# **Aqua**Terra

Celebrating 10 Years

Cairngorm Ski Towers Inspection Report

for Highlands & Islands

Job Ref: SJ1021

August 2014



### Index

- 1. Introduction
- 2. Executive Summary
- 3. Inspection Summary
- 4. Detailed Results
- 5. Personnel and Equipment





### Introduction

AquaTerra Group Ltd is a leading Oil and Gas industry specialist for difficult access operations and potentially hazardous environments.

With extensive experience in Concrete Leg Intervention, NDT Inspection, Hull Gauging Surveys, Heavy Lift and Complex Rigging Projects, Upgrade and Decommissioning workscopes, our highly skilled and competent teams of professionals provide multi-disciplined engineering support. construction and project management services.

Established in 2004, AguaTerra is a quality and client focused business providing specialist access solutions and technicians to confidently undertake works in areas where other workers are not capable or competent to go.

Dynamic and innovative, AquaTerra is owned and operated by a committed team of managers with a wealth of experience in site operations, resource management and specialist training. management and technical support teams are highly-skilled, competent professionals with the knowledge and technical expertise to deliver cost-effective solutions.

AquaTerra operates throughout the world and across a wide range of industry sectors including oil & gas, renewable energy, marine, communications, civil engineering, pharmaceutical, power generation and petrochemical sectors.

Central to all our operations is our core objective, to provide all personnel with a safe environment in which to work, promoting the highest standards of Health and Safety at all times through a programme of continuous improvement.

On behalf of Highlands and Islands, AquaTerra was asked to carry out Non Destructive Inspections on the Cairngorm ski lift towers. The findings of these inspections are detailed within this report.

AquaTerra's Inspection Report provides a summary of the inspection activities undertaken, observations made during the inspection, deficiencies noted during the inspection, photographic evidence and the personnel who carried out the inspection.

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### **Executive Summary of Inspection Results**

Job No.	SJ1021	Order No.	HMS 9346524	Location	Cairngorms
Client	H&I	Report No.		Date	09.08.2014
Technician			Qualification	PCN L2 In	spectors
Component	Cairngorms	Ski Lift Towers			

#### INSPECTION RESULTS

#### Introduction

The scope of work was discussed with the client prior to the start of the job. The scope was detailed as;

- 100% visual inspection of the tower.
- MPI 100% of base connection welds.
- Ultrasonic thickness checks 500mm up from base.
- Ultrasonic thickness checks 3000mm up from base or at the highest point if the tower is less than 3000mm tall.

The towers selected for inspection were as follows.

- Tow 2, Car Park T Bar, T2, T6, T11
- Tow 3, Fiacaill Ridge Poma, T2, T6, T9
- Tow 4, Shelling Platter Poma, T1L, T3L
- Tow 5, Coire Cas T Bar, TA,TC,TE,T2,T5,T9
- Tow 6, M1 Poma, T2,T7,T11
- Tow 8, Coire na Ciste T Bar, T2, T4, T7
- Tow 9, Polar Express Poma,T1
- Tow 10, Ptarmigan T Bar, T1,T3,T5
- Tow 11, West Wall Poma, T2, T7, T15
- Tow 12, Day Lodge Poma, T3,T6,T9

All defects will be reported and welds cleaned pre and post inspection.

If anomalies are encountered it may be necessary to complete a temporary repair. The Cairngorm focal point will be advised and will advise of approved repair method prior to repair scope of work. All coatings are to be replaced if removal is required at time of inspection.

In addition to this scope the team were requested to carry out magnetic particle inspections to the fork lift fork welds. Report CM-MPI-011 refers.

#### Findings

Reports correspond as follows:

### **Executive Summary of Inspection Results**

#### Tow 2

Visual report CM-GVI-001. MPI report CM-MPI-001. UT report CM-UT-007.

#### Tow 3

Visual report CM-GVI-002. MPI report CM-MPI-002. UT report CM-UT-009.

#### Tow 4

Visual report CM-GVI-003. MPI report CM-MPI-003. UT report CM-UT-010.

#### Tow 5

Visual report CM-GVI-004. MPI report CM-MPI-004. UT report CM-UT-008.

#### Tow 6

Visual report CM-GVI-005. MPI report CM-MPI-005. UT report CM-UT-003.

#### Tow 8

Visual report CM-GVI-006, MPI report CM-MPI-006, UT report CM-UT-004.

#### Tow 9

Visual report CM-GVI-007, MPI report CM-MPI-007, UT report CM-UT-002.

#### Tow 10

Visual report CM-GVI-008. MPI report CM-MPI-008. UT report CM-UT-001.

### Tow 11

Visual report CM-GVI-009, MPI report CM-MPI-009, UT report CM-UT-005.

#### Tow 12

Visual report CM-GVI-010. MPI report CM-MPI-010. UT report CM-UT-006.

#### Fork Lift Forks

MPI report CM-MPI-011.

#### **Defect List**

Tow 2 - T11 Porosity found in base weld

Tow 3 - T2 Porosity found in base weld

Tow 5 – TC Porosity found in base weld TE Porosity found in base weld

T2 7mm defect found in base weld

Tow 6 - T11 Porosity found in base weld

Tow 8 - T2 Porosity found in base weld and a 55mm non structural defect found

### **Executive Summary of Inspection Results**

Tow 10 – T1 Porosity found and a 15mm and a 20mm defect found in base weld T13 Porosity found and a 4mm and a 30mm defect found in base weld T5 Porosity found in base weld

#### General Recommendations

This report highlights the items found during the inspection for the client to decide on a course of action.

#### Close Out

The first issue of these reports are field reports.

#### TEST RESTRICTIONS/ COMMENTS

Restrictions with access are reported on the relevant reports.



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### Summary of Inspection Results

Job No.	SJ1021	Order No.	HMS 9346524	Location	Cairngorms
Client	Cairngorms	Report No.		Date	09.08.2014
Technician			Qualification	PCN L2 In	spectors
Component	Cairngorms SI	d Lift Towers	N THE REAL PROPERTY AND ADDRESS OF THE PERSON NAMED IN COLUMN		

#### INSPECTION RESULTS

The team arrived at the Cairngorm Mountain Centre on the morning of Tuesday 5th August 2014 and after inductions had a meeting with site representative

The work began on the morning of the 5th August. The scope of the work was discussed and the team were requested to carryout additional inspection to the fork truck fork as well as the agreed scope.

The fork lift forks were found to be in good condition with no surface breaking defects noted during the Magnetic Particle inspection. There were various defects noted on the ski towers. All findings from the inspections are recorded on the relevant reports.

The team left the Cairngorms on the evening of the 9th August.

The team and AquaTerra would like to thank the Cairngorms crew for their assistance during the visit.

#### TEST RESTRICTIONS/ COMMENTS

Any restrictions regarding access are recorded on the relevant reports

INSPECTOR	AQUATERRA	
DATE	DATE	
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### **MPI Inspection Report**

Job No	SJ1021		Order No.	HMS 9346524	Repo No.	rt CM-MPI-011
Client	Highlan Island	ds and	Installation	n Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	0		Acceptance Crite	eria EN	I-ISO-5817
Technique S	Sheet	WI011	-TS001			

EQUIPM	IENT USED	TECHNIC	QUE USED
☑ Y6 Yoke	s/no. 1203280	Wet Visible	type: TS001
Perm. Magnet	s/no.	☐ Wet fluorescent	type:
☐ DC Electromagnet	s/no.	Current	AC DC
UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Forklift Fork Frame	Penetrameter	Foil Strip Type 1
Identification	Pisten Bully Forks	Pole spacing	100mm
Dimensions	N/A	Quantity	N/A
Stage of Test Le. Pre or Po	ost Heat Treatment	N/A	
Surface Prep.	Carbon Steel	Viewing Conditions	Good

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request out with SJ1021 work scope, Magnetic Particle Inspection was carried out on Forklift fork frame welds. Where Required, coatings were removed by mechanical means.

No defects were found on weld joints.



### MPI Inspection Report



Standoff photo of forklift forks inspected

INSPECTOR	AQUATERRA
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Job No.	SJ 1021	Order No.		HMS 9346524	Location	Cairngorm Mountain
Client	Highlands & Island Enterprise	Report No.		CM-CV-001	Date	09/08/2014
Procedure	WI013		A	cceptance Criteria	As per pr	ocedure
Technician		1	Q	ualification	PCN 2	

Type of inspection		Visual Close	Visual
Inspection Details			
Item Inspected	Car Park T-Bar		
Item Ref. No.	Tow 2	Drawing Ref No.	CA6584/03
Surface Condition	As Coated	Procedure Ref. No.	W1013
Photo Ref. No.	As per report	Anomaly Report Ref. No.	N/A
Equipment	RA Harness & Ca	amera	***************************************

### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers 2, 6 and 11 of the Car Park T-Bar. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-001).

All Anchor Bolts are hand tight with light to moderate corrosion, External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

ASF047 REV05





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Job No.	SJ 1021	Order No.	HMS 9346524	Location	Cairngorm Mountain	
Client	Highlands & Island Enterprise	Report No	. CM-CV-002	Date	09/08/2014	
Procedure	WI013	**	Acceptance Criteria	As per pr	ocedure	
Technician			Qualification	PCN 2	PCN 2	

Type of inspection		Visual Close	Close Visual		
Inspection Details					
Item Inspected	Fiacaill Ridge Po	ma			
Item Ref. No.	Tow 3	Drawing Ref No.	CA6584/03		
Surface Condition	As Coated	Procedure Ref. No.	W1013		
Photo Ref. No.	As per report	Anomaly Report Ref. No.	N/A		
Equipment	RA Harness & Ca	amera			

#### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers 2, 6 and 9 of the Fiacaill Ridge Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-002).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

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Job No.	SJ 1021	Order No.		HMS 9346524	Location	Cairngorm Mountain
Client	Highlands & Island Enterprise	Report No		CM-CV-003	Date	09/08/2014
Procedure	WI013	1.1	Ac	ceptance Criteria	As per pr	ocedure
Technician			Q	ualification	PCN 2	

Type of inspection		Visual	Visual
Inspection Details			
Item Inspected	Sheiling Platter P	Poma	LADI DATA DUCINA VA VORIO
Item Ref. No.	Tow 4	Drawing Ref No.	CA6584/03
Surface Condition	As Coated	Procedure Ref. No.	W1013
Photo Ref. No.	As per report	Anomaly Report Ref. No.	N/A
Equipment	PA Harnose & Co	Contraction in Contract to Contract Con	- Automotive

### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers T1L (Left Facing Downhill) & T3L (Left Facing Downhill) of the Sheiling Platter Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

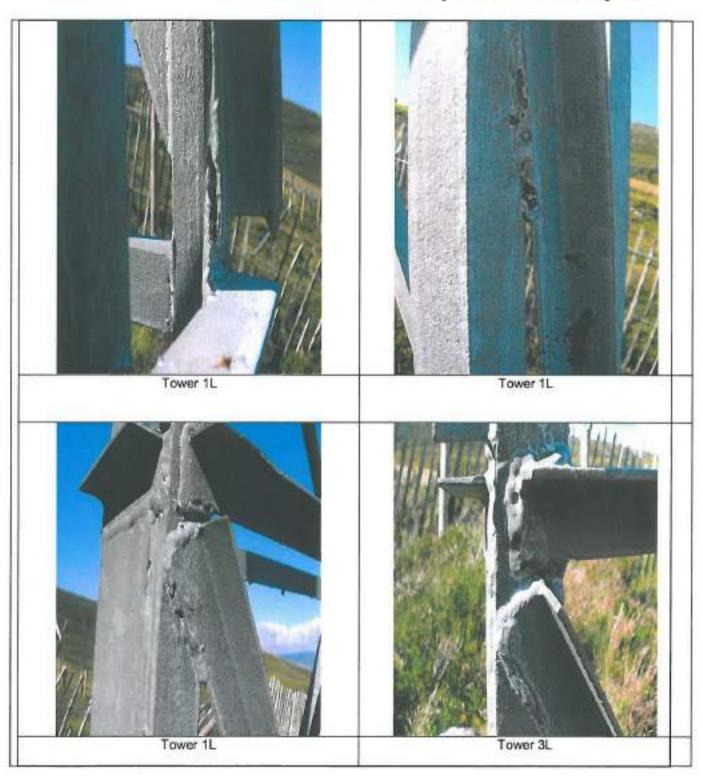
All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-003).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition. Porosity Found throughout lattice tower welds. Some signs of coating breakdown with light corrosion of weld caps.

