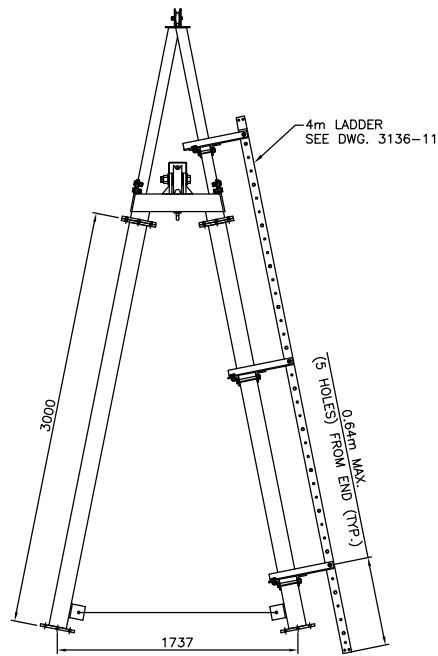
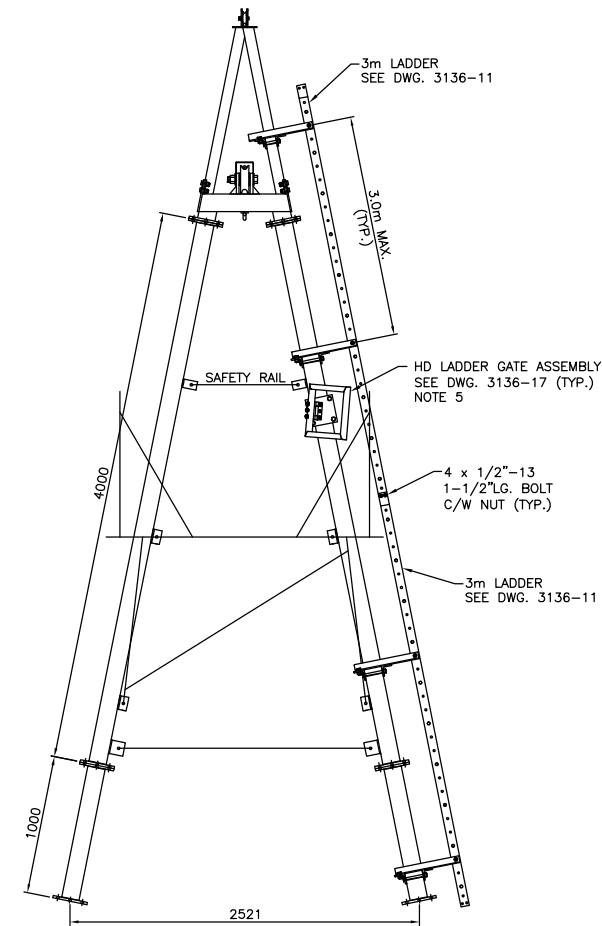


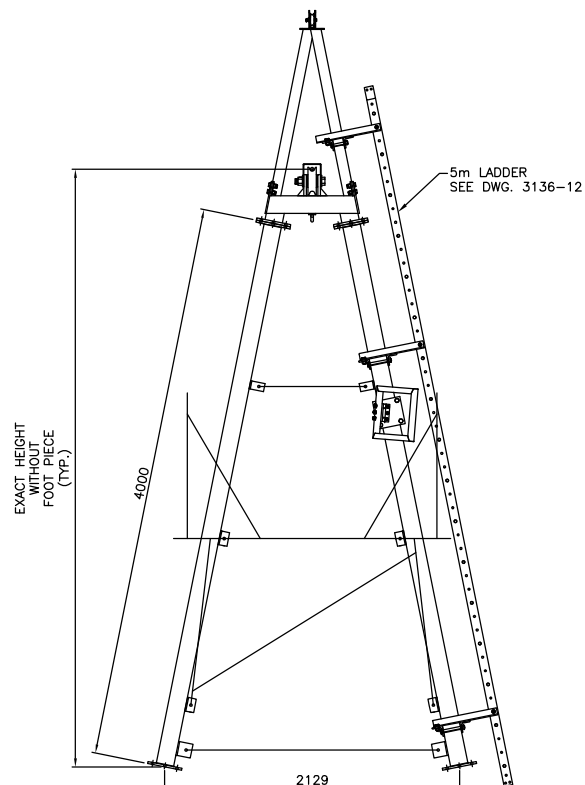
**2 METRE A-FRAME**  
EXACT HEIGHT TO CENTRE OF 25# WIRE ROPE IN MAIN CABLE SHEAVE = 2.352 METRES (WITHOUT FOOT PIECE)



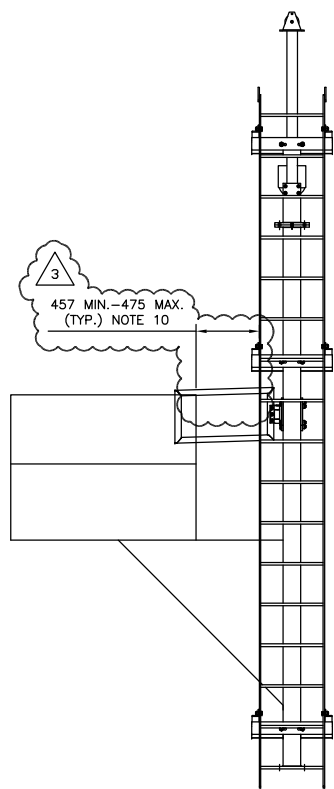
**3 METRE A-FRAME**  
EXACT HEIGHT TO CENTRE OF 25# WIRE ROPE IN MAIN CABLE SHEAVE = 3.332 METRES (WITHOUT FOOT PIECE)



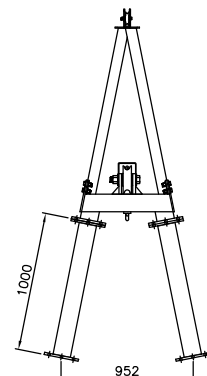
**5 METRE A-FRAME**  
EXACT HEIGHT TO CENTRE OF 25# WIRE ROPE IN MAIN CABLE SHEAVE = 5.294 METRES (WITHOUT FOOT PIECE)



**4 METRE A-FRAME**  
(THIS SECTION IS TYPICAL OF ALL FRAMES OVER 4 METRES)  
EXACT HEIGHT TO CENTRE OF 25# WIRE ROPE IN MAIN CABLE SHEAVE = 4.313 METRES (WITHOUT FOOT PIECE)



**4 METRE A-FRAME SECTION**



**1 METRE A-FRAME**  
EXACT HEIGHT TO CENTRE OF 25# WIRE ROPE IN MAIN CABLE SHEAVE = 1.371 METRES (WITHOUT FOOT PIECE)

DESIGN LOAD	
CAR	200
2 MEN	400
REEL	50
	650 lbs.

PLUS SNAG LOAD OF 1/8" WIRE ROPE AT ANY ANGLE = 1600 lbs. BREAKING STRENGTH.

**NOTES:**

- ALL PARTS TO BE HOT-DIPPED GALVANIZED AS PER ASTM A123/A123M.
- ALL BOLTS & NUTS TO BE M16 A325M TYPE 2 GALVANIZED, UNLESS OTHERWISE NOTED.
- ALL STEEL SHALL CONFORM TO C.S.A. G40.21M GRADE 350W GALVANIZED, UNLESS OTHERWISE NOTED.
- LADDER BRACKET SPACING; 3.0m MAX. AND 0.64m MAX. (5 HOLES) FROM ENDS.
- HD LADDER GATE ASSEMBLY TO BE INSTALLED SO TOP OF GATE IS LEVEL WITH TOP OF PLATFORM RAILING.
- LADDERS ARE DESIGNED TO MEET ANSI14.3-2008 REQUIREMENTS.
- LADDER TO BE OCCUPIED BY MAX. 1 PERSONS AT ANY GIVEN TIME.
- FIELD MODIFY EXISTING PLATFORM RAILING TO CLEARANCE OF 457mm MIN.-475mm MAX. FROM BACK OF RAILING TO O/S LADDER SIDE RAIL.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED



**BILLS OF MATERIAL**

A COMPLETE 2 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	2 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.1 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
2	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
1	3m LADDER	3136-11	CONTRACTOR

A COMPLETE 3 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	3 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.5 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
3	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
1	4m LADDER	3136-11	CONTRACTOR

A COMPLETE 4 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	4 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.9 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	PLATFORM ASSEMBLY	3136-9	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
3	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
1	5m LADDER	3136-12	CONTRACTOR
1	HD LADDER GATE ASSEMBLY	3136-17	CONTRACTOR

A COMPLETE 5 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	4 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.9 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	PLATFORM ASSEMBLY	3136-9	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
4	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
2	3m LADDER	3136-11	CONTRACTOR
1	HD LADDER GATE ASSEMBLY	3136-17	CONTRACTOR
4	1/2"-13 1-1/2" LG. ASTM A325M GALV. HEX BOLTS	-	CONTRACTOR
4	1/2"-13 ASTM A325M GALV. HEX NUTS	-	CONTRACTOR

A COMPLETE 1 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	1 METRE LEG ASSEMBLY	3136-5	CONTRACTOR

EST. W.T. 173.4 kg

No.	Date	Revision	Dr	Ch
3	MAR/19	ADDED PLATFORM RAILING CLEARANCE NOTE	WC	BB
2	MAR/19	ISSUED FOR CONSTRUCTION	WC	BB
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AAW



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McElhanney Consulting Services Ltd.

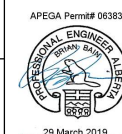
203-502 Bow Valley Trail, Canmore, AB, Canada T1W 1N9 Telephone 403-609-3992

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DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.

HEAVY DUTY A-FRAMES  
1, 2, 3, 4, & 5 METRE HEIGHTS

VANCOUVER, B.C.



Designed D.O.E.  
Drawn K.D.W.  
Checked A.A.W.  
Approved

Job No. 2111-01745-1  
Scale 1:25  
Date APRIL 2002  
Revision 3

Drawing No.

3136-1

of 18

Destroy all prints bearing previous number.

BILLS OF MATERIAL

A COMPLETE 6 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	4 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	2 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.9 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	2.7 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	PLATFORM ASSEMBLY	3136-9	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
4	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
1	3m LADDER	3136-11	CONTRACTOR
1	4m LADDER	3136-11	CONTRACTOR
1	HD LADDER GATE ASSEMBLY	3136-17	CONTRACTOR
4	1/2"-13 1-1/2"LG. ASTM A325M GALV. HEX BOLTS	-	CONTRACTOR
4	1/2"-13 ASTM A325M GALV. HEX NUTS	-	CONTRACTOR

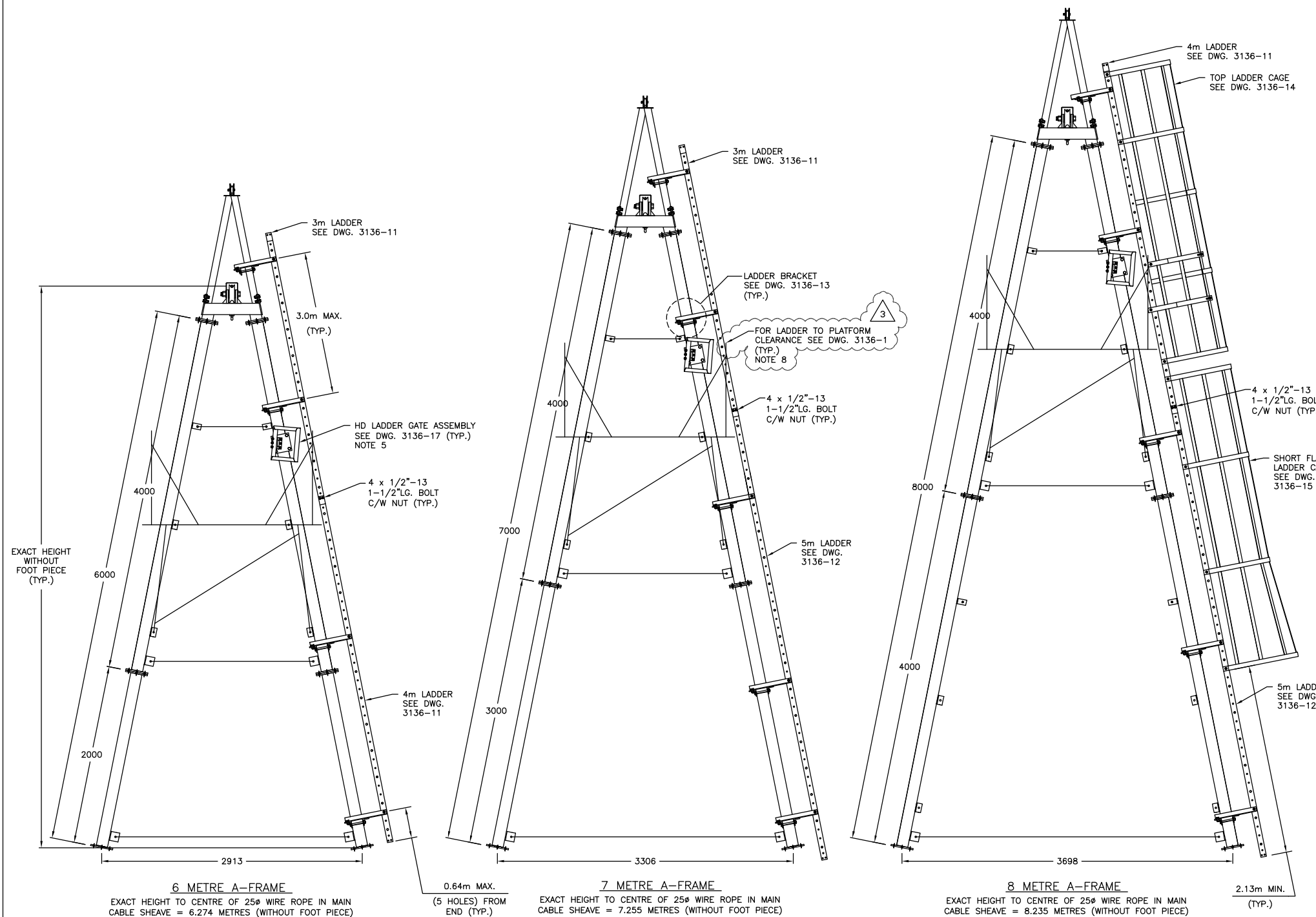
A COMPLETE 7 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	4 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	3 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.9 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	3.1 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	PLATFORM ASSEMBLY	3136-9	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
5	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
1	5m LADDER	3136-12	CONTRACTOR
1	3m LADDER	3136-11	CONTRACTOR
1	HD LADDER GATE ASSEMBLY	3136-17	CONTRACTOR
4	1/2"-13 1-1/2"LG. ASTM A325M GALV. HEX BOLTS	-	CONTRACTOR
4	1/2"-13 ASTM A325M GALV. HEX NUTS	-	CONTRACTOR

A COMPLETE 8 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
2	4 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.9 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	3.5 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	PLATFORM ASSEMBLY	3136-9	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
5	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
1	4m LADDER	3136-11	CONTRACTOR
1	5m LADDER	3136-12	CONTRACTOR
1	TOP LADDER CAGE	3136-14	CONTRACTOR
1	SHORT FLARE LADDER CAGE	3136-15	CONTRACTOR
1	HD LADDER GATE ASSEMBLY	3136-17	CONTRACTOR
4	1/2"-13 1-1/2"LG. ASTM A325M GALV. HEX BOLTS	-	CONTRACTOR
4	1/2"-13 ASTM A325M GALV. HEX NUTS	-	CONTRACTOR

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED



NOTES:

- ALL PARTS TO BE HOT-DIPPED GALVANIZED AS PER ASTM A123/A123M.
- ALL BOLTS & NUTS TO BE M16 A325M TYPE 2 GALVANIZED, UNLESS OTHERWISE NOTED.
- ALL STEEL SHALL CONFORM TO C.S.A. G40.21M GRADE 350W GALVANIZED, UNLESS OTHERWISE NOTED.
- LADDER BRACKET SPACING; 3.0m MAX. AND 0.64m MAX. (5 HOLES) FROM ENDS.
- HD LADDER GATE ASSEMBLY TO BE INSTALLED SO TOP OF GATE IS LEVEL WITH TOP OF PLATFORM RAILING.
- LADDERS ARE DESIGNED TO MEET ANSI14.3-2008 REQUIREMENTS.
- LADDER TO BE OCCUPIED BY MAX 1 PERSONS AT ANY GIVEN TIME.
- FIELD MODIFY EXISTING PLATFORM RAILING TO CLEARANCE OF 457mm MIN.-475mm MAX. FROM BACK OF RAILING TO O/S LADDER SIDE RAIL.

DESIGN LOAD	
CAR	200
2 MEN	400
REEL	50
	650 lbs.
PLUS SNAG LOAD OF 1/8" WIRE ROPE AT ANY ANGLE = 1600 lbs. BREAKING STRENGTH.	

No.	Date	Revision	Dr	Ch
3	MAR/19	ADDED PLATFORM RAILING CLEARANCE NOTE	WC	BB
2	MAR/19	ISSUED FOR CONSTRUCTION	WC	BB
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AAW



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DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.

HEAVY DUTY A-FRAMES  
6, 7, & 8 METRES

VANCOUVER, B.C.

APEGA Permit# 06383



29 March 2019

Designed D.O.E.

Drawn K.D.W.

Checked A.A.W.

Approved

Job No. 2111-01745-1

Scale 1:25

Date APRIL 2002

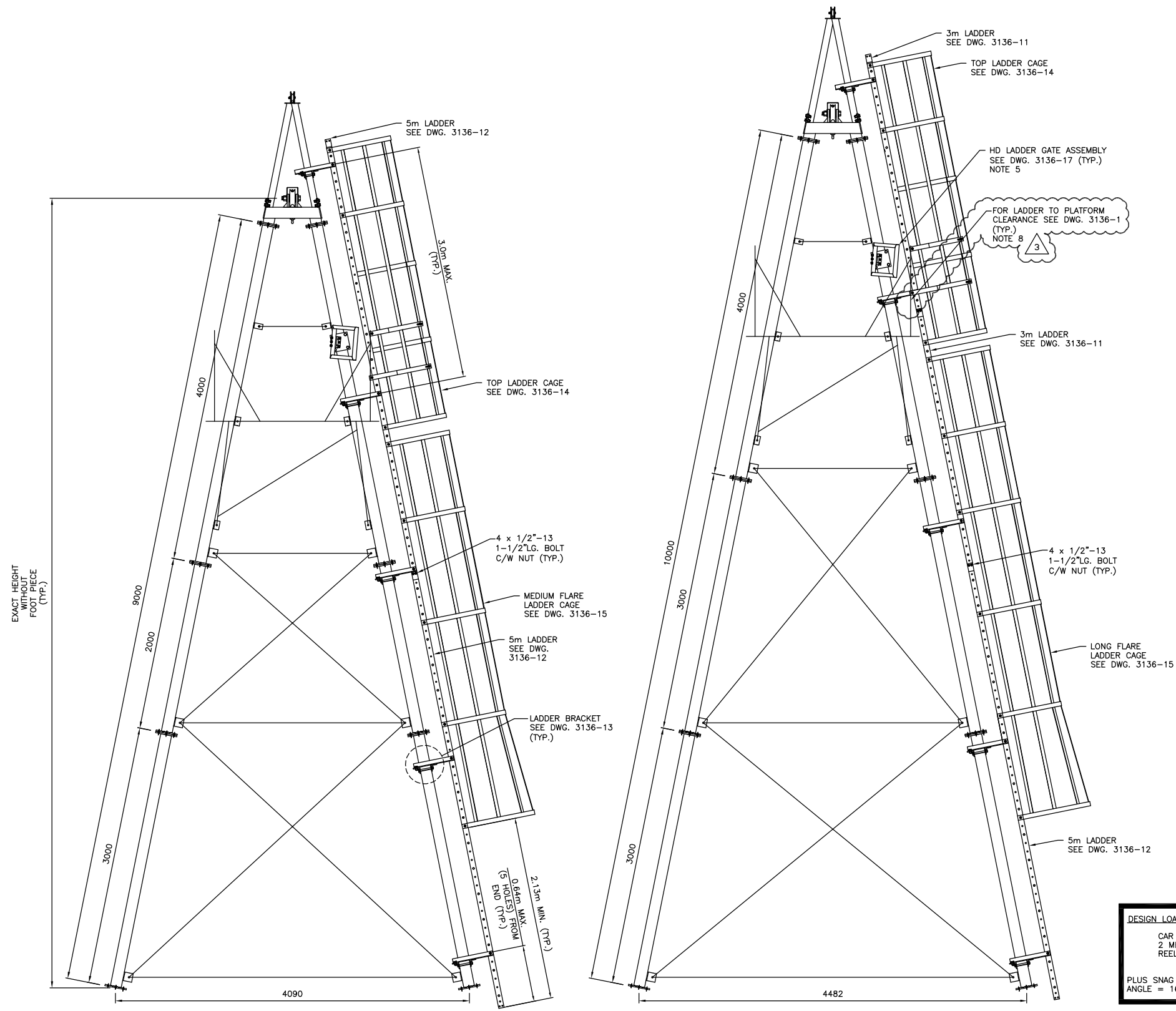
Revision 3

Drawing No.

