against loosening resulting from vibration. Lock washers can be used with a standard washer to provide uniform bearing surface. These washers are unhardened and intended for general use.

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