See photographs below.

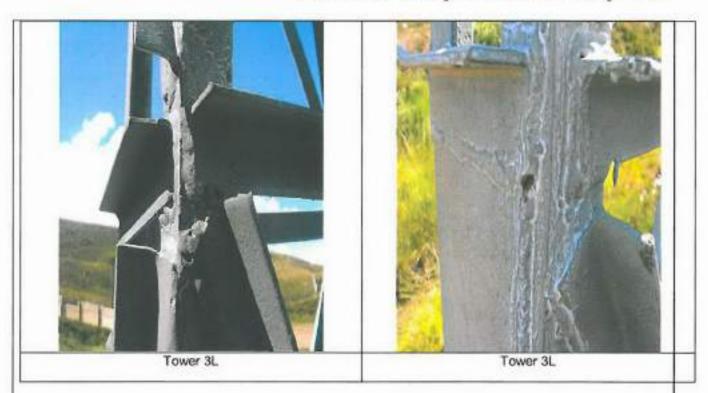
This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.





**Aqua**Terra

### Visual Inspection Report



INSPECTOR

AQUATERRA GROUP LTD

AQUATERRA

DATE

DATE

MIDMILL

KINTORE

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Job No.	SJ 1021	1	Order No		HMS 9346524	Location	Cairngorm Mountain
Client	Highlan Island Enterpr		Report No	0.	CM-CV-004	Date	09/08/2014
Procedure	WI013		**	A	ceptance Criteria	As per p	rocedure
Technician				Q	ualification	PCN 2	
Type of insp	pection		General V	isua	1 1	Close Visu	ıal

Inspection Details			
Item Inspected	Coire Cas T-Bar		
Item Ref. No.	Tow 5	Drawing Ref No.	CA6584/03
Surface Condition	As Coated	Procedure Ref. No.	W1013
Photo Ref. No.	As per report	Anomaly Report Ref. No.	N/A
Equipment	RA Harness & Ca	amera	***************************************

#### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers A, C & E and 2, 5 & 9 of the Coire Cas T-Bar. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-003).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition. Stiffener Web Welds on T5 showed some porosity. Junction Box on T9 hanging off and mechanical damage noted on Stiffener Web Trims.

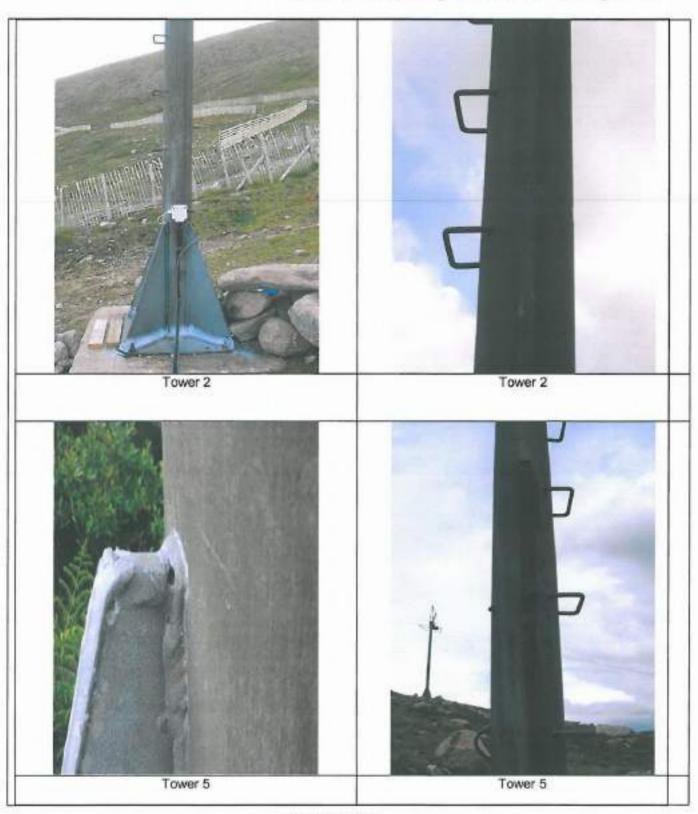
See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

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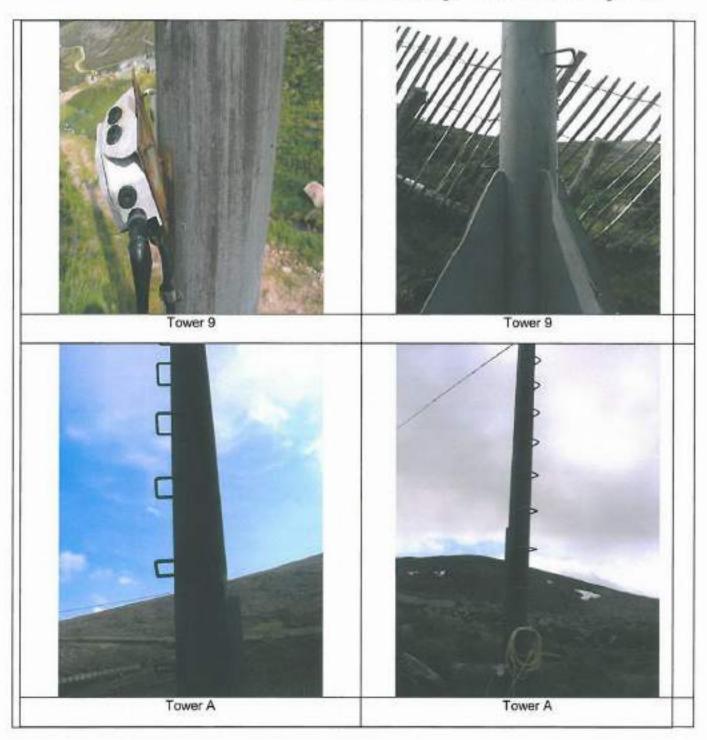


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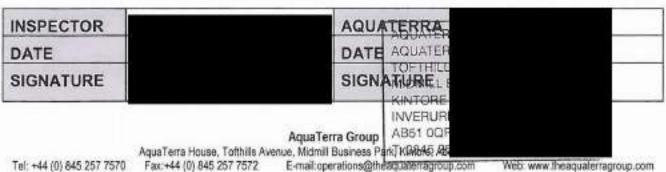


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# **Aqua**Terra

### Visual Inspection Report





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Job No.	SJ 1021	Order No.		HMS 9346524	Location	Cairngorm Mountain
Client	Highlands & Island Enterprise	Report No		CM-CV-005	Date	09/08/2014
Procedure	WI013	×	Ac	ceptance Criteria	As per pr	ocedure
Technician			Qu	alification	PCN 2	

Type of inspection	General '	Visual Close	Visual	
Inspection Details	Woodening of the same			
Item Inspected	M1 Poma			
Item Ref. No.	Tow 6	CA6584/03		
Surface Condition	As Coated	Tow 6 Drawing Ref No. As Coated Procedure Ref. No.		
Photo Ref. No.	As per report	Anomaly Report Ref. No.	N/A	
Equipment	RA Harness & Camera			

### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers 2, 7 & 11 on the M1 Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-005).

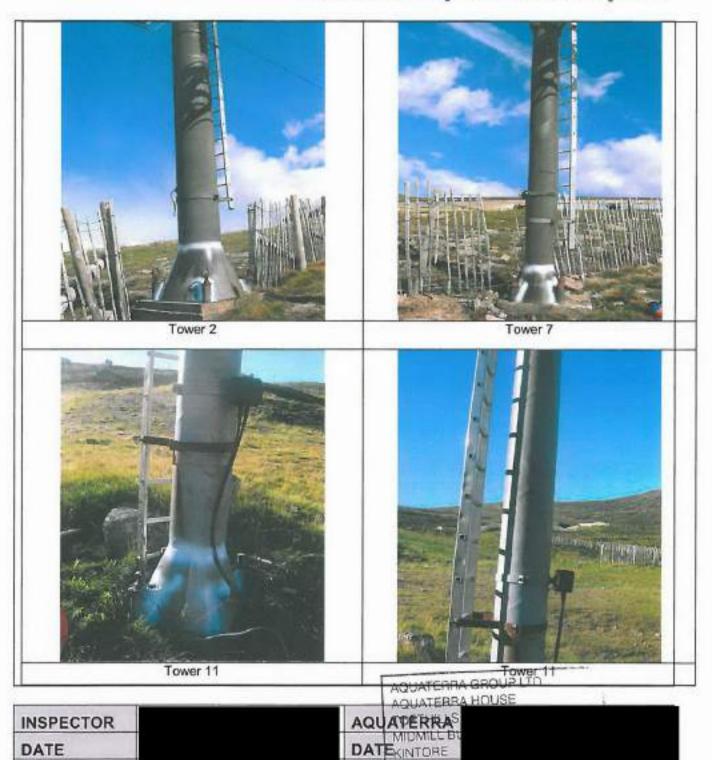
All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

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### Visual Inspection Report



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Job No.	SJ 1021	Order No.	HMS 9346524	Location	Cairngorm Mountain
Client	Highlands & Island Enterprise	Report No	. CM-CV-006	Date	09/08/2014
Procedure	WI013	7/	Acceptance Criter	ia As per pr	ocedure
Technician			Qualification	PCN 2	

Type of inspection	General Vi	sual Close	Visual	
Inspection Details			Andrew .	
Item Inspected	Coire Na Ciste T-B	ar		
Item Ref. No.	Tow 8	Tow 8 Drawing Ref No.		
Surface Condition	As Coated	Procedure Ref. No.	W1013	
Photo Ref. No.	As per procedure	Anomaly Report Ref. No.	N/A	
Equipment	RA Harness & Camera			

#### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers 2, 4 & 7 on the Coire Na Ciste T-Bar. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-006).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

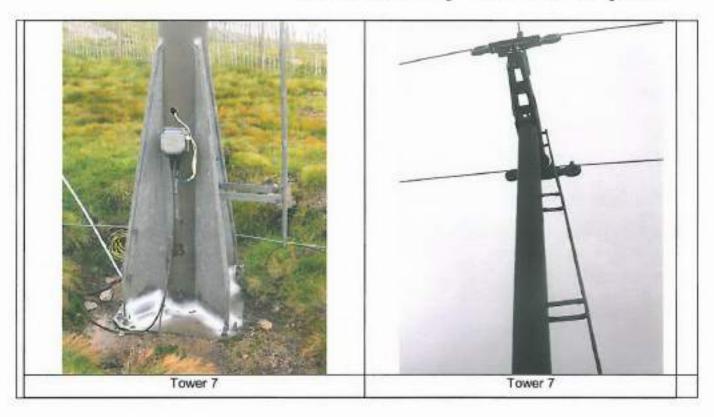




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Job No.	SJ 1021	Order No.		HMS 9346524	Location	Cairngorm Mountain
Client	Highlands & Island Enterprise	Report No		CM-CV-007	Date	09/08/2014
Procedure	WI013		Ac	ceptance Criteria	As per pr	ocedure
Technician			Qu	alification	PCN 2	

Type of inspection	General C	Visual Close	Visual		
Inspection Details					
Item Inspected	Polar Express Po	oma			
Item Ref. No.	Tow 9	Drawing Ref No.	CA6584/03		
Surface Condition	As Coated	Procedure Ref. No.	W1013		
Photo Ref. No.	As per report	Anomaly Report Ref. No.	N/A		
Equipment	RA Harness & Camera				

#### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Tower T1. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

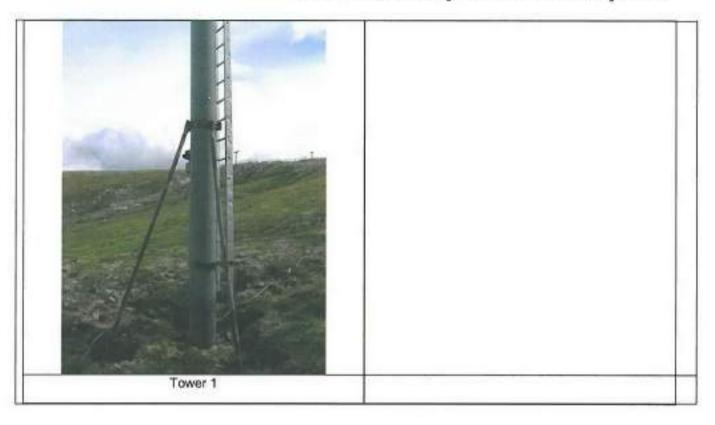
All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-007).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.