3136-2

of 18

Destroy all prints bearing previous number.



EXACT HEIGHT WITHOUT FOOT PIECE (TYP.)

**9 METRE A-FRAME**  
EXACT HEIGHT TO CENTRE OF 25Ø WIRE ROPE IN MAIN CABLE SHEAVE = 9.216 METRES (WITHOUT FOOT PIECE)

**10 METRE A-FRAME**  
EXACT HEIGHT TO CENTRE OF 25Ø WIRE ROPE IN MAIN CABLE SHEAVE = 10.197 METRES (WITHOUT FOOT PIECE)

DESIGN LOAD	
CAR	200
2 MEN	400
REEL	50
	650 lbs.

PLUS SNAG LOAD OF 1/8" WIRE ROPE AT ANY ANGLE = 1600 lbs. BREAKING STRENGTH.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED



**BILLS OF MATERIAL**

A COMPLETE 9 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	4 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	2 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	3 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.9 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	2.7 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	3.9 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	LATERAL BRACING ASSEMBLY FOR 9 METRE A-FRAME	3136-6	CONTRACTOR
1	PLATFORM ASSEMBLY	3136-9	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
5	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
2	5m LADDER	3136-12	CONTRACTOR
1	TOP LADDER CAGE	3136-14	CONTRACTOR
1	MEDIUM FLARE LADDER CAGE	3136-15	CONTRACTOR
1	HD LADDER GATE ASSEMBLY	3136-17	CONTRACTOR
4	1/2"-13 1-1/2"LG. ASTM A325M GALV. HEX BOLTS	-	CONTRACTOR
4	1/2"-13 ASTM A325M GALV. HEX NUTS	-	CONTRACTOR

A COMPLETE 10 METRE A-FRAME ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP ASSEMBLY	3136-4	CONTRACTOR
1	4 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
2	3 METRE LEG ASSEMBLY	3136-5	CONTRACTOR
1	1.9 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	3.1 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	4.2 METRE HORIZONTAL BRACE ASSEMBLY	3136-6	CONTRACTOR
1	LATERAL BRACING ASSEMBLY FOR 10 METRE A-FRAME	3136-6	CONTRACTOR
1	PLATFORM ASSEMBLY	3136-9	CONTRACTOR
1	CAR HOOK ASSEMBLY LEG	3136-10	CONTRACTOR
5	LADDER BRACKET ASSEMBLY	3136-13	CONTRACTOR
1	5m LADDER	3136-12	CONTRACTOR
2	3m LADDER	3136-11	CONTRACTOR
1	TOP LADDER CAGE	3136-14	CONTRACTOR
1	LONG FLARE LADDER CAGE	3136-15	CONTRACTOR
1	HD LADDER GATE ASSEMBLY	3136-17	CONTRACTOR
8	1/2"-13 1-1/2"LG. ASTM A325M GALV. HEX BOLTS	-	CONTRACTOR
8	1/2"-13 ASTM A325M GALV. HEX NUTS	-	CONTRACTOR

- NOTES:**
- ALL PARTS TO BE HOT-DIPPED GALVANIZED AS PER ASTM A123/A123M.
  - ALL BOLTS & NUTS TO BE M16 A325M TYPE 2 GALVANIZED, UNLESS OTHERWISE NOTED.
  - ALL STEEL SHALL CONFORM TO C.S.A. G40.21M GRADE 350W GALVANIZED, UNLESS OTHERWISE NOTED.
  - LADDER BRACKET SPACING; 3.0m MAX. AND 0.64m MAX. (5 HOLES) FROM ENDS.
  - HD LADDER GATE ASSEMBLY TO BE INSTALLED SO TOP OF GATE IS LEVEL WITH TOP OF PLATFORM RAILING.
  - LADDERS ARE DESIGNED TO MEET ANSI14.3-2008 REQUIREMENTS.
  - LADDER TO BE OCCUPIED BY MAX. 1 PERSONS AT ANY GIVEN TIME.
  - FIELD MODIFY EXISTING PLATFORM RAILING TO CLEARANCE OF 457mm MIN.-475mm MAX. FROM BACK OF RAILING TO O/S LADDER SIDE RAIL.

No.	Date	Revision	Dr	Ch
3	MAR/19	ADDED PLATFORM RAILING CLEARANCE NOTE	WC	BB
2	MAR/19	ISSUED FOR CONSTRUCTION	WC	BB
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AAW

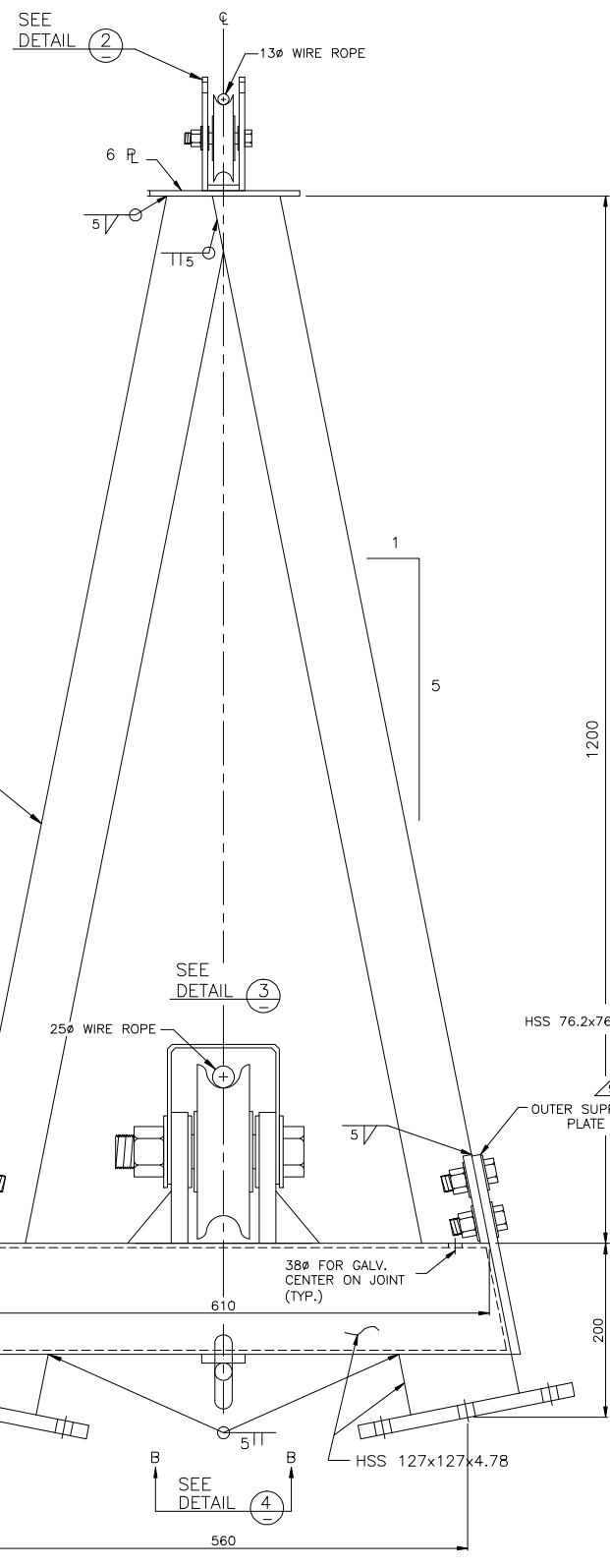
**McElhanney**  
McElhanney Consulting Services Ltd.  
203-502 Bow Valley Trail, Canmore, AB, Canada T1W 1N9 Telephone 403-609-3992  
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DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.  
HEAVY DUTY A-FRAMES  
9 & 10 METRES  
VANCOUVER, B.C.

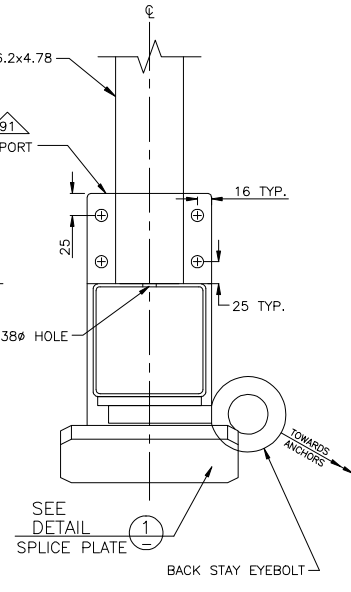
Designed D.O.E.      Job No. 2111-01745-1      Drawing No. 3136-3  
Drawn K.D.W.      Scale 1:25  
Checked A.A.W.      Date APRIL 2002  
Approved      Revision 3      of 18

APRIL 28, 2002      M3111-01745-1 (REVISED) (1) (1)

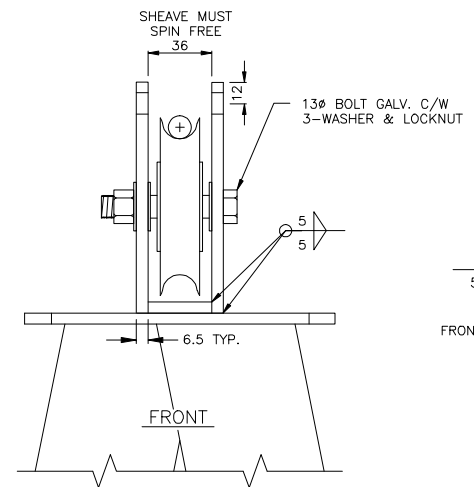
Destroy all prints bearing previous number.



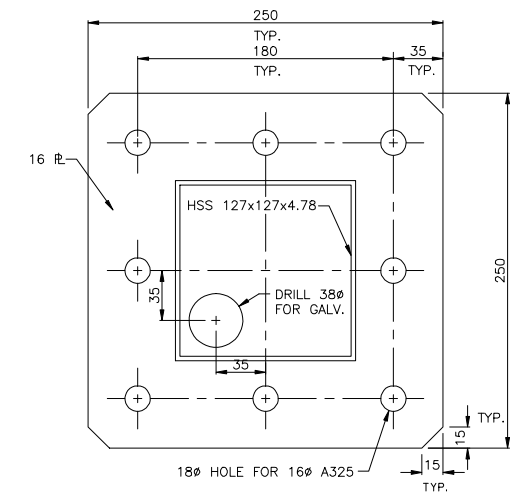
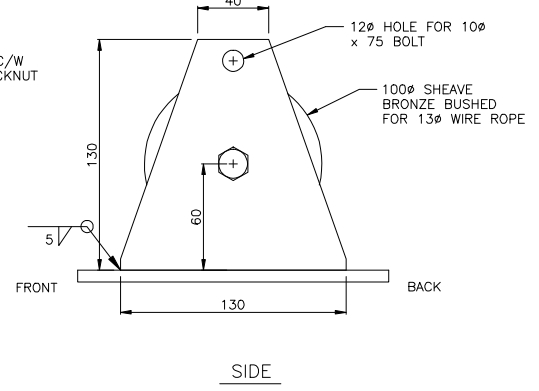
FRONT VIEW  
A-FRAME TOP  
SCALE 1:4



SIDE VIEW  
A-FRAME TOP



DETAIL 2  
SCALE: 1:2  
AIRCRAFT MARKER CABLE  
SHEAVE BRACKET



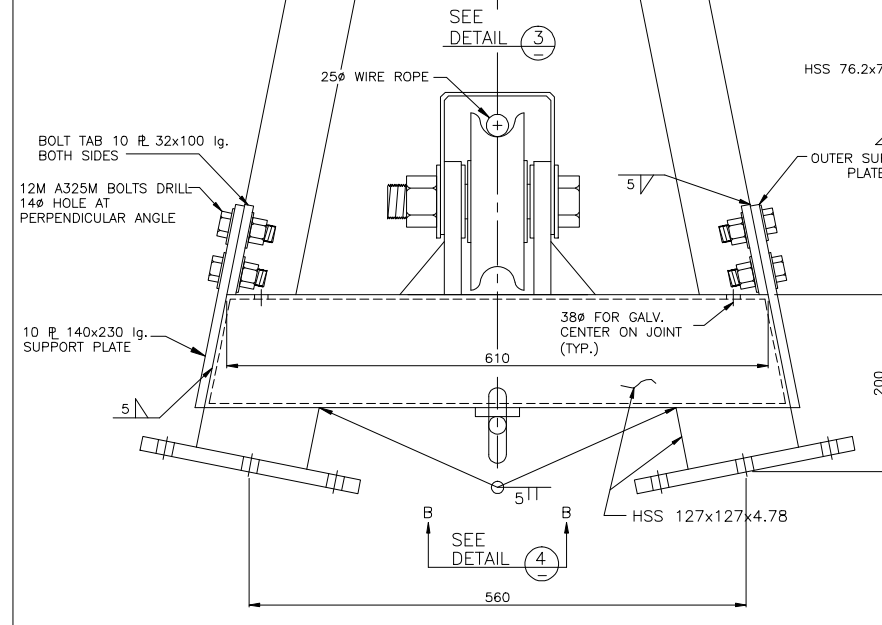
DETAIL 1  
SCALE: 1:2.5  
SPLICE PLATE

**BILL OF MATERIAL**

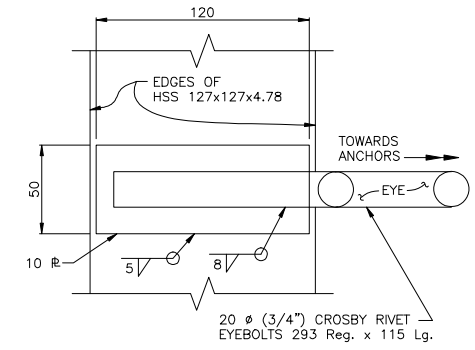
A COMPLETE A-FRAME TOP ASSEMBLY  
CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	A-FRAME TOP (2-pc)	3136-4	FABRICATOR
16	A325M TYPE 2 GALV. M16X60 c/w NUT & WASHER		FABRICATOR
8	M12x1.75x38 (AS ABOVE) STRUCTURAL BOLT		FABRICATOR

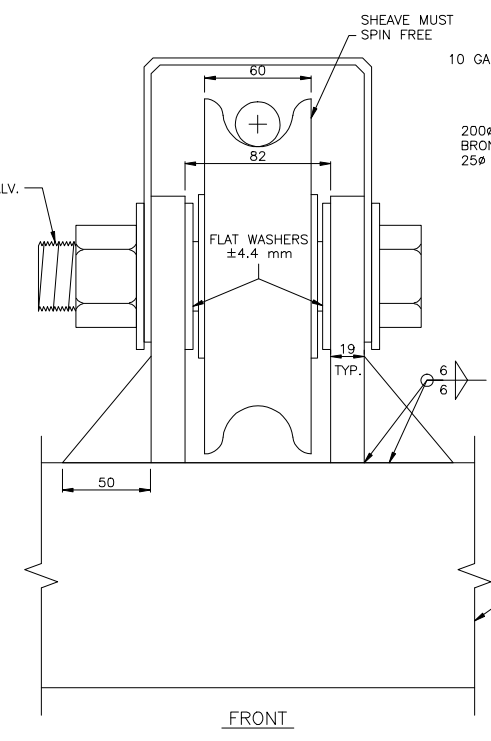
- NOTES:**
- 1) ALL PARTS TO BE HOT DIPPED GALVANIZED.
  - 2) ALL BOLTS & NUTS TO BE M16 A325M, UNLESS NOTED OTHERWISE.
  - 3) ALL STEEL SHALL CONFORM TO CSA G.40.21M GRADE 350W.
  - 4) THE MARKER LINE A-FRAME SUPPORT IS ATTACHED IN THE FIELD BUT SHOULD BE BRACED WITH WOOD DURING SHIPPING TO PREVENT DAMAGE.



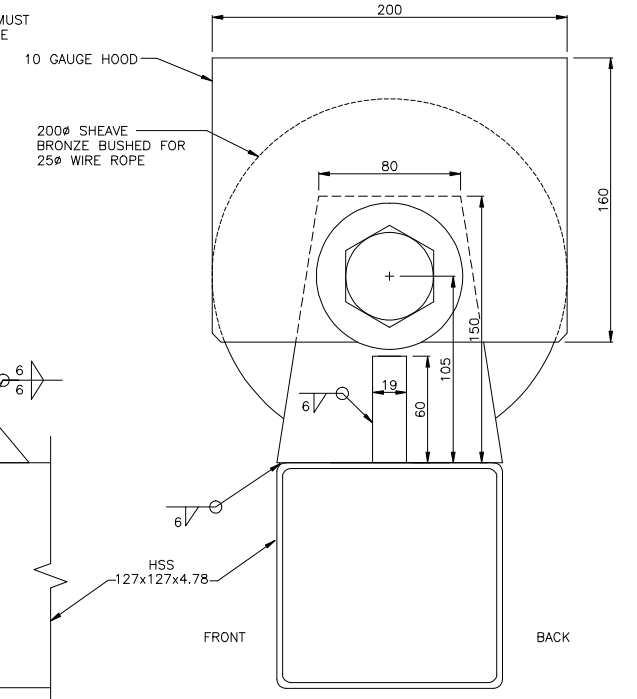
ALL DIMENSIONS IN MILLIMETRES  
UNLESS OTHERWISE NOTED



DETAIL 4  
SCALE: 1:2  
BACK STAY EYEBOLT  
SECTION B-B



FRONT



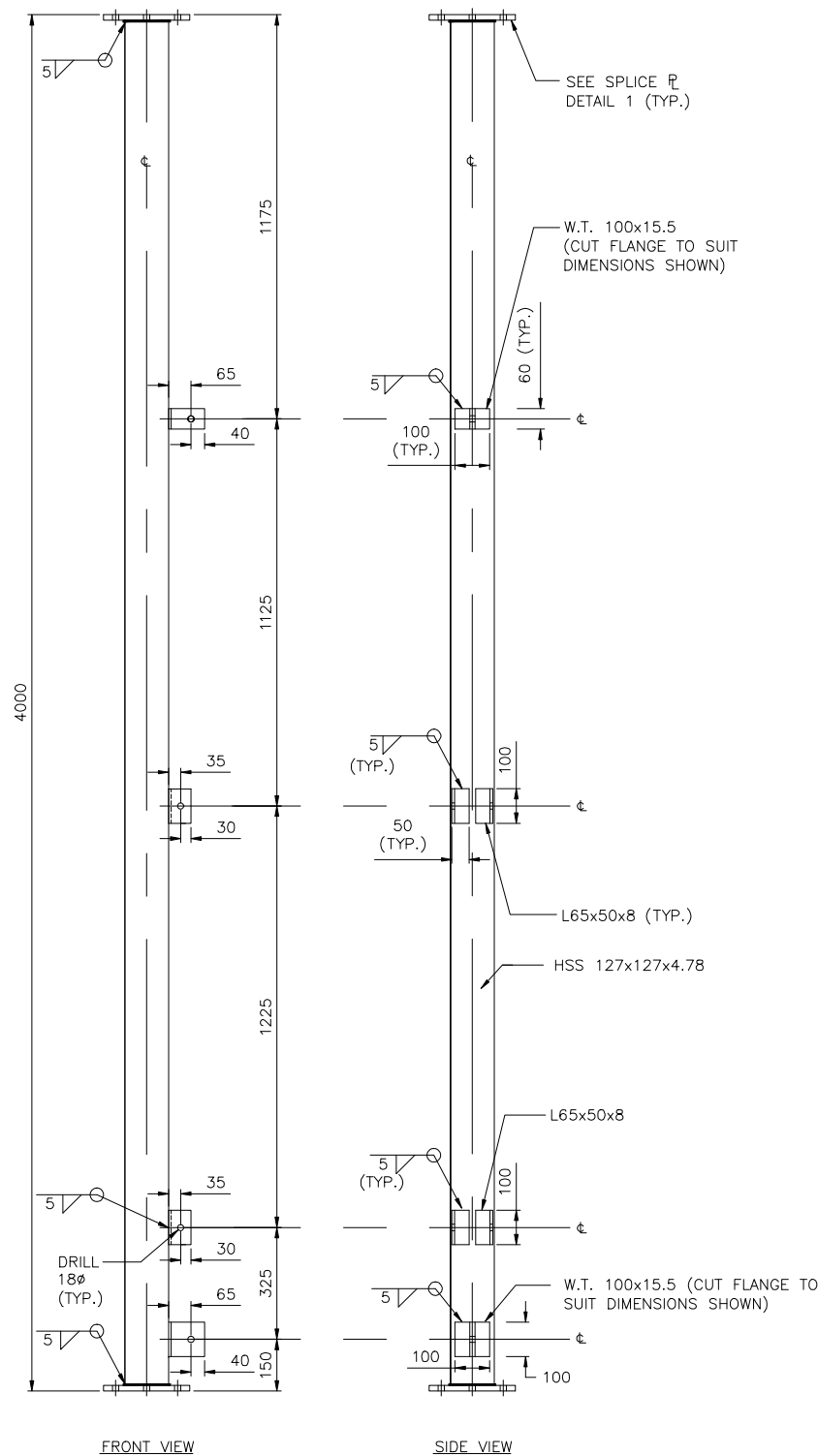
DETAIL 3  
SCALE: 1:2  
MAINCABLE SHEAVE BRACKET

No.	Date	Revision	Dr	Ch
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AWW

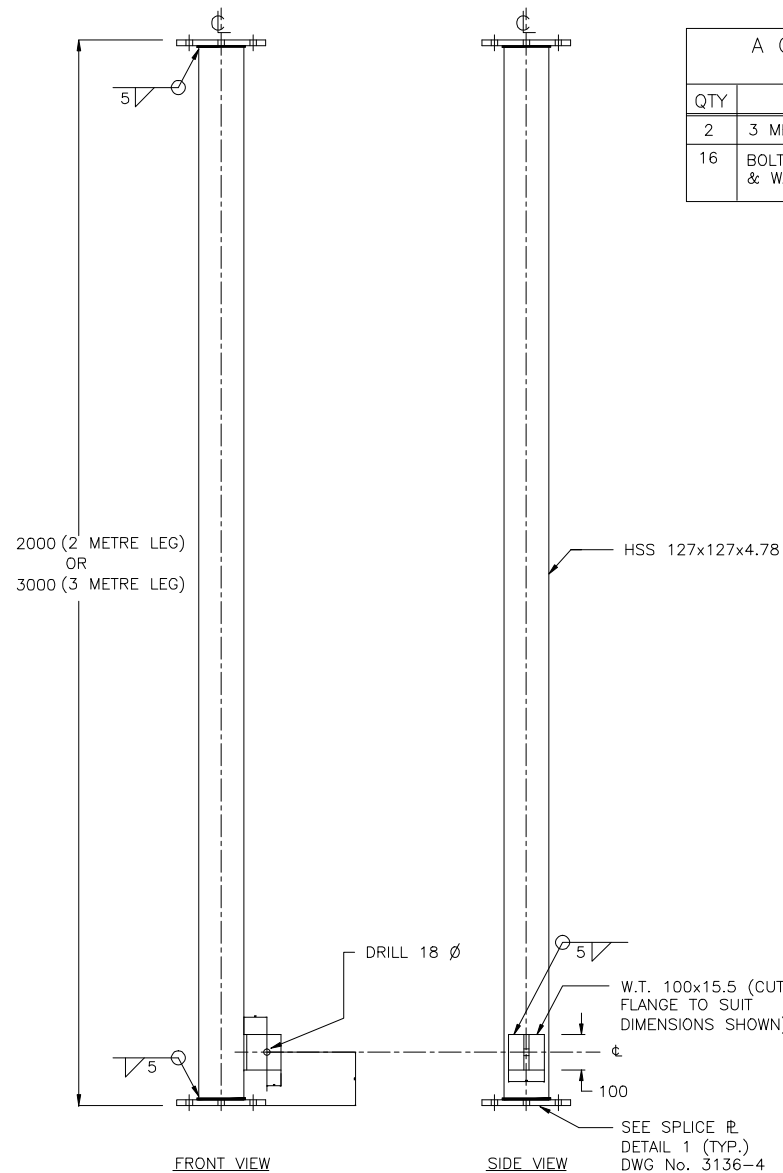

**McElhanney**  
 McElhanney Consulting Services Ltd.  
 13160-88 Ave., Surrey, B.C., Canada V3W 3K3 Telephone (604)596-0391  
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DEPT. OF THE ENVIRONMENT  
 WATER SURVEY OF CANADA, VANCOUVER, B.C.  
 HEAVY DUTY A-FRAMES  
 VARIOUS DETAILS, TOP ASSEMBLY  
 VANCOUVER, B.C.

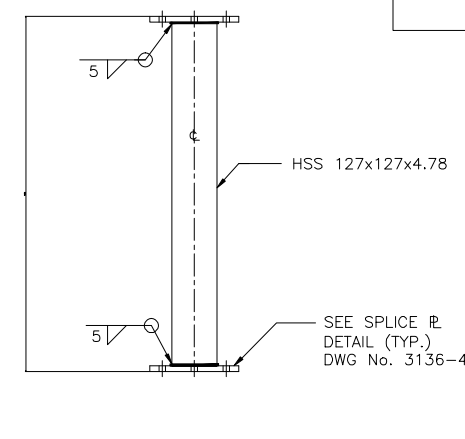
Designed D.O.E.	Job No. 2111-01745-1	Drawing No.
Drawn K.D.W.	Scale AS SHOWN	3136-4
Checked A.A.W.	Date APRIL 2002	
Approved	Revision 1	of 10



4 METRE LEG  
SCALE 1:12



3 AND 2 METRE LEG ASSEMBLY (2 LEGS TO AN ASSEMBLY)  
SCALE 1:10



1 METRE LEG ASSEMBLY (2 LEGS TO AN ASSEMBLY)  
SCALE 1:10

BILLS OF MATERIAL

A COMPLETE 4 METRE LEG ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
2	4 METRE LEG	3136-5	FABRICATOR
16	BOLTS M16x60 A325 c/w NUT & WASHER		FABRICATOR

EST. W.T. 187.4 KG

A COMPLETE 2 METRE LEG ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
2	2 METRE LEG	3136-5	FABRICATOR
16	BOLTS M16x60 A325 c/w NUT & WASHER		FABRICATOR

EST. W.T. 101.5 KG

A COMPLETE 3 METRE LEG ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
2	3 METRE LEG	3136-5	FABRICATOR
16	BOLTS M16x60 A325 c/w NUT & WASHER		FABRICATOR

EST. W.T. 144.7 KG

A COMPLETE 1 METRE LEG ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
2	1 METRE LEG	3136-5	FABRICATOR
16	BOLTS M16x60 A325 c/w NUT & WASHER		FABRICATOR

EST. W.T. 70.6 KG

NOTES:

1. ALL PARTS TO BE HOT-DIPPED GALVANIZED
2. ALL BOLTS & NUTS TO BE A325M TYPE 2 GALVANIZED, UNLESS NOTED OTHERWISE
3. ALL STEEL SHALL CONFORM TO C.S.A. G.40.21M GRADE 350W.

\* ALL LEG ASSEMBLIES ARE TO BE MADE UP OF A SINGLE PIECE OF HSS 127x127x4.78, NO WELDED JOINT.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

M:\PROJ\2111-01745-1\DRAWINGS\3136-5.DWG

JUN 27 2002

No.	Date	Revision	Dr	Ch
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AAW



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DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.

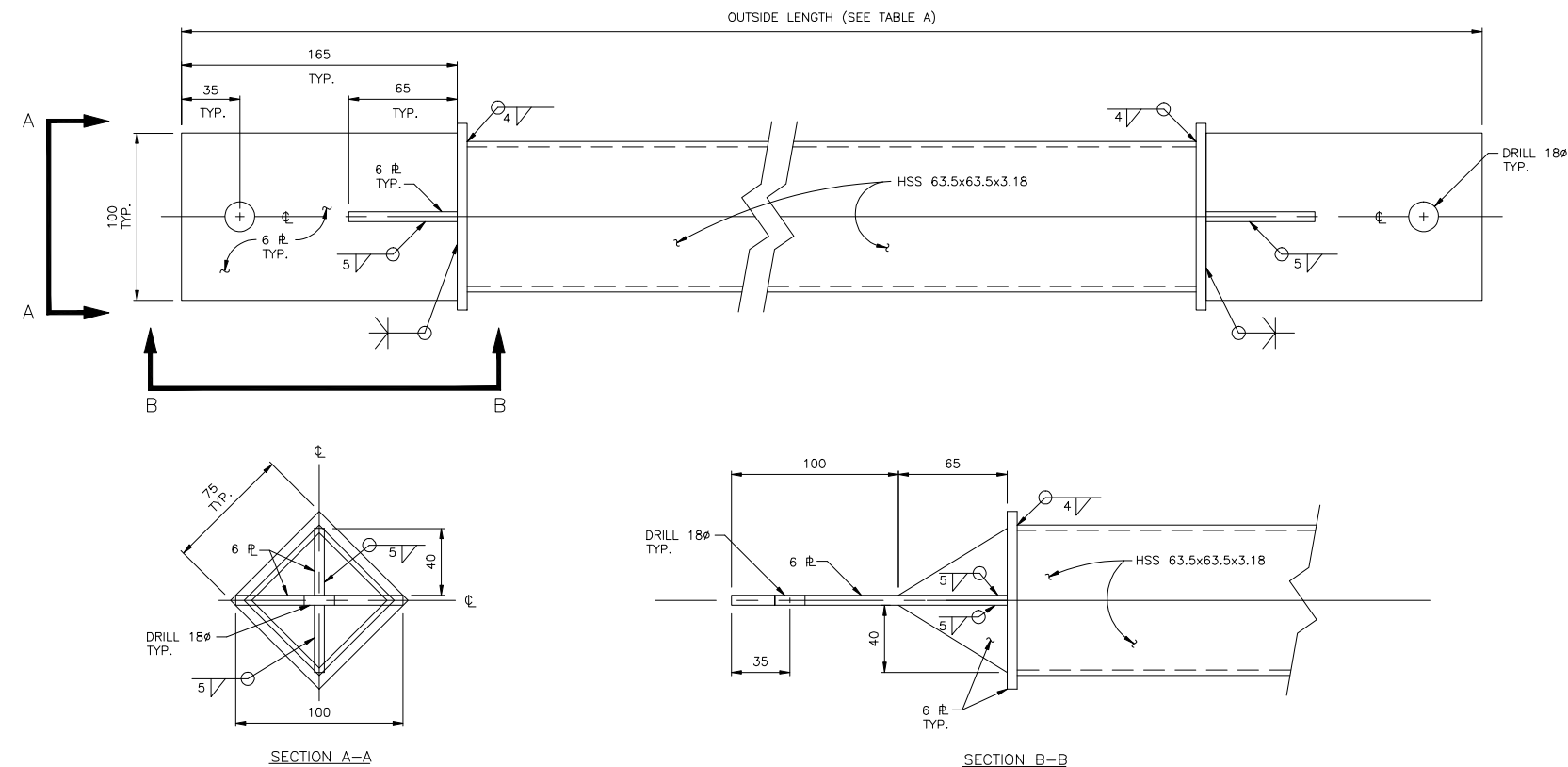
HEAVY DUTY A-FRAMES  
VARIOUS DETAILS, LEG ASSEMBLY

VANCOUVER, B.C.

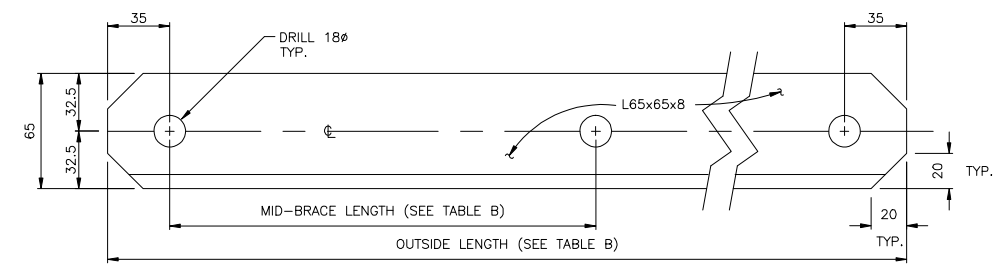
Designed	D.O.E.	Job No.	2111-01745-1	Drawing No.
Drawn	K.D.W.	Scale	AS SHOWN	3136-5
Checked	A.A.W.	Date	APRIL 2002	
Approved		Revision	1	

Destroy all prints bearing previous number

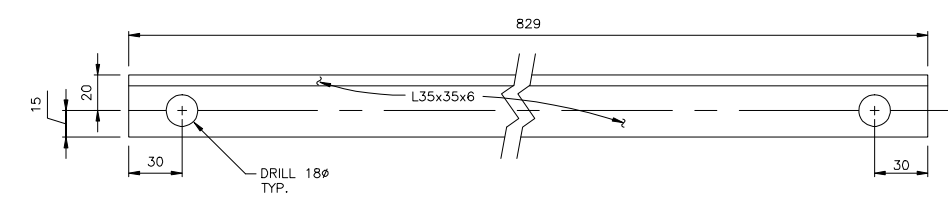




HORIZONTAL BRACE



LATERAL BRACE



SAFETY RAIL (SEE ALSO DWG 3136-9)  
EST. WT. 4.9 kg

TABLE A

NOMINAL LENGTH OF HORIZONTAL BRACE	OUTSIDE LENGTH IN MILLIMETRES	EST. WT. & BOLTS
1.1 METRE	1104	7.3 kg
1.5 METRE	1496	9.6 kg
1.9 METRE	1888	11.9 kg
2.7 METRE	2673	16.5 kg
3.1 METRE	3065	18.7 kg
3.5 METRE	3457	21.0 kg
3.9 METRE	3849	23.3 kg
4.2 METRE	4241	25.6 kg

TABLE B

NOMINAL LENGTH OF LATERAL BRACE	MID-BRACE LENGTH IN MILLIMETRES	OUTSIDE LENGTH IN MILLIMETRES	EST. WT. (kg)
3.0 METRE	1740	3025	17.5
4.4 METRE	2570	4410	25.7
3.9 METRE	2365	3871	22.5
4.7 METRE	2699	4706	27.5

BILLS OF MATERIAL

A COMPLETE HORIZONTAL BRACE ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	HORIZONTAL BRACE OF VARIOUS NOMINAL LENGTHS (SEE TABLE A)	3136-6	FABRICATOR
2	BOLT M16x45, C/W NUT & WASHER		FABRICATOR

A COMPLETE LATERAL BRACING ASSEMBLY FOR A 9 METRE A-FRAME CONSISTS OF:

QTY	DESCRIPTION	DWG No.	SUPPLIER
2	3 METRE LATERAL BRACE (SEE TABLE B)	3136-6	FABRICATOR
2	4.4 METRE LATERAL BRACE (SEE TABLE B)	3136-6	FABRICATOR
2	BOLTS M16x50, C/W NUT & WASHER		FABRICATOR

EST. W.T. 86.9 kg

A COMPLETE LATERAL BRACING ASSEMBLY FOR A 10 METRE A-FRAME CONSISTS OF:

QTY	DESCRIPTION	DWG No.	SUPPLIER
2	3.9 METRE LATERAL BRACE (SEE TABLE B)	3136-6	FABRICATOR
2	4.7 METRE LATERAL BRACE (SEE TABLE B)	3136-6	FABRICATOR
2	BOLTS M16x50, C/W NUT & WASHER		FABRICATOR

EST. W.T. 100.5 kg

NOTES:

- ALL PARTS TO BE HOT-DIPPED GALVANIZED C.S.A. G-164
- ALL BOLTS & NUTS TO BE A325M TYPE2 GALVANIZED, UNLESS NOTED OTHERWISE
- ALL STEEL SHALL CONFORM TO C.S.A. G. 40.21M GRADE 350W.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

No.	Date	Revision	Dr	Ch
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AAW

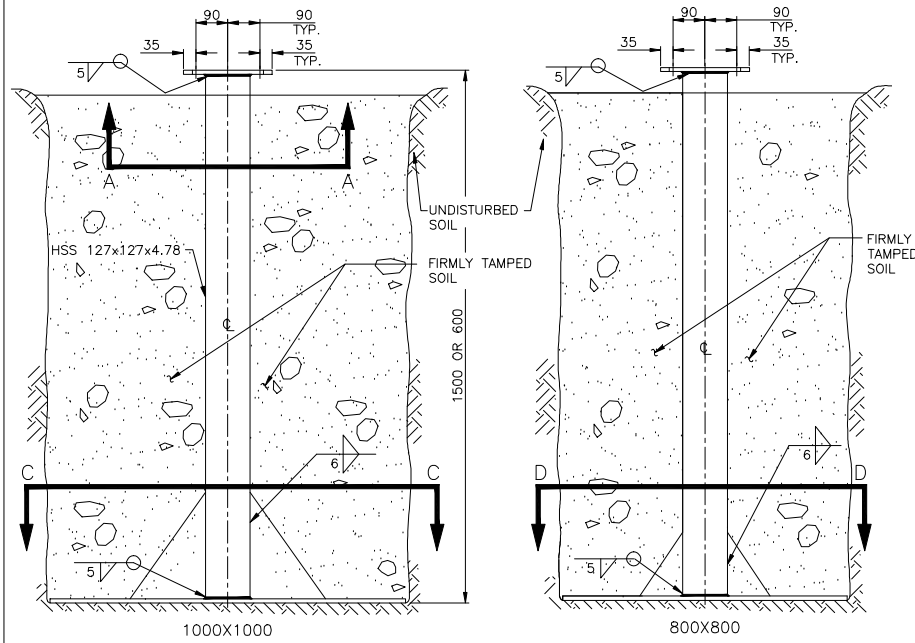


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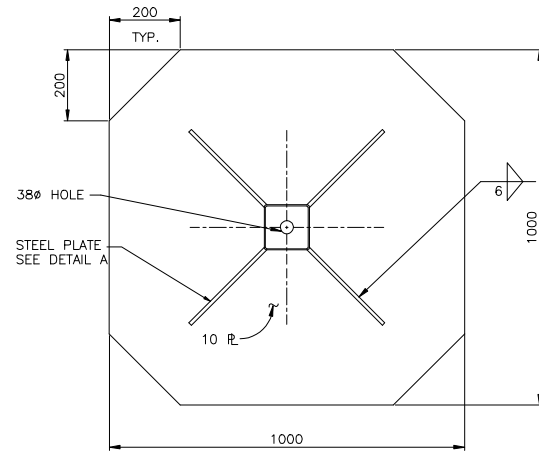
DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.  
HEAVY DUTY A-FRAMES  
VARIOUS DETAILS, HORIZONTAL BRACE ASSEMBLY LATERAL BRACING ASSEMBLY SAFETY RAIL  
VANCOUVER, B.C.