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Job No.	SJ 1021	Order No.		HMS 9346524	Location	Cairngorm Mountain
Client	Highlands & Island Enterprise	Report No		CM-CV-008	Date	09/08/2014
Procedure	WI013	1200	Ac	ceptance Criteria	As per pr	ocedure
Technician			Qu	ualification	PCN 2	

Type of inspection	☑ General	Visual Close	Close Visual	
Inspection Details				
Item Inspected	Ptarmigan T-Bar			
Item Ref. No.	Tow 10	Drawing Ref No.	CA6584/03	
Surface Condition	As Coated	Procedure Ref. No.	W1013	
Photo Ref. No.	As per report	Anomaly Report Ref. No.	N/A	
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#### INSPECTION RESULTS

Equipment

As per client request a Visual Inspection was carried out on Towers 1, 3 & 5 of the Ptarmigan T-Bar. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

RA Harness & Camera

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-008).

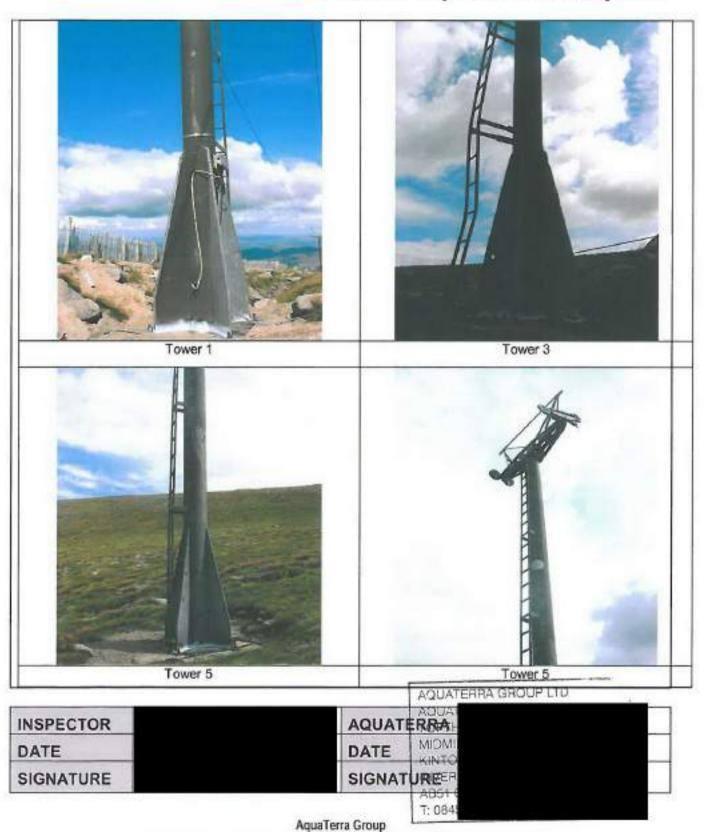
All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.

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Job No.	SJ 1021	Order No.		HMS 9346524	Location	Cairngorm Mountain
Client	Highlands & Island Enterprise	Report No	).	CM-CV-009	Date	09/08/2014
Procedure	WI013		Ac	ceptance Criteria	As per procedure	
Technician		Q		alification	PCN 2	

Type of inspection	☑ General	Visual L Close	☐ Close Visual		
Inspection Details	his law				
Item inspected	West Wall Poma				
Item Ref. No.	Tow 11	Drawing Ref No.	CA6584/03		
Surface Condition As Coated		Procedure Ref. No.	W1013		
Photo Ref. No. As per report		Anomaly Report Ref. No.	N/A		
Equipment	RA Harness & Camera				

#### INSPECTION RESULTS

As per client request a Visual Inspection was carried out on Towers 2, 7 & 15 of the West Wall Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-009).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition apart from Mechanical damage to ladder noted on Tower 15.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.





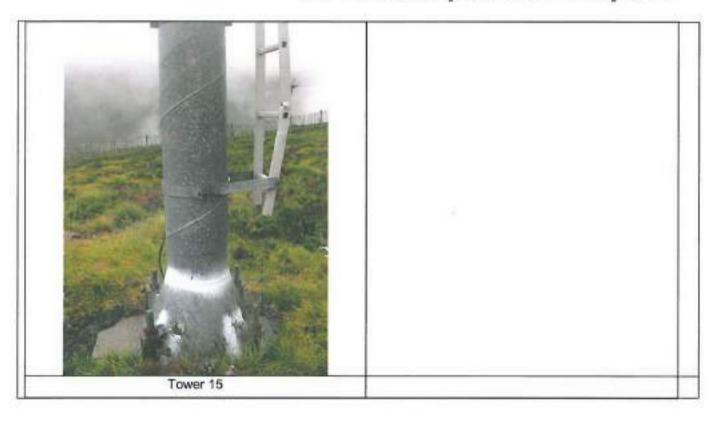
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Job No.	SJ 1021	Order No. Report No.		HMS 9346524 CM-CV-010	Location	Cairngorm Mountain 09/08/2014
Client	Highlands & Island Enterprise					
Procedure	WI013		Acceptance Criteria		As per report	
Technician		Q		alification	PCN 2	

Type of inspection	General '	Visual	Visual			
Inspection Details						
Item Inspected	Day Lodge Poma					
Item Ref. No.	Tow 12	Drawing Ref No.	CA6584/03			
Surface Condition   As Coated		Procedure Ref. No.	W1013			
Photo Ref. No. As per report		Anomaly Report Ref. No.	N/A			

#### INSPECTION RESULTS

Equipment

As per client request a Visual Inspection was carried out on Towers 3, 6 & 9 of the Day Lodge Poma. The Deck Plate Connection welds were 100% visually inspected, this was undertaken in conjunction with Cairngorm work-pack SJ1021.

RA Harness & Camera

All Deck Plate Connection welds are in good condition. Magnetic Particle Inspection was also carried out as part of the work Scope (Report No. CM-MPI-010).

All Anchor Bolts are hand tight with light to moderate corrosion. External fittings up to 3000mm in a safe and orderly condition.

See photographs below.

This work was carried out in accordance with AquaTerra standing instructions as per job No SJ1021 And General Visual Inspection procedures.





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# Visual Inspection Report



AQUATERRA GROUP LTD
AQUATERRA HOUSE

INSPECTOR

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AquaTerra Group

AquaTerra House, Tofthills Avenue, Midmill Business Park, Kintore, Aberdeen AB51 0QP



Job No	SJ102	i in	stallatio		Cairngorm S Fowers	ški	Report No.	C	M-UT-001	
Client	Highlar	nds and Is	ds and Islands				Date	08/08/2014		
Procedure	WI015				echnique lumber		TS001			
Equipment	Sonate	est D-10+			Calibration Cert. No.		C9732	9732		
Serial No	100848	i4			Couplant		Polycell	olycell		
Probe Type		Twin Cr	ystal							
Probe Angle		00				- 8				
Crystal Size		10mm								
Frequency		5Mhz								
Serial Number		38690								
Scanning Sens	itivity	40dB	40dB			- 17				
Transfer Corre	ction	+2dB								
Calibration Blo	ck	60546	Sh	ear			N/A			
Reference Bloo	:k	Step Wedge	Th	ickness			5-20mm	Ho	le/Notch e	N/A
Time-Base Rar	ige Comp	ression	50m	nm						
Sensitivity Set	ting-Com	p 2 <sup>nd</sup> 8	WE 100	% FSH			Shear	N/A		
Weld I.D or Iter	n T1,T	3 & T5	NAC 2 1 1 100 10	0			Location	Ptan	migan T-Bar	
Weld Procedur	e N/A						Heat Treatment	N/A		
Drawing No	CA6	584/03		Surface C	Condition	Co	pated		Temp	N/A
Material	Carl	on Steel	Dim	ensions	N/A			C	uantity	3
Identification /		400	rmigan T-		A STATE OF THE PARTY.					

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection.

Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

All measurements are in millimetres (mm)

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Ptarmigan T-Bar Tower 1

T1	12 o/c	3 o/c	6 o/c	9 o/c
500mm	7.8	7.8	7.3	7.6
3000mm	7.5	7.3	7.8	7.1



Ptarmigan T- Bar Tower 3

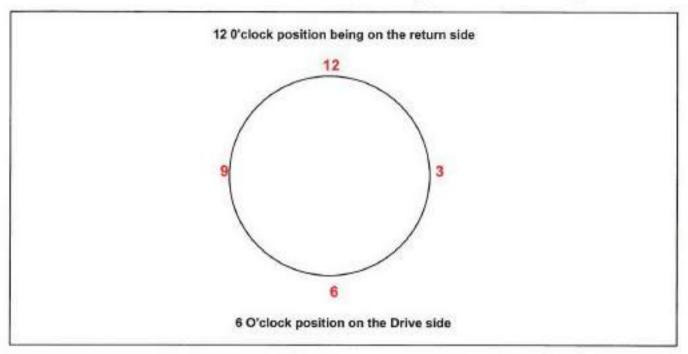
Т3	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.4	8.1	7.5	8.6
3000mm	8.4	8.3	8.2	8.7



Ptarmigan T-Bar Tower 5

T5	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.9	8.1	7.3	8.4
3000mm	8.3	8.5	7,6	8.1





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Job No	SJ102*	Ins	tallation	Cain	ngorm Sk ers	Report No.	CN	N-UT-002	
Client	Highlar	nds and Isl	ands			Date	08/08/2014		
Procedure	WI015		Tech	nnique	TS001				
Equipment	Sonate	est D-10+			bration . No.	C9732	C9732		
Serial No	100848	54	Cou	plant	Polycell	Polycell			
Probe Type		Twin Crys	tal	100					
Probe Angle		00							
Crystal Size	- E-11	10mm							
Frequency		5Mhz				1			
Serial Number		38690							
Scanning Sens	sitivity	40dB							
Transfer Corre	ction	+2dB							
Calibration Blo	ck	60546	Shea	r		N/A			
Reference Blo	ck	Step Wedge	Thick	iness		5-20mm	Hol Size	e/Notch	N/A
Time-Base Rar	nge Comp	ression	50mm			-y			
Sensitivity Set	ting-Com	p 2 <sup>nd</sup> BV	WE 100%	FSH		Shear	N/A		
Weld I.D or Iter	m T1					Location	Polar	Express Po	ma
Weld Procedur	re N/A		- 10			Heat Treatment	N/A		
Drawing No	CA6	584/03	s	urface Con	dition	Coated		Temp	N/A
Material	Cart	on Steel	Dimer	sions	N/A		Q	uantity	1
Identification /	e	n no		Poma Tower	020		7.7.		

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection.

Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

All measurements are in millimetres (mm)

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**Aqua**Terra

# **Ultrasonic Inspection Report**



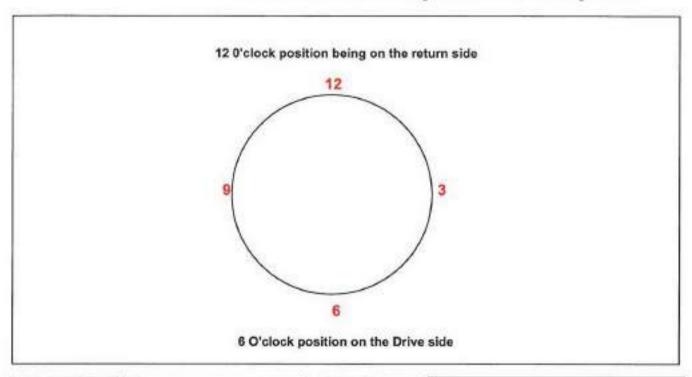
Polar Express Poma Tower 1

T1	12 o/c	3 o/c	6 o/c	9 o/c
500mm	4.9	4.8	4.3	4.4
3000mm	4.5	4.3	4.9	4.6

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INSPECTOR	AQUATERRA	AA
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Job No	SJ1021	In	tallation	To To	airngorm S owers	iki	Report No.	C	M-UT-003	
Client	Highlar	ds and Is	lands				Date	08/08/2014		
Procedure	WI015				echnique umber		TS001			
Equipment	Sonate	est D-10+			alibration ert. No.		C9732	<b>&gt;9732</b>		
Serial No	100845	i4			ouplant		Polycell	all		
Probe Type	100	Twin Cry	stal							
Probe Angle		Oa		5						
Crystal Size		10mm								
Frequency		5Mhz								
Serial Number		38690								
Scanning Sens	itivity	40dB								
Transfer Corre	ction	+2dB								
Calibration Blo	ck	60546	She	ear			N/A	03-2-		57
Reference Blo	k	Step Wedge	Thi	ckness			5-20mm	Ho	le/Notch te	N/A
Time-Base Ran	ge Comp	ression	50m	m			91			1/4
Sensitivity Set	ting-Com	2 2 d B	WE 1009	% FSH			Shear	N/A		
Weld I.D or Iter	n T2,T	7 & T11		Tellines .			Location	M1 I	Poma	
Weld Procedur	e N/A						Heat Treatment	N/A		
Drawing No	CA68	84/03		Surface Co	ondition	Co	ated		Temp	N/A
Material	Cart	on Steel	Dim	ensions	N/A			0	uantity	3
Identification /	~		no di sala	wers T2,T7	2000000					100

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection.

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#### All measurements are in millimetres (mm)

#### AquaTerra Group

# **Aqua**Terra



M1 Poma Tower 2

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	11.1	11.1	11.1	11.2
3000mm	7.4	7.4	7.5	7.7

# **Aqua**Terra



M1 Poma Tower 7

T7	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.2	8.9	8.2	8.2
3000mm	8.8	8.7	8.8	8.7



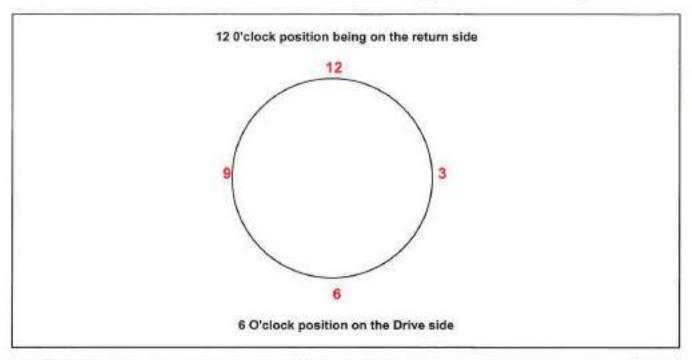
M1 Poma Tower 11

T11	12 o/c	3 o/c	6 o/c	9 o/c
500mm	4.5	4.8	5.2	5.2
3000mm	4.9	5.3	4.8	5.3

AquaTerra Group

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Job No	SJ102	In	stallation		Cairngorm 9 Towers	ški	Report No.	С	M-UT-004	
Client	Highlar	nds and Is	lands				Date	06	8/08/2014	
Procedure	WI015				Technique Number		TS001			
Equipment	Sonate	st D-10+			Calibration Cert. No.		C9732	9732		
Serial No	100848	54			Couplant		Polycell			
Probe Type		Twin Cry	stal	- 30	7.5					
Probe Angle		0°	3-11-00	- 1						
Crystal Size		10mm								
Frequency		5Mhz								
Serial Number		38690								
Scanning Sens	sitivity	40dB								
Transfer Corre	ction	+2dB								
Calibration Blo			ear			N/A				
Reference Blo	eference Block Step Thickney Wedge		ickness			5-20mm	Ho Siz	le/Notch	N/A	
Time-Base Rai	nge Comp	ression	50m	ım			)			
Sensitivity Set	ting-Com	p 2 <sup>nd</sup> B	WE 1009	% FSH			Shear	N/A		
Weld I.D or Ite	m T2,T	4 & T7					Location	Coire Na Ciste T-Bar		-Bar
Weld Procedu	ne N/A						Heat Treatment	N/A		
Drawing No	CA6	584/03		Surface	Condition	Co	oated		Temp	N/A
Material	Car	oon Steel	Dim	ensions	N/A			C	Quantity	3
Identification /			e Na Cis	oen La Comercia	anner o di se	A	85700			

#### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Caimgorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

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All measurements are in millimetres (mm)

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Coire Na Ciste Tower 2

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.7	9	8.6	8.1
3000mm	7.7	8.8	8	7.9



Coire Na Ciste Tower 4

T4	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.3	8.8	8.3	8.3
3000mm	8.9	9.1	7.8	7.9

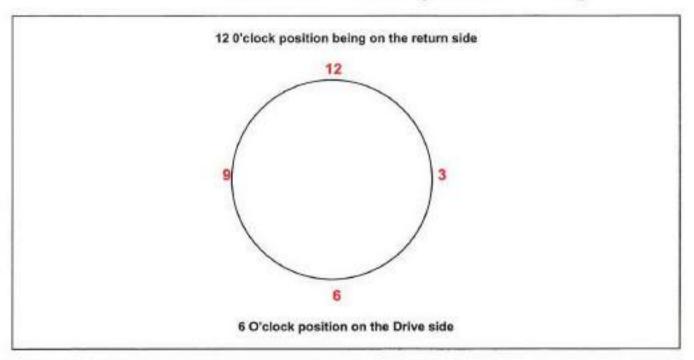




Coire Na Ciste Tower 7

T7	12 o/c	3 o/c	6 o/c	9 o/c
500mm	9.0	9.1	9.2	8.8
3000mm	8.6	8.6	8.9	9.2





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Job No	SJ1021	Ins	tallation		irngorm Si wers	ki R	eport No.	С	M-UT-005	
Client	Highlar	ds and Isla	ands			D	ate	0	3/08/2014	
Procedure	WI015				chnique	T	S001			
Equipment	Sonate	st D-10+		Ca	libration et. No.	0	C9732			
Serial No	100845	4		Co	uplant	P	olycell			
Probe Type		Twin Crys	tal	ii ii						
Probe Angle		0°								
Crystal Size		10mm								
Frequency		5Mhz		.0						
Serial Number		38690								
Scanning Sens	sitivity	40dB								
Transfer Corre	ction	+2dB		5						
Calibration Blo	dibration Block 60546		She	ar		N/	A	0.0		
Reference Block Step Wedge		Thic	kness		5-2	0mm	Ho Siz	le/Notch e	N/A	
Time-Base Ra	nge Comp	ression	50mn	1		400				
Sensitivity Set	ting-Com	2 <sup>nd</sup> BV	VE 100%	FSH		Sh	ear	N/A		
Weld I.D or Ite	m T2,T	7 & T15	-1.6.7.7.4.16.16.16			Lo	cation	West Wall Poma T- Bar		T- Bar
Weld Procedu	ne N/A					He	eat eatment	N/A		
Drawing No	CA65	84/03		Surface Co	ndition	Coate	d		Temp	N/A
Material	Cart	on Steel	Dime	nsions	N/A			C	uantity	3
Identification /	Partie No.	10/2-2	VALUE PAR	na T- Bar 1			2720			

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

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#### All measurements are in millimetres (mm)

### AquaTerra Group



West Wall Poma Tower 2

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	5.3	5.3	5.8	5.5
3000mm	4.9	5.1	4.8	4.8



West Wall Poma Tower 7

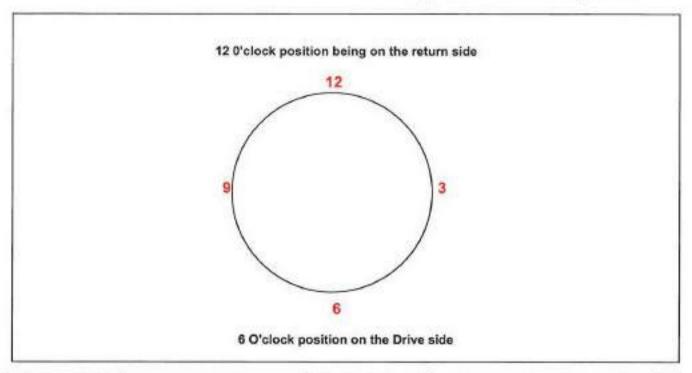
T7	12 o/c	3 o/c	6 o/c	9o/c
500mm	7.4	8.3	8.4	7.7
3000mm	7.2	7.8	7.8	7.8



West Wall Poma Tower 15

T15	12 o/c	3 o/c	6 o/c	9 o/c
500mm	4.8	4.8	4.8	5.3
3000mm	4.8	4.9	4.9	4.6





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ASF027 REV11



Client Procedure Equipment Serial No Probe Type Probe Angle Crystal Size	Wi015 Sonatest 1008454	win Cryst		Techr Numb Calibr Cert. Coup	er ration No.	TS001 C9732 Polycell	08	3/08/2014	
Equipment Serial No Probe Type Probe Angle Crystal Size	Sonatest 1008454	win Cryst	al	Numb Calibr Cert.	er ration No.	C9732			
Serial No Probe Type Probe Angle Crystal Size	1008454 T	win Cryst	al	Cert.	No.	0.0000			
Probe Type Probe Angle Crystal Size	1	0	al	Coup	lant	Polycell			
Probe Angle Crystal Size		0	al			- Orycon			
Crystal Size									
	1	n						-	2012
		0mm							
Frequency	5	Mhz							
Serial Number	3	8690							
Scanning Sensi	tivity 4	0dB							
Transfer Correc	tion +	+2dB							
Calibration Bloc	k 6	60546 Shear				N/A	-		
Reference Block		Step Thickness Wedge		ness		5-20mm	20mm Hole/Notch Size		N/A
Time-Base Rang	ge Compre		50mm			W			
Sensitivity Setti	ng-Comp	2 <sup>nd</sup> BW	E 100% F	SH		Shear	N/A		
Weld I.D or Item	T3,T6	& T9				Location	Day Lodge Poma		1
Weld Procedure	N/A					Heat Treatment	N/A		
Drawing No	CA658	4/03	Si	urface Cond	tion C	Coated		Temp	N/A
Material	Carbo	n Steel	Dimen	sions	N/A		C	uantity	3

#### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

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AguaTerra Group

AquaTerra House, Tofthills Avenue, Midmill Business Park, Kintore, Aberdeen AB51 0QP