Designed	D.O.E.	Job No.	2111-01745-1	Drawing No.
Drawn	K.D.W.	Scale	AS SHOWN	3136-6
Checked	A.A.W.	Date	APRIL 2002	
Approved		Revision	1	

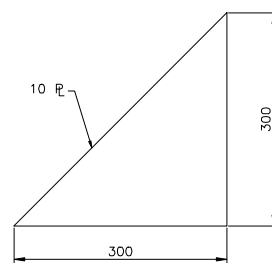
BRACED PLATE STEEL FOOTINGS



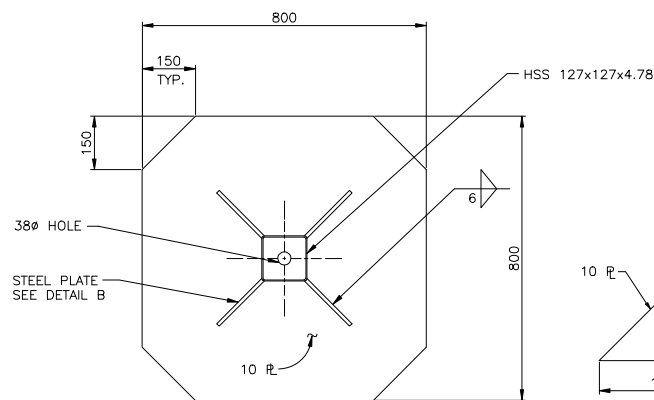
BRACED PLATE STEEL FOOTINGS  
SCALE 1:10



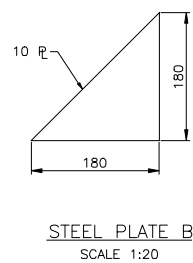
SECTION C-C  
BASE PLATE  
SCALE 1:10



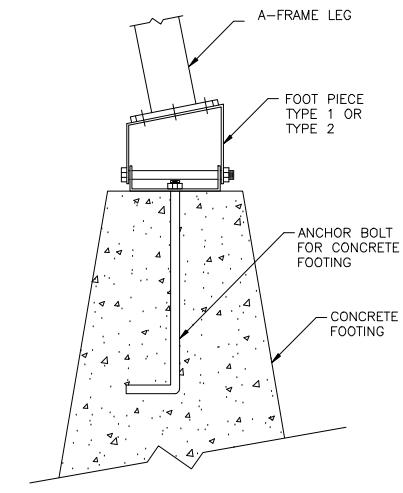
STEEL PLATE A  
SCALE 1:20



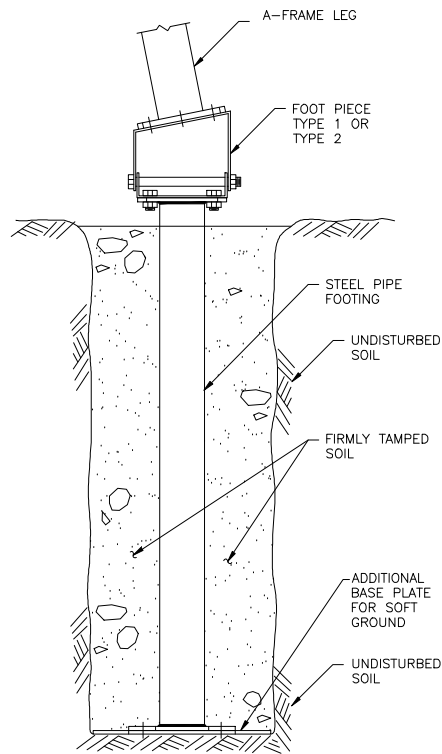
SECTION D-D  
BASE PLATE  
SCALE 1:10



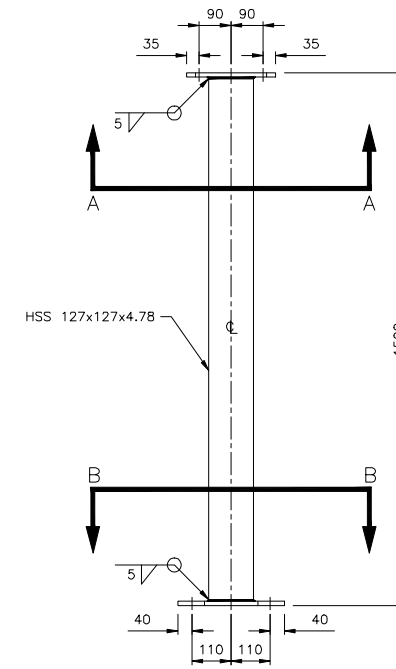
STEEL PLATE B  
SCALE 1:20



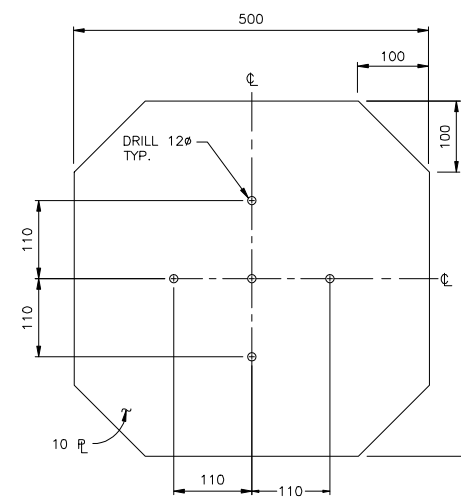
CONCRETE FOOTING ARRANGEMENT  
SCALE 1:10



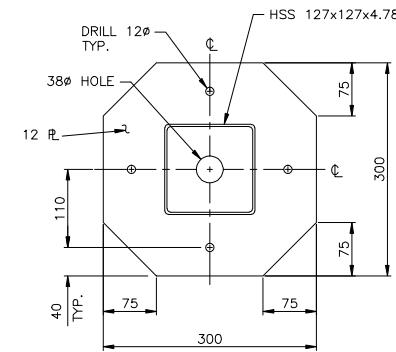
SOIL FOOTING ARRANGEMENT  
SCALE 1:10



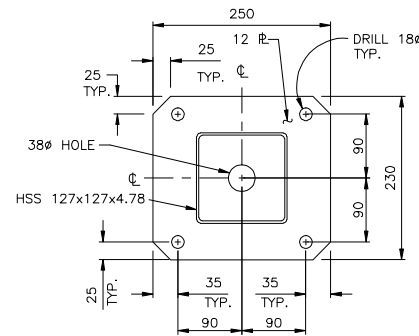
STEEL PIPE FOOTING  
SCALE 1:10



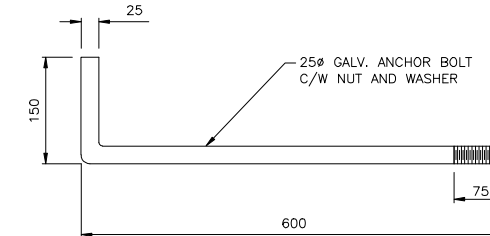
ADDITIONAL BASE PLATE FOR SOFT GROUND  
SCALE 1:5



SECTION B-B  
BASE PLATE  
SCALE 1:5



SECTION A-A  
TOP PLATE  
SCALE 1:5



ANCHOR BOLT FOR CONCRETE FOOTING  
SCALE 1:5

BILLS OF MATERIAL

A COMPLETE PIPE FOOTING ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	STEEL PIPE FOOTING	3136-7	FABRICATOR
4	BOLTS 16MX60 C/W NUT & WASHER		FABRICATOR

EST. W.T. 40.8 kg

A COMPLETE ADDITIONAL BASE FOR SOFT GROUND CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	ADDITIONAL BASE PLATE FOR SOFT GROUND	3136-7	FABRICATOR
4	M10 HOT-DIPPED GALVANIZED BOLT C/W NUT & WASHER		FABRICATOR

EST. W.T. 18.2 kg

A COMPLETE ANCHOR BOLT FOR CONCRETE FOOTING CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	ANCHOR BOLT FOR CONCRETE FOOTING C/W NUT & WASHERS	3136-7	FABRICATOR

EST. W.T. 3.1 kg

A COMPLETE BRACED PLATE STEEL FOOTING CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	STEEL PIPE FOOTING SPECIFY LENGTH & FOOTING SIZE	3136-7	FABRICATOR
4	BOLTS 16MX60 C/W NUT & WASHER		FABRICATOR

- NOTES:
1. ALL PARTS TO BE HOT-DIPPED GALVANIZED AS PER C.S.A. G-164
  2. ALL BOLTS & NUTS TO BE M16 A325M TYPE 2 GALVANIZED, UNLESS NOTED OTHERWISE
  3. ALL STEEL SHALL CONFORM TO C.S.A. G40.21M GRADE 350W.

No.	Date	Revision	Dr	Ch
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AAW



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DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.

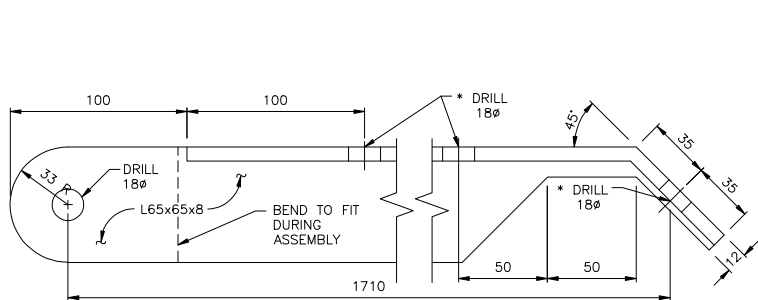
HEAVY DUTY A-FRAMES  
VARIOUS FOOTING TYPES

VANCOUVER, B.C.

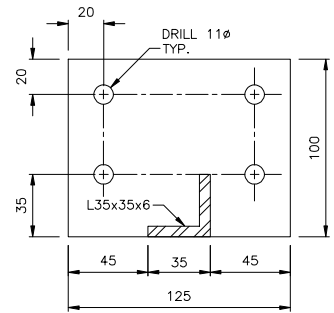
Designed D.O.E.	Job No. 2111-01745-1	Drawing No.
Drawn K.D.W.	Scale AS SHOWN	3136-7
Checked A.A.W.	Date APRIL 2002	
Approved	Revision 1	of 10



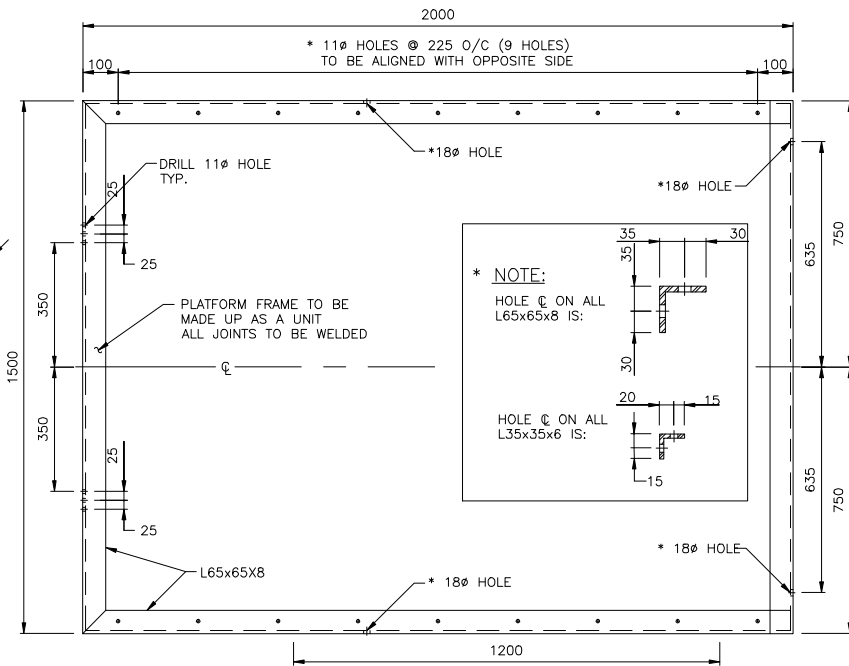




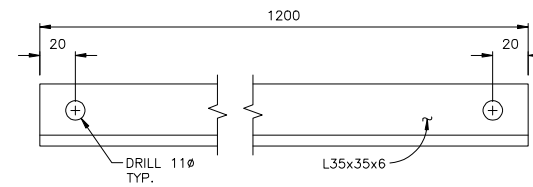
VERTICAL SUPPORT: DETAIL 3  
(L.H. SIDE SHOWN) SCALE 1:2



HANDRAIL UNIT: DETAIL 5  
SCALE 1:2



PLATFORM FRAME: DETAIL 2  
SCALE 1:10



HANDRAIL BRACES: DETAIL 4  
SCALE 1:2

10 - 5/8"x1-3/4"  
34 - 3/8"x5"  
4 - 3/8"x1"

BILLS OF MATERIAL

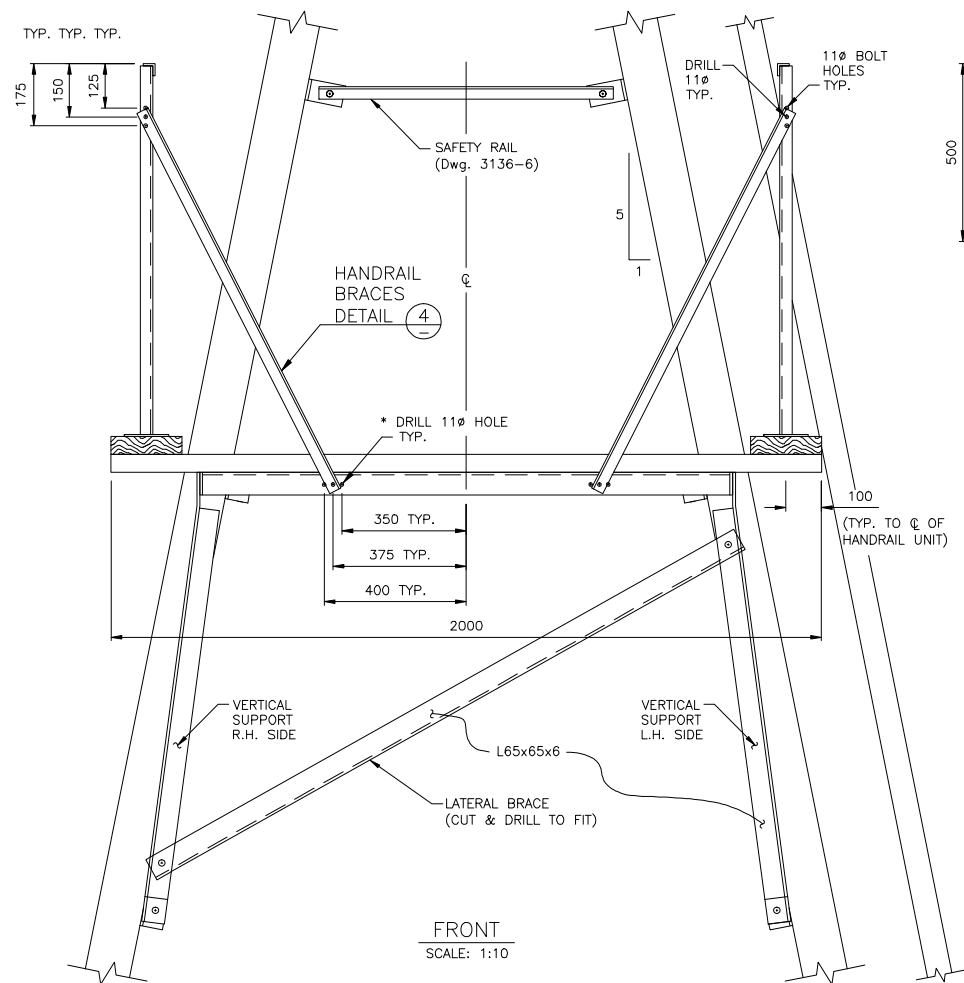
A COMPLETE PLATFORM ASSEMBLY CONSISTS OF THE FOLLOWING:

QTY	DESCRIPTION	DWG No.	SUPPLIER
1	PLATFORM FRAME	3136-9	FABRICATOR
2	HANDRAIL UNIT	3136-9	FABRICATOR
2	HANDRAIL BRACES	3136-9	FABRICATOR
1	VERTICAL SUPPORT, L.H. SIDE	3136-9	FABRICATOR
1	VERTICAL SUPPORT, R.H. SIDE	3136-9	FABRICATOR
1	LATERAL BRACE	3136-9	FABRICATOR
1	SAFETY RAIL	3136-6	FABRICATOR
12	BOLTS M16x45 C/W NUT & WASHER		FABRICATOR
20	M10x125 LONG GALVANIZED BOLT C/W NUT & WASHER		FABRICATOR
6	M10x25 LONG GALVANIZED BOLT C/W NUT & WASHER		FABRICATOR
11	50x200 C.G. FIR x 2000 LONG, PRESSURE TREATED AFTER CUTTING	3136-9	OTHER * W.S.C.

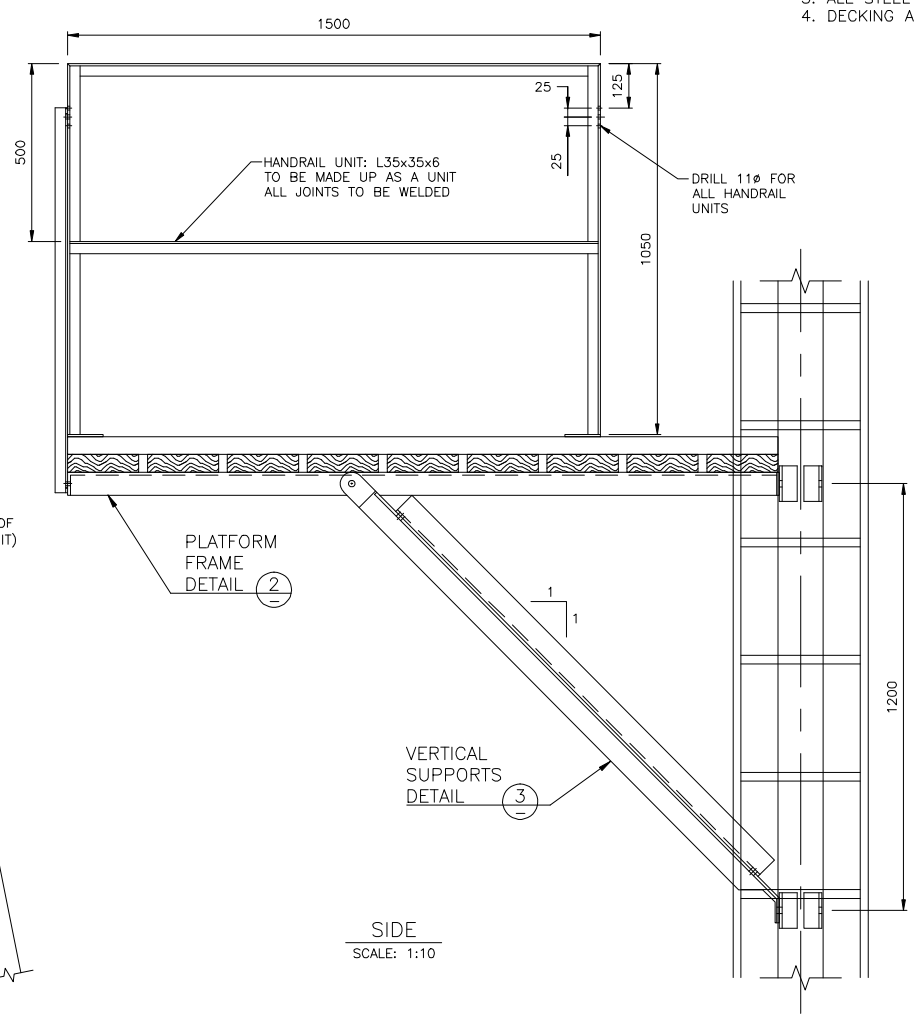
\* WATER SURVEY OF CANADA EST. W.T. STEEL 142.3 kg  
EST. W.T. WOOD 120.0 kg  
TOTAL W.T. 267.3 kg

NOTES:

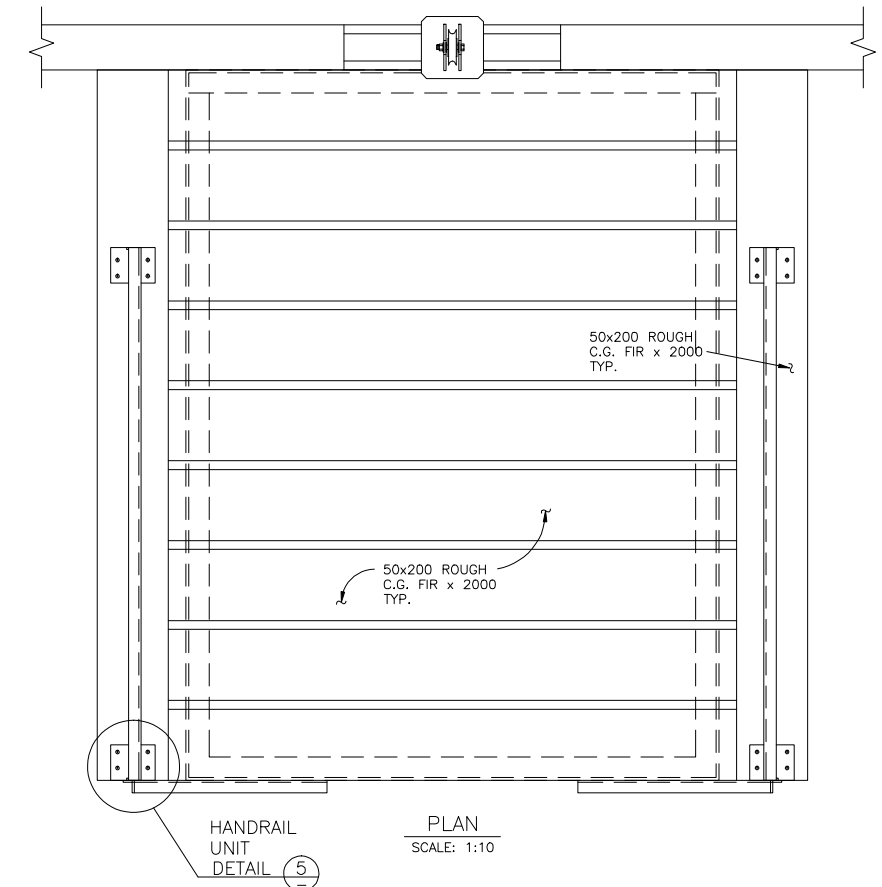
1. ALL PARTS TO BE HOT-DIPPED GALVANIZED C.S.A. G-164.
2. ALL BOLTS & NUTS TO BE M16 A325M TYPE 2, GALVANIZED UNLESS NOTED OTHERWISE.
3. ALL STEEL SHALL CONFORM TO C.S.A. G40.21M GR 350W.
4. DECKING AND KICK PLATES TO BE SUPPLIED BY W.S.C.



FRONT  
SCALE: 1:10



SIDE  
SCALE: 1:10



PLAN  
SCALE: 1:10

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED

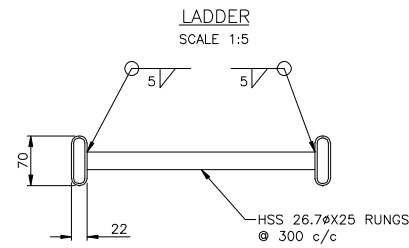
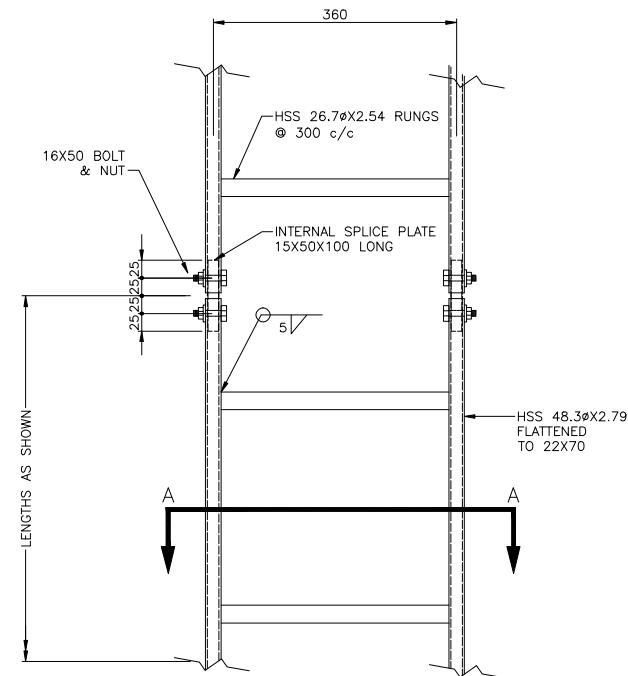
No.	Date	Revision	Dr	Ch
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AAW

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DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.  
HEAVY DUTY A-FRAME  
PLATFORM ASSEMBLY  
VANCOUVER, B.C.

Designed D.O.E.	Job No. 2111-01745-1	Drawing No.
Drawn K.D.W.	Scale AS SHOWN	3136-9
Checked A.A.W.	Date APRIL 2002	
Approved	Revision 1	of 10

BILLS OF MATERIAL



LADDER  
SCALE 1:5

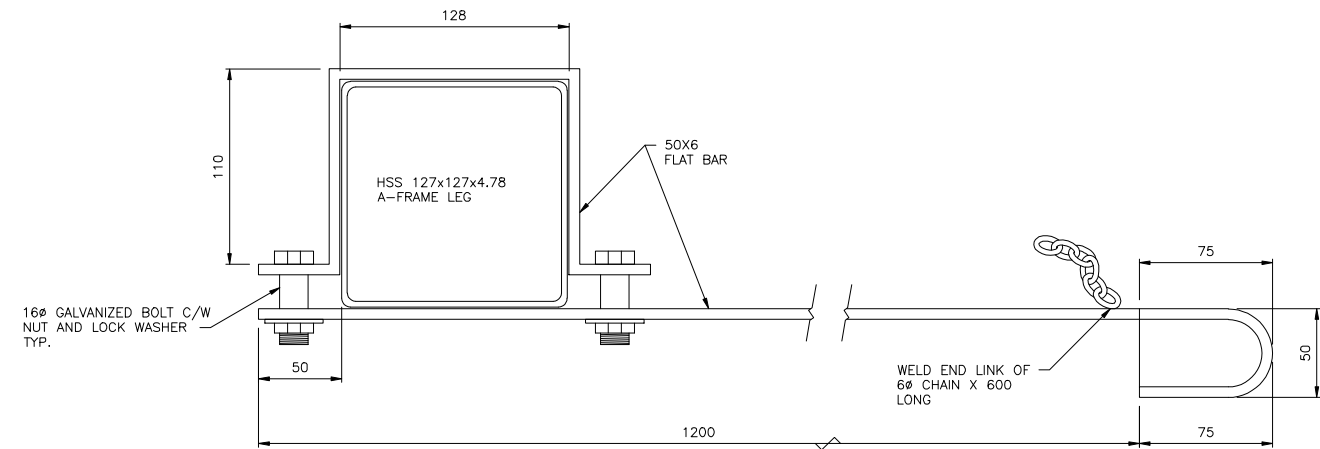
SECTION A  
SCALE 1:5

A COMPLETE CAR HOOK ASSEMBLY CONSISTS OF THE FOLLOWING:			
QTY	DESCRIPTION	DWG No.	SUPPLIER
1	CAR HOOK C/W BRACKET	3136-10	FABRICATOR
2	BOLTS, M16x55 C/W NUT & WASHER		FABRICATOR

EST. W.T. 5.4 kg

NOTES:

1. ALL PARTS TO BE HOT-DIPPED GALVANIZED AS PER C.S.A. G-164.
2. ALL BOLTS & NUTS TO BE A325M TYPE 2 GALV., UNLESS NOTED OTHERWISE
3. ALL STEEL SHALL CONFORM TO C.S.A. G.40.21M GRADE 350W.



CAR HOOK ASSEMBLY LEG  
SCALE 1:2

ALL DIMENSIONS IN MILLIMETRES  
UNLESS OTHERWISE NOTED

No.	Date	Revision	Dr	Ch
1	JUNE/02	APPROVED AND REDRAWN BY MCSL	KDW	AAW



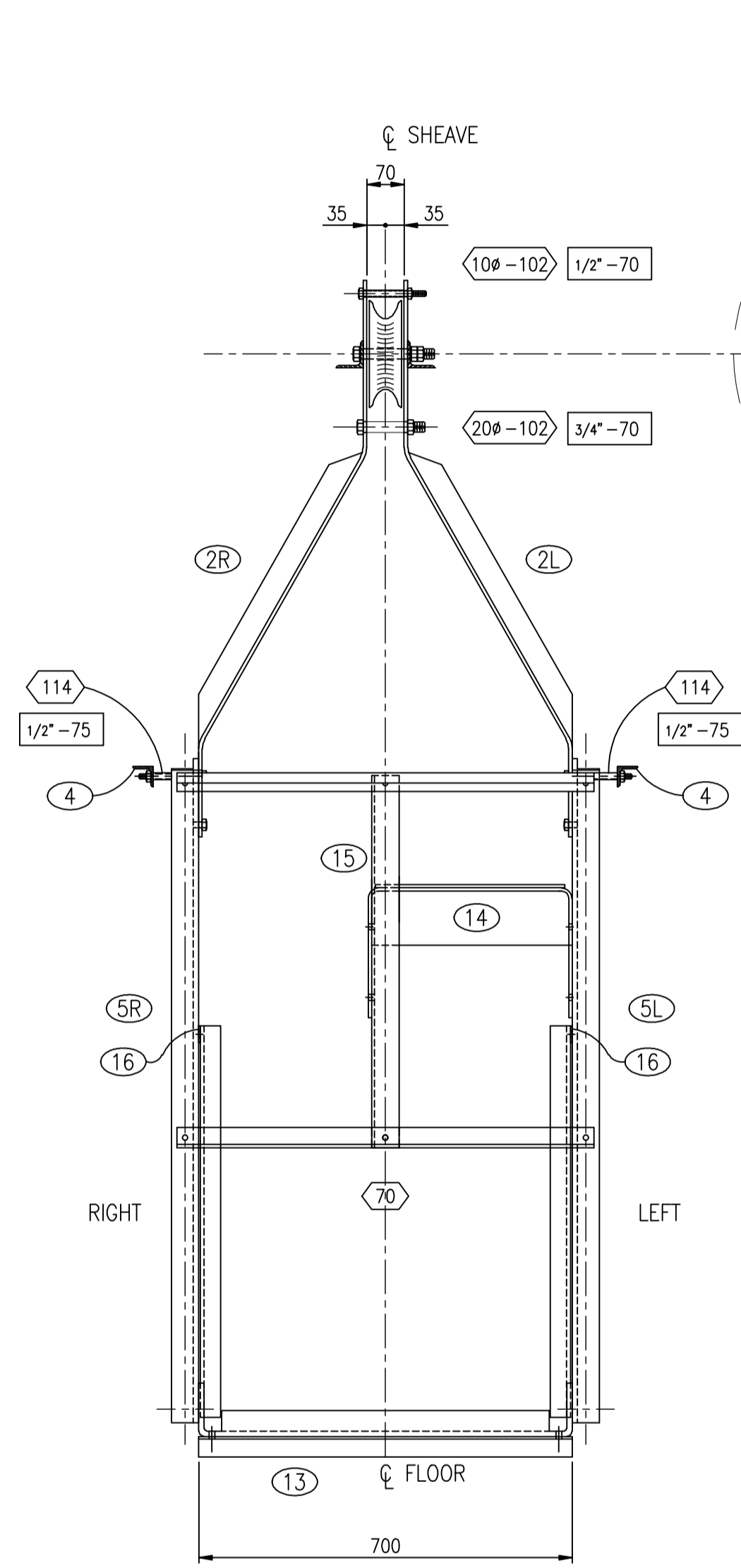
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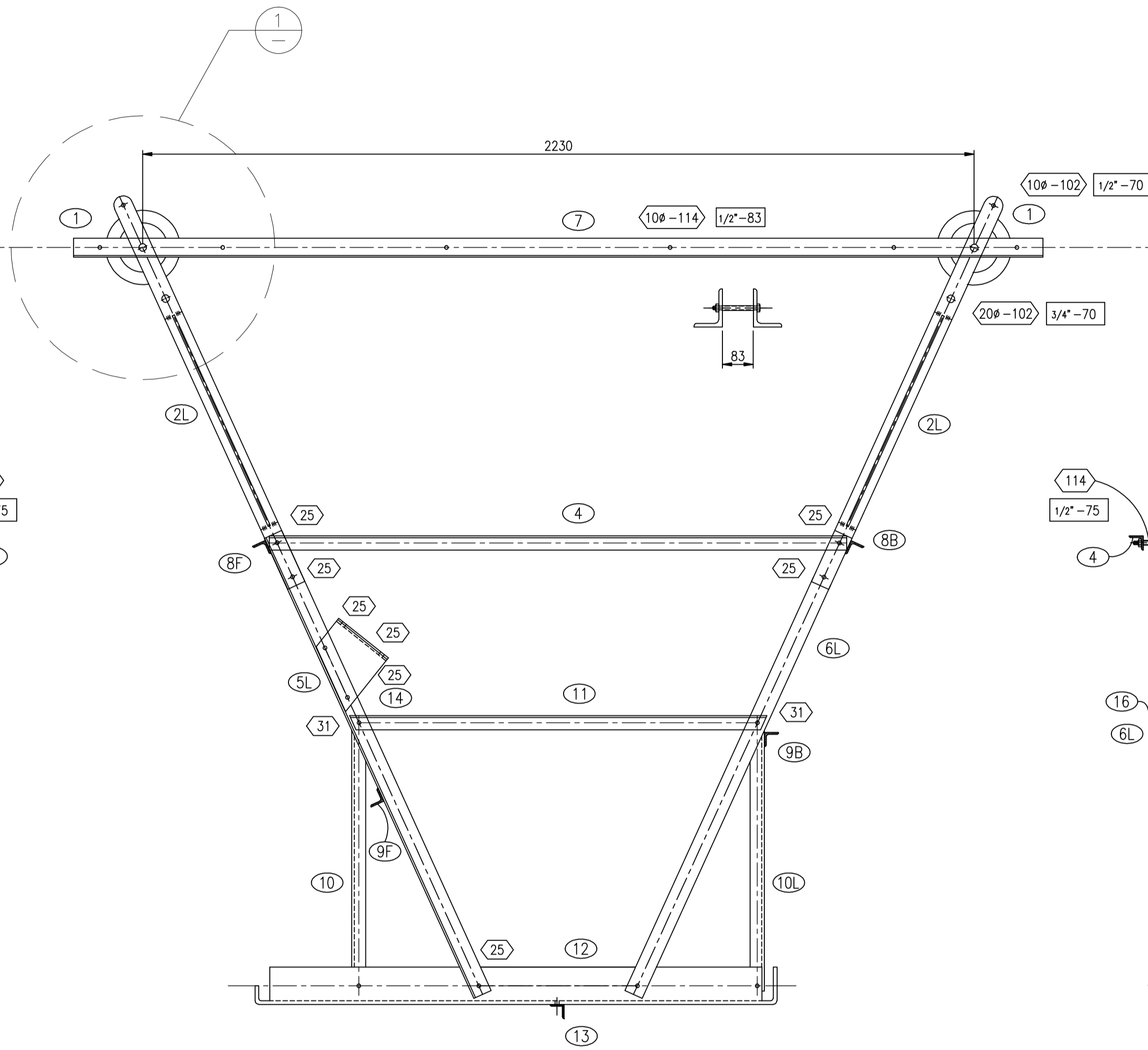
DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.

HEAVY DUTY A-FRAMES  
LADDER BRACKET & CAR HOOK, VARIOUS DETAILS  
ASSEMBLY LEG  
VANCOUVER, B.C.

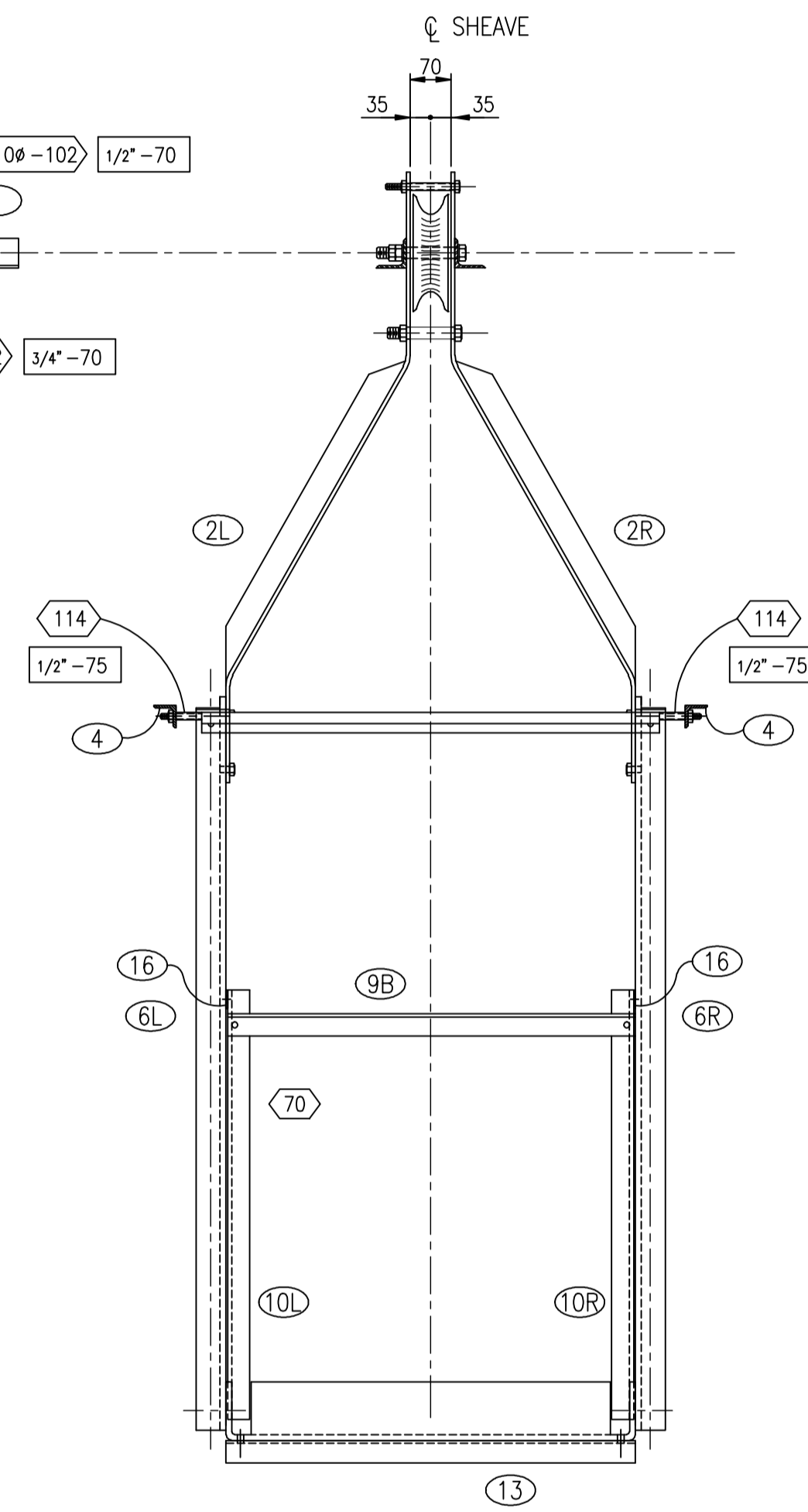
Designed D.O.E.	Job No. 2111-01745-1	Drawing No. <b>3136-10</b> of 10
Drawn K.D.W.	Scale AS NOTED	
Checked A.A.W.	Date APRIL 2002	
Approved	Revision 1	



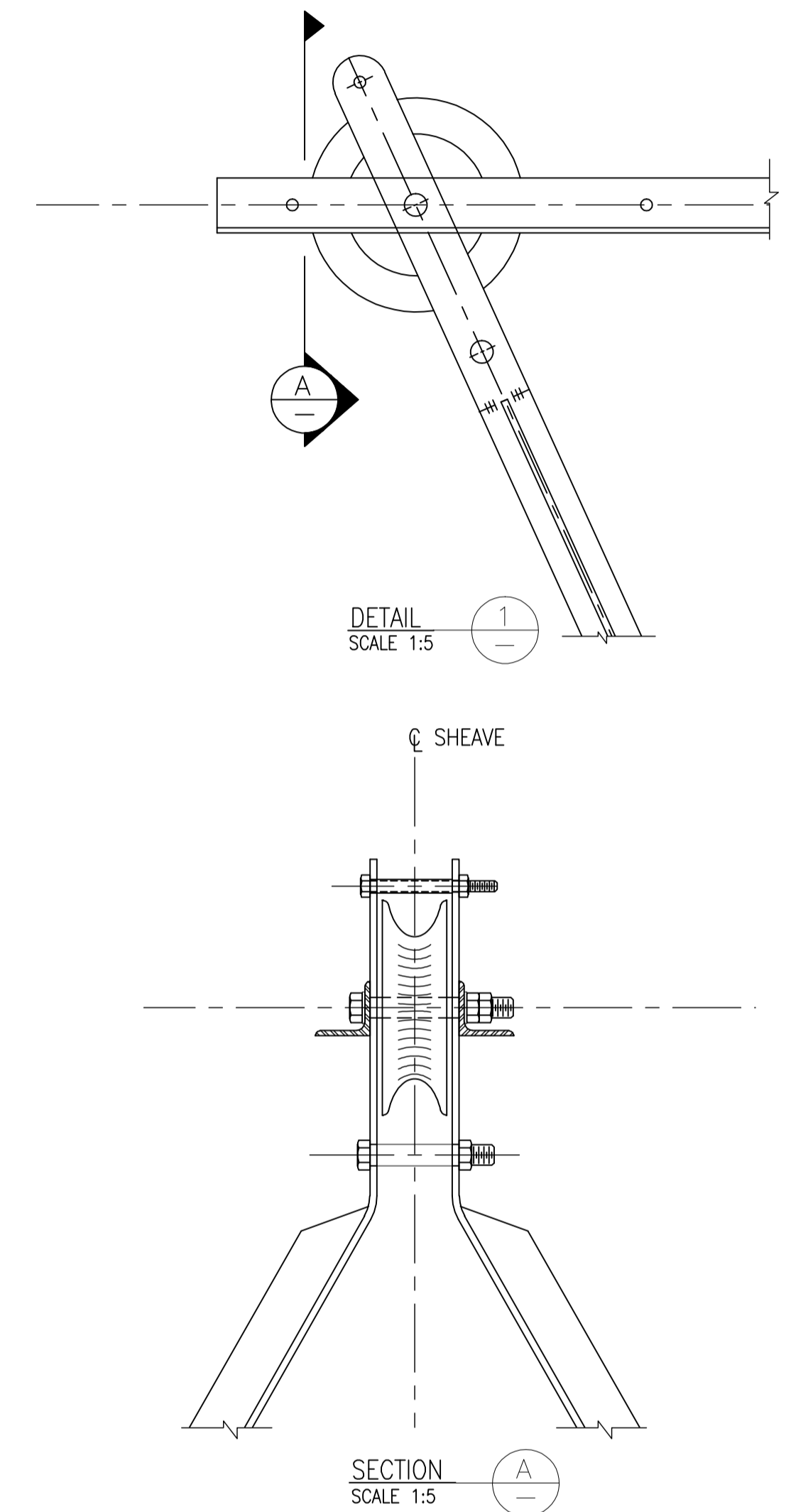
FRONT VIEW



LEFT SIDE VIEW

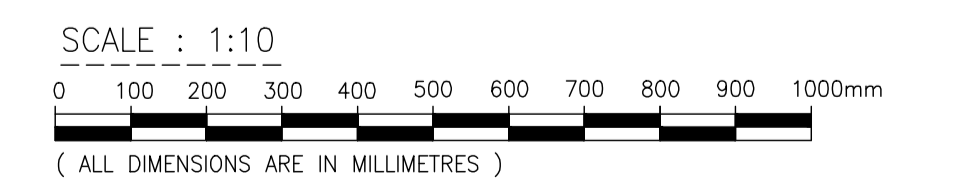


BACK VIEW



DESIGN LOAD	
CAR	200
2 MEN	400
REEL	50
	650 lbs.
PLUS SNAG LOAD OF 1/8" WIRE ROPE AT ANY ANGLE = 1600 lbs. BREAKING STRENGTH.	