Day Lodge Poma Tower 3

Т3	12 o/c	3 o/c	6 o/c	9 o/c
500mm	10.5	10.5	10.4	10.5
3000mm	5.6	5.7	5.5	5.4



Day Lodge Poma Tower 6

Т6	12 o/c	3 o/c	6 o/c	9 o/c
500mm	5.6	4.8	4.9	4.8
3000mm	4.8	4.7	4.7	4.8



Day Lodge Poma Tower 9

Т9	12 o/c	3 o/c	6 o/c	9 o/c
500mm	4.9	4.9	4.9	4.9
3000mm	4.6	4.6	4.6	4.8

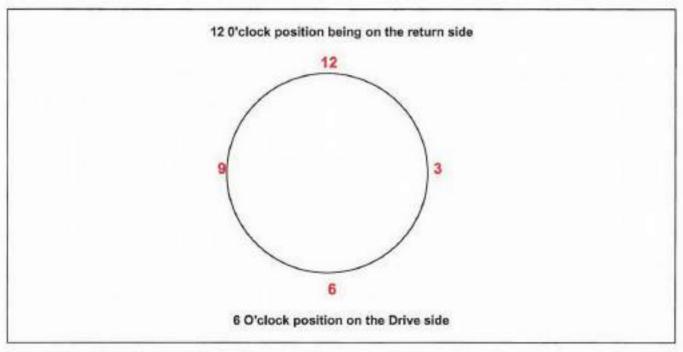
AquaTerra Group

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Job No	SJ1021	Ins	tallation		mgorm S vers	ki	Report No.	C	M-UT-007	
Client	Highlan	ds and Isla	ands				Date	08/08/2014		
Procedure	WI015	i			hnique		TS001			
Equipment	Sonate	test D-10+			ibration t. No.		C9732			
Serial No	100845	54		Cou	plant		Polycell			
Probe Type		Twin Crystal								
Probe Angle		0°								1850
Crystal Size		10mm								
Frequency		5Mhz								-211-
Serial Number		38690								
Scanning Sens	sitivity	40dB								
Transfer Corre	ction	+2dB	IB .							
Calibration Blo	ck	60546	Shea	r			N/A			
Reference Blo	ck	Step Wedge	Thic	kness			C 20 20 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		le/Notch re	N/A
Time-Base Rar	ige Comp	ression	50mm	1		70				
Sensitivity Set	ting-Comp	2 <sup>nd</sup> BV	VE 100%	FSH			Shear	N/A		
Weld I.D or Iter	m T2,T6	8 T11	T11				Location	Car	Park T-Bar	
Weld Procedur	re N/A					-	Heat Treatment	N/A		
Drawing No	CA65	84/03	5	urface Cor	ndition	Co	ated		Temp	N/A
Material	Cart	on Steel	Dime	nsions	N/A			(	Quantity	3
Identification /		2000	ark T-Ba	and the convenience	erit (descrip	e17.				

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

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Car Park T-Bar Tower 2

T2	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.8	8.1	8.1	8.0
3000mm	7.5	7.1	7.2	7.3

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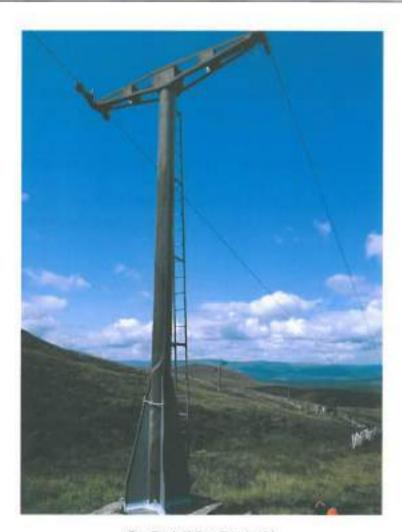
Car Park T-Bar Tower 6

T6	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.7	8.1	8.1	8.6
3000mm	8.6	8.4	8.7	7.9

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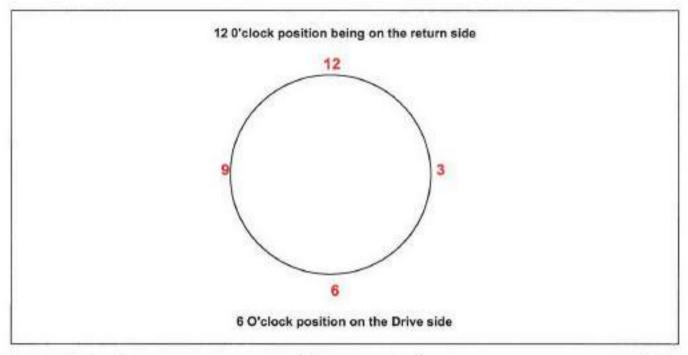
Car Park T-Bar Tower 11

T11	12 o/c	3 o/c	6 o/c	9 o/c
500mm	8.5	8.9	9.0	8.3
3000mm	7.9	8.9	8.8	8.2

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Client Procedure	Highlan		allation	Cairngom	SKI	Report No.	CM	1-UT-008	
Procedure	riigriiani	is and Isla	inds			Date	08/08/2014		
	WI015		Techniqu	е	TS001				
Equipment	Sonates	est D-10+		Calibration Cert. No.	n	C9732			
Serial No	1008454	54 C		Couplant	2	Polycell			
Probe Type		Twin Crystal							
Probe Angle		Do.					- 1		
Crystal Size		10mm						-	
Frequency		5Mhz							
Serial Number		38690							
Scanning Sens	itivity	40dB							
Transfer Corre	ction	+2dB							
Calibration Blo	ck	80546	Shear	nr N/A					
Reference Bloc		Step Wedge	Thick	ness		5-20mm Hole/Notc Size			N/A
Time-Base Ran	ge Compr	ession	50mm						
Sensitivity Sett	ing-Comp	2 <sup>nd</sup> BW	/E 100% F	SH		Shear	N/A		
Weld I.D or iten	TA,TO	C,TE,T2,T5 & T9				Location	Coire Cas T-Bar		
Weld Procedur	e N/A					Heat Treatment	N/A		
Drawing No	CA65	34/03	Su	urface Condition	C	oated		Temp	N/A
Material	Carb	on Steel	Dimens	sions N	/A		QL	antity	6

### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

All measurements are in millimetres (mm)

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Coire Cas T-Bar Tower A

TA	12 o/c	3 o/c	6 o/c	9 o/c
500mm	7.7	8.5	8.5	8.5
3000mm	8.2	8.3	8.6	8.9

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Coire Cas T-Bar Tower 2

T2	12 o/c	3 o/c	6 o/c	9 o/c 8.1	
500mm	9.4	8.8	9.0		
3000mm	9.3	8.8	9.5	8.4	



Coire Cas T-Bar Tower C

TC	12 o/c	3 o/c	6 o/c	9 o/c 7.8	
500mm	7.7	7.6	7.7		
3000mm	7.8	7.9	8.3	7.9	

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Coire Cas T-Bar Tower 5

T5	12 o/c	3 o/c	6 o/c	9 o/c 8.6	
500mm	8.7	8.9	8.5		
3000mm	7.7	8.4	7.8	7.8	

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Coire Cas T-Bar Tower E

TE	12 o/c	3 o/c	6 o/c	9 o/c	
500mm	8.0	8.8	8.6	9.0	
3000mm	7.6	7.9	8.1	7.8	

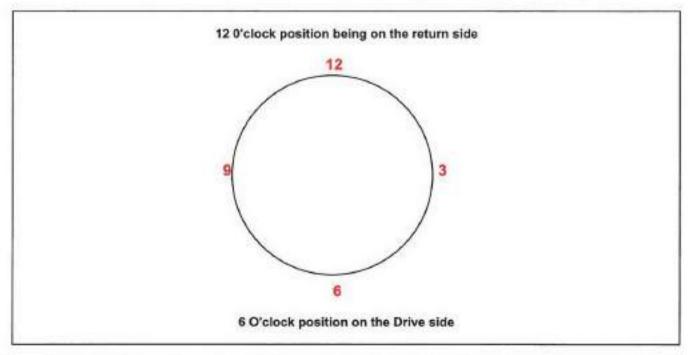
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Coire Cas T-Bar Tower 9

T9	12 o/c	3 o/c	6 o/c	9 o/c 9.1	
500mm	8.3	8.9	8.6		
3000mm	8.5	8.3	8.5	8.4	





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ASF027 REV11



Job No	SJ1021	Inst	allation		rngorm Sk wers	Report No.	CI	M-UT-2014-0	009
Client	Highlan	ds and Isla	inds			Date	08	1/08/2014	
Procedure	WI015				chnique mber	TS001			
Equipment	Sonate	t D-10+		The second second	libration rt. No.	C9732			
Serial No	100845	4		Co	uplant	Polycell			
Probe Type		Twin Crys	tal						
Probe Angle	-	0°							
Crystal Size		10mm							
Frequency		5Mhz							
Serial Number		38690							
Scanning Sens	itivity	40dB							
Transfer Corre	ction	+2dB				1			
Calibration Blo	ck	60546	She	ar		N/A	_		_
Reference Bloo		Step Wedge				5-20mm	Ho! Siz	le/Notch e	N/A
Time-Base Rar	ge Comp	ression	50mr	n					
Sensitivity Set	ting-Comp	2 <sup>nd</sup> BV	VE 100%	FSH		Shear	N/A		
Weld I.D or Iter	n T2,T6	& T9	VIV. \$ 35-0530.			Location	Flace	aill Ridge Po	ma
Weld Procedur	e N/A					Heat Treatment	N/A		
Drawing No	CA65	84/03		Surface Co	ndition	Coated		Temp	N/A
Material	Carb	on Steel	Dime	nsions	N/A		Q	uantity	3
Identification /	Sorial No.	Fines	III Didan	Poma T2,T	e e To				

#### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Spot checks at four cardinal points 12,3,6,9 o'clock measured 500mm and 3000mm up from the base plate of the tower have been recorded. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection.

Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

All measurements are in millimetres (mm)

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Fiacaill Ridge Poma Tower 2

T2	12 o/c	3 o/c	6 o/c	9 o/c 6.3	
500mm	6.6	6.4	6.4		
3000mm	6.5	6.3	5.6	6.5	

## **Ultrasonic Inspection Report**



Fiacaill Ridge Poma Tower 6

Т6	12 o/c	3 o/c	6 o/c	9 o/c 9.8	
500mm	9.8	9.6	9.9		
3000mm	9.8	9.8	9.8	9.6	

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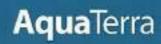
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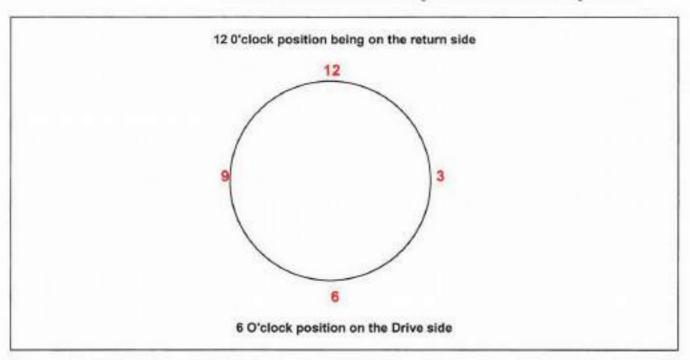
## **Ultrasonic Inspection Report**



Fiacaill Ridge Poma Tower 9

Т9	12 o/c	3 o/c	6 o/c	9 o/c 9.4	
500mm	9.1	9.2	9.4		
3000mm	9.3	9.7	9.1	9.4	





DATE DATE SIGNATURE
SIGNATURE



Job No	SJ102	Ins	tallation	Cain	ngorm Sk ers	Report No.	CM-L	JT-010	
Client	Highlar	nds and Isla	ands			Date	08/08	3/2014	
Procedure	WI015			Tech	nnique	TS001	-		
Equipment	Sonate	st D-10+			ration . No.	C9732			
Serial No	100845	54		Cou	plant	Polycell			
Probe Type	**	Twin Crys	tal						
Probe Angle		0°							
Crystal Size	-	10mm							
Frequency		5Mhz							
Serial Number		38690							
Scanning Sens	sitivity	40dB							
Transfer Corre	ction	+2dB				4			
Calibration Blo	ock	60546	Shea	ır		N/A			
Reference Blo	ck	Step Wedge	Thic	kness		5-20mm	Hole/I Size	Notch	N/A
Time-Base Ra	nge Comp	ression	50mm	1		N-			
Sensitivity Set	ting-Com	p 2 <sup>nd</sup> BV	VE 100%	FSH		Shear	N/A		
Weld I.D or Ite	m T1L	& T3L				Location	Shelling	Platter P	oma
Weld Procedu	re N/A					Heat Treatment	N/A		
Drawing No	CA6	584/03	s	urface Con	dition	Coated	Т	emp	N/A
Material	Cart	on Steel	Dime	nsions	N/A		Qua	ntity	2
Identification /	Paris No.	Ch-0	- Distri	r Poma Tow	741				100

#### INSPECTION RESULTS/SKETCH/EXTENT OF TEST

At the request of the client and as per Cairngorm work pack SJ1021, Ultrasonic thickness checks were carried out on the above ski lift towers. Being of lattice construction and different configuration from the other towers, Spot checks at four cardinal points 12,3,6,9 o'clock were taken at the base and 500mm up from the base plate. Wall thickness readings were obtained using the 'echo to echo' technique to take into account coating thickness.