- NOTES:
1. NOTATION F,B,L,R REFERS TO ITEM LOCATIONS
  2. KEY (2R) = ITEM  
(70) = BOLT LENGTH  
(1/2"-75) = SPACER SIZE & LENGTH
  3. FOR DETAILS SEE DWG. 4000-2



No.	Date	Revision	Dr	Ch
4	JULY 2007	MODIFIED OFFSET AND MINOR CHANGES	LLP	KEL
3	MAY 2007	MODIFIED OFFSET AND MINOR CHANGES	LLP	KEL
2	DEC. 2002	SCALE BAR	KDW	AW
1	AUG. 2002	REDRAWN & MODIFIED BY MCSSL		

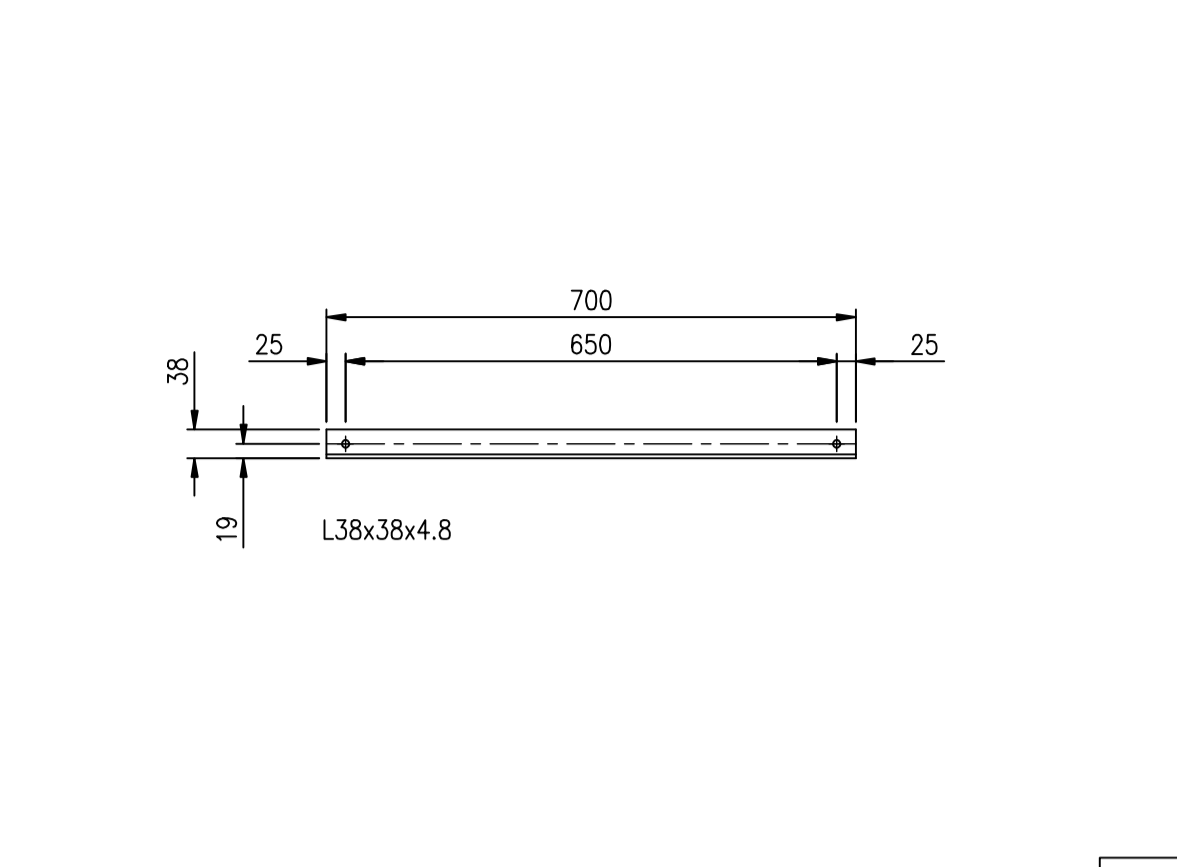
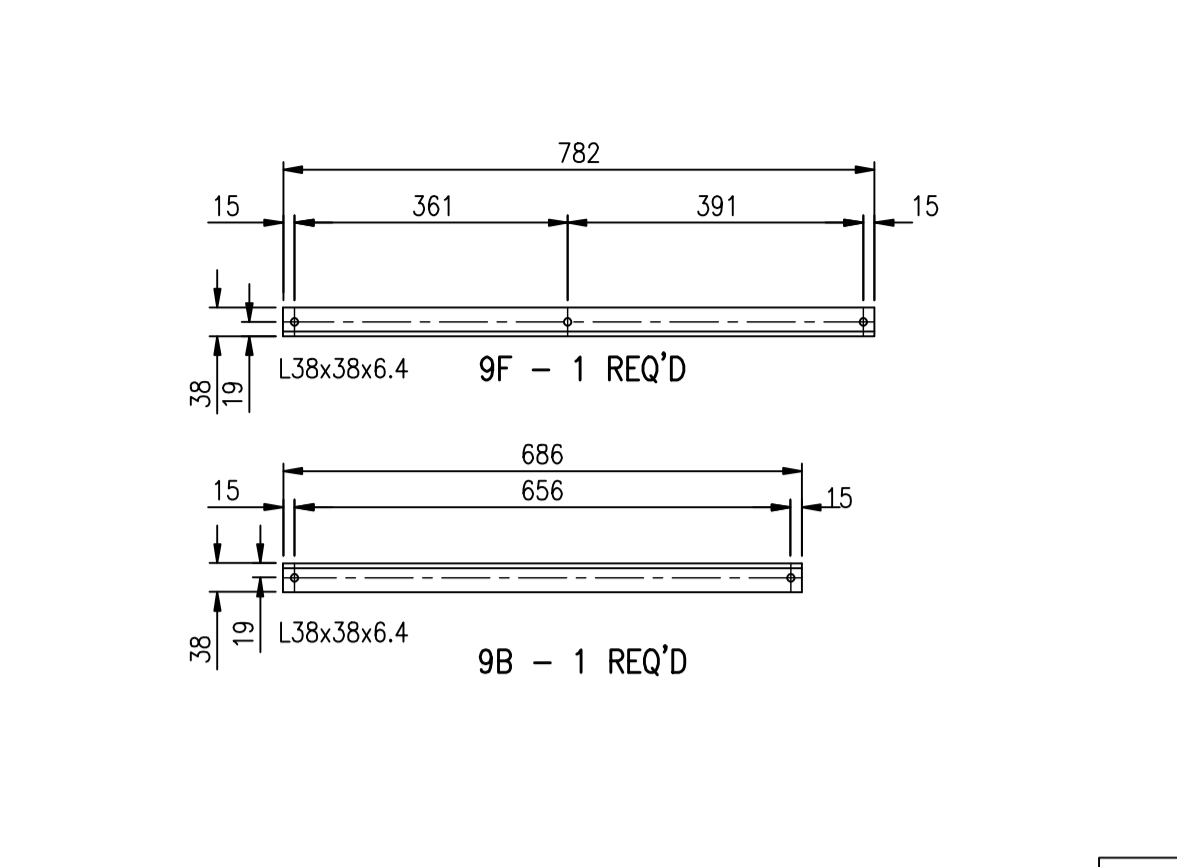
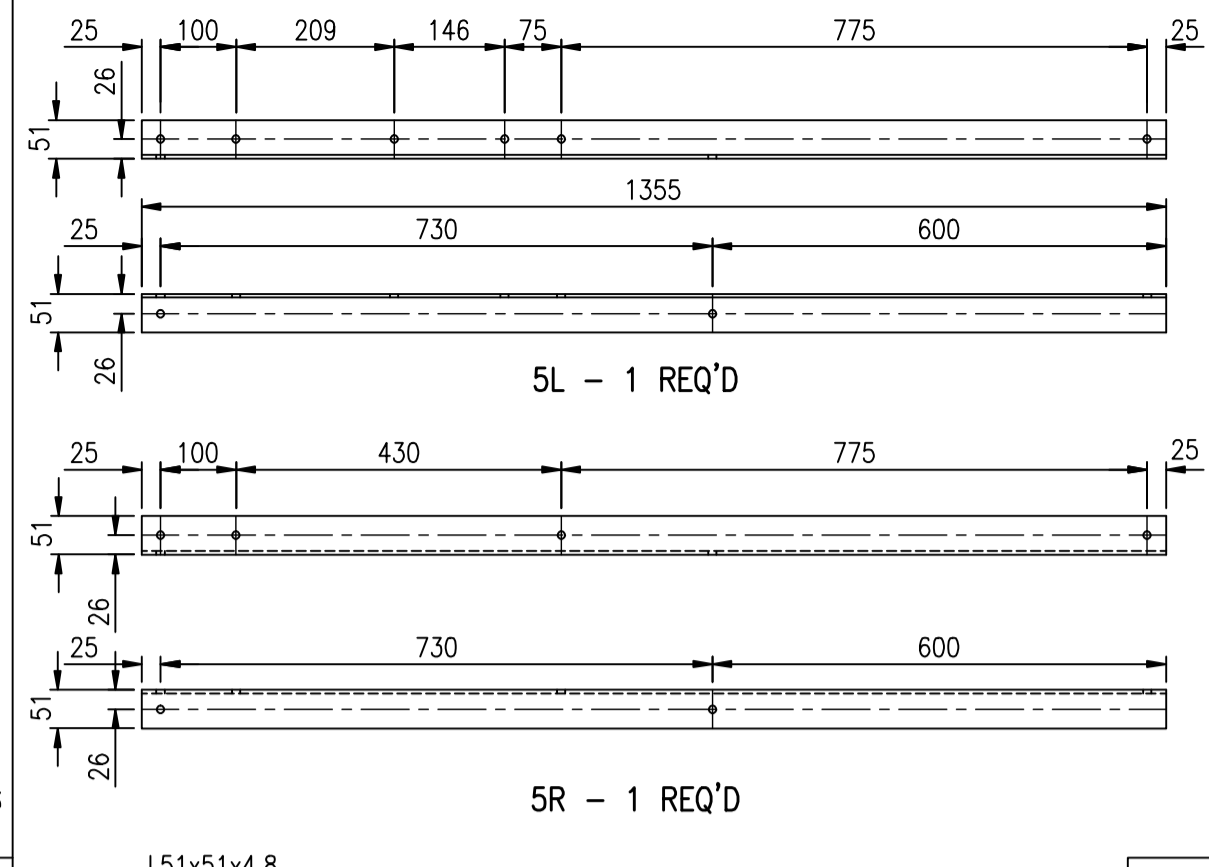
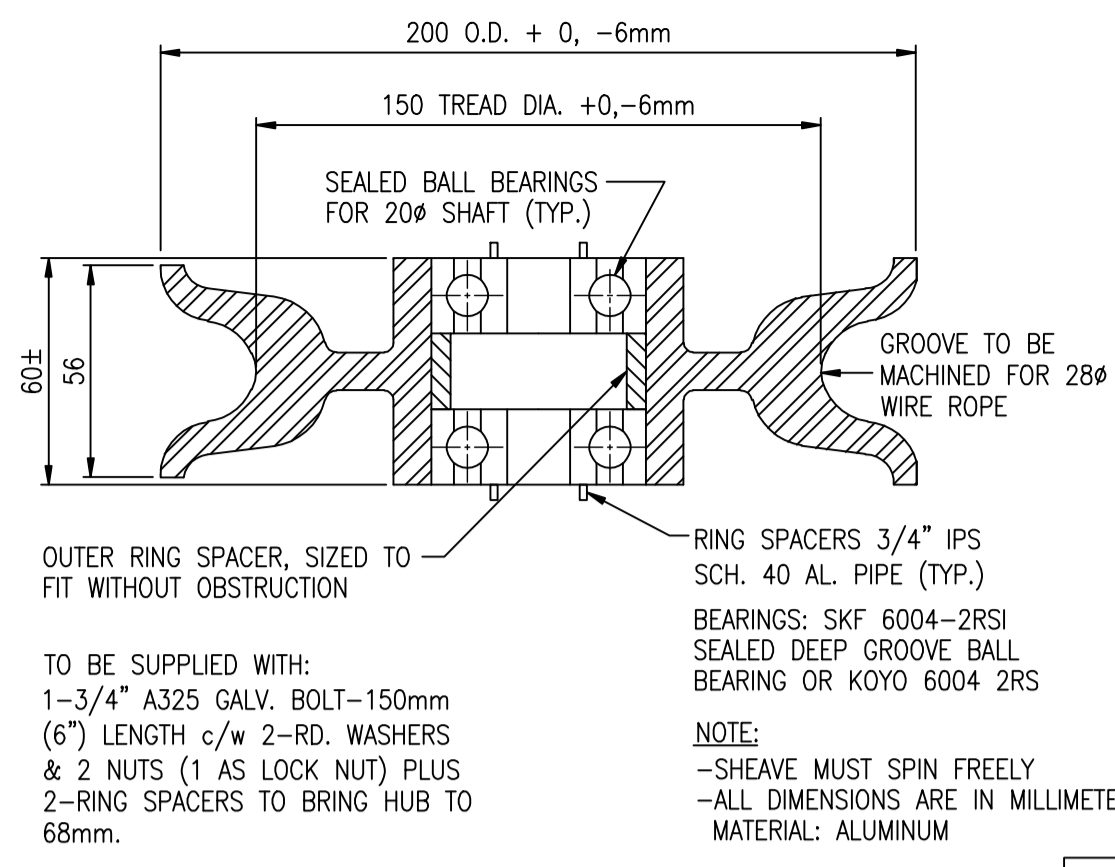


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DEPT. OF THE ENVIRONMENT  
 WATER SURVEY OF CANADA, VANCOUVER, B.C.  
 LIGHT STAND UP CABLE CAR  
 ASSEMBLY  
 VANCOUVER, B.C.

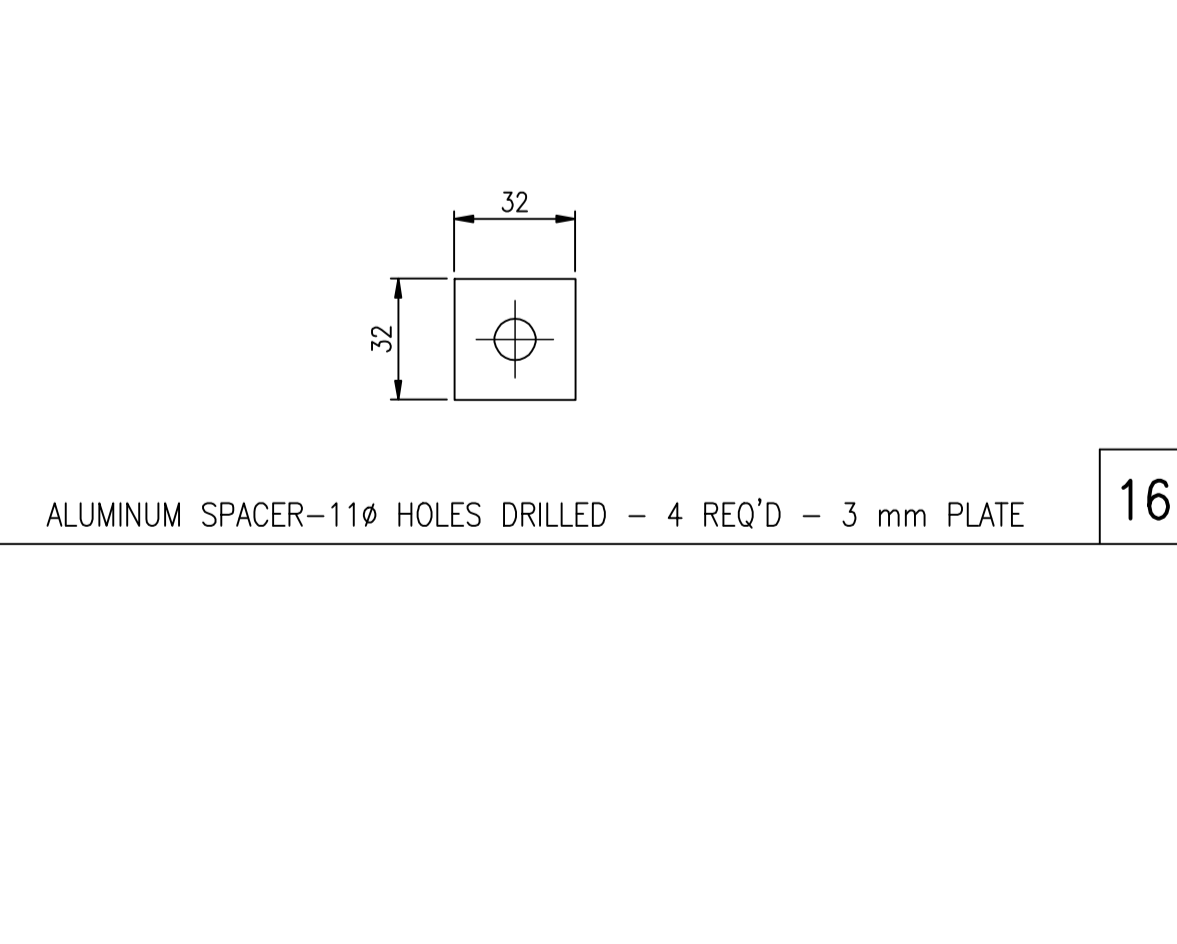
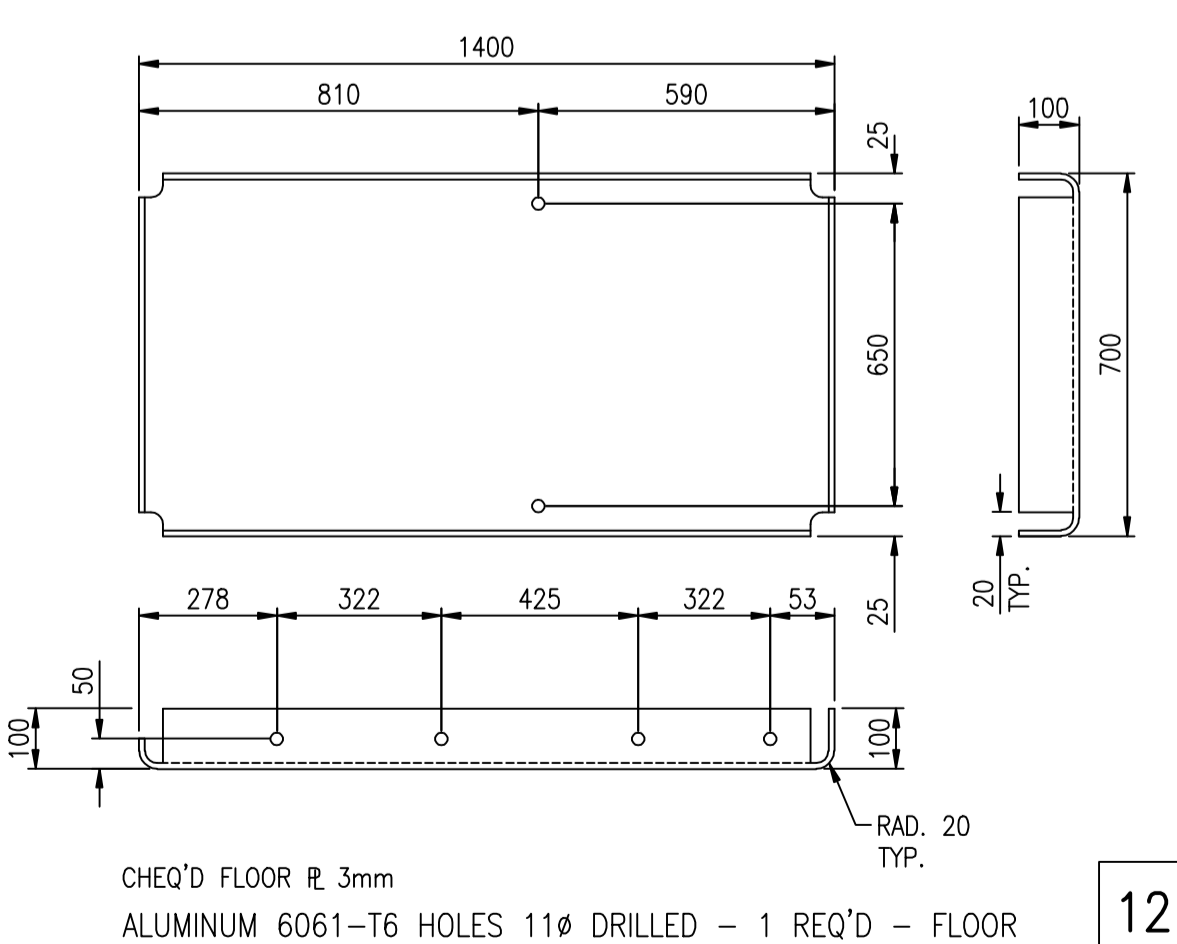
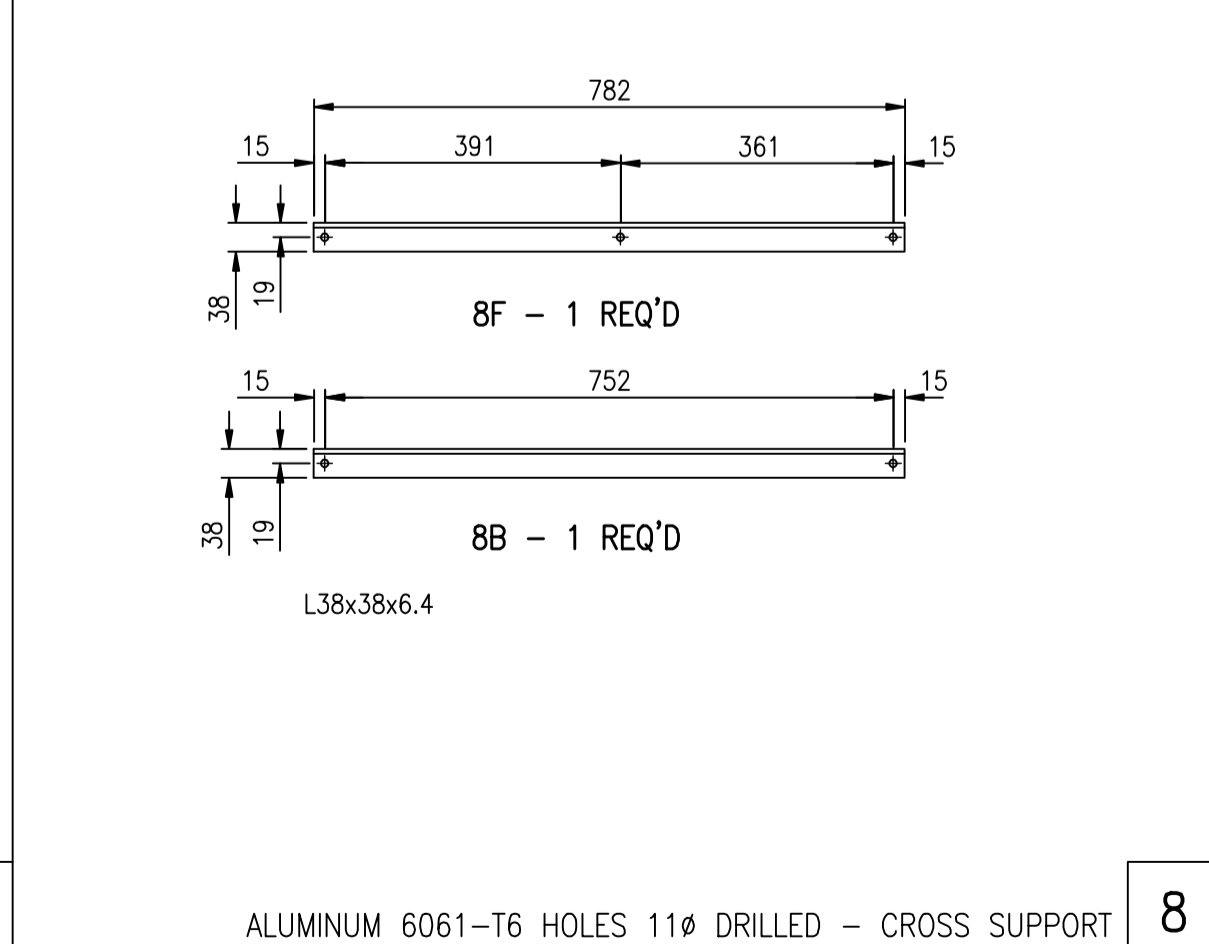
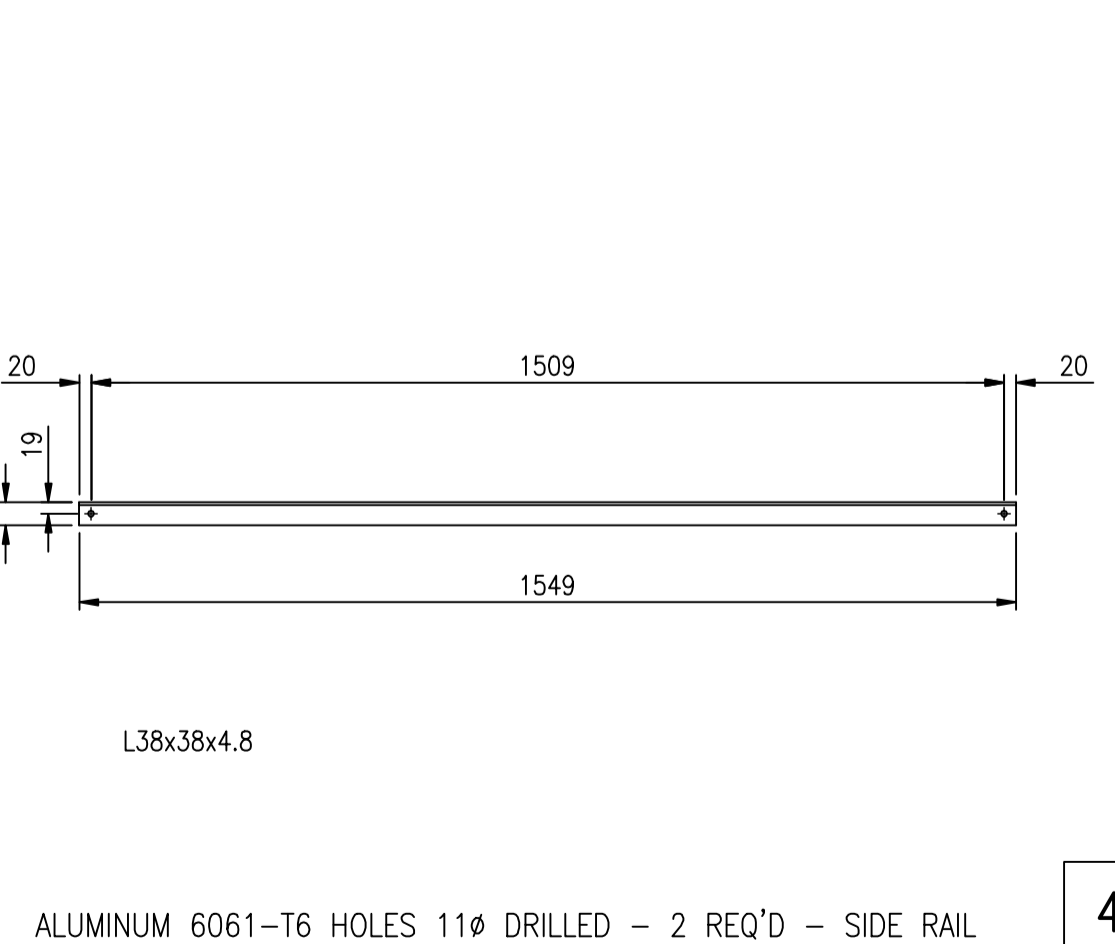
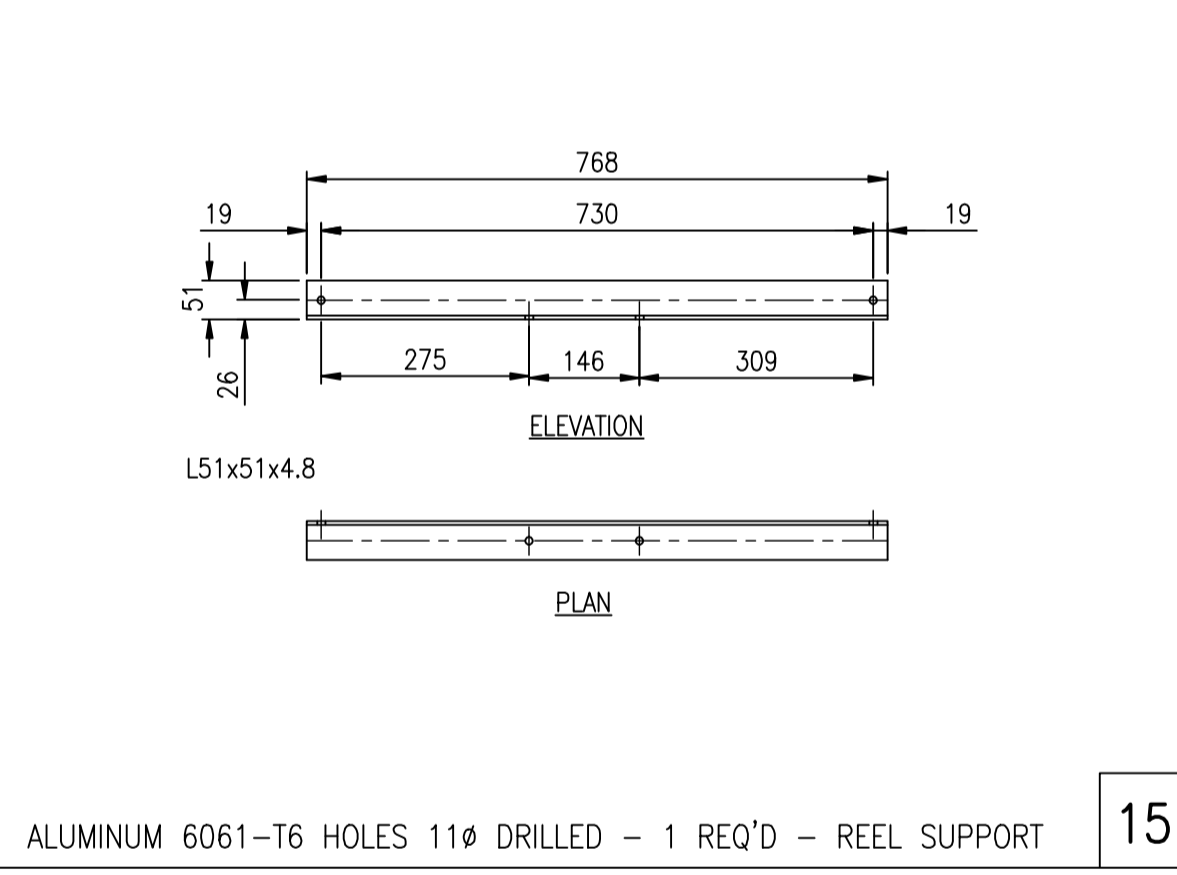
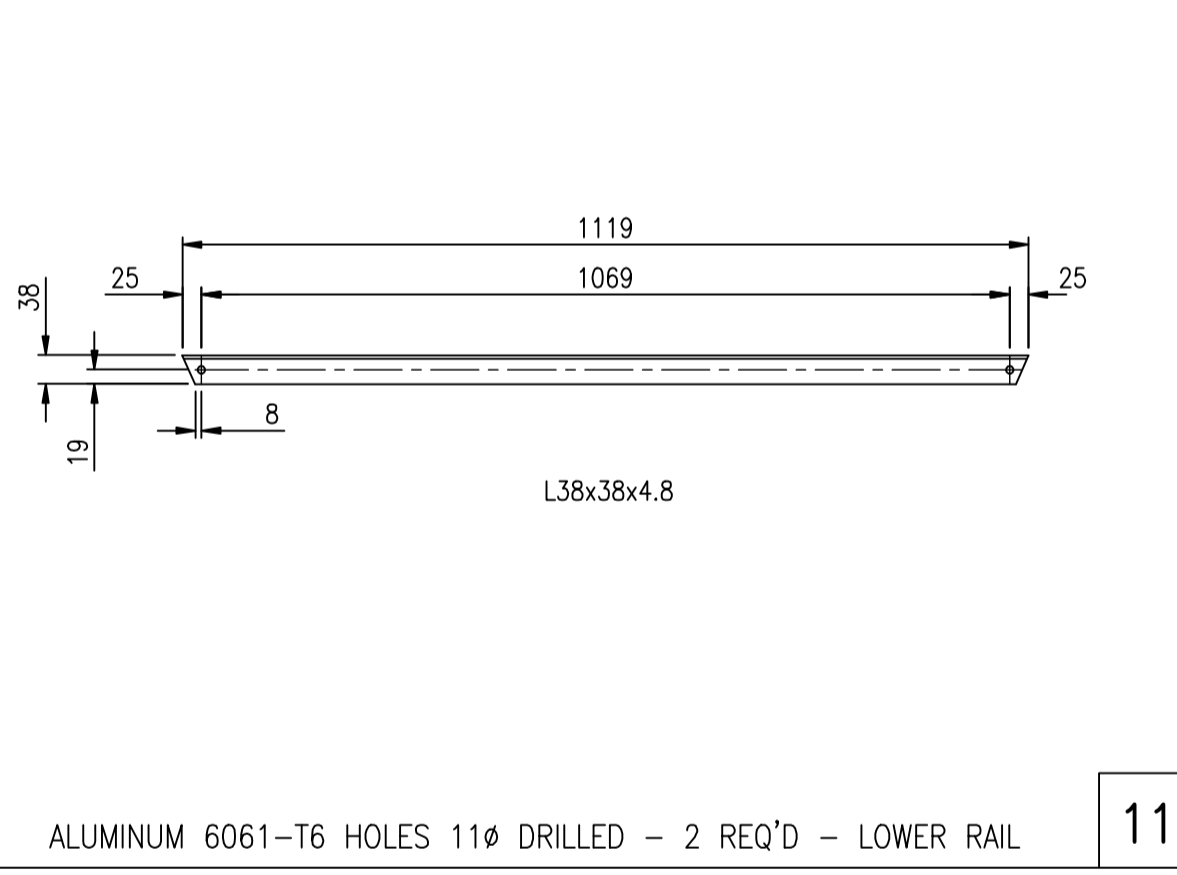
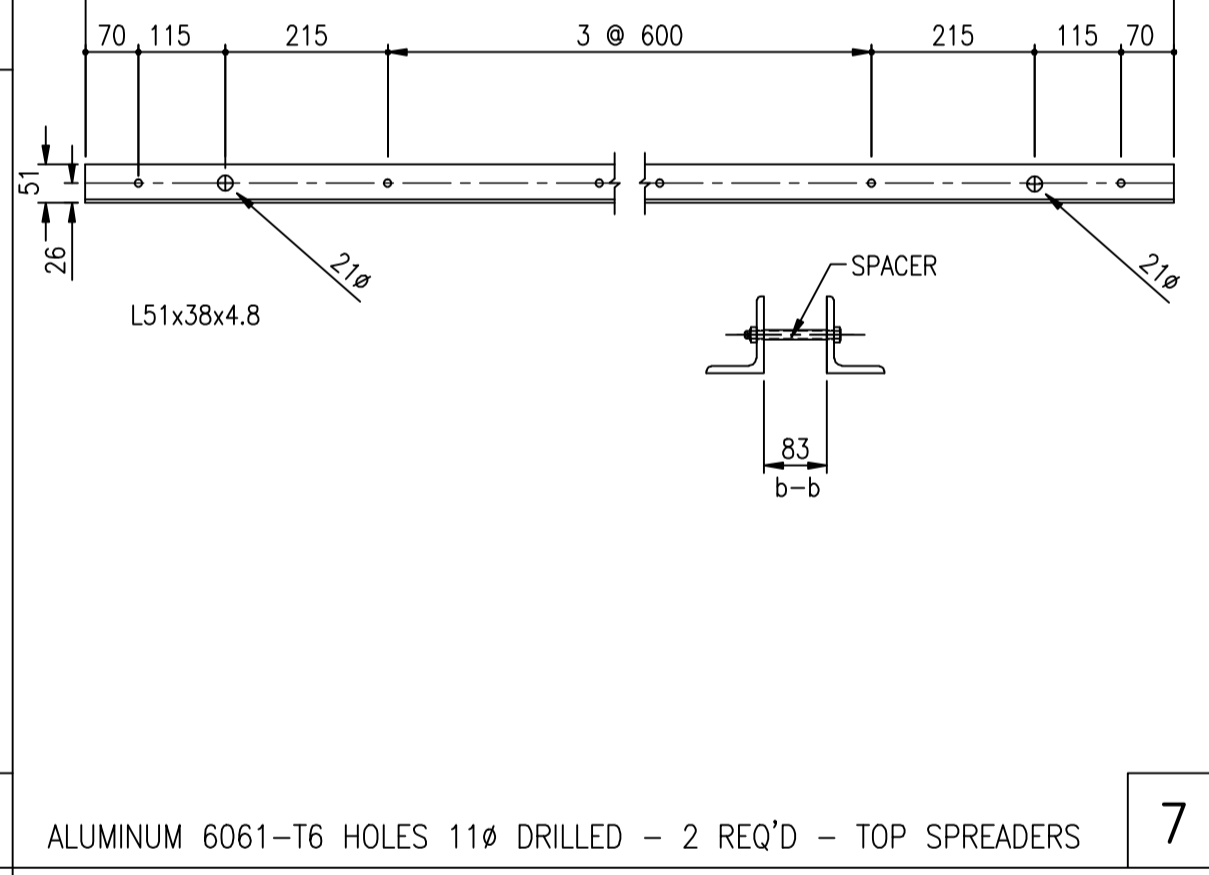
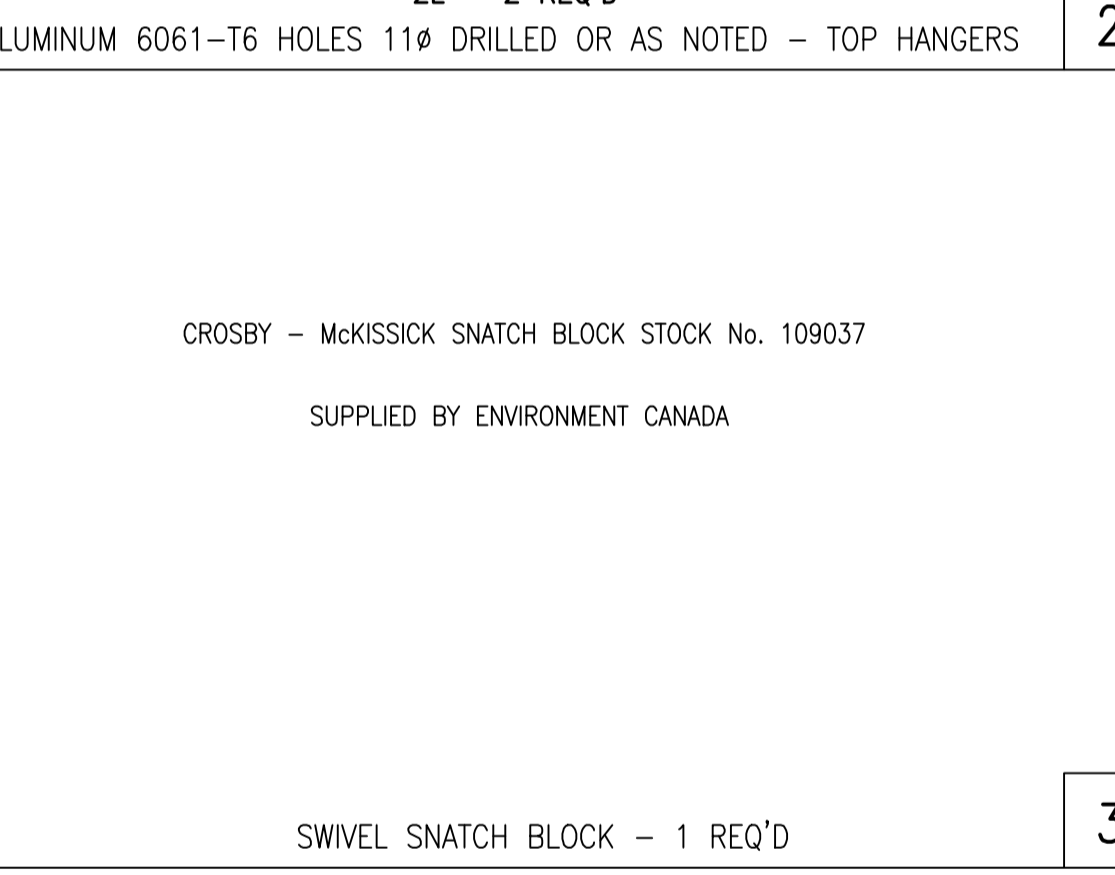
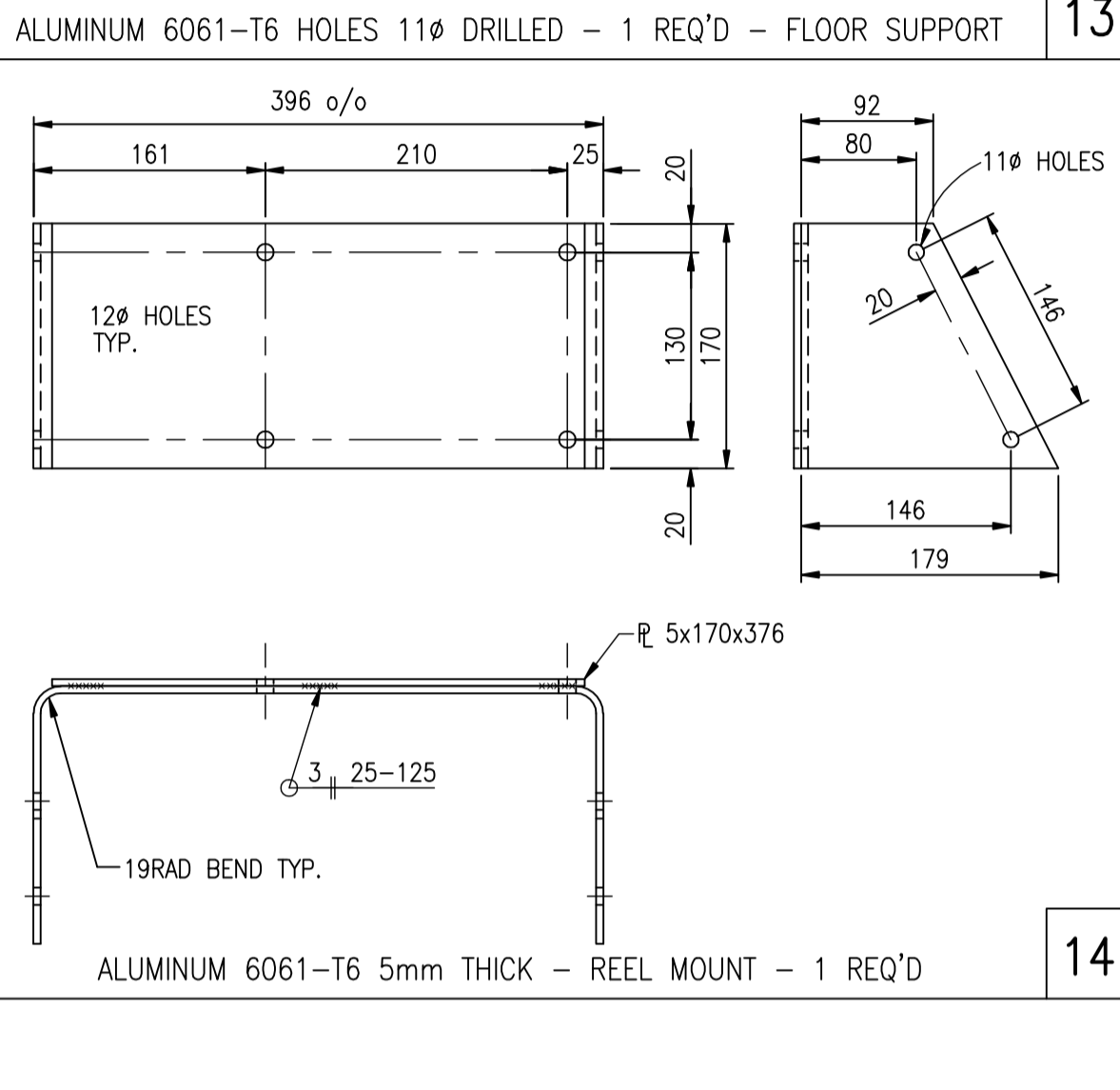
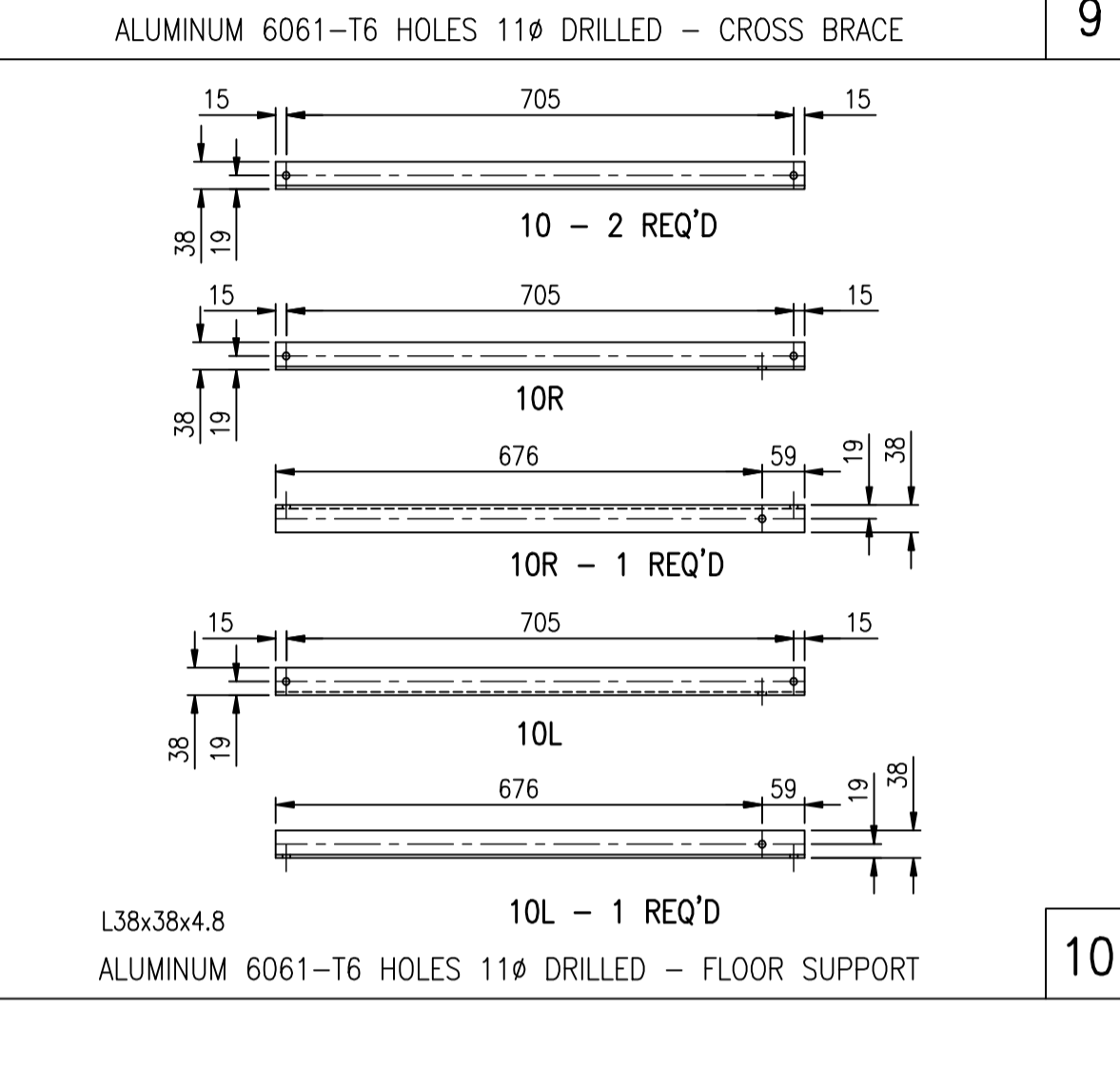
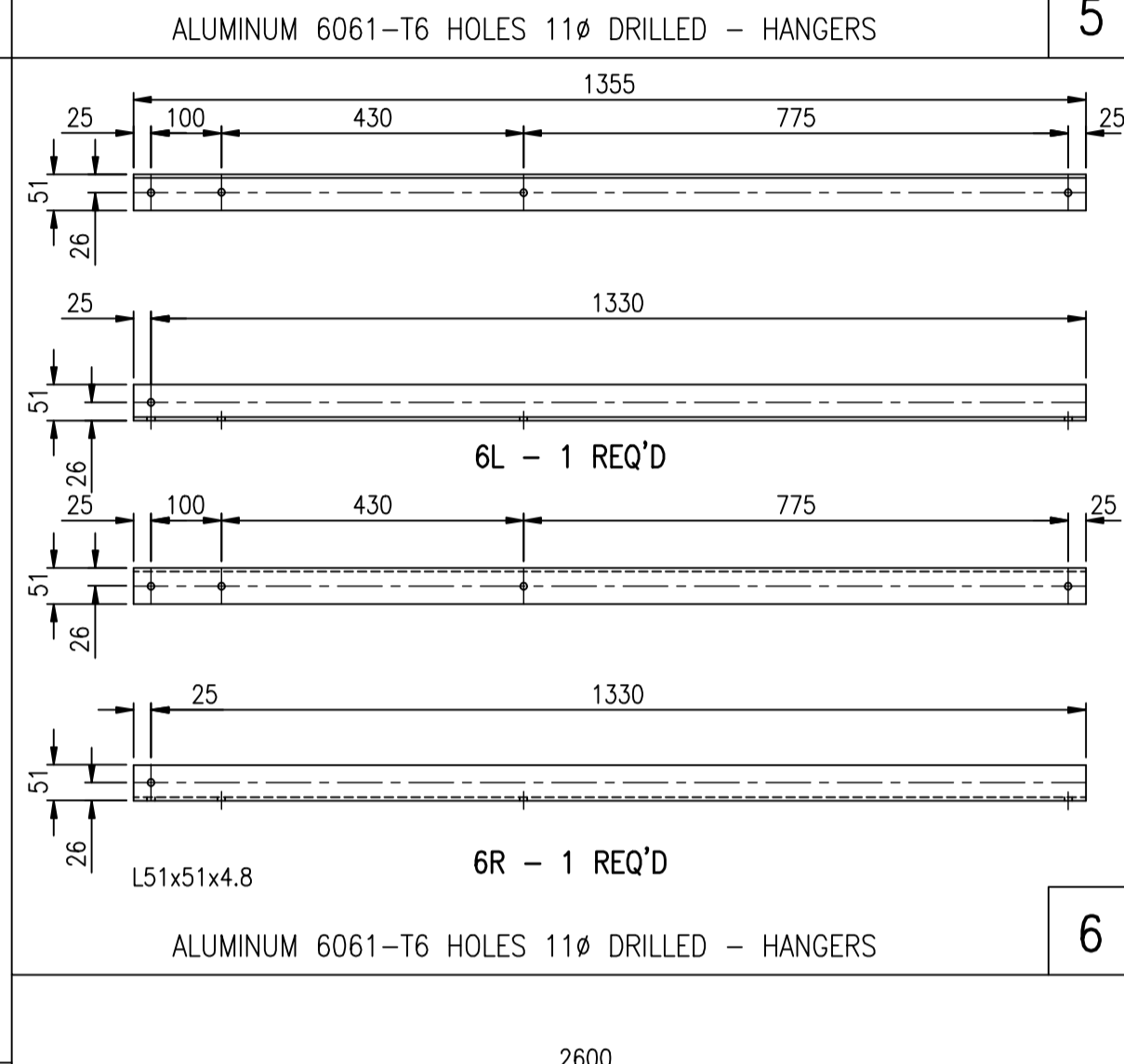
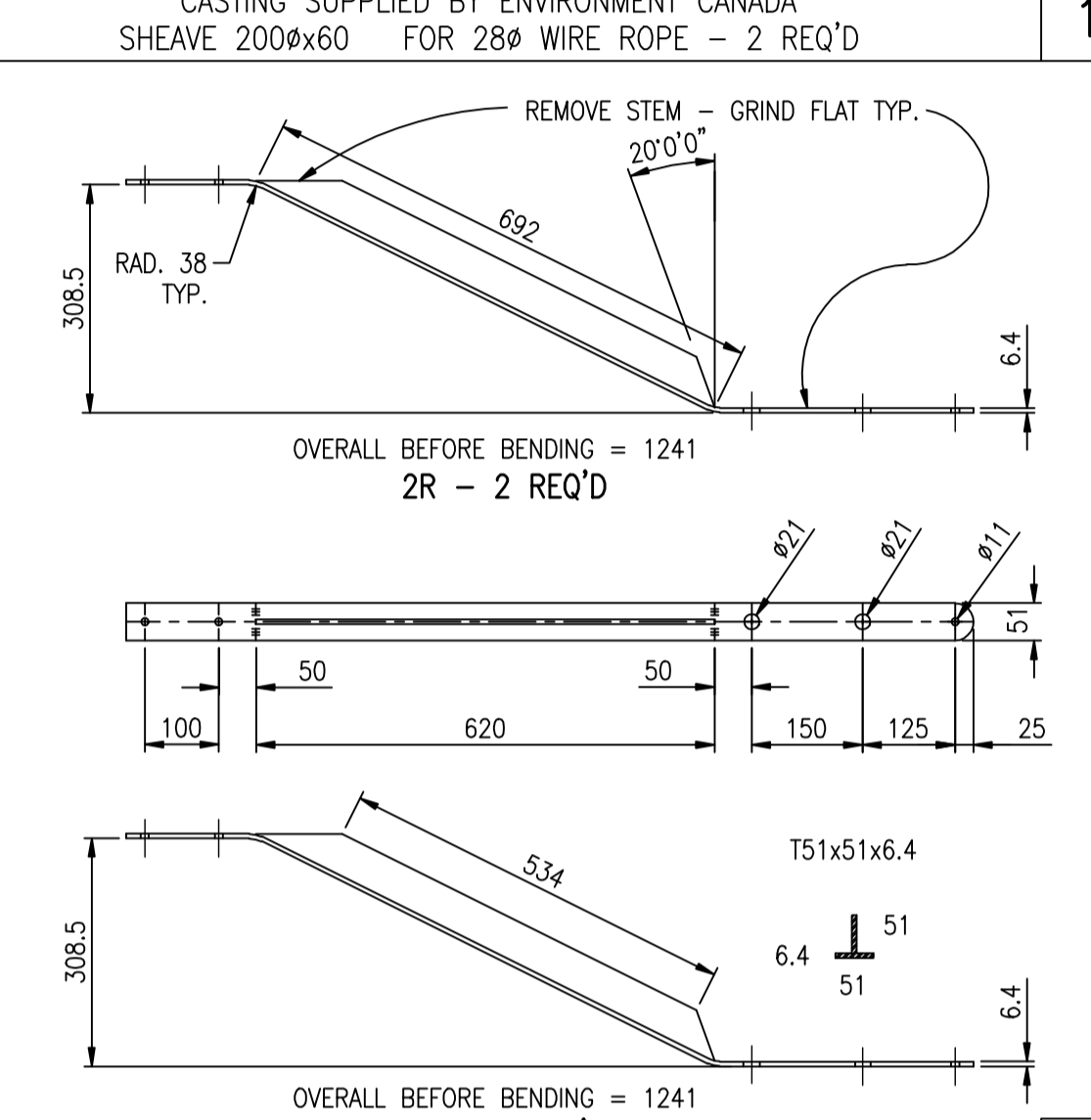
Designed	Job No. 2111-01745-2	Drawing No. <b>4000-1</b> of <b>2</b> <b>4</b>
Drawn K.D.W.	Scale 1:10	
Checked A.A.W.	Date JULY 2002	
Approved	Revision 4	