The known nominal thickness for the towers was not available at time of UT inspection. Please refer to attached tabled results and photo's for further illustration and results of inspected areas.

#### All measurements are in millimetres (mm)

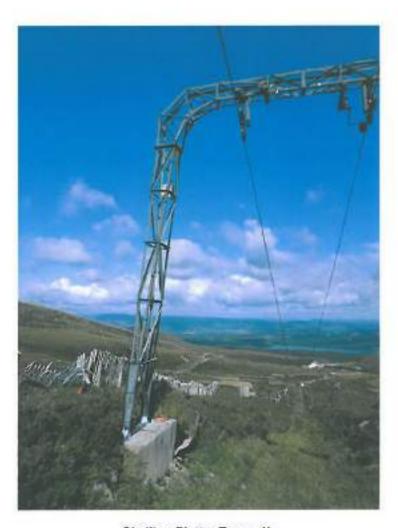
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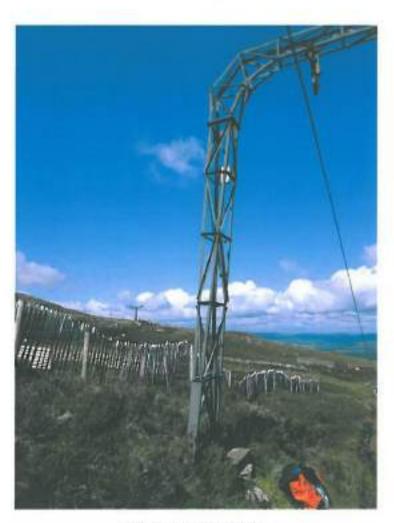
ASF027 REV11 Pag

Page 1 of 4



Sheiling Platter Tower 1L

T1L	12 o/c	3 o/c	6 o/c	9 o/c
Base	7.6	8.6	7.9	8.8
500mm	3.6	3,1	3.5	3.5



Sheiling Platter Tower 3L

T3L	12 o/c	3 o/c	6 o/c	9 o/c
Base	7.0	8.1	7.2	7.3
500mm	3.9	3.7	3.5	3.3

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# **Ultrasonic Inspection Report**



INSPECTOR AQUATERRA DATE DATE SIGNATURE SIGNATURE

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Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 001
Client	Highland Island Enterpris		Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011		0	Acceptance Crite	ria EN-ISO-5	817
Technique S	Sheet	WI011	-TS001			

EQUIPM	IENT USED	TECHNIC	QUE USED	
X Y6 Yoke	s/no. 1203280	X Wet Visible	type: TS001	
Perm. Magnet	s/no.	☐ Wet fluorescent	type:	
DC Electromagnet	s/no.	Current	X AC DC	
UV-A lamp	s/no.	Illum Light level (Lux)	N/A	
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux	
Ink concentration %	1.25-3.5%	Test weight	4.5Kg	
Item/component	Towers 2, 6 & 11 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1	
Identification	Car Park T-Bar	Pole spacing	100mm	
Dimensions	N/A	Quantity 3		
Stage of Test i.e. Pre or Post Heat Treatment		N/A	0	
Surface Prep.	Carbon Steel	Viewing Conditions	Good	

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 6 and 11 of the Car Park T-Bar. Where necessary, coatings were removed.

Tower 2: Restrictions were encountered at stiffener feet where anchor bolts and washers are hard up against the weld cap, toe and Heat Affected Zone (HAZ).

Tower 6: Restrictions were encountered at stiffener feet where anchor bolts and washers are hard up against the weld cap, toe and Heat Affected Zone (HAZ).

Tower 11: 3mm Indication found on Right Hand side (facing up-hill) Stiffener Web. Porosity was also found on all 4 segments of Base Plate Welds. No Restrictions were encountered.

No defects were found on weld joints.

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## MPI Inspection Report



Stand-off Photographic record of Base Plate and Stiffeners on Tower 2. Red Arrows indicate Anchor Bolts and washers impeding inspection of Stiffener Foot Weld and HAZ.



Photographic record showing Deck Plate and Stiffener welds with Anchor bolts on Tower 2.



Photographic record showing 25% of inspection area of Base Plate Welds and Anchor Bolts and Washers on Tower 6.



Further Photographic record showing Anchor Bolts and Washers restricting inspection of Weld Cap and HAZ on Tower 6.

### **MPI Inspection Report**



Photographic Record showing Porosity on Stiffening Web facing up-hill (12 o'clock) on Tower



Photographic Record showing indication measuring 3mm and Porosity on Right Hand side (3 o'clock) Stiffener Web on Tower 11.

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Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 002
Client	Highland Island Enterpris		Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011			Acceptance Criter	ria EN-ISO-5	8171
Technique Sheet WI011-TS001		-TS001				

EQUIPM	IENT USED	TECHNIC	QUE USED	
X Y6 Yoke	s/no. 1203280	Wet Visible	type: TS001	
Perm. Magnet	s/no.	☐ Wet fluorescent	type:	
DC Electromagnet	s/no.	Current	X AC DC	
UV-A lamp	s/no.	Illum. Light level (Lux)	N/A	
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux	
Ink concentration %	1.25-3.5%	Test weight	4.5Kg	
Item/component	Towers 2, 6 & 9 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1	
Identification	Fiacaill Ridge Poma	Pole spacing	100mm	
Dimensions N/A		Quantity	3	
Stage of Test i.e. Pre or Po	ost Heat Treatment	N/A		
Surface Prep.	Carbon Steel	Viewing Conditions	Good	

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 6 and 9 of the Fiacaiil Ridge Poma. Where necessary, coatings were removed.

Tower 2: Restrictions were encountered where internal welds of Anchor Bolt Housings were inaccessible. No other restrictions were encountered. Porosity was found in the "Cone to Tower" weld at 6 o'clock (downhill).

Tower 6: Restrictions were encountered where internal welds of Anchor Bolt Housings were inaccessible. No other restrictions were encountered. No Indications were found.

Tower 9: Restrictions were encountered where internal welds of Anchor Bolt Housings were inaccessible. No other restrictions were encountered. No Indications were found.

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ASF024 REV09

### MPI Inspection Report



Stand-off Photographic record of Base Plate Cone and Anchor Bolt Housings on tower 2. Restrictions encountered within housings indicated by red arrows.



Photographic record showing Porosity in "Cone to Tower" weld at 6 o'clock (downhill) on Tower 2.



Photographic record showing extent of Magnetic Particle Inspection area at Base Plate Cone to Tower and Housing Welds and Anchor Bolts on Tower 6.



Photographic record showing Anchor Bolts/Washers and Cone to Tower Weld on Tower 9. High tensile wires are termination points for snow fences following the tow up the hill.

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Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 003
Client	Highland Island Enterpris		Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011			Acceptance Crite	eria EN-ISO-5	817
Technique S	Sheet	WI011	-TS001			

EQUIPM	EQUIPMENT USED		QUE USED	
X Y6 Yoke	s/no. 1203280	X Wet Visible	type: TS001	
Perm. Magnet	s/no.	☐ Wet fluorescent	type:	
DC Electromagnet	s/no.	Current	X AC DC	
UV-A lamp	s/no.	Illum, Light level (Lux)	N/A	
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux	
Ink concentration %	1.25-3.5%	Test weight	4.5Kg	
Item/component	Towers T1L & T3L (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1	
Identification	Sheiling Platter Poma	Pole spacing	100mm	
Dimensions	N/A	Quantity	2	
Stage of Test i.e. Pre or Post Heat Treatment		N/A		
Surface Prep. Carbon Steel		Viewing Conditions	Good	

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers T1L (Left looking down-hill) and T3L (Left looking down-hill) of the Shelling Platter Poma. Where necessary, coatings were removed.

Tower T1L: No restrictions were encountered. No Indications were found.

Tower T3L: No restrictions were encountered. No Indications were found.

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ASF024 REV09

## **MPI Inspection Report**



Photographic record of Base Plate connection welds from angled latticework on T1L.



Photographic record showing base plate connection welds from angled lattice work and anchor bolt on T1L (facing down-hill).



Photographic record showing Base Plate connection weld from lattice tower facing down-hill on T3L.



Photographic record showing Square Tubular Base Plate to which Lattice tower was connected and ID.

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SIGNATURE	SIGNATURE

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Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 004
Client	Highland Island Enterpri		Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011	0		Acceptance Crite	ria EN-ISO-5	817
Technique Sheet WI011-TS001		-TS001			0	

EQUIPN	IENT USED	TECHNIC	QUE USED	
X Y6 Yoke	s/no. 1203280	X Wet Visible	type: TS001	
Perm. Magnet	s/no.	☐ Wet fluorescent	type:	
DC Electromagnet	s/no.	Current	X AC DC	
UV-A lamp	s/no.	Illum. Light level (Lux)	N/A	
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux	
Ink concentration %	1.25-3.5%	Test weight	4.5Kg	
Item/component	Towers 2, 5 & 9 and A, C & E (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1	
Identification	Coire Cas T-Bar	Pole spacing	100mm	
Dimensions	N/A	Quantity 6		
Stage of Test i.e. Pre or Post Heat Treatment		N/A		
Surface Prep. Carbon Steel		Viewing Conditions	Good	

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 5 & 9 and A, C & E of the Coire CasT-Bar. Where necessary, coatings were removed.

Tower 2: No restrictions were encountered. A 7mm Indication on right hand side Stiffener facing down-hill was found.

Tower 5: No restrictions were encountered. No Indications were found.

Tower 9: No restrictions were encountered. An 11mm Indication was found at the foot of the Stiffener web on the Left hand side looking up-hill.

Tower A: Restrictions were encountered when trying to inspect Tower to Deck connection weld facing up-hill (12 o'clock). An extra Square Tubular Stiffening section has been stitch welded to the Tower and Base Plate which rises 1 and a half meters up Tower A.

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Tower C: No Restrictions were encountered. Porosity on Tower Deck connection weld and Stiffener Deck connection weld was found on left hand side down-hill Stiffener on Tower C. Porosity found Throughout Deck Connection welds on Tower C.

Tower E: No restrictions encountered. Undercutting was found on Tower to Deck Connection weld on Tower E facing down-hill. Porosity was also found on Stiffener Deck Connection weld on Right hand side Stiffener facing down-hill.



Stand-off Photographic record of Base Plate and Anchor Bolts on Tower 2. No Restrictions encountered. A 7mm Indication was found on the right hand side Stiffener facing down-hill.