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**BOLT & SPACER SCHEDULE**  
BOLTS TO BE 3/8" (10mm) SCREW CAP HEX 304 S.S. 24UNF-2A c/w S.S. NYLON LOCK NUTS OR 20mm A325 - GALVANIZED

ITEM	QTY	10Ø BOLTS - LENGTH								SPACERS 1/2" IPS Sch.80 AL PIPE LENGTH			20Ø BOLTS A325-GALV. LENGTH		SPACE 3/4" IPS Sch.40 AL PIPE LENGTH		
		1"	1 1/4"	1 1/2"	1 3/4"	2"	2 1/2"	3"	4"	4 1/2"	75	83	70	4"	5"	70	
2R	2	19	25	31	38	50	63	102	114								
2L	2							1				1					
3																	
4	2								4		4						
5L	1	4	1														
5R	1	2	1														
6L	1	2	1														
6R	1	2	1														
7	2								6		6					2	
8F	1	3															
8B	1	2															
9F	1	3															
9B	1	2															
10	2	2															
10L	1	1															
10R	1	1															
11	2																
12	1																
13	1	2															
14	1																
15	1	2															
16	4																
TOTAL		28	4					2	10		4	6	2		2	2	2



NOTES:  
1. ALL DIMENSIONS ARE IN MILLIMETERS.  
2. QUANTITIES GIVEN ARE FOR ONE CABLE CAR.  
3. REMOVE ALL BURRS & SHARP EDGES.  
4. DESIGN NOT CERTIFIED BY McELHANNY.

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No.	Date	Revision	Dr	Ch
4	JULY 2007	SEE DRAWING 4000-1	LPL	KEL
3	MAY 2007	SEE DRAWING 4000-1	LPL	KEL
2	DEC. 2002	CHANGED DETAIL 14	KDW	AW
1	AUG. 2002	REDRAWN & MODIFIED BY MCSL		

**McElhanney**  
McElhanney Consulting Services Ltd.  
13160-88 Ave., Surrey, B.C., Canada V3W 3K3 Telephone (604)596-0391  
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DEPT. OF THE ENVIRONMENT  
WATER SURVEY OF CANADA, VANCOUVER, B.C.  
LIGHT STANDUP CABLE CAR  
DETAILS  
VANCOUVER, B.C.

Designed	Job No. 2111-01745-2	Drawing No.
Drawn K.D.W.	Scale N.T.S.	4000-2
Checked A.A.W.	Date JULY 2002	
Approved	Revision 4	of 2 4