Photographic record showing 7mm Indication on right hand side Stiffener facing down-hill on Tower 2 indicated by red arrow.



Photographic record showing 11mm Indication at foot of Stiffener web on Left hand side up-hill Stiffener on Tower 9.



Photographic record showing Porosity on Stiffener Deck Connection weld on left hand side down-hill Stiffener on Tower 9.

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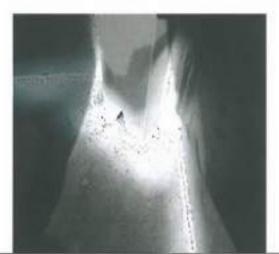
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### MPI Inspection Report



Photographic record showing Extra Stiffening Square Tubular Base Plate connection to Tower which rises 1 and a half meters intermittently welded up Tower A.



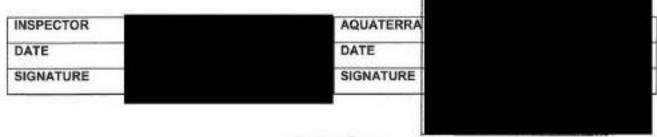
Photographic record showing Porosity on Tower Deck Connection weld and Stiffener Deck connection weld on left hand side down-hill Stiffener on Tower C. Porosity found Throughout Deck Connection welds on Tower C



Photographic record showing undercut on Tower to Deck Connection weld on Tower E down-hill facing.



Photographic record showing Porosity on Stiffener Deck Connection weld on Right hand side down-hill Stiffener on Tower E.



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Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 005
Client	Highland Island Enterpris		Installation	Caimgorm Mountain	Date	09/08/2014
Procedure	WI011			Acceptance Criter	ria EN-ISO-5	817
Technique S	Sheet	WI011	-TS001			

EQUIPM	ENT USED	TECHNIC	QUE USED
X Y6 Yoke	s/no. 1203280	X Wet Visible	type: TS001
Perm. Magnet	s/no.	☐ Wet fluorescent	type:
DC Electromagnet	s/no.	Current	X AC DC
UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 2, 7 & 11 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	M1 Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Po	ost Heat Treatment	N/A	
Surface Prep.	Carbon Steel	Viewing Conditions	Good

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

ASF024 REV09

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 7 & 11 of the M1 Poma. Where necessary, coatings were removed.

Tower 2: Restrictions were encountered to inspection on internals of Anchor Bolt Housings. No Indications Found.

Tower 7: Restrictions were encountered to inspection on internals of Anchor Bolt Housings. No Indications Found.

Tower 11: Restrictions were encountered to inspection on internals of Anchor Bolt Housings. Porosity was found on Anchor Bolt Housing weld on Left hand side facing down-hill. Undercutting was found on Left hand side (9 o'clock position. Porosity was also found on right hand side Cone to Tower Weld facing down-hill.

AquaTerra Group

Page 1 of 3

AquaTerra House, Tofthills Avenue, Midmill Business Park, Kintore, Aberdeen AB51 0QP

## **MPI Inspection Report**



Photographic record of Base Plate and Anchor Bolt Housing on Tower 2. Restrictions were encountered on internal Base Cone Connection from Anchor Bolt Housing.



Photographic record showing Porosity on right hand side Cone to Tower Weld facing down-hill on Tower 11 indicated by red arrow.



Photographic record showing Porosity on Anchor Bolt Housing weld on Left hand side down-hill facing on Tower 11.



Photographic record showing Undercut on Left hand side (9 o'clock position) on tower 11.

AquaTerra Group

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## **MPI Inspection Report**

	AQUATERRA
DATE	DATE
SIGNATURE	SIGNATURE



Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 006
Client	Highland Island Enterpri		Installation	Caimgorm Mountain	Date	09/08/2014
Procedure	WI011			<b>Acceptance Crite</b>	ria EN-ISO-5	817
Technique S	Sheet	WI011	-TS001	3000		

EQUIPM	ENT USED	TECHNIC	QUE USED
X Y6 Yoke	s/no. 1203280	X Wet Visible	type: TS001
Perm. Magnet	s/no.		type:
DC Electromagnet	s/no.	Current	X AC DC
UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 2, 4 & 7 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Coire Na Ciste T-Bar	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Po	ost Heat Treatment	N/A	W.C
Surface Prep.	Carbon Steel	Viewing Conditions	Good

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 4 & 7 of the Coire Na Ciste T-Bar. Where necessary, coatings were removed.

Tower 2: Porosity Found throughout Anchor Bolt Housing to Web welds on Base Plate Connection to Stiffener web on Tower 2. 55mm indication on Base Plate Stiffener Web Trim (Non Structural) on T2.

Tower 4: No Indications were found and no restrictions encountered

Tel: +44 (0) 845 257 7570

Tower 7: Extra "L-Plate" weldments to Stiffener webs on Tower 7. No Restrictions were encountered and No Indications found.

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ASF024 REV09 Page 1 of 3

## MPI Inspection Report



Photographic record of Base Plate Connection weld to Stiffener web configuration on Tower 2. Porosity Found throughout Anchor Bolt Housing to Web welds.



Photographic record showing 55mm indication on Base Plate Stiffener Web Trim (Non Structural) on T2.



Photographic record showing 1 of 4 Inspection segments of Tower 4. No Indications were found and no restrictions encountered.

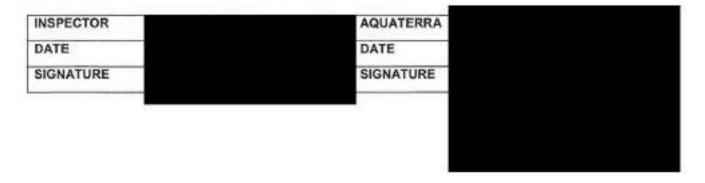


Photographic record showing Extra "L-Plate" weldment to Stiffener web on Tower 7. No Restrictions were encountered and No Indications found.

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Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 007
Client	Highland Island Enterpris		Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011			Acceptance Criter	ria EN-ISO-5	817
Technique S	Sheet	WI011	-TS001			

EQUIPN	IENT USED	TECHNIC	QUE USED
X Y6 Yoke	s/no. 1203280	X Wet Visible	type: TS001
Perm. Magnet	s/no.	☐ Wet fluorescent	type:
DC Electromagnet	s/no.	Current	X AC DC
UV-A lamp	s/no.	Illum, Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Tower 1 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Polar Express Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	1
Stage of Test i.e. Pre or Po	ost Heat Treatment	N/A	
Surface Prep.	Carbon Steel	Viewing Conditions	Good

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Tower 1 of the Polar Express Poma. Where necessary, coatings were removed.

Tower 1: No Restrictions were encountered during inspection and No Indications Found.

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## MPI Inspection Report



Photographic record of Base Plate Connection weld to Tower 1 looking down-hill (6 o'clock). No restrictions were encountered and no indications found.

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Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 008
Client	Highland Island Enterpri		Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011			Acceptance Criter	ria EN-ISO-5	817
Technique S	Sheet	WI011	-TS001			

EQUIPM	ENT USED	TECHNIC	QUE USED
X Y6 Yoke	s/no. 1203280	X Wet Visible	type: TS001
Perm. Magnet	s/no.	☐ Wet fluorescent	type:
DC Electromagnet	s/no.	Current	X AC DC
UV-A lamp	s/no.	Illum. Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 1, 3 & 5 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Ptarmigan T-Bar	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Po	ost Heat Treatment	N/A	20
Surface Prep.	Carbon Steel	Viewing Conditions	Good

#### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 1, 3 & 5 of the Ptarmigan T-Bar. Where necessary, coatings were removed.

Tower 1: Indications found on both Stiffener Webs facing down-hill. 20mm indication on downward Left hand Stiffener web on Tower 1 and 15mm indication on downward web right hand side Tower 1.

Tower 3: 4mm indication on Stiffener to Deck Connection weld on up-hill right hand side. 30mm indication on upward Stiffener Web Trim left hand side (Non Structural).

Tower 5: 25mm indication on Web Stiffener Trim at 3 o'clock Position (looking up hill). Indication does not affect structural integrity of Stiffening Web.

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## MPI Inspection Report



Photographic record of Base Plate and Anchor Bolts on Tower 1. Indications found on both Stiffener Webs facing down-hill.



Photographic record showing 20mm indication on downward Left hand Stiffener web on Tower 1.



Photographic record showing 15mm indication on downward web right hand side Tower 1.



Photographic record showing 4mm indication on Stiffener to Deck Connection weld on Tower 3 Up-hill right hand side.

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### **MPI Inspection Report**



Photographic record showing 30mm indication on upward Stiffener Web Trim left hand side (Non Structural) on Tower 3.



Photographic record showing 25mm indication on Web Stiffener Trim on Tower 5 at 3 o'clock Position (looking up hill). Indication does not affect structural integrity of Stiffening Web.

INSPECTOR	AQUATERRA	
DATE	DATE	
SIGNATURE	SIGNATURE	

ASF024 REV09



### MPI Inspection Report

Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 009
Client	Highland Island Enterpris		Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	WI011			Acceptance Criter	ria EN-ISO-5	317
Technique S	Sheet	WI011	-TS001			

EQUIPM	IENT USED	TECHNIQUE USED				
X Y6 Yoke	s/no. 1203280	Wet Visible	type: TS001			
Perm. Magnet	s/no.	☐ Wet fluorescent	type:			
DC Electromagnet	s/no.	Current	X AC DC			
UV-A lamp	s/no.	Illum. Light level (Lux)	N/A			
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux			
Ink concentration %	1.25-3.5%	Test weight	4.5Kg			
Item/component	Towers 2, 7 & 15 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1			
Identification	West Wall Poma	Pole spacing	100mm			
Dimensions	N/A	Quantity	3			
Stage of Test i.e. Pre or Pr	ost Heat Treatment	N/A	N			
Surface Prep.	Carbon Steel	Viewing Conditions	Good			

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 2, 7 & 15 of the West Wall Poma. Where necessary, coatings were removed.

Tower 1: No Indications found. Restricted Access to Internal Anchor Bolt Housing.

Tower 3: No Indications found. Restricted Access to Internal Anchor Bolt Housing.

Tower 5: No Indications found. Restricted Access to Internal Anchor Bolt Housing.

AquaTerra Group

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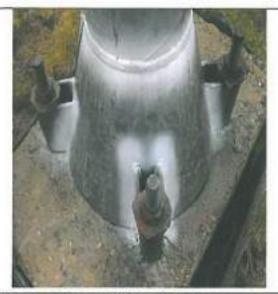
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Web: www.fheaquaterragroup.com

# **Aqua**Terra

### **MPI Inspection Report**



Photographic record of Base Plate Cone and Anchor Bolts and Housings on Tower 2.



Photographic record of Base Plate Cone and Anchor Bolts and Housings on Tower 7.



Photographic record of Base Plate Cone and Anchor Bolts and Housing on Tower 15. Arrow indicates restricted access to internal Anchor Bolt Housing.

INSPECTOR AQUATERRA

DATE

SIGNATURE

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### MPI Inspection Report

Job No	SJ1021		Order No.	HMS 9346524	Report No.	CM-MPI- 010
Client	Highland Island Enterpri		Installation	Cairngorm Mountain	Date	09/08/2014
Procedure	The second secon			Acceptance Crite	ria EN-ISO-5	317
Technique S	Sheet	WI011	-TS001			

EQUIPM	ENT USED	TECHNIC	QUE USED
X Y6 Yoke	s/no. 1203280	X Wet Visible	type: TS001
Perm. Magnet	s/no.	☐ Wet fluorescent	type:
DC Electromagnet	s/no.	Current	X AC DC
UV-A lamp	s/no.	Illum: Light level (Lux)	N/A
UV-A Irradiance	N/A	Ambient light level (Lux)	<500 Lux
Ink concentration %	1.25-3.5%	Test weight	4.5Kg
Item/component	Towers 3, 6 & 9 (Base Plate Connection Welds)	Penetrameter	Foil Strip Type 1
Identification	Day Lodge Poma	Pole spacing	100mm
Dimensions	N/A	Quantity	3
Stage of Test i.e. Pre or Po	st Heat Treatment	N/A	
Surface Prep.	Carbon Steel	Viewing Conditions	Good

### INSPECTION RESULTS /SKETCH/EXTENT OF TEST

As per client request and as part of SJ1021 work scope, Magnetic Particle Inspection was carried out on base plate connection welds on Towers 3, 6 & 9 of the Day Lodge Poma. Where necessary, coatings were removed.

Tower 1: No Indications Found, Restrictions encountered on Internal Anchor Bolt Housing,

Tower 3: No Indications Found, Restrictions encountered on internal Anchor Bolt Housing.

Tower 5: Porosity at 10 o'clock Anchor Bolt Housing facing up hill. Restrictions encountered on internal Anchor Bolt Housing.

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Web: www.theaguaterragroup.com

ASF024 REV09

## **Aqua**Terra

### **MPI Inspection Report**



Photographic record of Base Plate and Anchor Bolt Housing on Tower 3. Restrictions encountered on internal Anchor Bolt Housing.



Photographic record showing Base Plate Cone to Tower Connection on Tower 3.



Photographic record showing Anchor Bolt Housing and internal Restricted Inspection area on Tower 6.



Photographic record showing Porosity at 10 o'clock Anchor Bolt Housing facing up hill on Tower 9.

INSPECTOR	AQUATERRA
DATE	DATE
SIGNATURE	SIGNATURE

AquaTerra Group

AquaTerra House, Tothills Avenue, Midmill Business Park, Kinto Fax:+44 (0) 845 257 7572 E-mail:operations@theaquateri









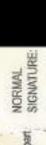
# PCN NUMBER: PRISONNEL CREMITCATION

SSUE NUMBER: 28/03/2013

> Services Division, British Institute of NDT Newton Building, St. George's Avenue, Northampton, NN2 6JB, United Kingdom, E-mail: pon@bindt.org. Tel: +44 01804 883811, Fax: +44 01604 893968

Valid only when signed on behalf of BINDT and impressed with the PCN cold seat:

This document may be withdrawn or revoked in part or in total at any lime.



# EMAIL ADDRESS; POSTAL CODE:

# PART 2 - NOTIFICATION OF PERMANENT CHANGE OF HOLDER'S ADDRESS PART 1 - HOLDER'S DETAILS

PCN NUMBER

of address. Please complete in BLOCK LETTERS, carefully detaitsh this portion (retaining the nemainder as This part is used by the certificate holder to notity the BINDT Certification Records Office of a permanent change

ISSUE DATE: 28/03/2013

evidence of confrictation), and fax or post to: BINDT CRO, Newton Building, St. George's Avenue, Northampton,

NN2 5JB, England, or by emel to PCN, CRO@bindLorg

NAME & ADDRESS:

Further information on the scape of certification available may be obtained from The Certification

RECORD OF PCN CERTIFICATION

NEW ADDRESS:

FULL NAME

TELEPHONE

PART 3 - CERTIFICATION HELD (All certificates comply with EN ISO:9712 unless otherwise stated)

25/03/2018 25/03/2018 EXPIRY DATE 26/03/2013 26/03/2013 ISSUE DATE Fixed installations, Portable equipment, NDT NDT Instruction writing, Single frequency SCOPE OF CERTIFICATE (see over for key to codes) instruction writing METHOD 可 Σ SECTOR 0 3 LEVEL N ISSUE CERTIFICATE NUMBER F011S5425147 F012S3121889

purrent is valid only when presented on original cream paper, and when supported by a laminated wallet card bosing the signature and a photograph of the holder impressed with the PCN cold seal. CEDIT of current certification status is strongly encouraged and is available at www.bindt.org/PCN or by post, telephone, fax or e-mail quoting the unique PCN Mumber or full name shown in Part 1 above.



# RECORD OF PCM CERTIFICATION

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PART 3 - GERTIFICATION HELD. (All certificates comply with EN ISDS712 unless otherwise stand.)

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ISSUE LEVEL	2
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CERTIFICATE NUMBER F01354324456	F01355428022

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### OCEANSCAN LTD

### CERTIFICATE OF CALIBRATION

Oceanscan Ltd

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Certificate Number:					C10002		1
	Contract N	lumber:			25936		]
Description	10	D	ual Light N	leter		Customer	Address:
Unit Model	1	Levy H	fill Dual Lig	Dual Light Meter			ore Road
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Results						Pass	
Location of	Calibratio	n:	As Receive	d / Shipped St	tatus	Calibration	Procedure:
Oceanscan	Ltd		Before Cal:	Out		TM-002/00	04
Denmore R	oad		After Cal:	In			
Bridge of Do	on					Test Stand	lard:
Aberdeen						BSEN3059	2001/85667
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### OCEANSCAN LTD

### CERTIFICATE OF CALIBRATION

Certificate	Number:	C9950
Contract N	lumber:	25936
Description	Permanent Magnet	Customer Address:
Unit Model	Keivu KY-P2	Oceanscan Limited
Serial Number	19007	Denmore Rd.
Received Date	'04/06/2014	Aberdeen,AB23 8JW
Results		Pass
110,000		1435
Location of Calibration		
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Denmore Road	After Cal: In	- CHARLES OF THE CONTROL OF THE CONT
Bridge of Don		Test Standard:
Aberdeen		BS6072 Para 15.3
AB23 8JW		(Superceeded but not withdrawn - ref doc only
	<b>Test Results</b>	
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This is to Certify that the stem registered to ISO9001 anufacturer's specification at prior to the calibration will equipment used of Name:  Function:  Range Signature:	above product has been calibrate using Oceanscan procedures. This and that any adjustments or maint the listed in the accompanying seduring this calibration is all traceal traceal assertions.	d in compliance with a quality s certifies that the above meets enance which has been carried rvice report. The Measurement ole to a National Standard.  Calibration Date: 04/06/2014  Recommended next calibration
This is to Certify that the stem registered to ISO9001 anufacturer's specification at prior to the calibration will equipment used of Name:  Function:  Signature:	above product has been calibrate using Oceanscan procedures. This and that any adjustments or maint the listed in the accompanying seduring this calibration is all traceal tr	d in compliance with a quality s certifies that the above meets enance which has been carried rvice report. The Measurement ole to a National Standard.  Calibration Date: 04/06/2014  Recommended next calibration



Client:		OCEANSCAN LTD	
Certifica	te Number:	C9666	
Contract	Number:	25406	
Description	Electromagnet	Custom	er Address:
Unit Model	MY-2	Denmo	re Road
Serial Number	1203280	Aberde	en
Received Date	02/04/2014	AB23 8	w
Results		Pass	
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Bridge of Don Aberdeen			-3:2002
AB23 8JW		83 3934	-3:2002
	Test Resul	ts	
Condition: Pass	Lift Test: Pa	55 4.53Kg	
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	01 using Oceanscan procedure		
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		and the second second	
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### OCEANSCAN LTD

### CERTIFICATE OF CALIBRATION

Client:	Oceanscan Ltd. UKAS
Certificate Number:	C9732
Contract Number:	25406
Description	Ultrasonic Flaw Detector
Unit Model	D10+
Serial Number	1008454
Received Date	14/04/2014
Results	PASS
Location of Calibration:	Customer Address: Calibration Procedure:
Oceanscan Ltd	Oceanscan Ltd. TM-001
Denmore Road	Denmore Road
Bridge of Don	Bridge of Don Test Standard:
Aberdeen	Aberdeen BSEN12668-1:2010 Group 2
AB23 8JW	AB23 BJW
s Received / Shipped Status	NATURAL CONTROL OF THE PROPERTY OF THE PROPERT
Before Calibration: In: V	Out: N/A:
Mark the state of	Out: N/A:
After Calibration: In: V	_
After Calibration: In: V	
This certificate is issued in accordance	with the Laboratory accreditation requirements of the United Kingdom
This certificate is issued in accordance Accreditation Service. It provides trace	ceability of measurement to the SI system of units and/or to units of
This certificate is issued in accordance Accreditation Service. It provides trac measurement realised at the National	ceability of measurement to the SI system of units and/or to units of Physical Laboratory or other recognised national metrology institutes.
This certificate is issued in accordance Accreditation Service. It provides trace measurement realised at the National his certification may not be reproduced	ceability of measurement to the SI system of units and/or to units of
This certificate is issued in accordance Accreditation Service. It provides trac measurement realised at the National	ceability of measurement to the SI system of units and/or to units of Physical Laboratory or other recognised national metrology institutes.
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This certificate is issued in accordance of Accreditation Service. It provides trace measurement realised at the National his certification may not be reproduced boratory.  Name:	ceability of measurement to the SI system of units and/or to units of Physical Laboratory or other recognised national metrology institutes. I other than in full, except with the prior written approval of the issuing Calibration Date: 14/04/2014
This certificate is issued in accordance Accreditation Service. It provides trac measurement realised at the National his certification may not be reproduced boratory.	ceability of measurement to the SI system of units and/or to units of Physical Laboratory or other recognised national metrology institutes. I other than in full, except with the prior written approval of the issuing Calibration Date: 14/04/2014
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### OCEANSCAN LIMITED

### CERTIFICATE OF CONFORMITY

Serial No: 60546

Model: V2X12.5X1.5

In a 112-waity had two promaty of the depayment noted above is as factories by the Managactures Specification. The lost equipment used has to an calculated and is imposite to Mational Standards.

Celibration Certificate Number:		5168
Customer: Faul (NS) (VI	Description : 0.00 (2) or	I
Manufacturer ; N/A	Specifications : BSEN2704	
Temperature : 21 Offices :	Test Results	
Test Engineer	Visual Dimensions (±0.1mm)	PASS PASS
Date : 68.06.09	LIT Checks	PASS
Signed		
Test Equipment: Cellipiers : n 0000296	Cert No 210032, Due Date 26.06.10	

OCEANSCAN LIMITED
Denmore Road, Bridge of Con
Abordeon, AB238JW
Scotland, UK

TEL +42 (0) 1224 TRIBOD FAX +64 (2) 1224 TURBE HRB(SHO)(0)(5471514)k



### RSL NDT LTD.

REPAIR . SERVICE . CALIBRATION

# Bedificate of Benfirmity

Certification Number:

NE 9997

Date of Calibration;

11.06.2013

Customer:

Oceanscen Ltd.

Description:

5-20mm Steel Stepwedge

20

Material:

C3393143

Heat Treatment;

061539

Serial Number:

13/11/69

Temperature:

19.9

Test Standard;

Micrometers:

SN: W3-2-9801291, Cer. No. 1342303001, UKAS tab. 0096, Cel. Debr. 15.05.13.
SN: W3-3-9310401, Cen. No. 1342303002, UKAS Lab. 0096, Cel. Cele. 15.05.13.
SN: W3-4-9524001, Cen. No. 1342303003, UKAS Lab. 0096, Cel. Debr. 15.05.13.
SN: W3-5-9756201, Cen. No. 1342303000, UKAS Lab. 0096, Cel. Debr. 15.05.13.
SN: W3-5-9805601, Cen. No. 1342303006, UKAS Lab. 0096, Cel. Debr. 15.05.13.
SN: W3-7-9801401, Cen. No. 1342303006, UKAS Lab. 0096, Cel. Debr. 15.05.13.

The equipment used has been calibrated and is traceable to National Standards/

### TEST RESULTS:

Stated Value / mm	Actual Value / mm
5	5.02
10	10
15	15.01
20	20.01
_	-

The Uncertainties Are For a Confidence Of Not Less Than 95%.

Authorised Signature:

