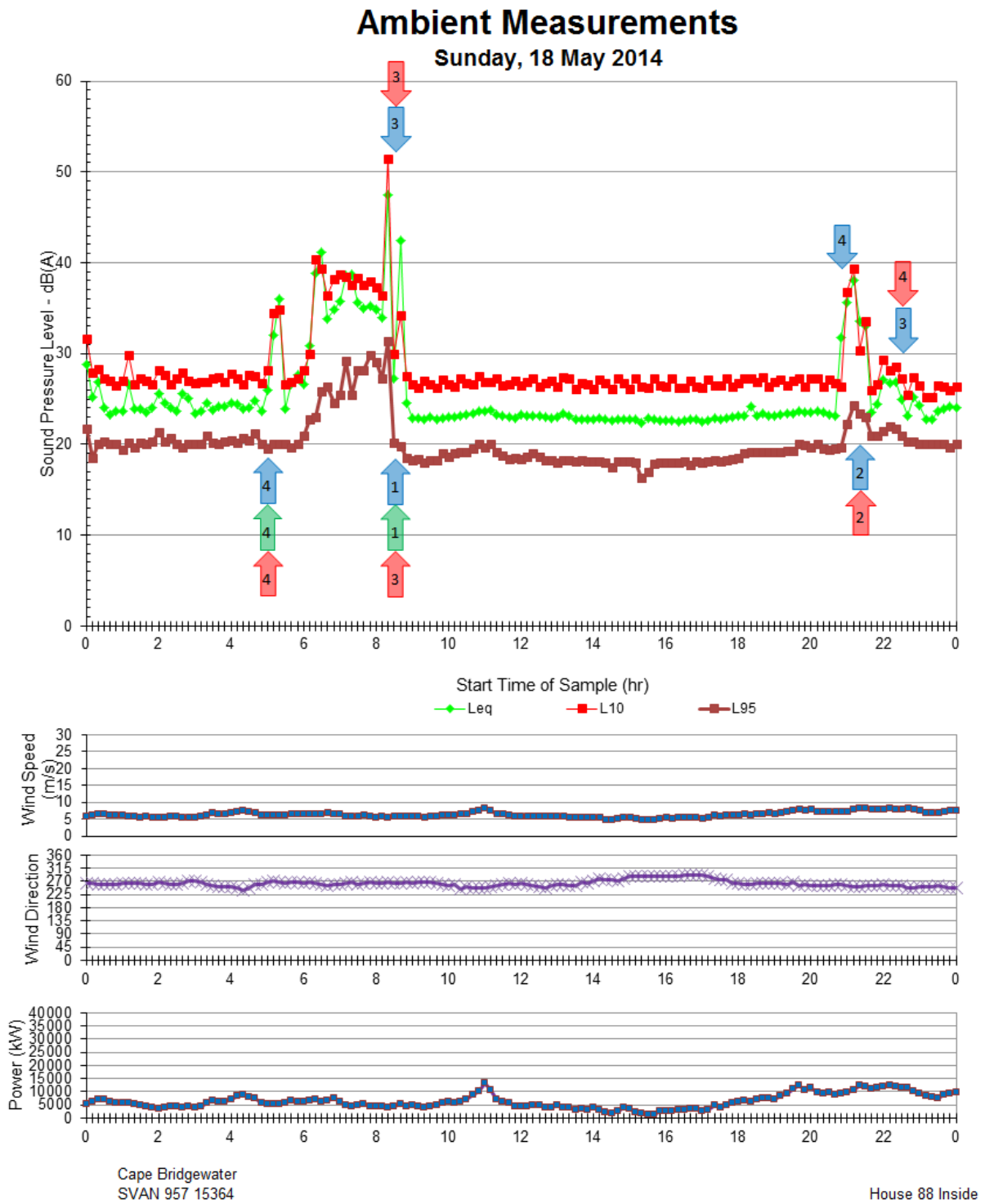
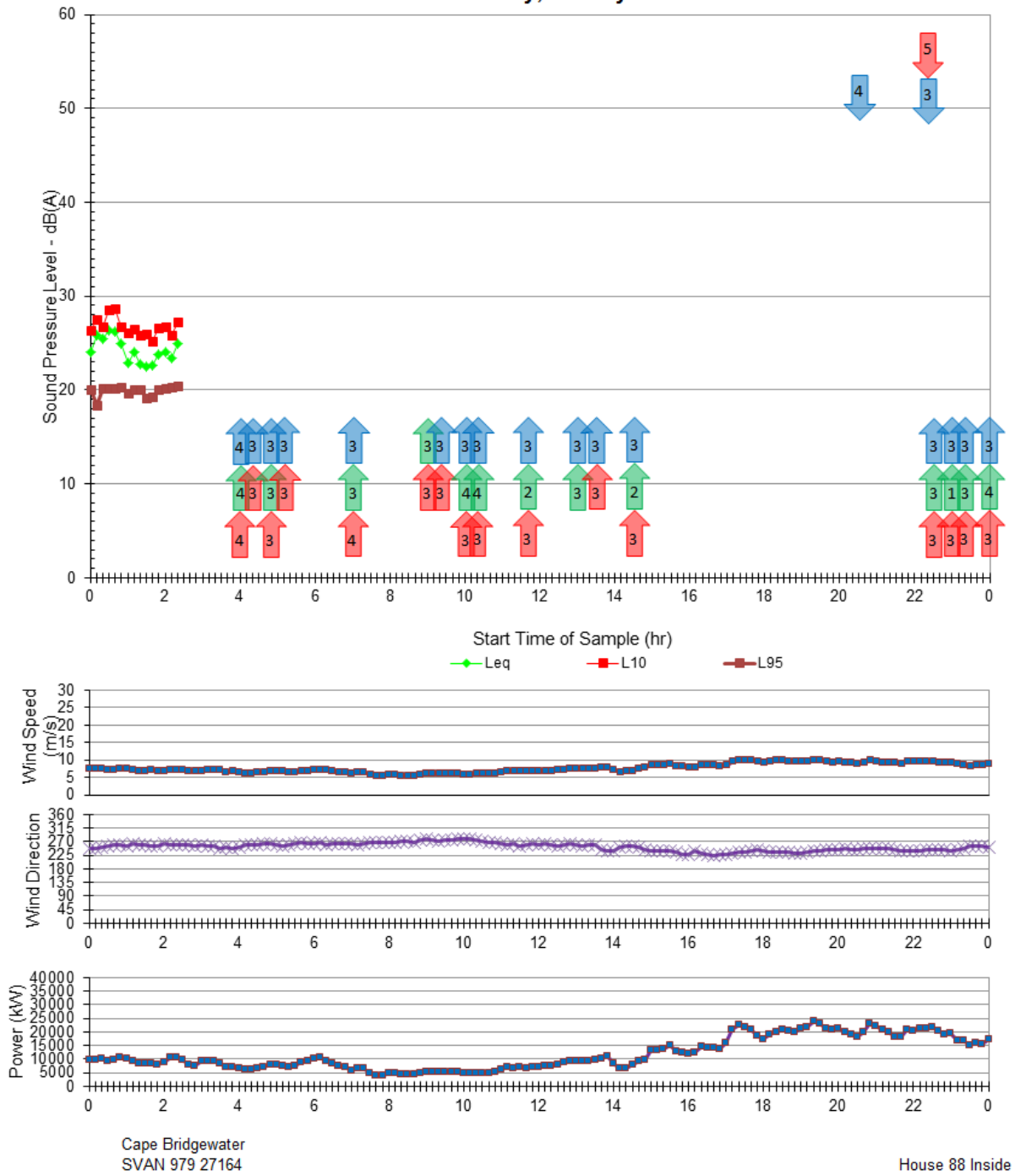


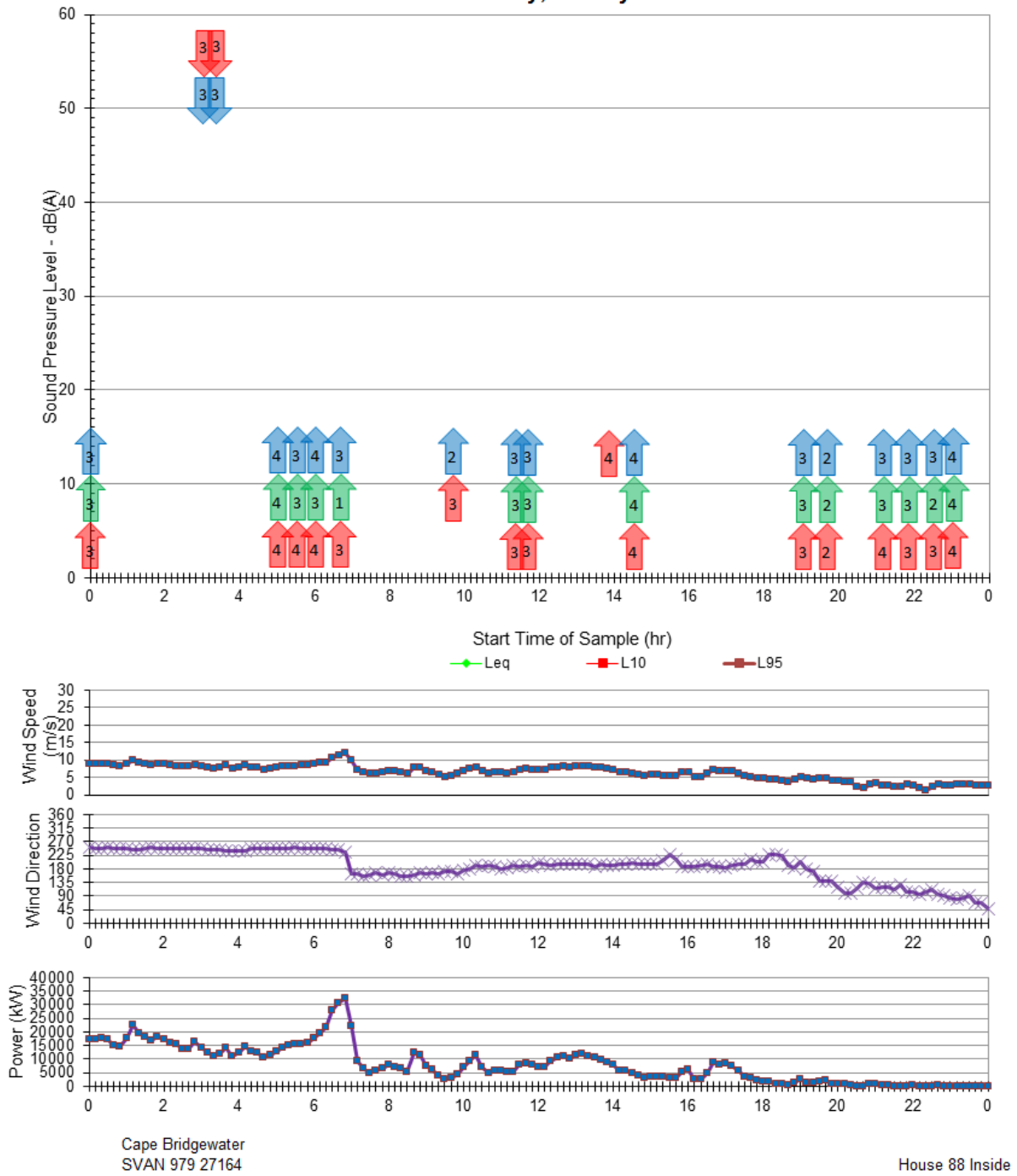
**APPENDIX K: House88 inside logger data with modified resident's logs**



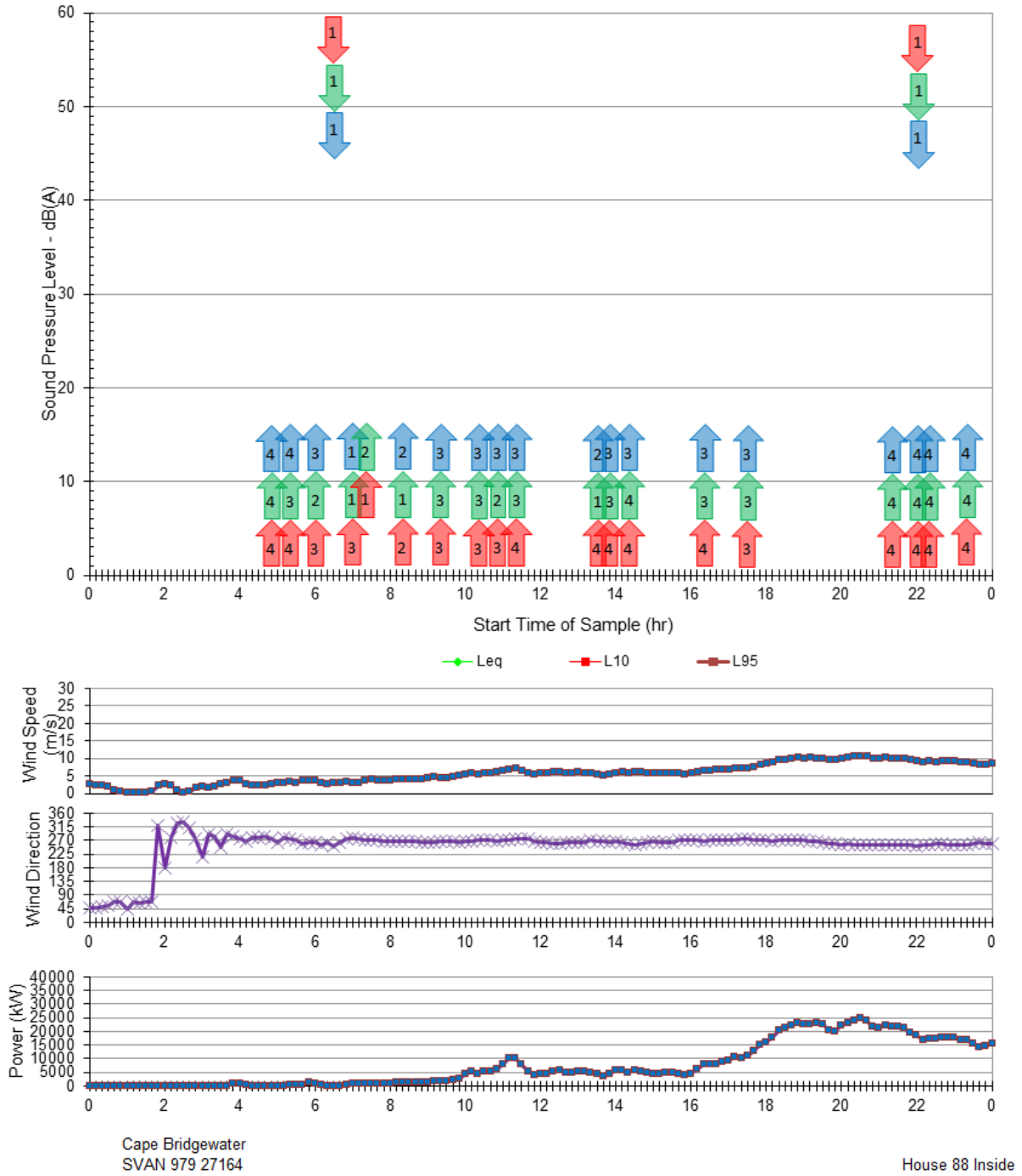
## Ambient Measurements Monday, 19 May 2014



## Ambient Measurements Tuesday, 20 May 2014

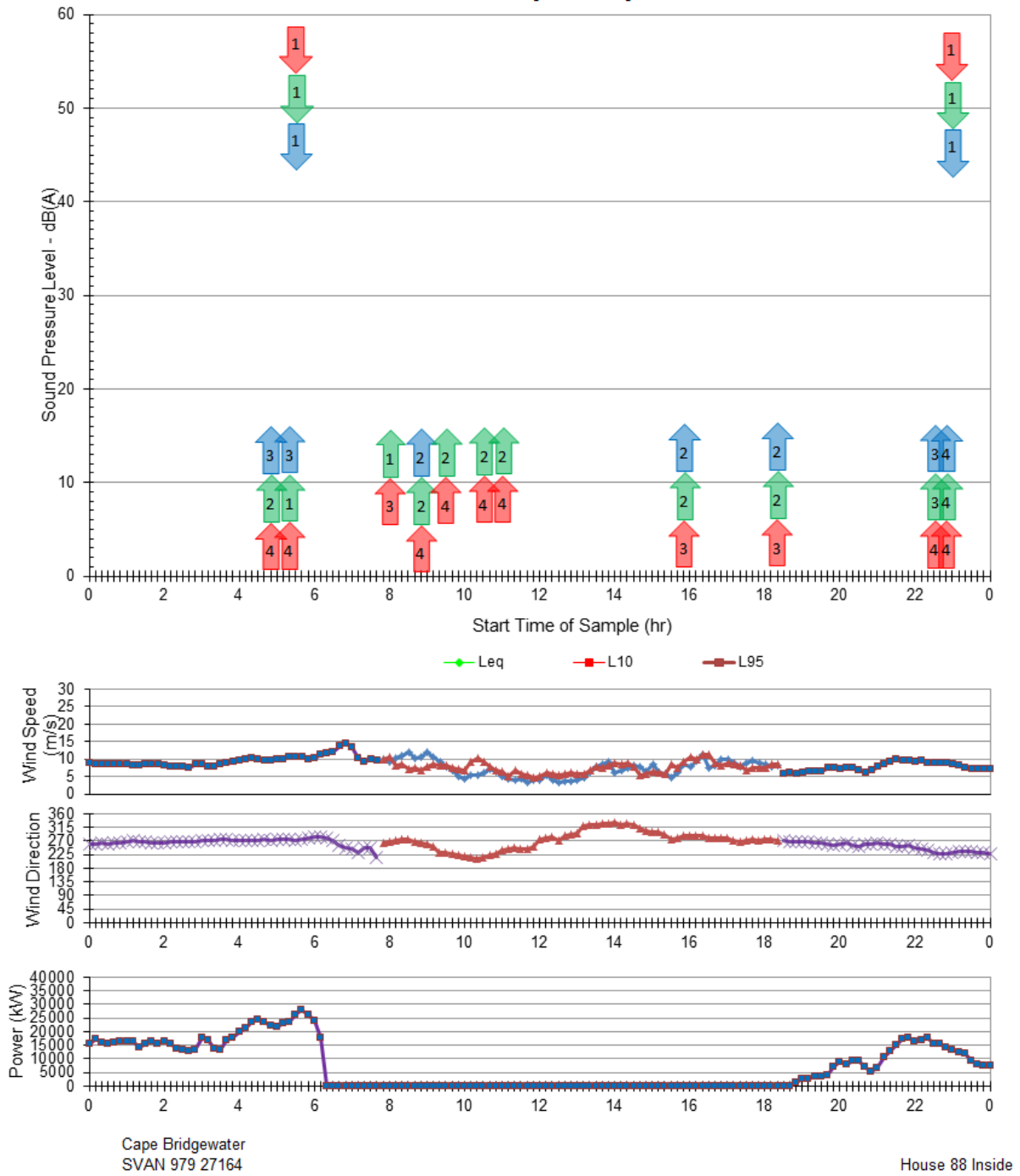


## Ambient Measurements Wednesday, 21 May 2014



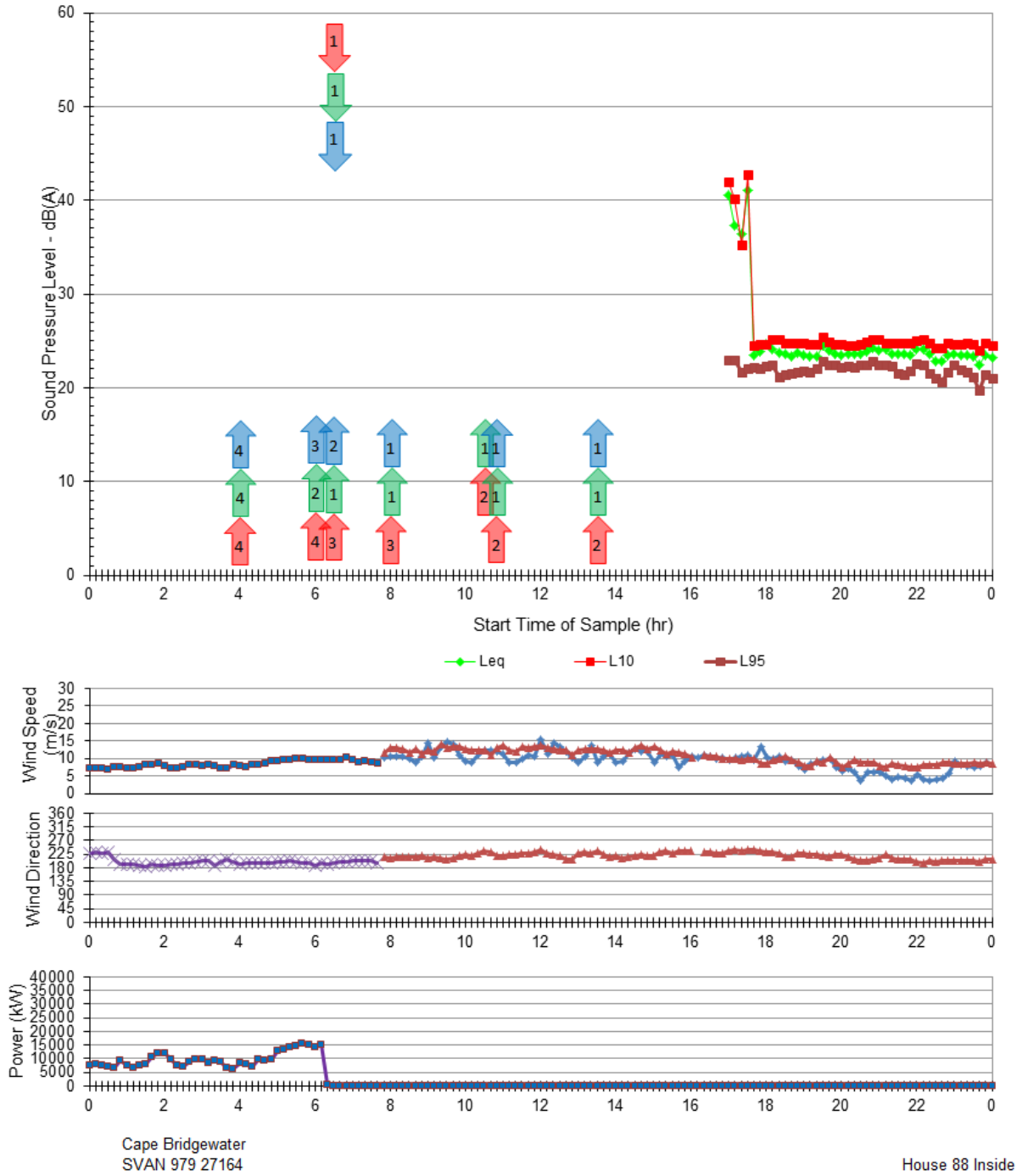
## Ambient Measurements

### Thursday, 22 May 2014



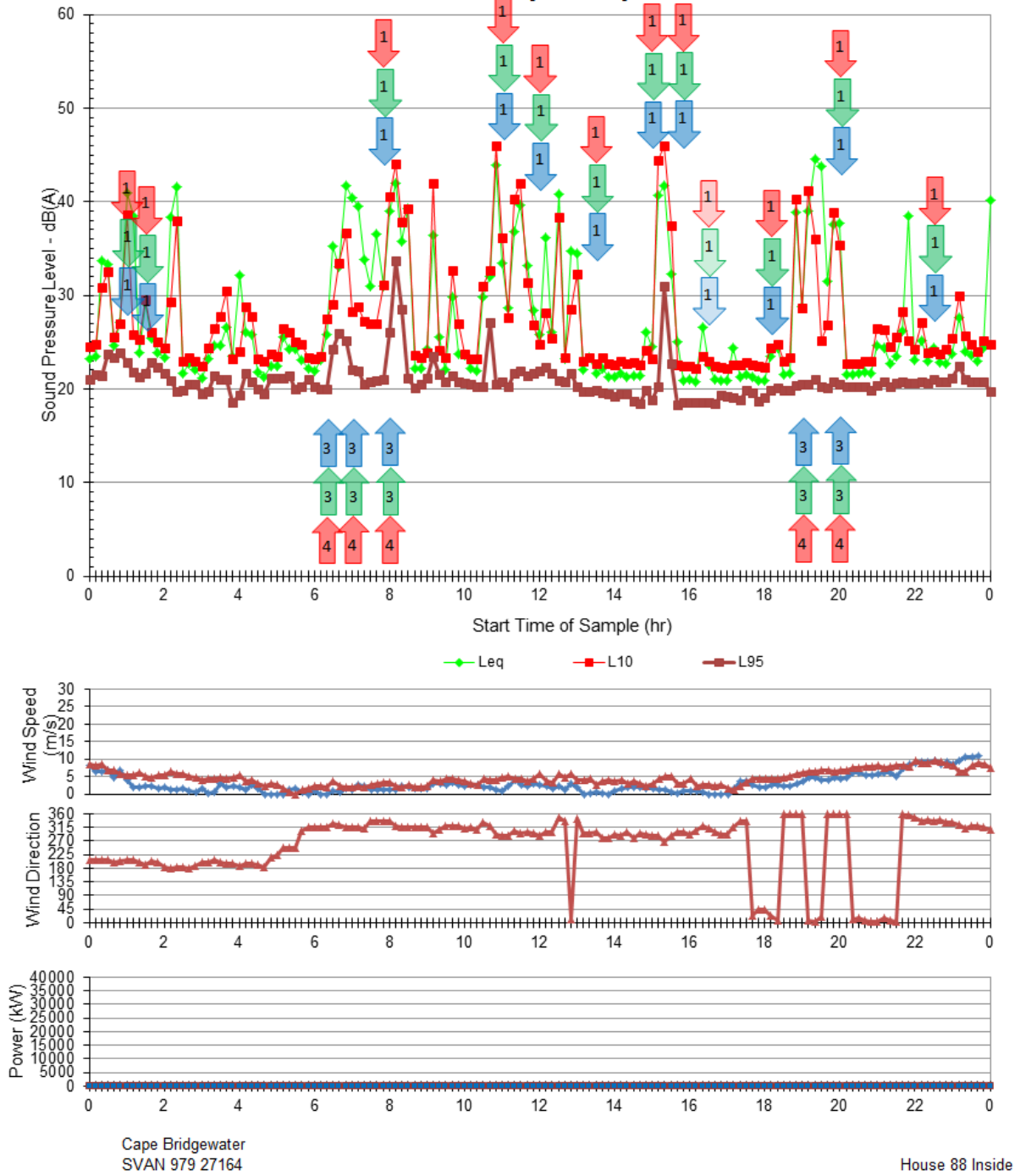
## Ambient Measurements

### Friday, 23 May 2014

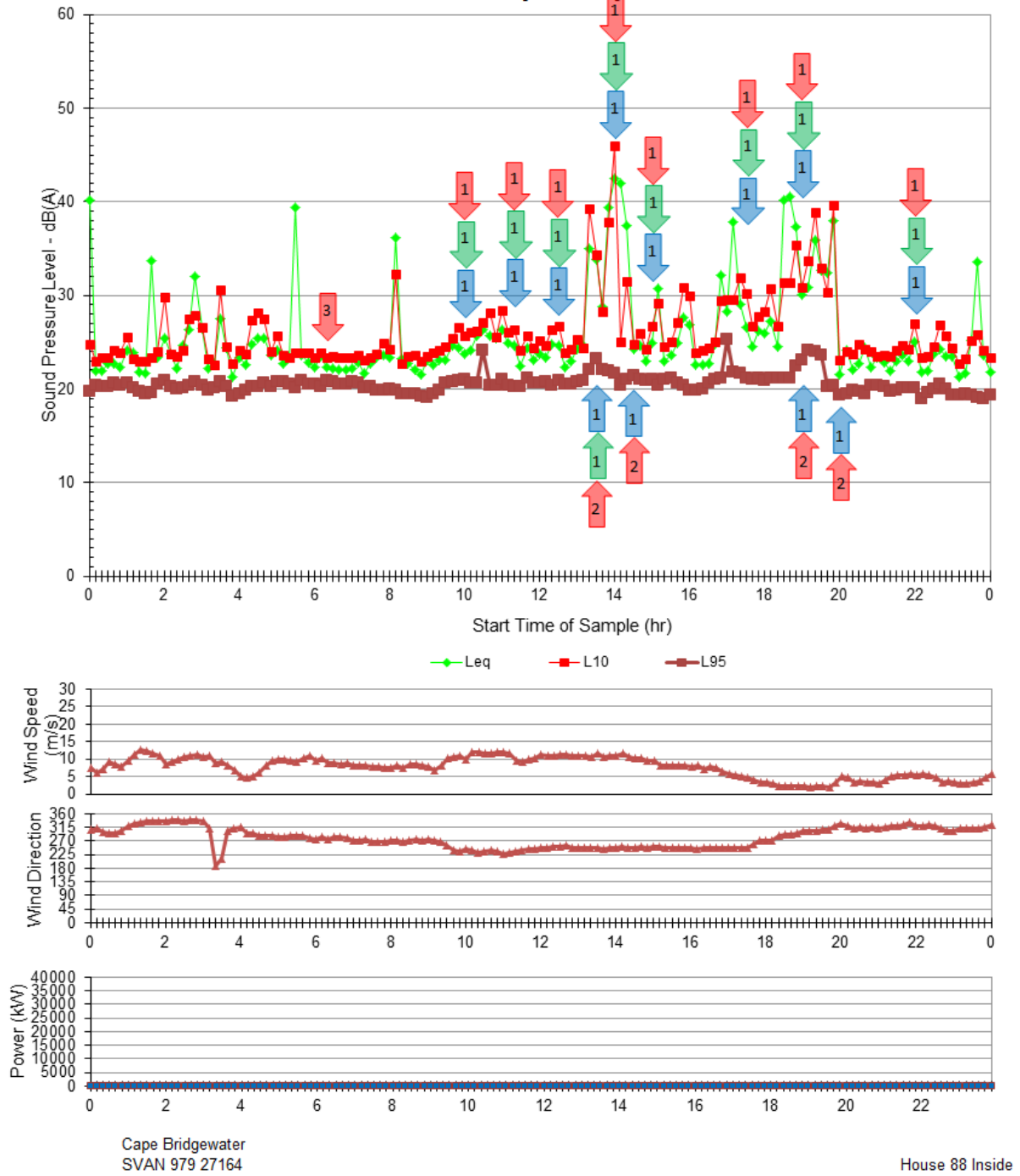


### Ambient Measurements

Saturday, 24 May 2014

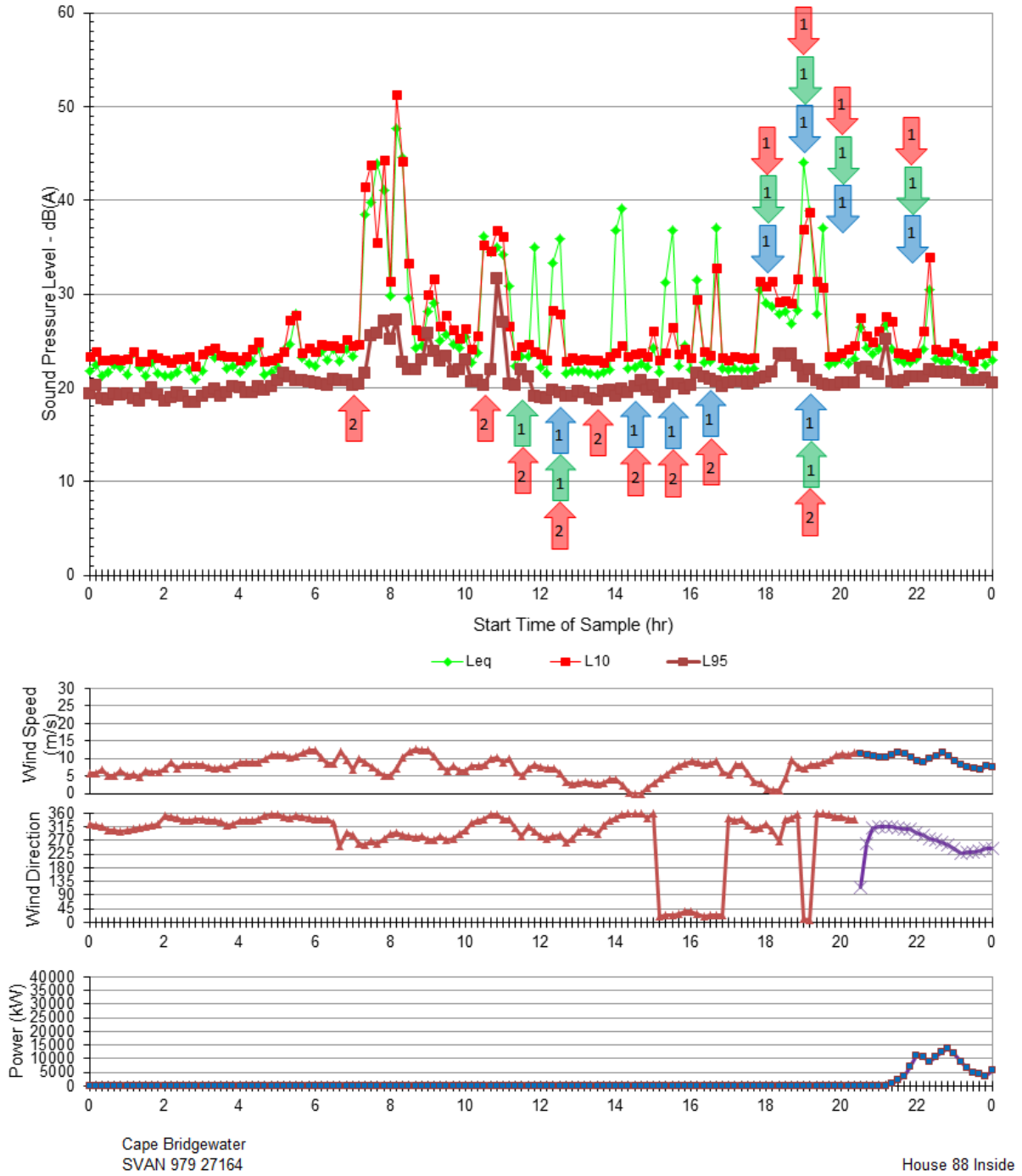


### Ambient Measurements Sunday, 25 May 2014

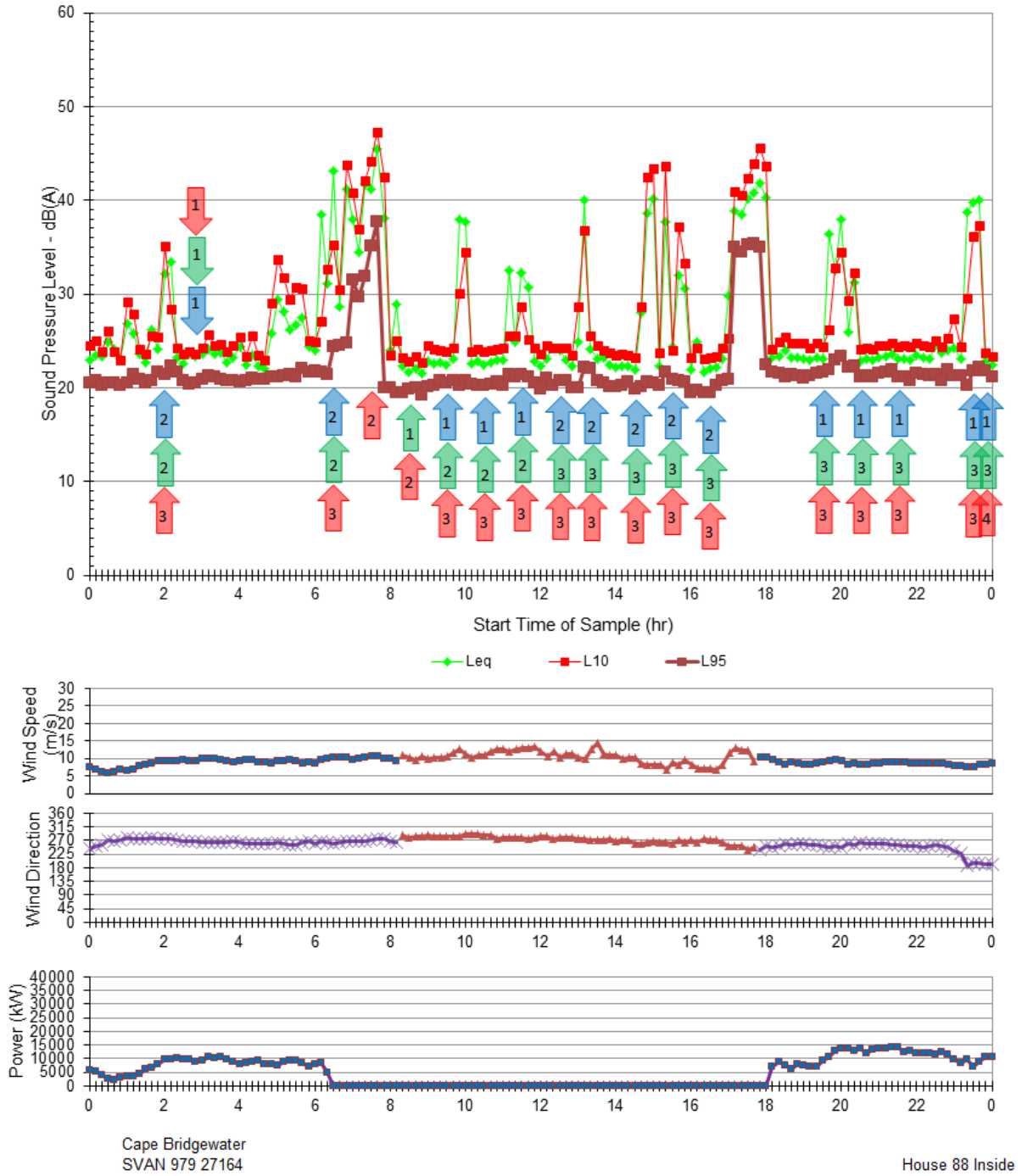




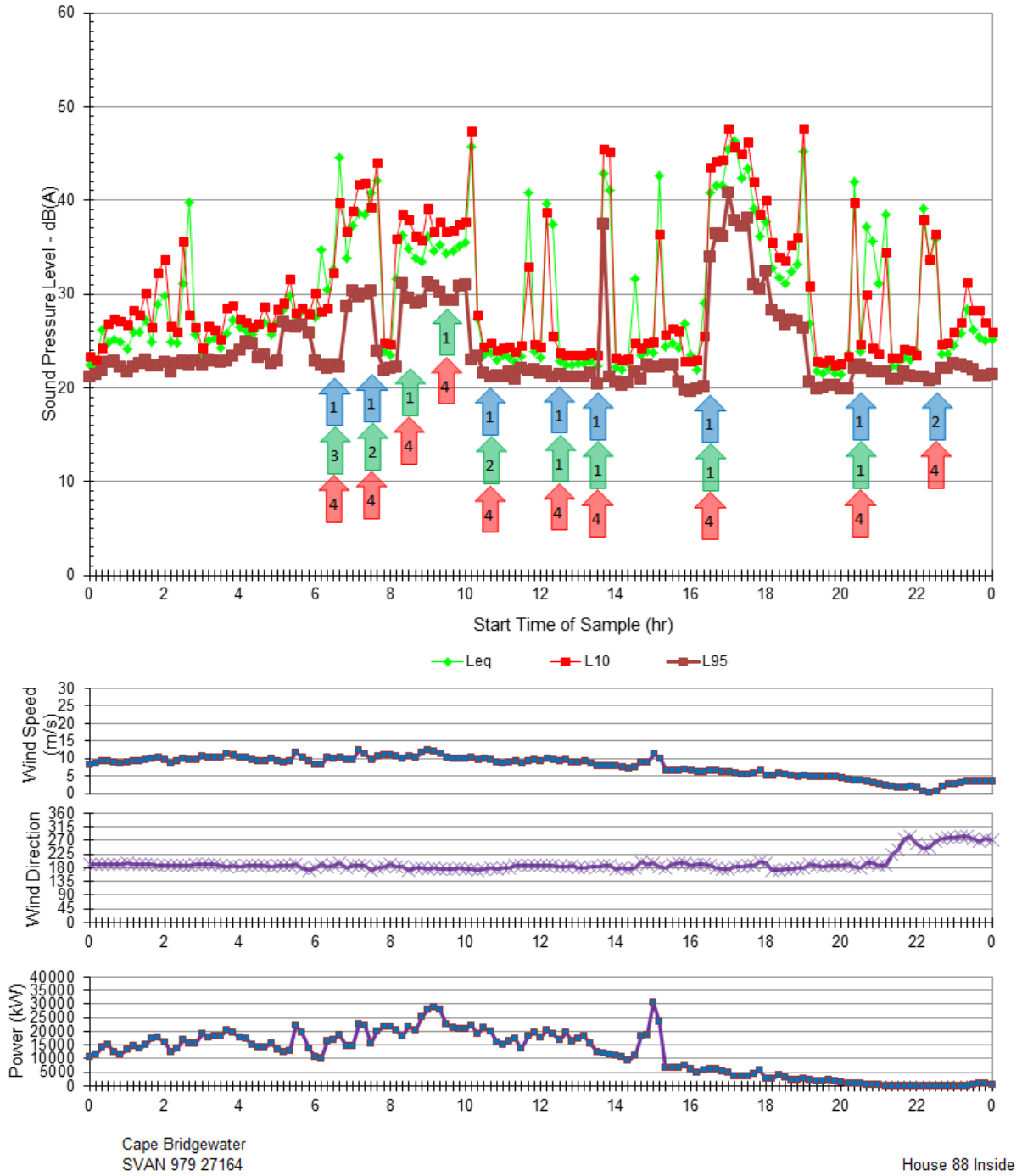
## Ambient Measurements Monday, 26 May 2014



## Ambient Measurements Tuesday, 27 May 2014

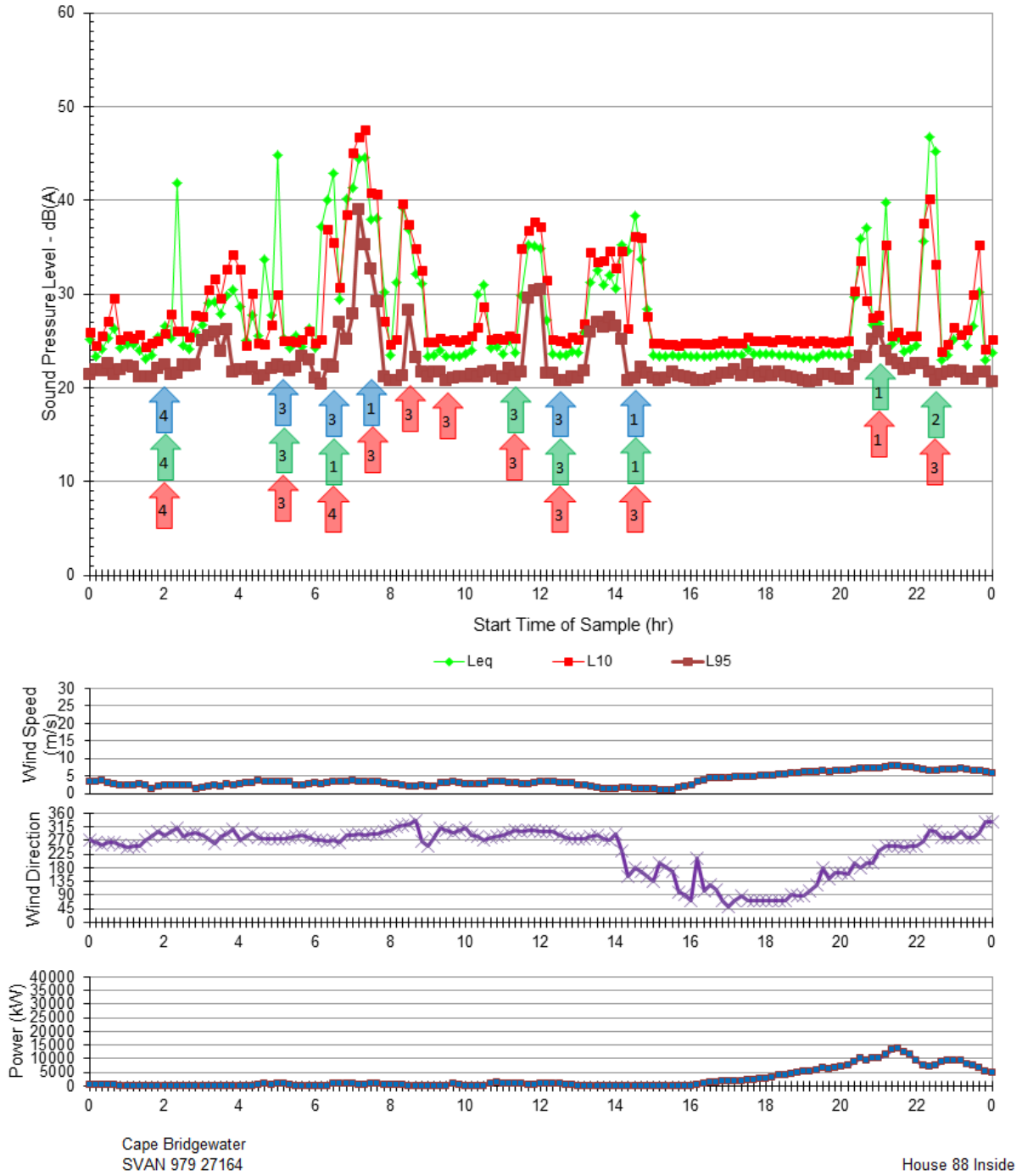


## Ambient Measurements Wednesday, 28 May 2014

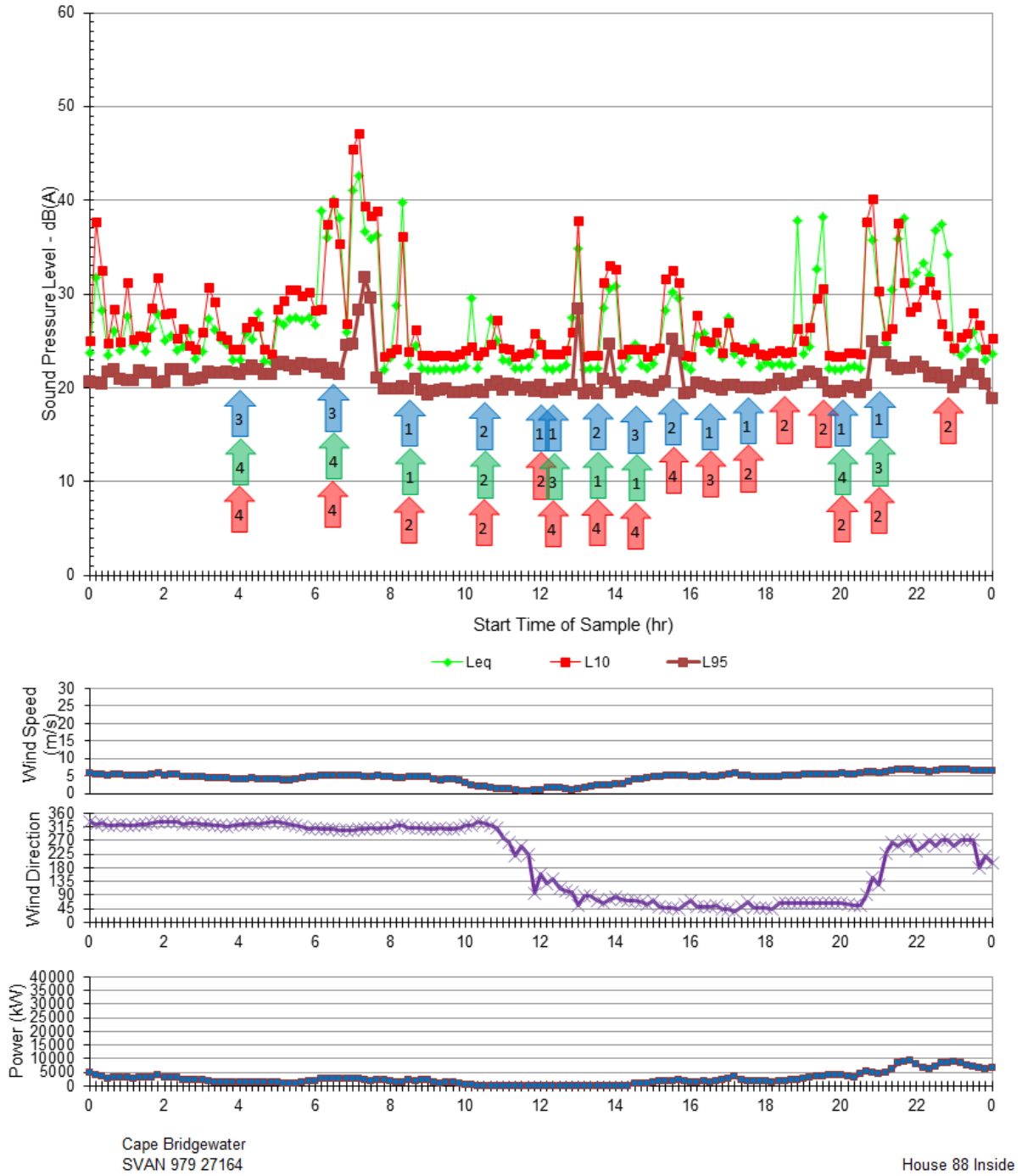


## Ambient Measurements

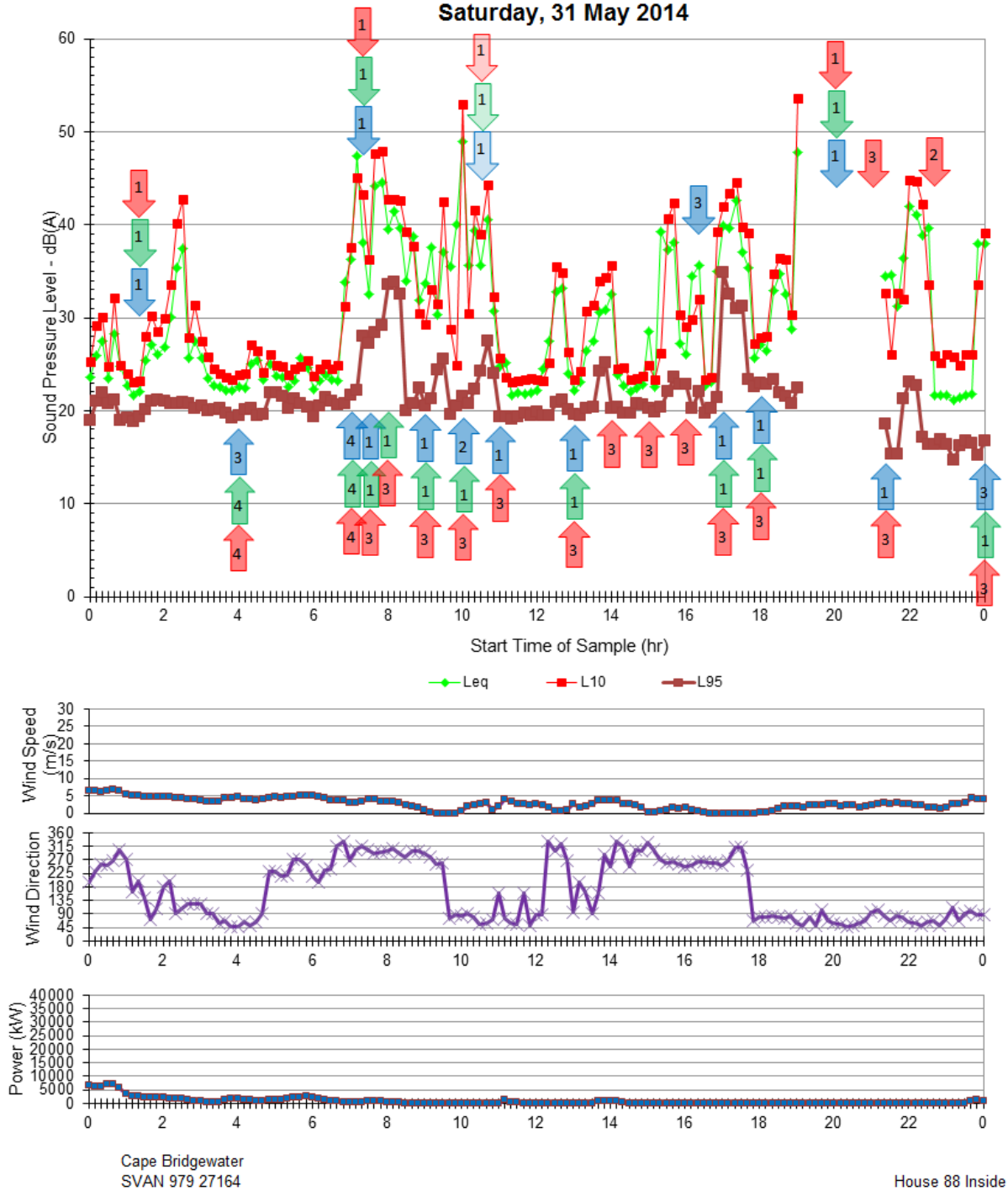
### Thursday, 29 May 2014



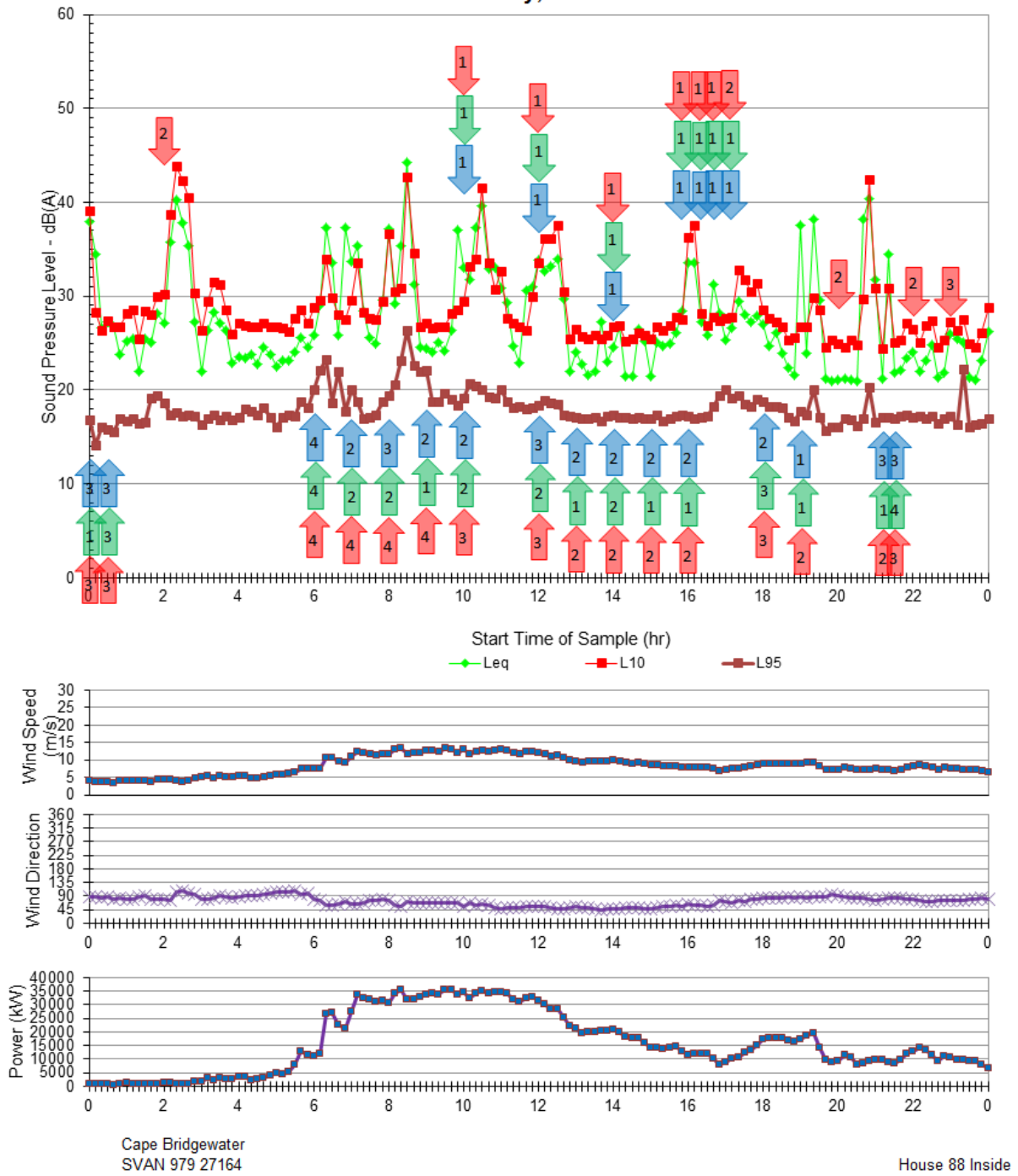
## Ambient Measurements Friday, 30 May 2014



### Ambient Measurements Saturday, 31 May 2014

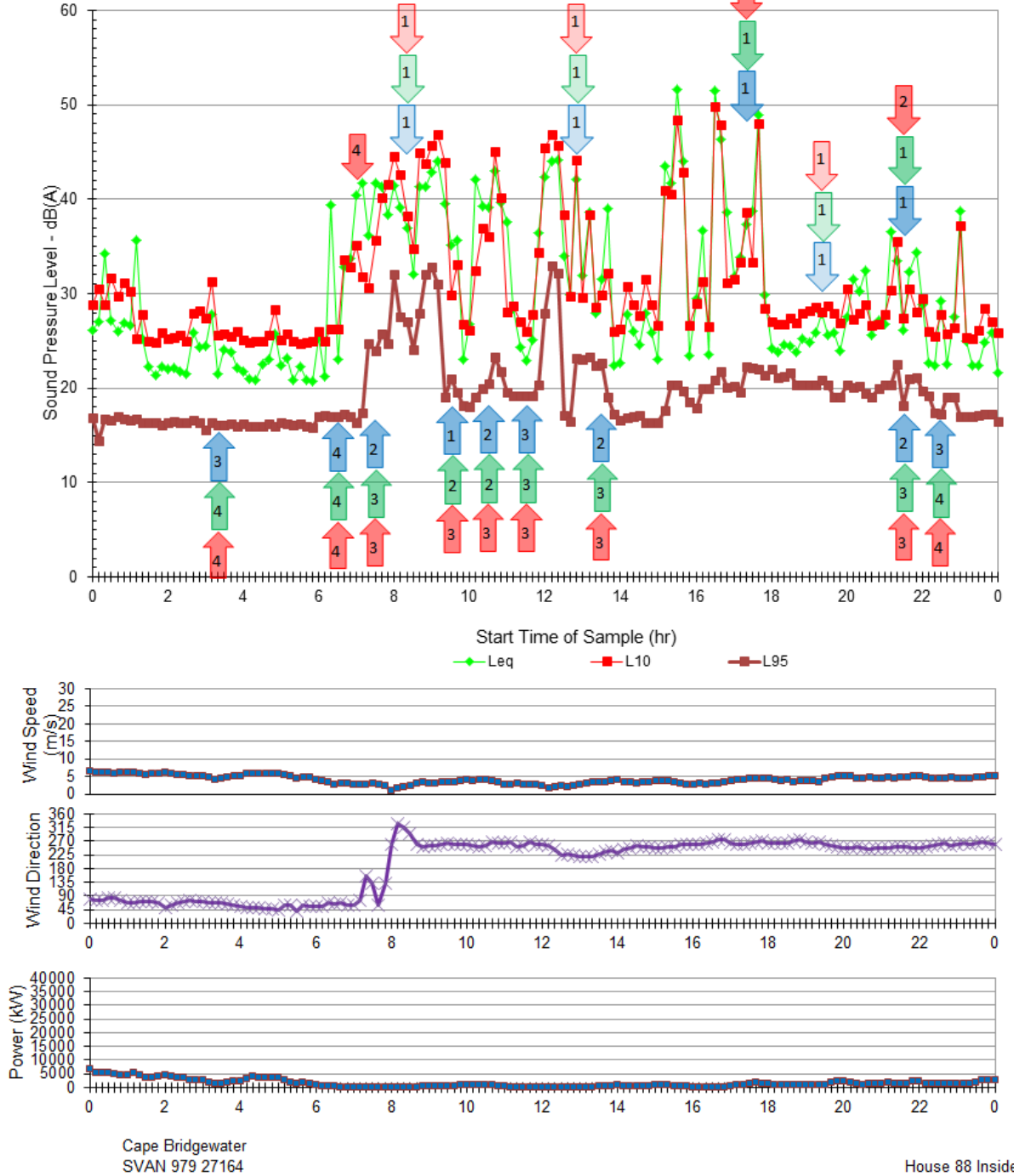


## Ambient Measurements Sunday, 1 June 2014



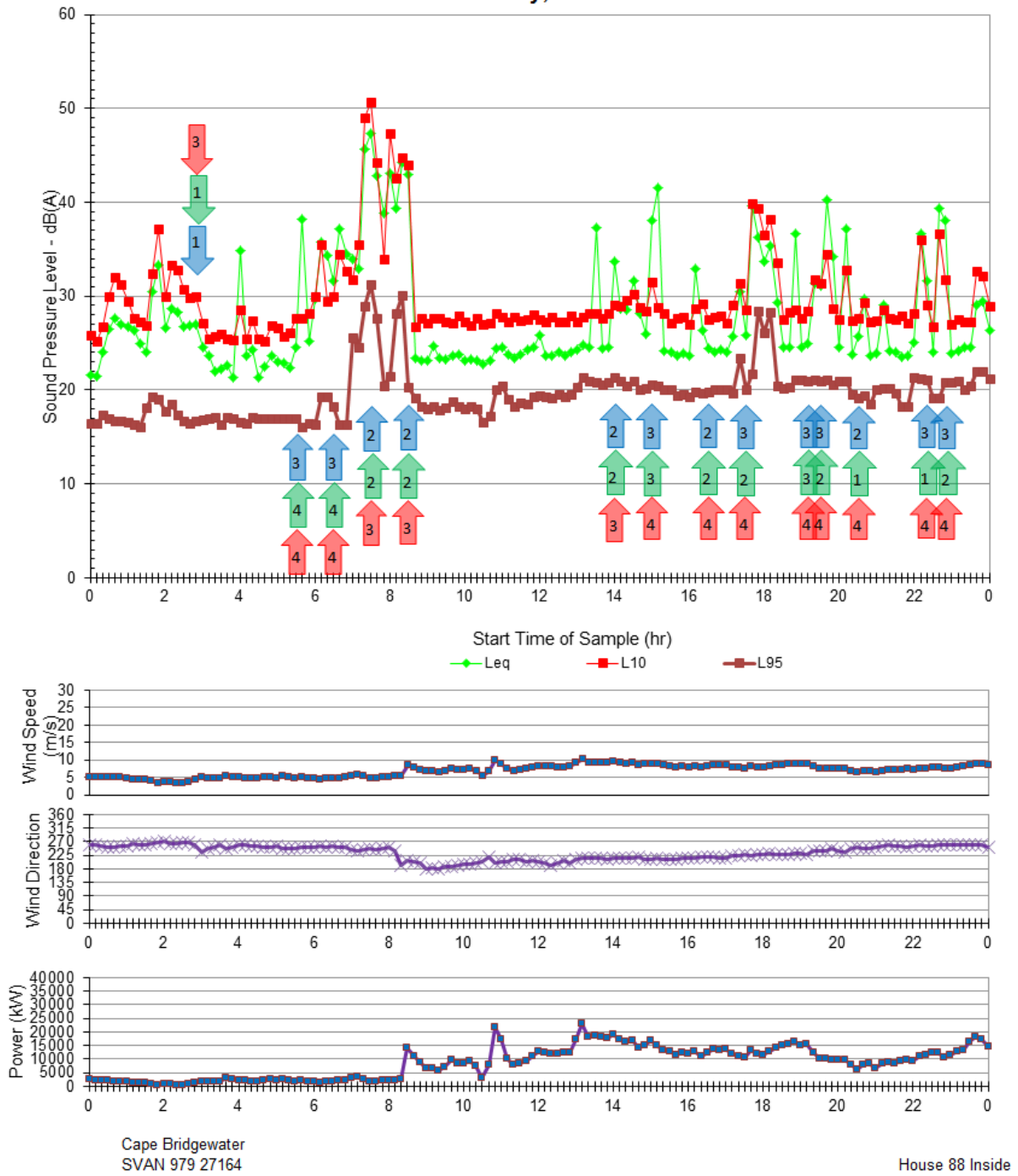
### Ambient Measurements

Monday, 2 June 2014

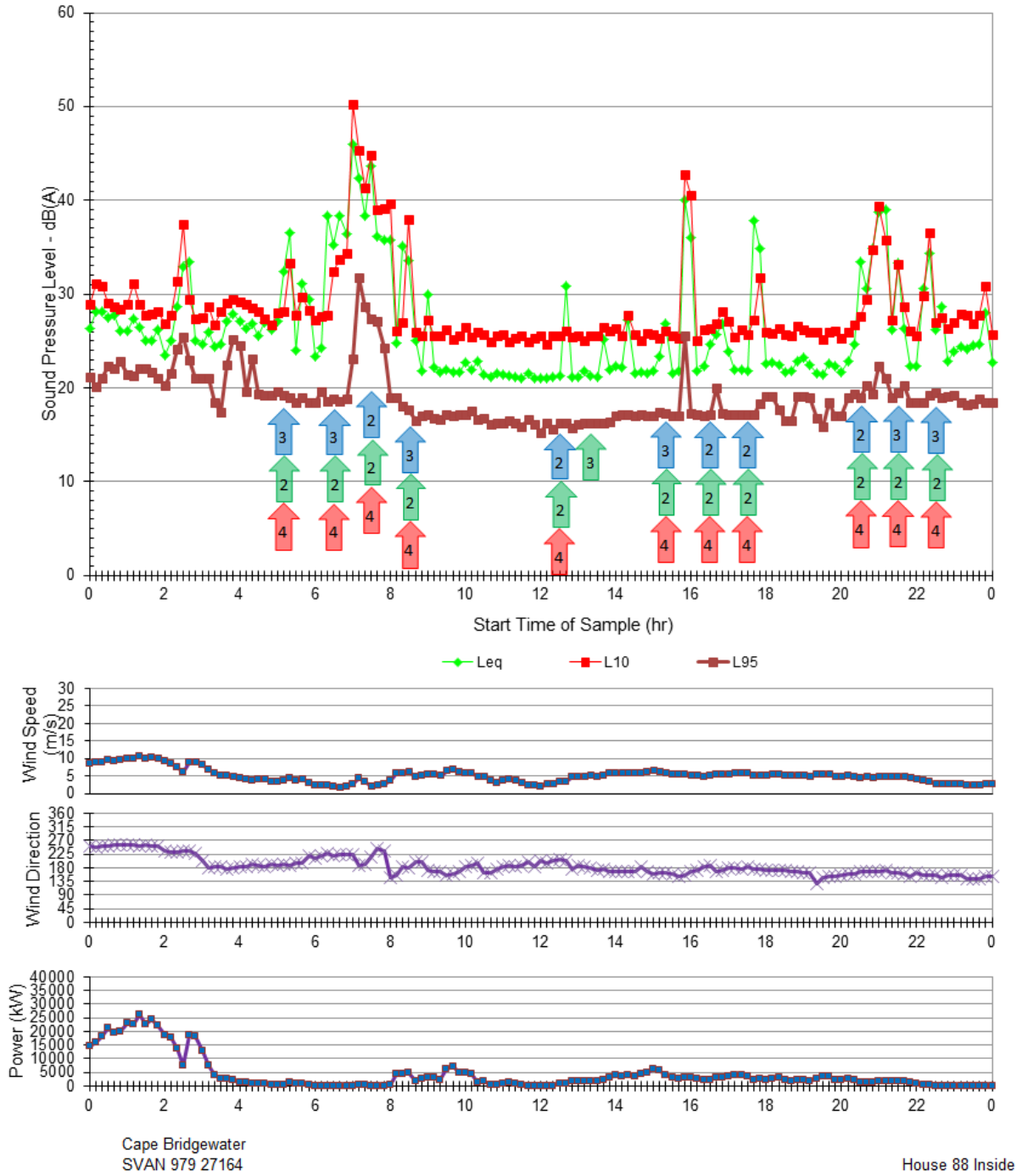




## Ambient Measurements Tuesday, 3 June 2014

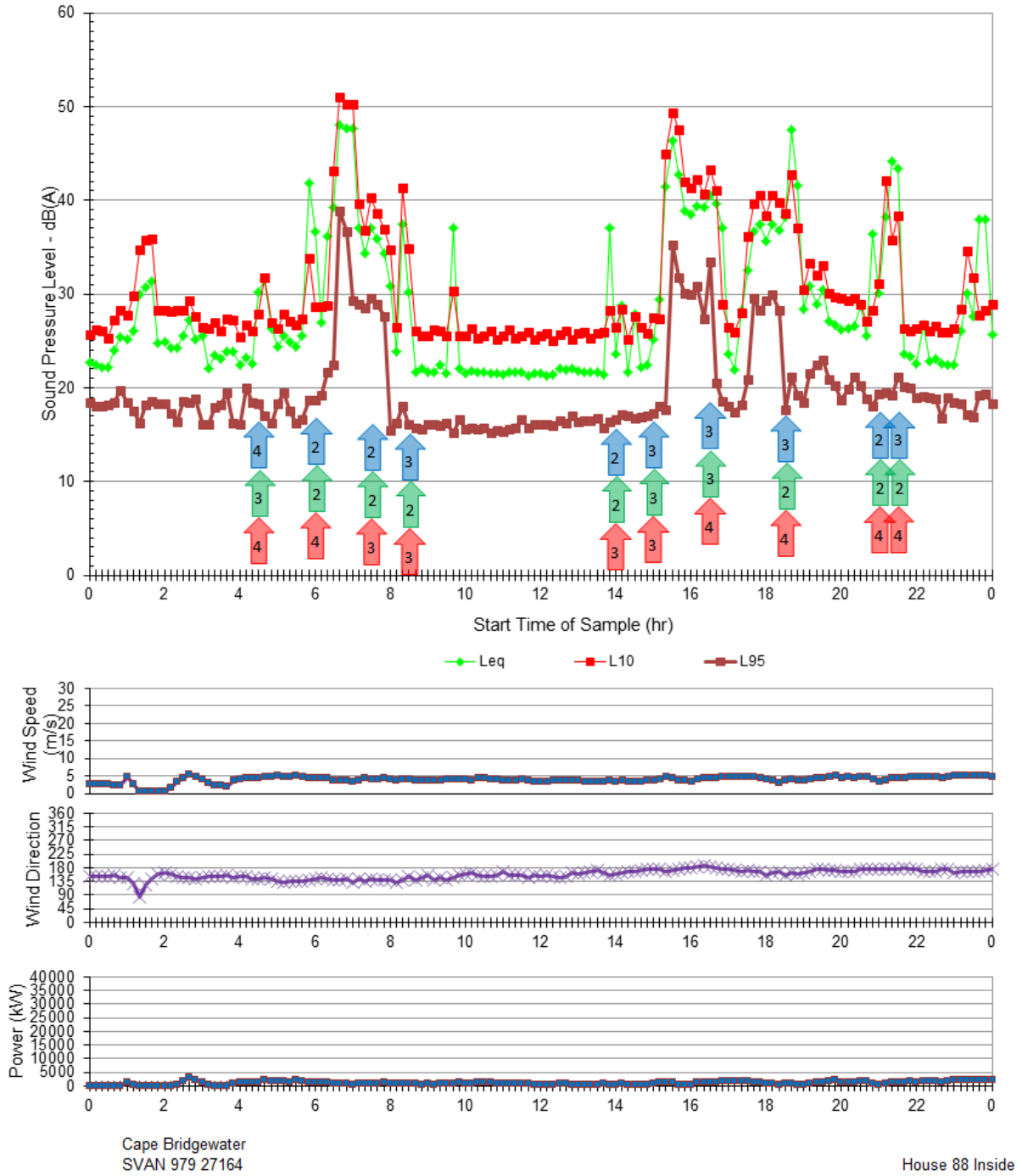


## Ambient Measurements Wednesday, 4 June 2014



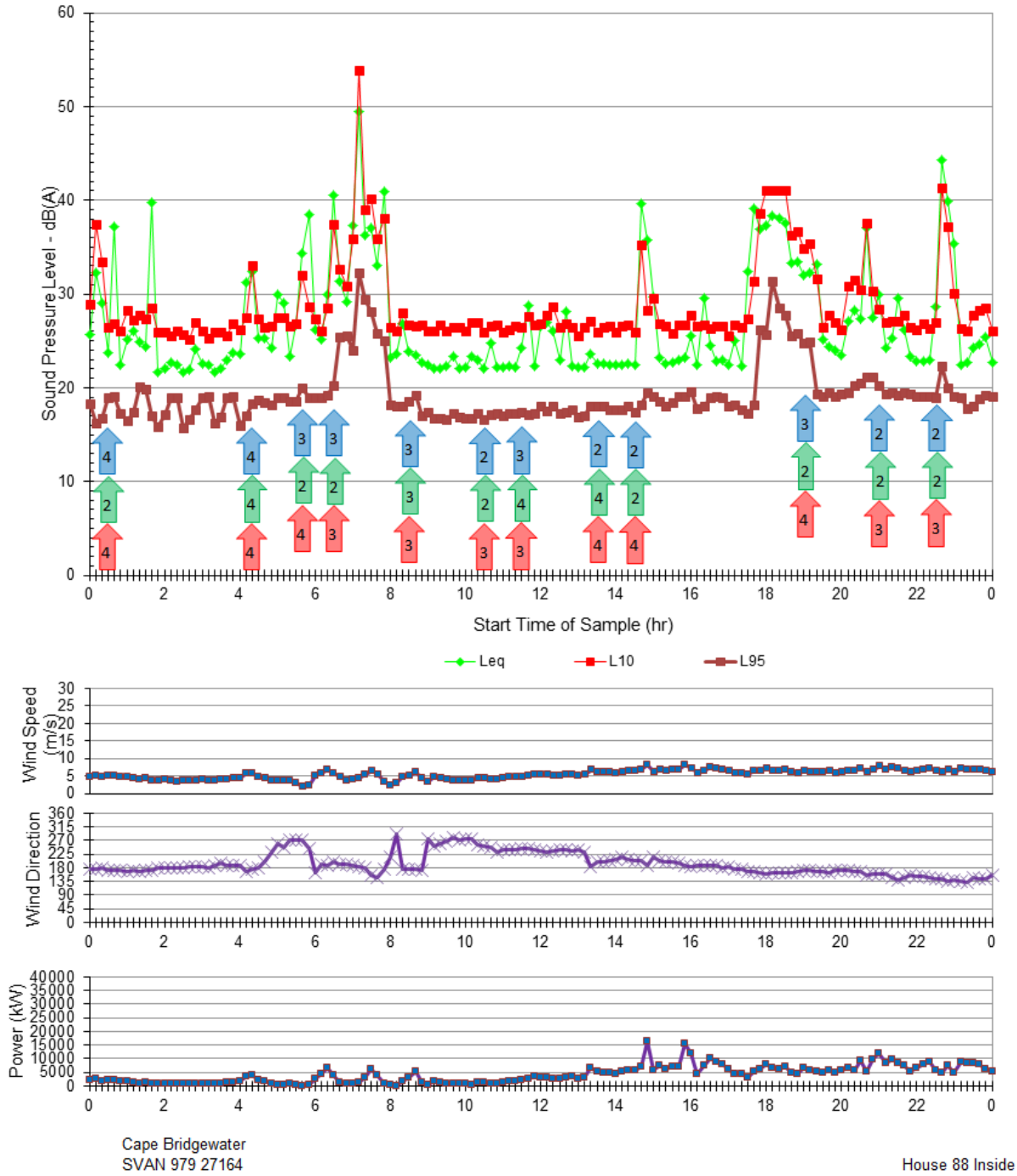
## Ambient Measurements

### Thursday, 5 June 2014



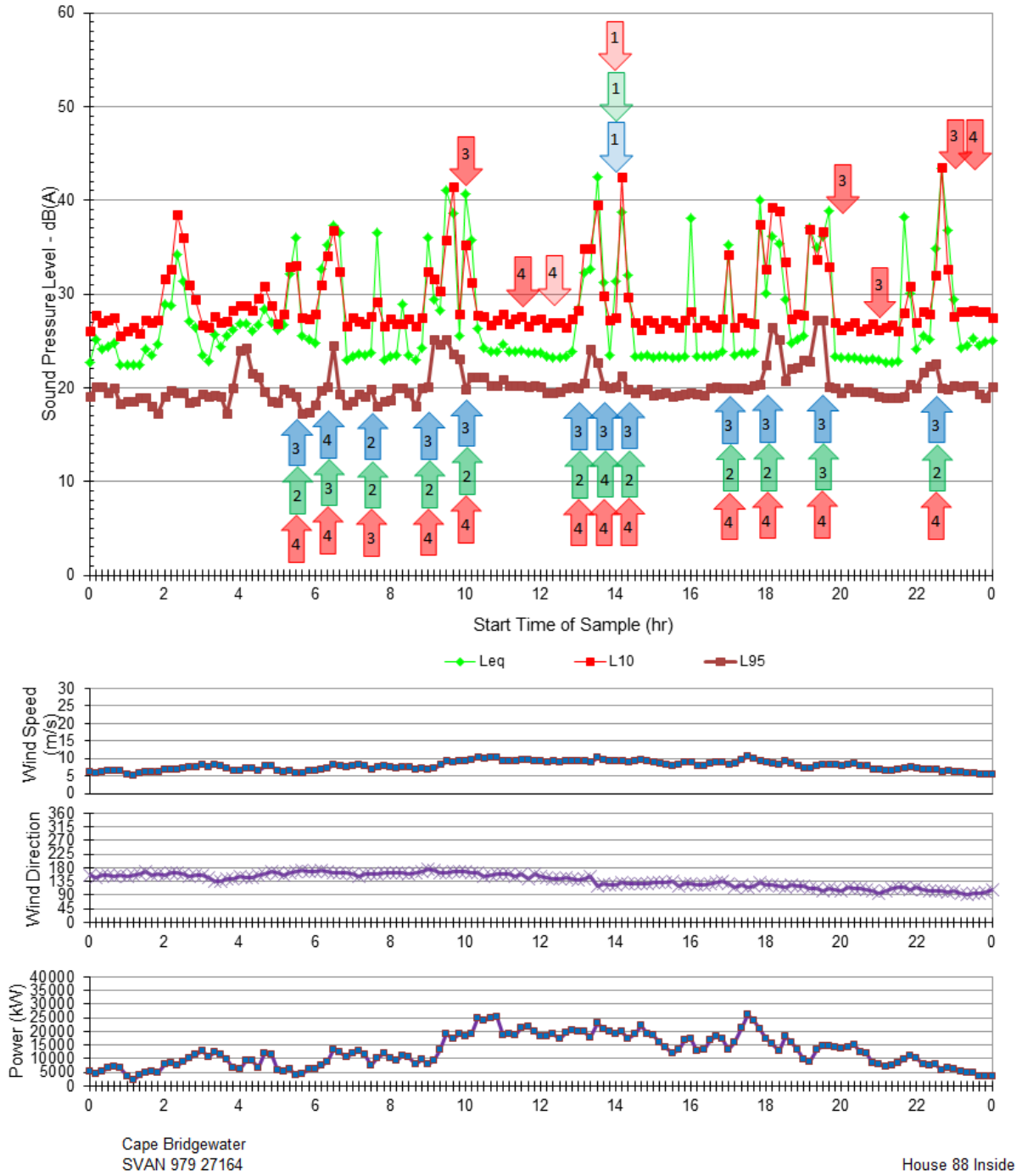
# Ambient Measurements

Friday, 6 June 2014

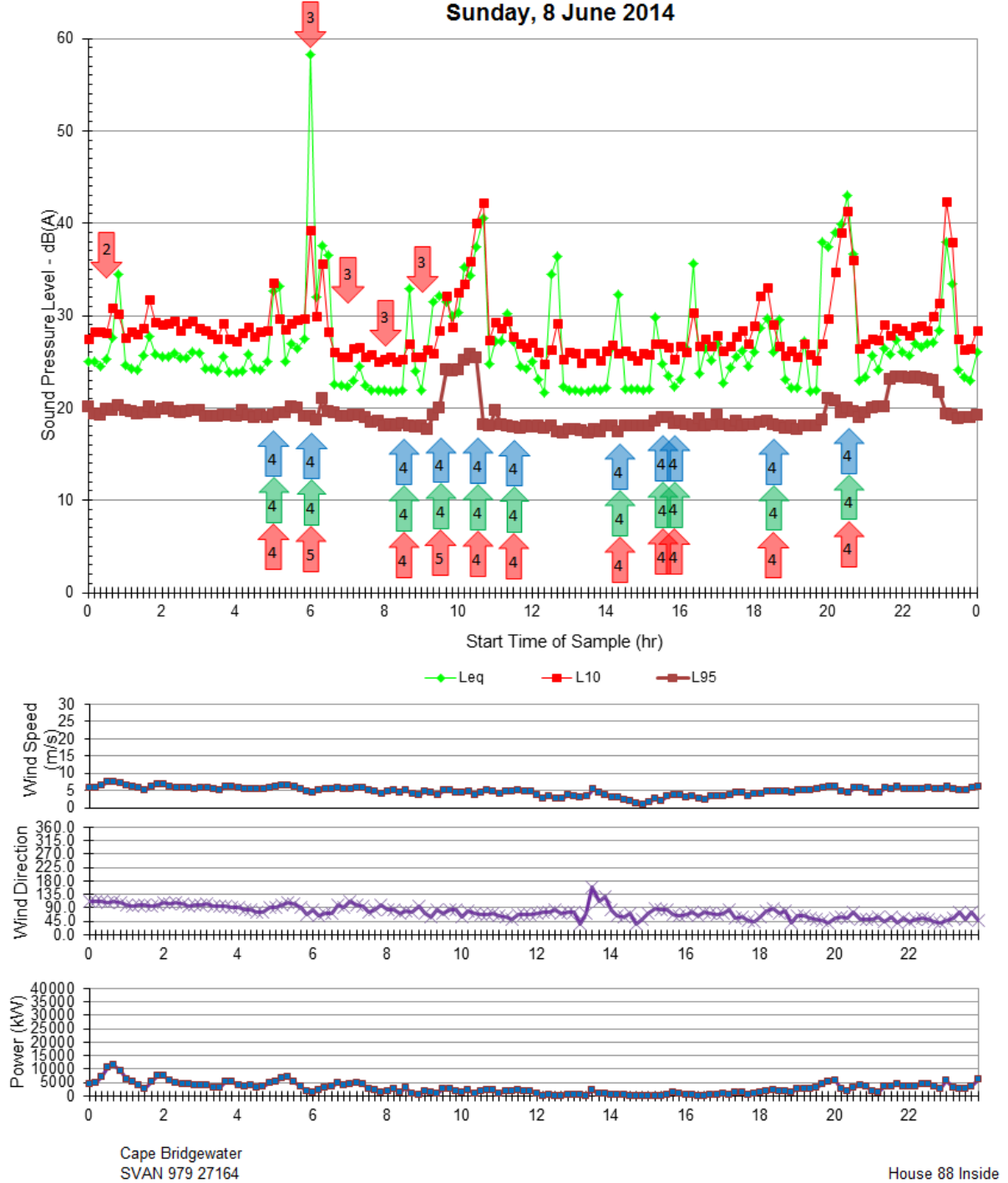


## Ambient Measurements

### Saturday, 7 June 2014

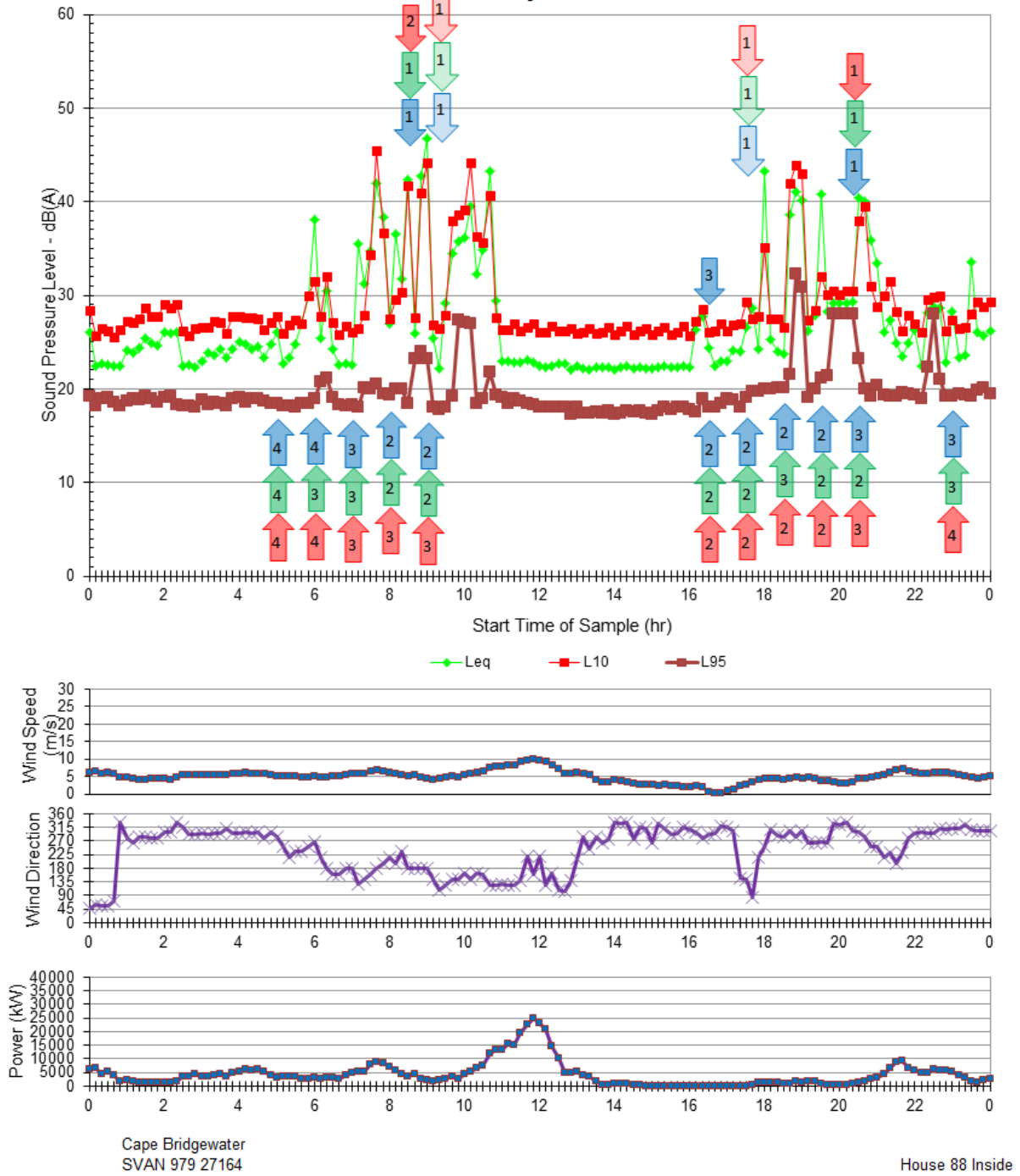


### Ambient Measurements Sunday, 8 June 2014

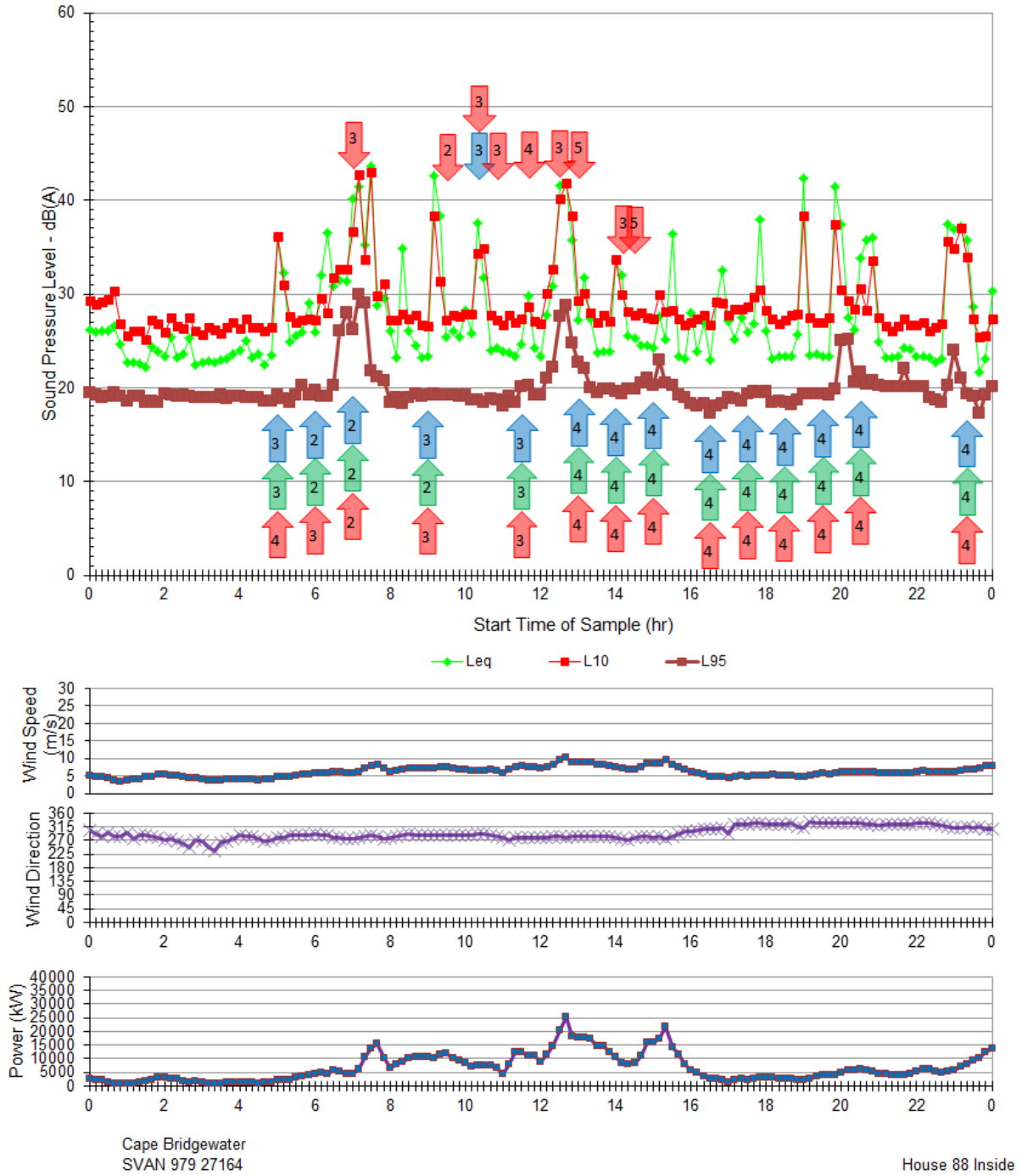


## Ambient Measurements

Monday, 9 June 2014

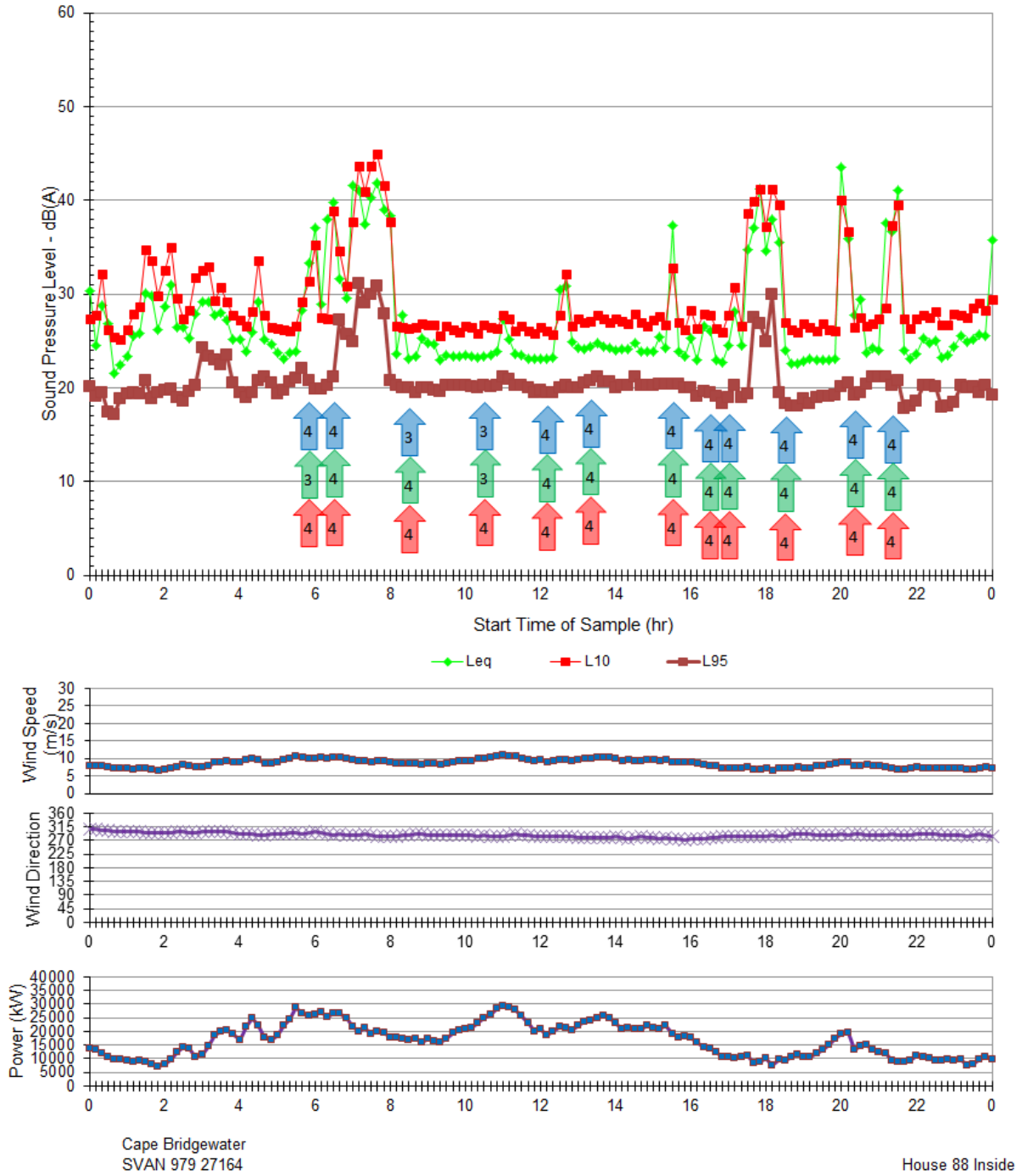


## Ambient Measurements Tuesday, 10 June 2014

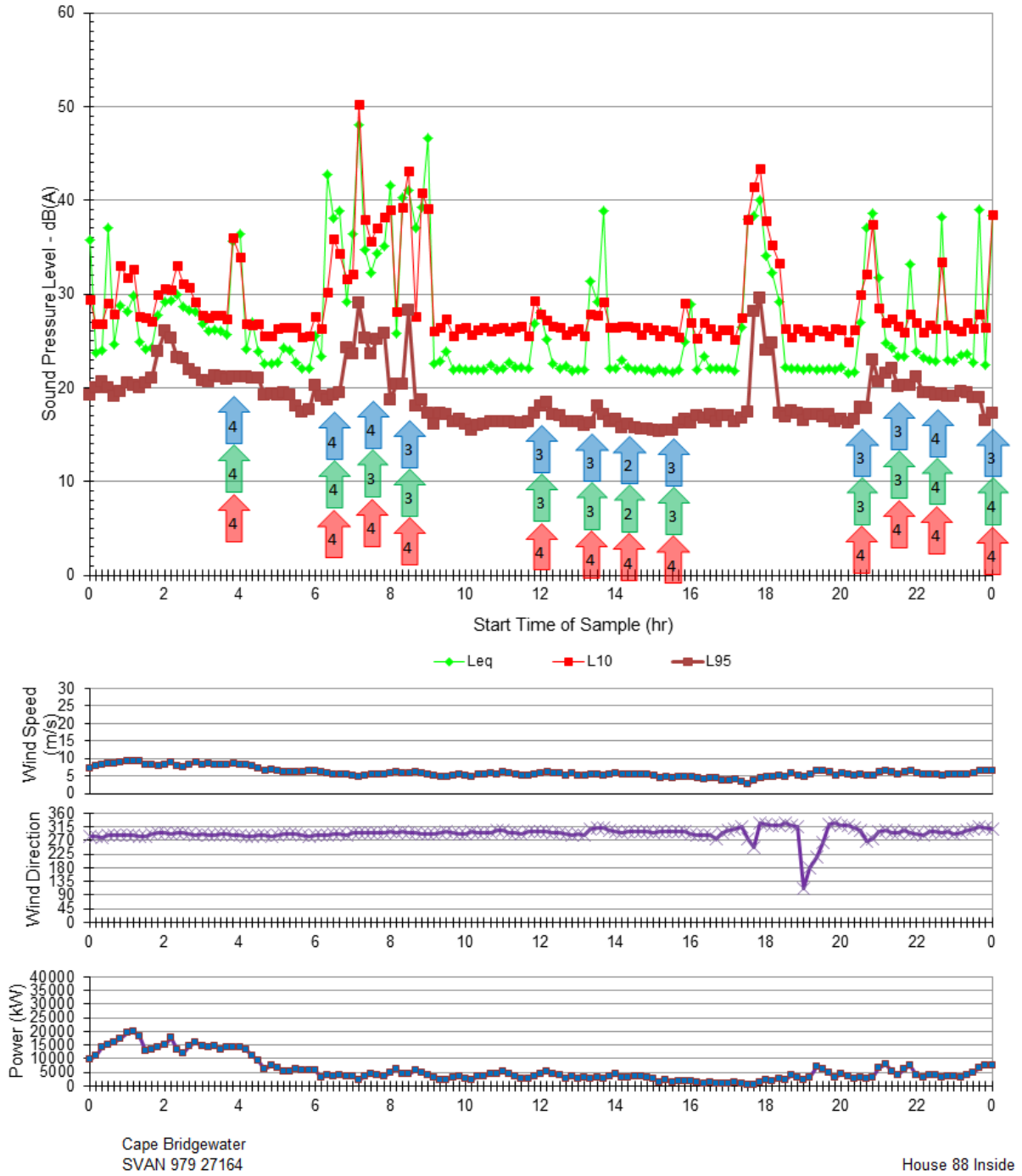




## Ambient Measurements Wednesday, 11 June 2014

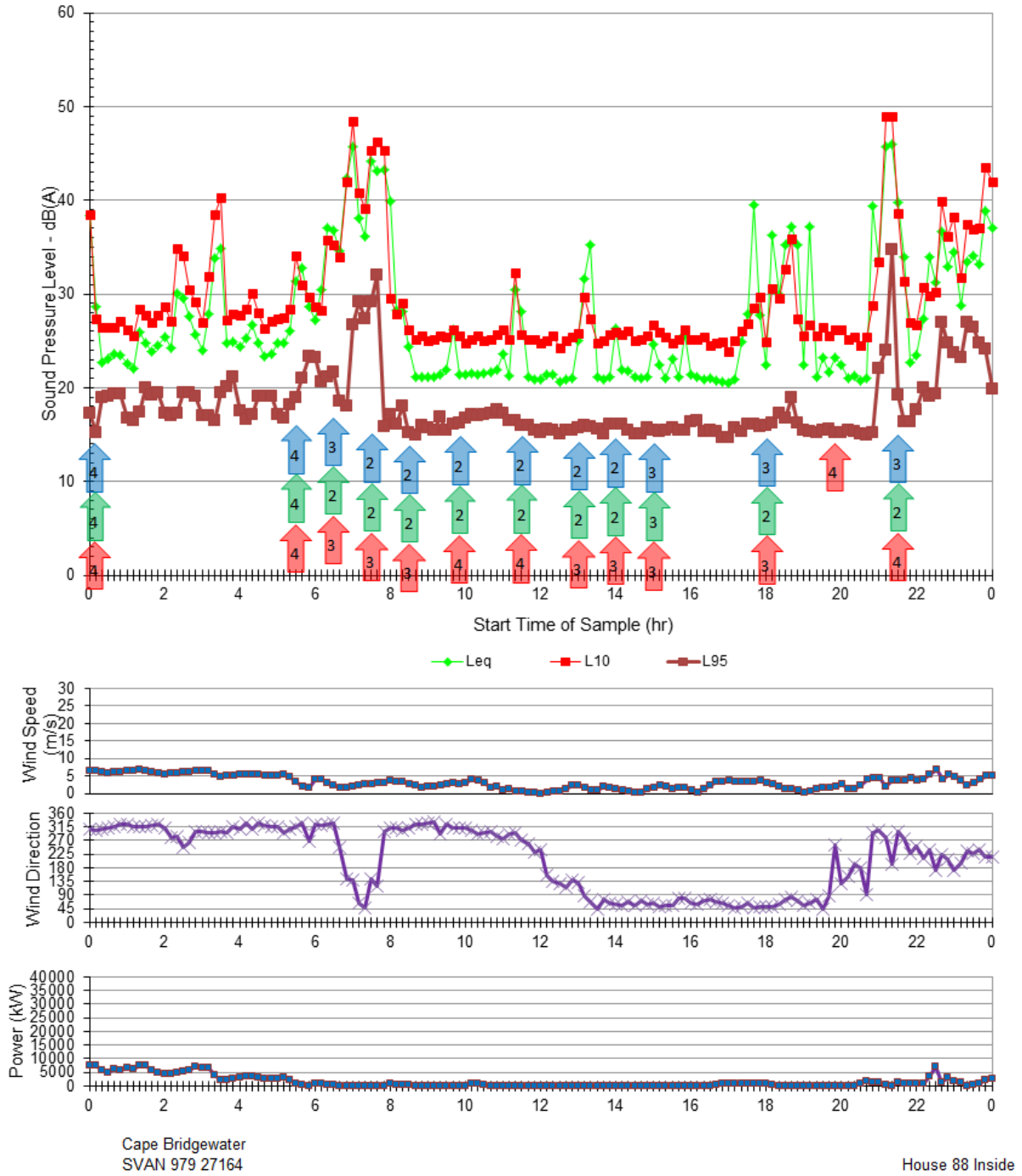


## Ambient Measurements Thursday, 12 June 2014



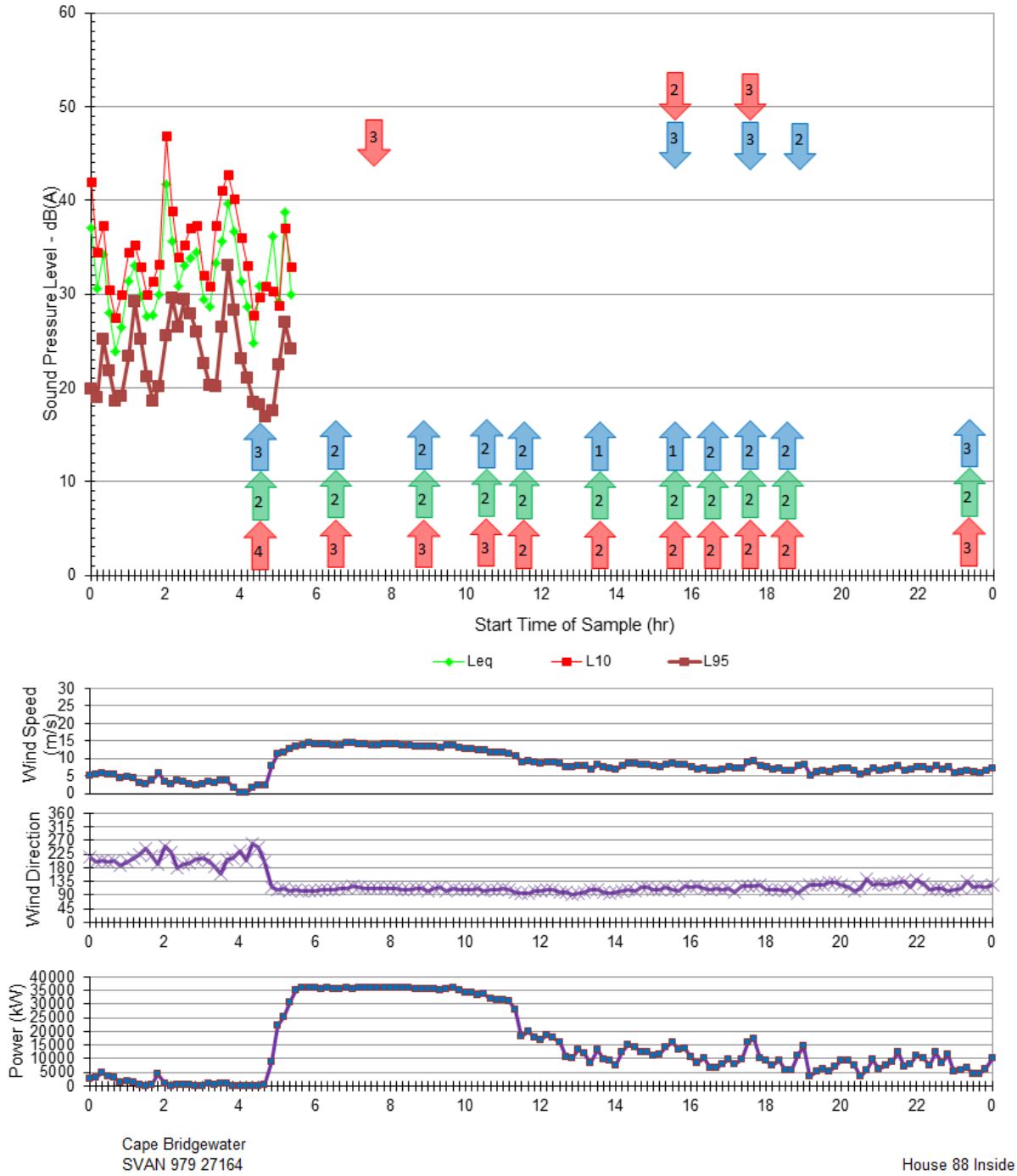
## Ambient Measurements

### Friday, 13 June 2014



## Ambient Measurements

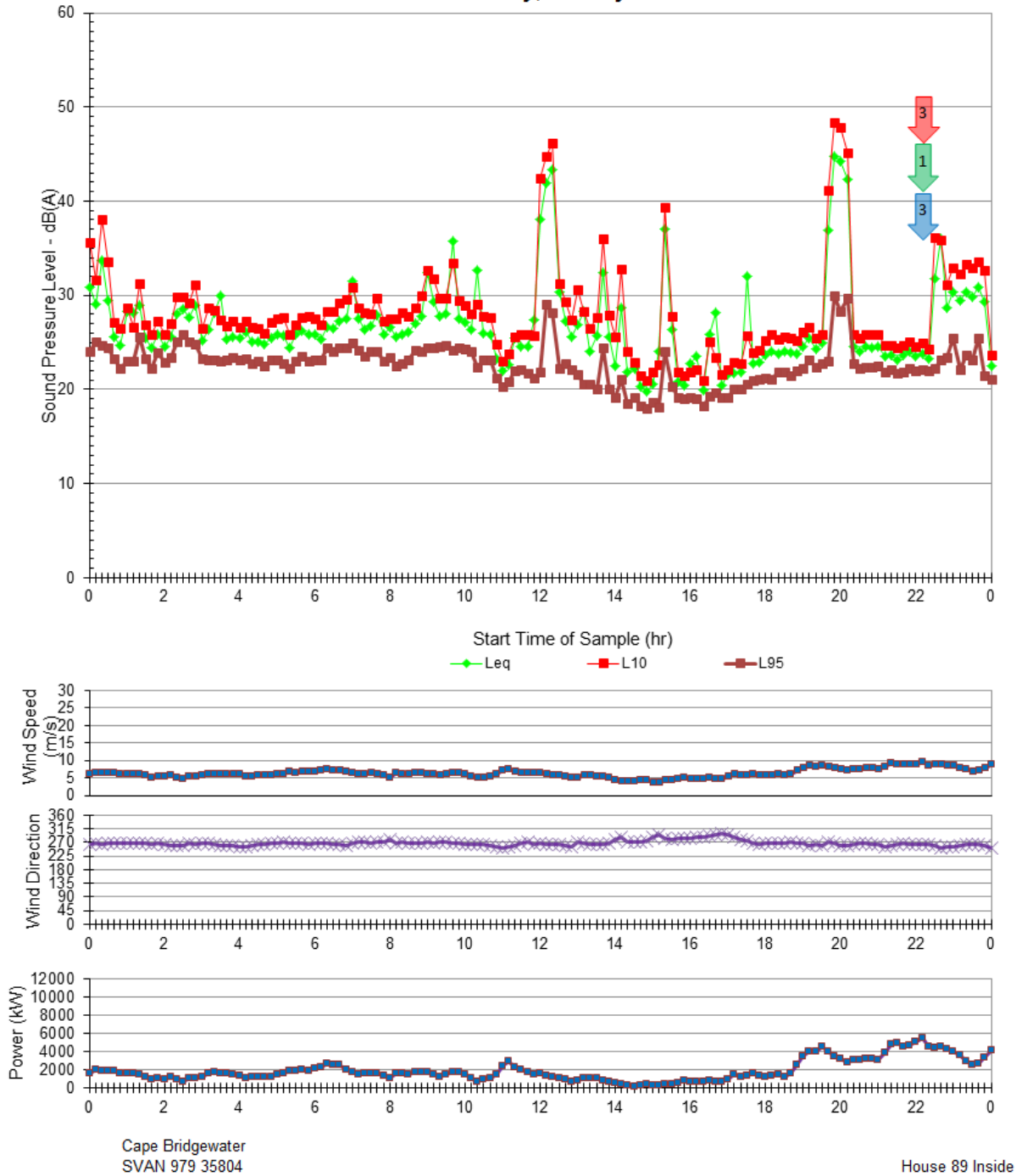
### Saturday, 14 June 2014



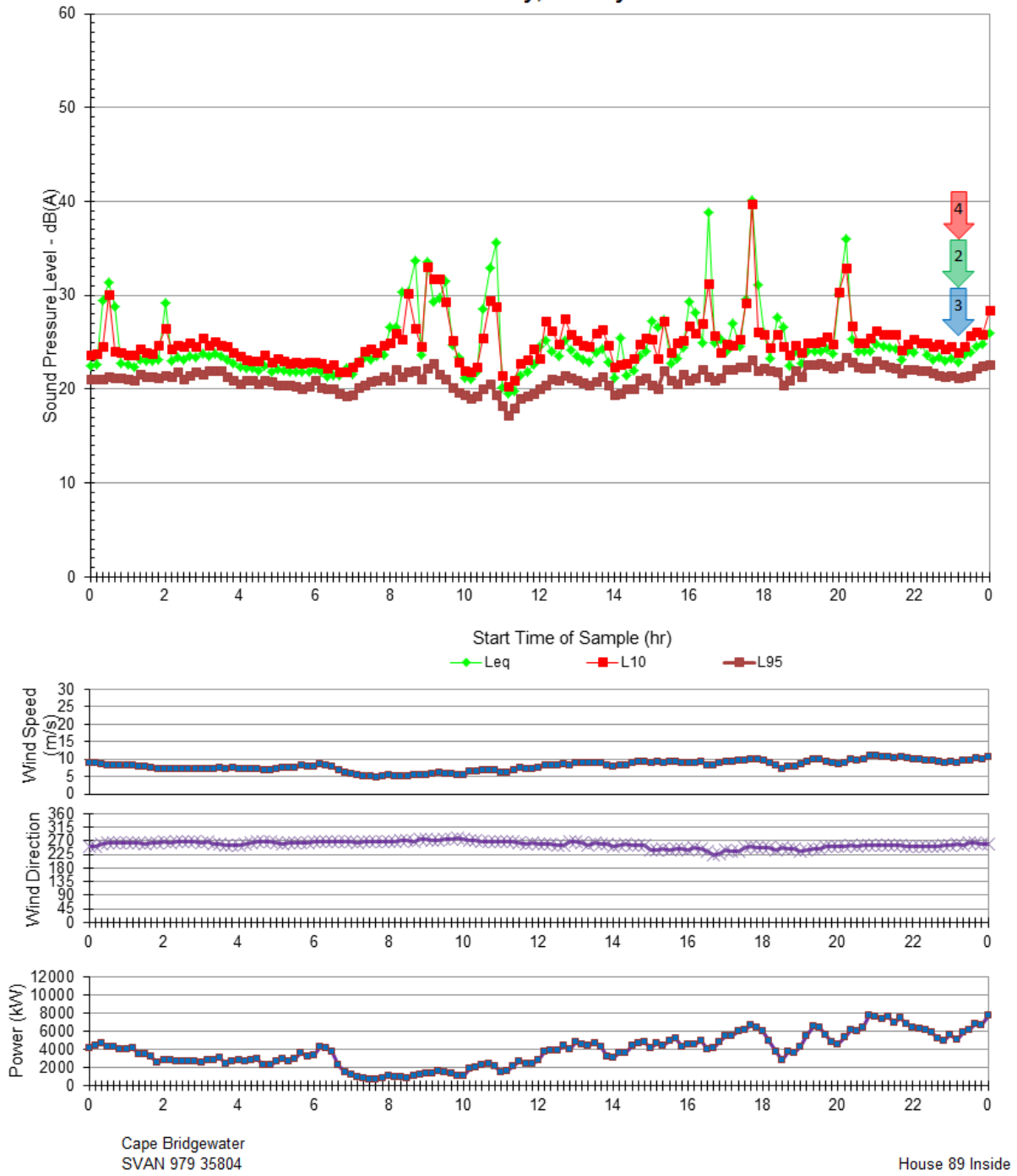
**APPENDIX L: House 89 inside logger data with modified resident's logs**

**Ambient Measurements**

Sunday, 18 May 2014

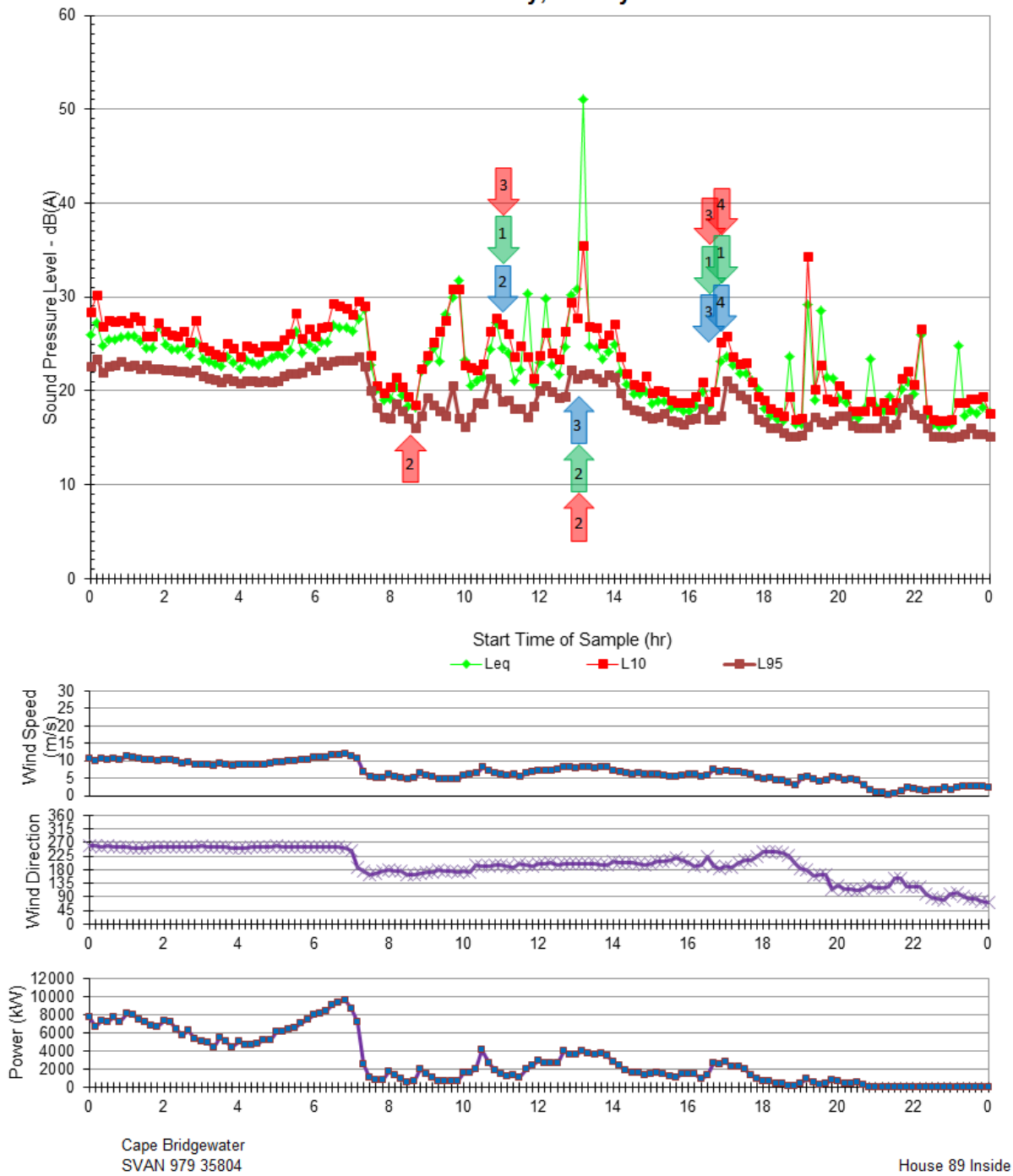


## Ambient Measurements Monday, 19 May 2014

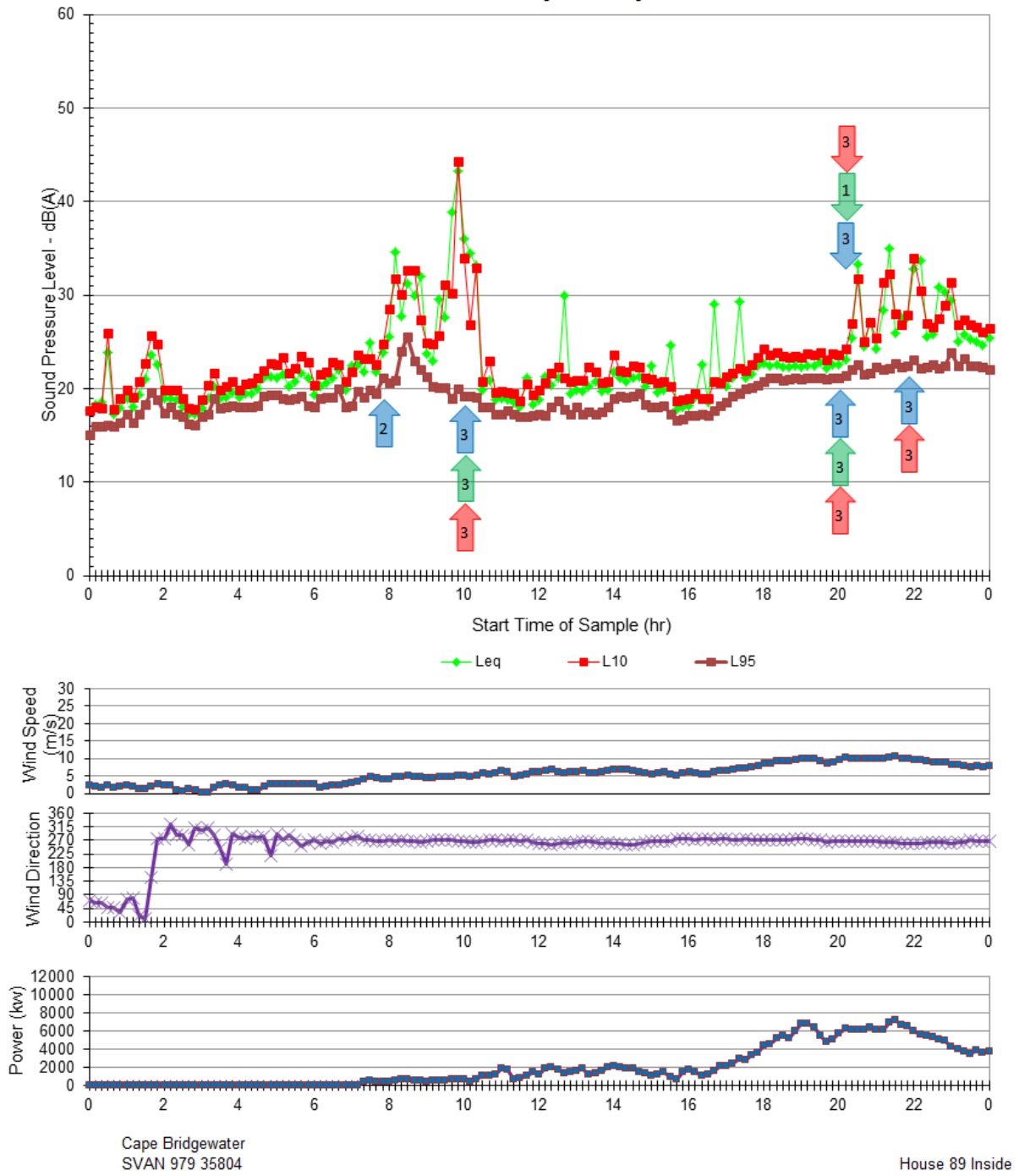


# Ambient Measurements

Tuesday, 20 May 2014



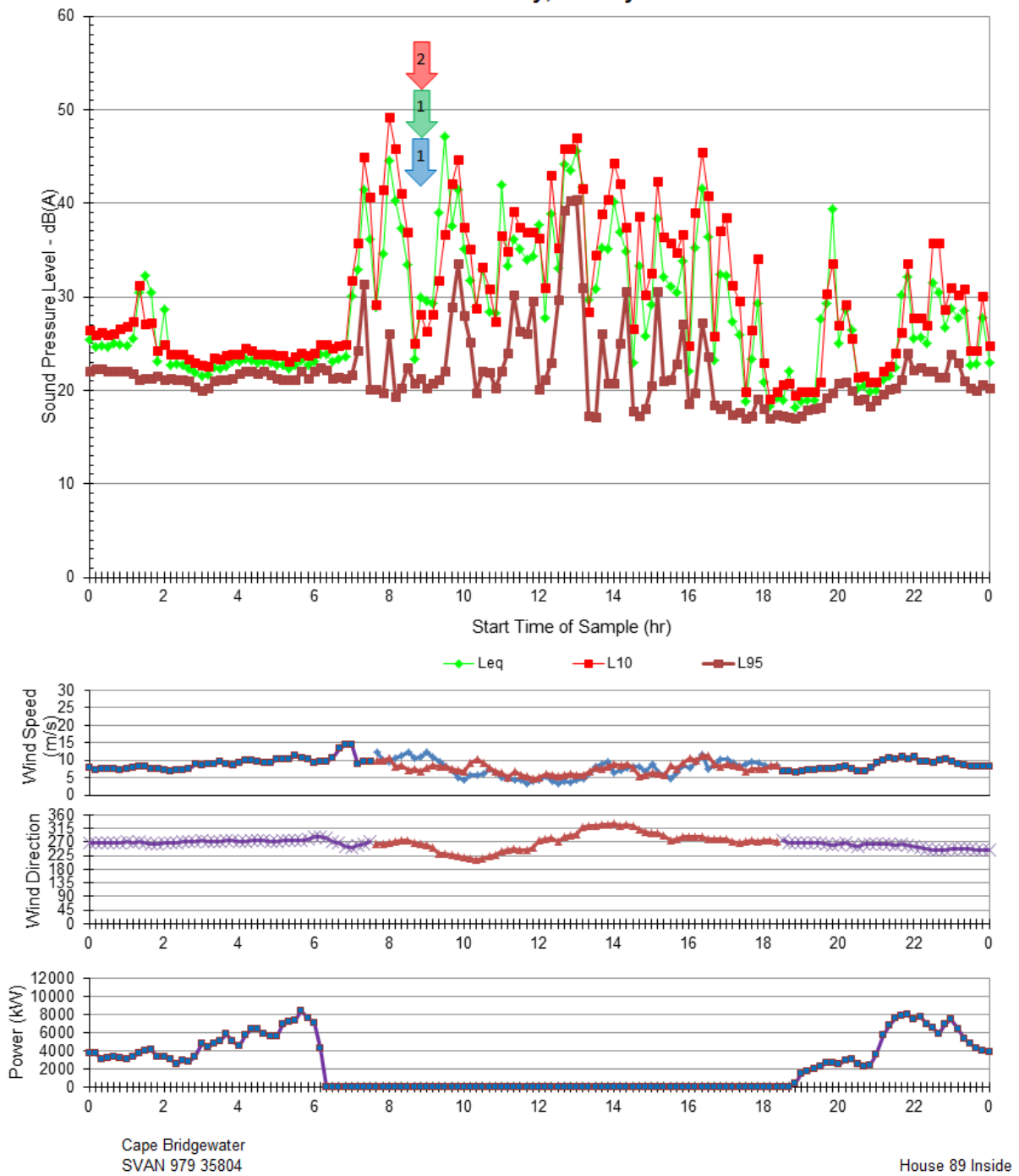
## Ambient Measurements Wednesday, 21 May 2014





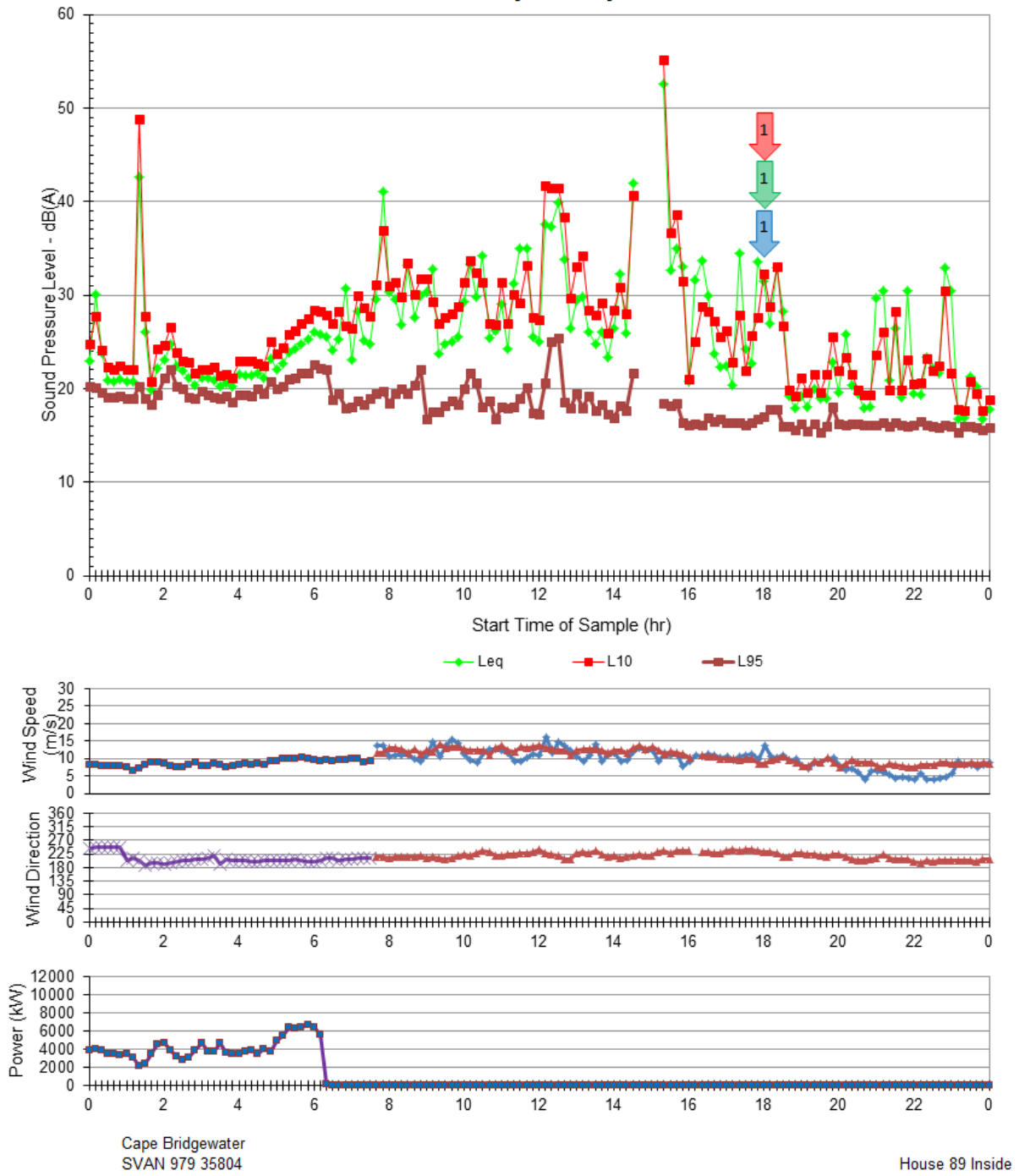
# Ambient Measurements

Thursday, 22 May 2014

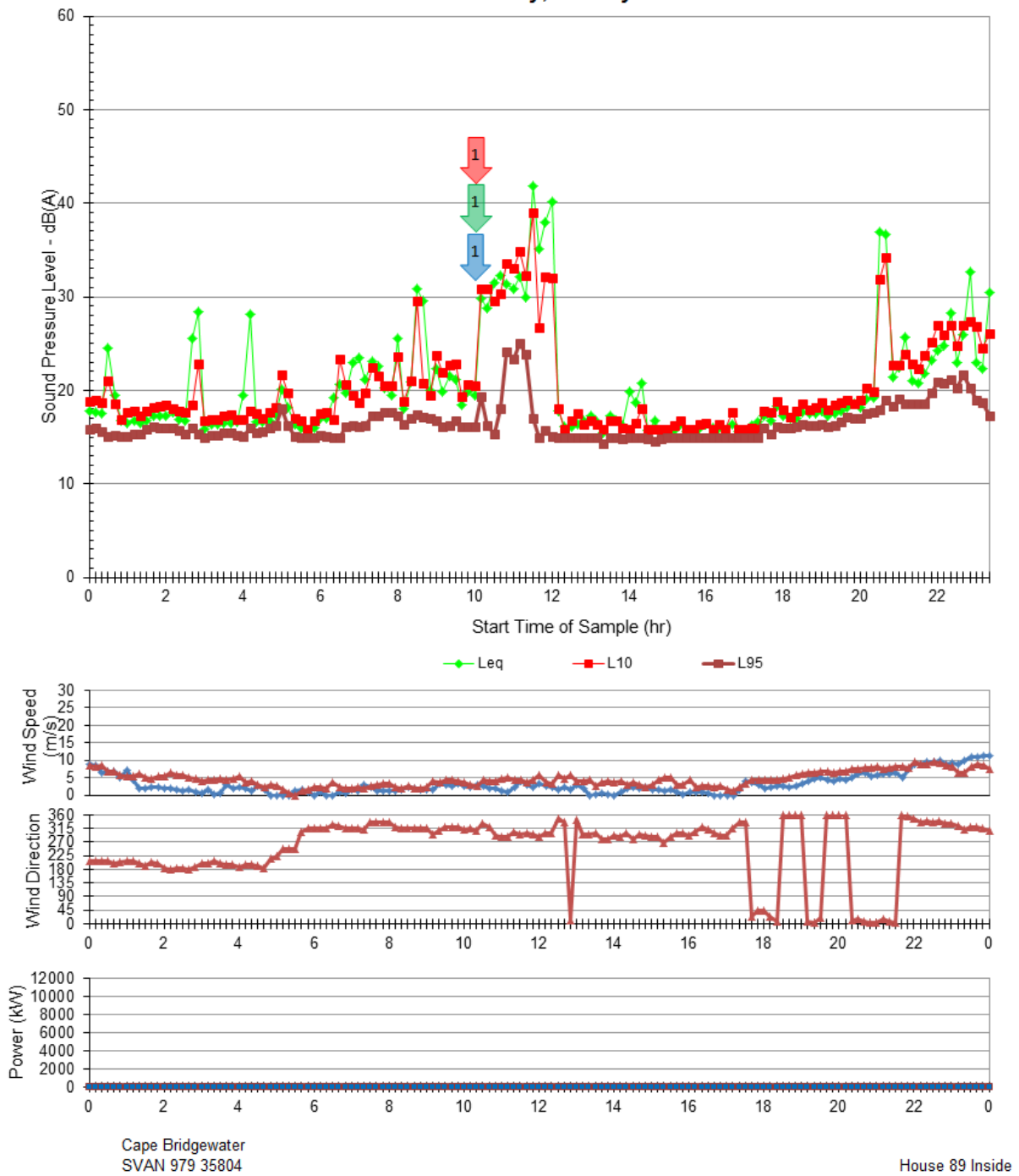


# Ambient Measurements

Friday, 23 May 2014

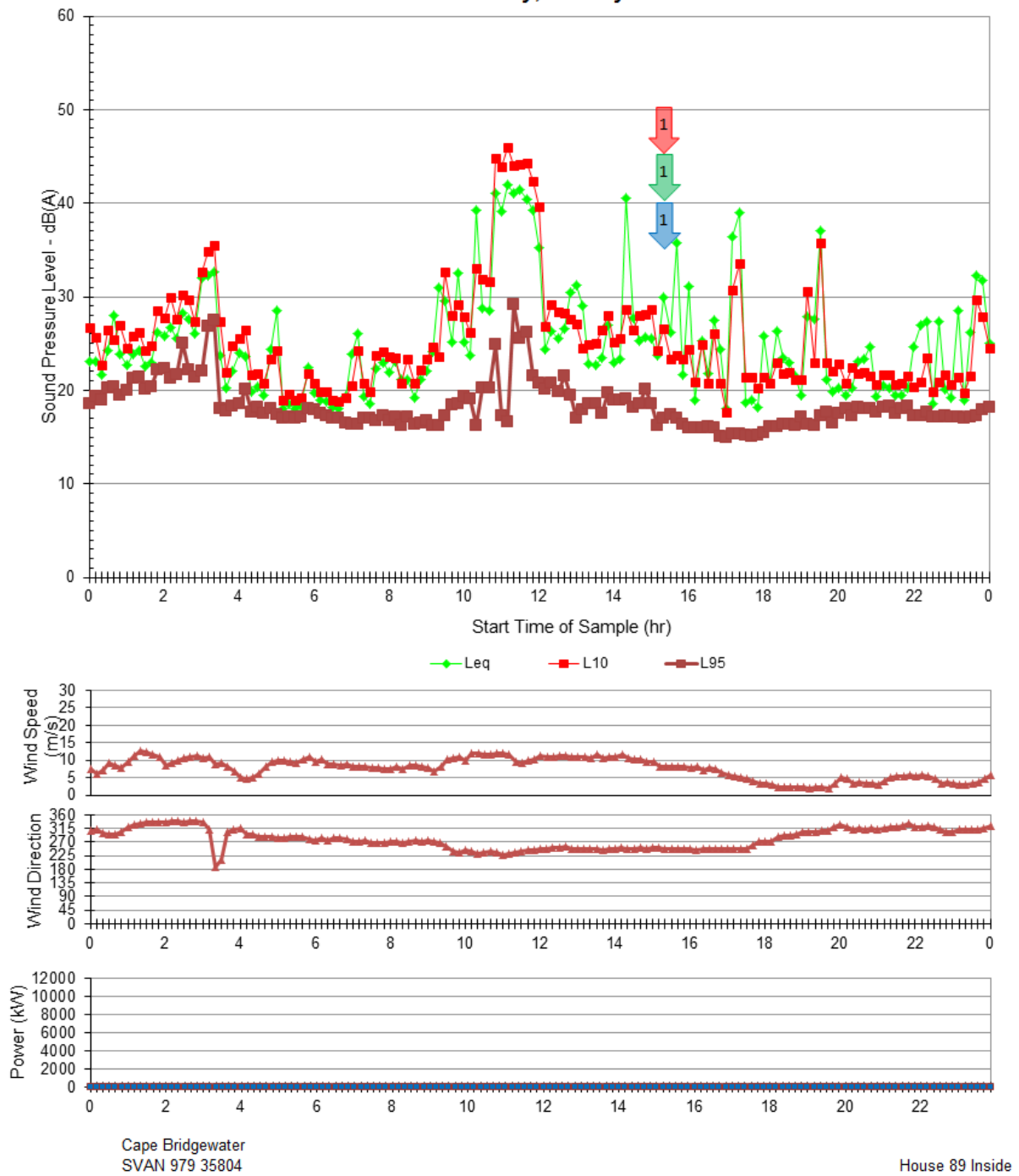


## Ambient Measurements Saturday, 24 May 2014



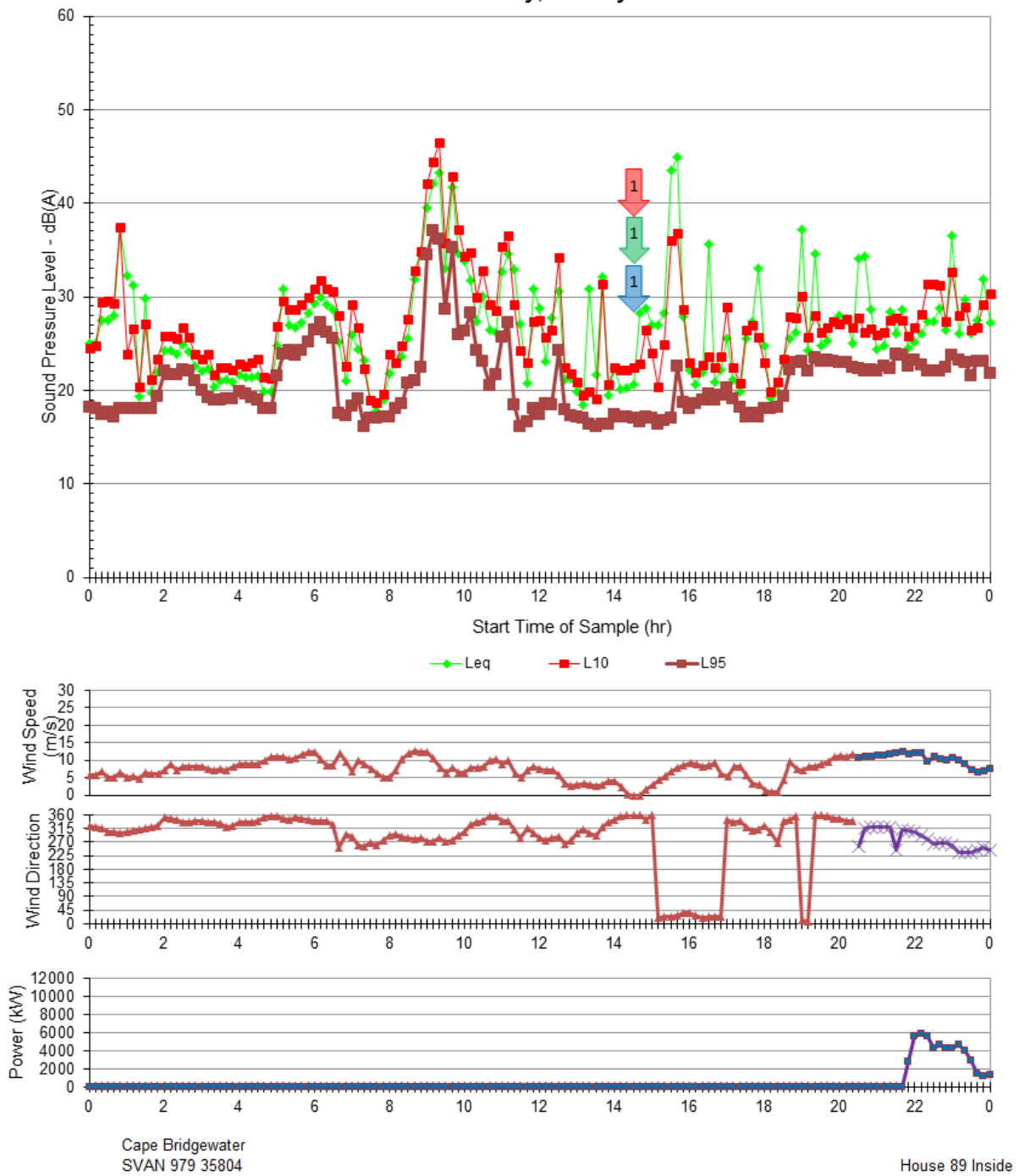
# Ambient Measurements

Sunday, 25 May 2014

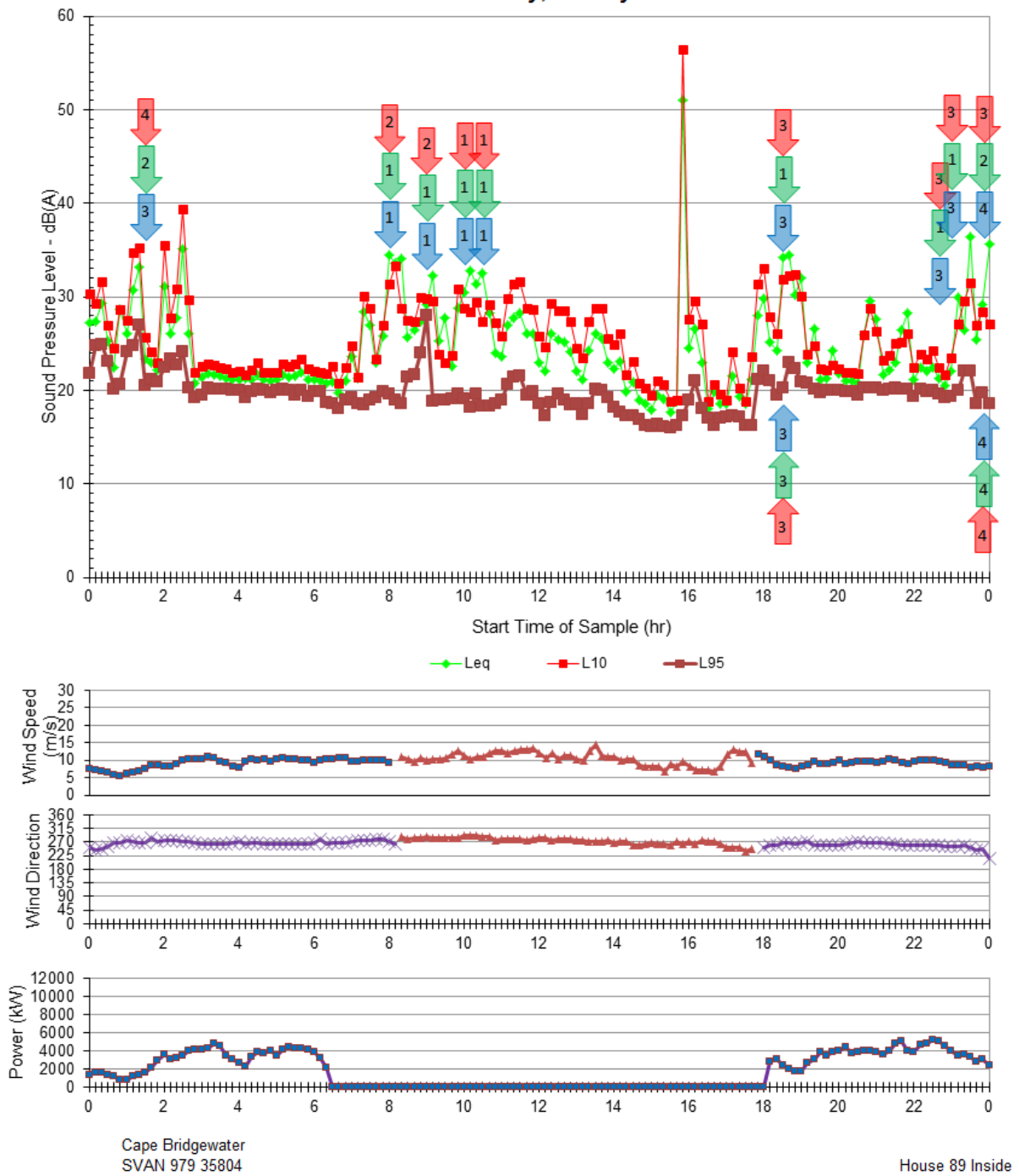


# Ambient Measurements

Monday, 26 May 2014

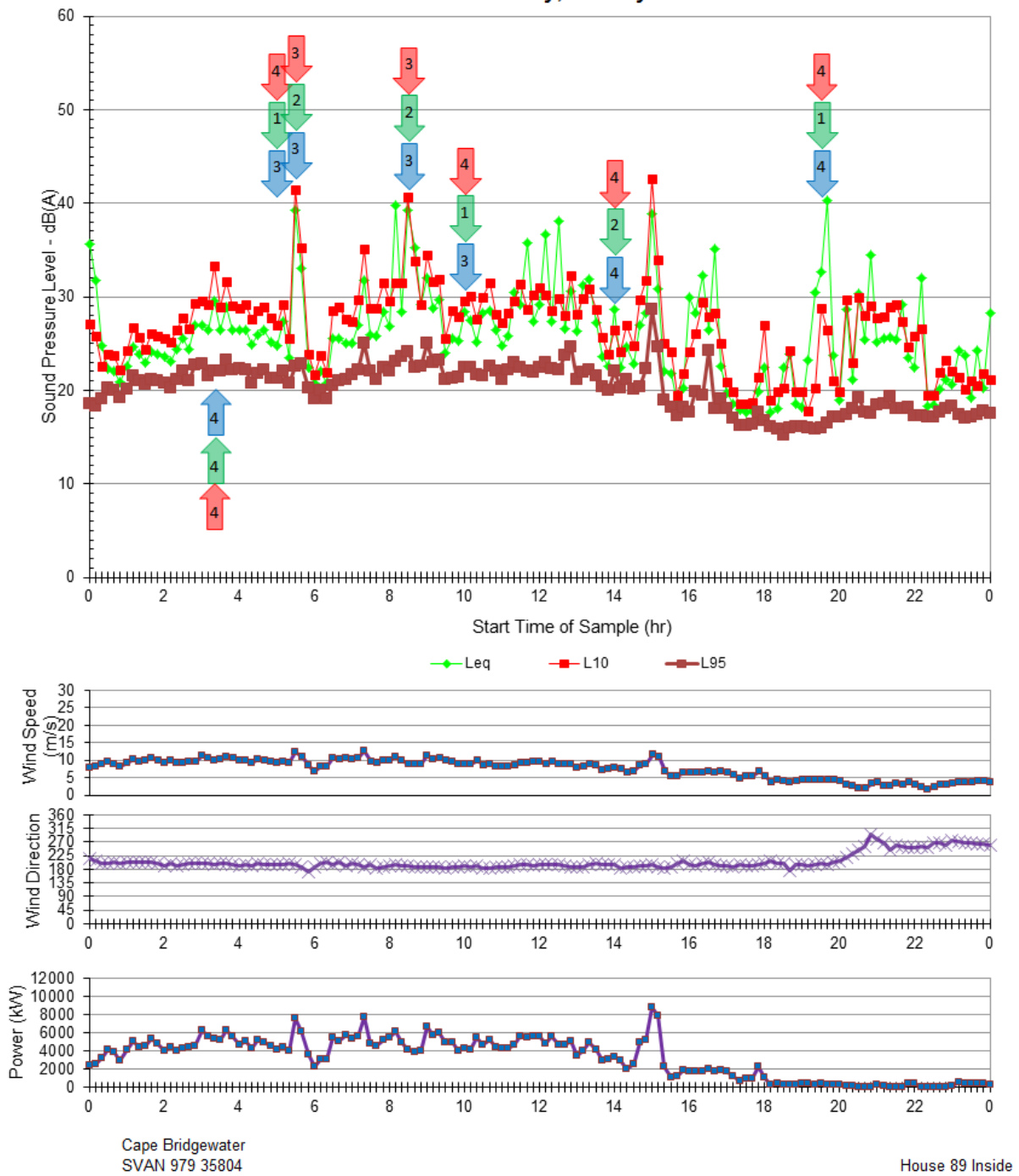


## Ambient Measurements Tuesday, 27 May 2014



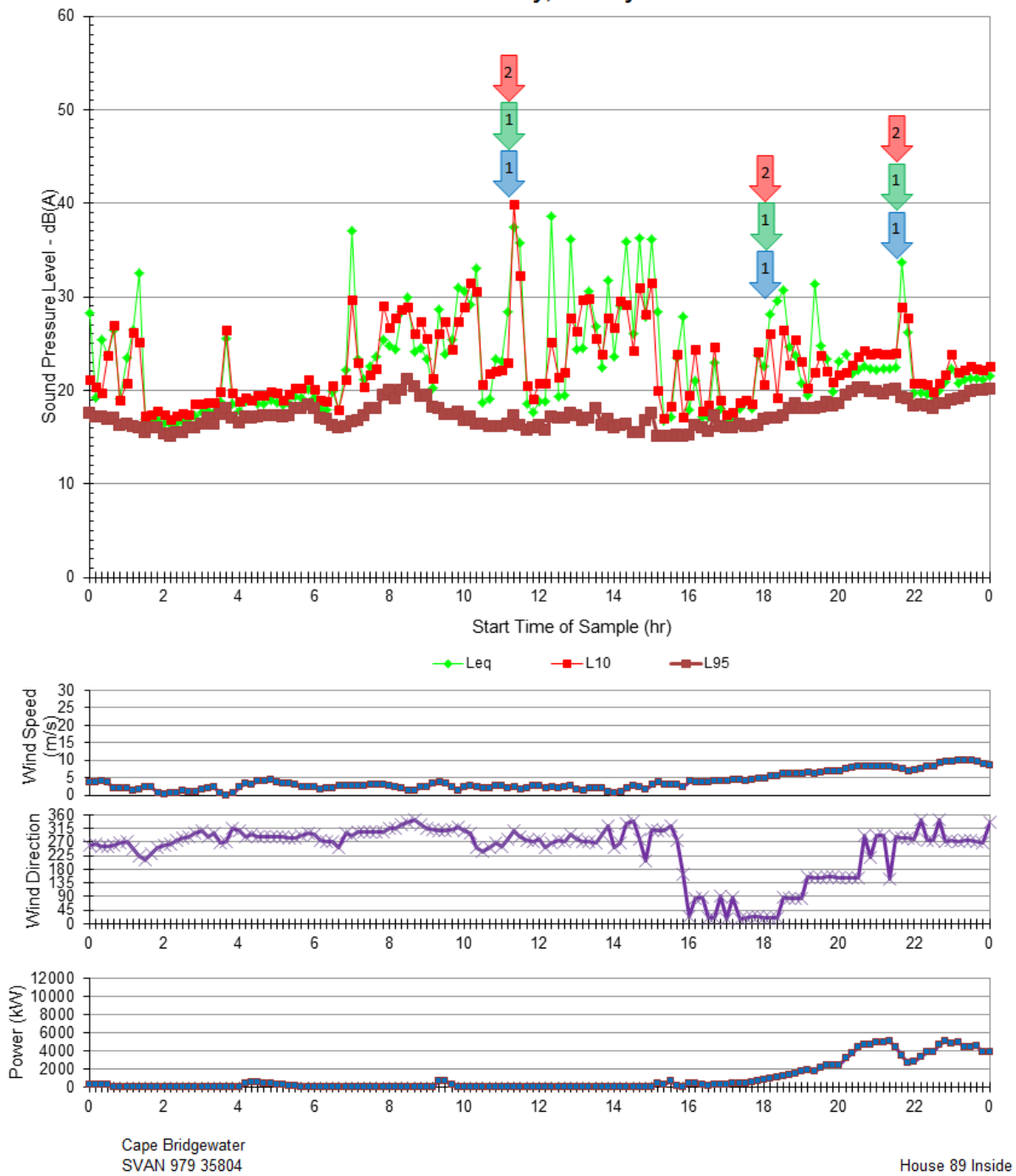
# Ambient Measurements

Wednesday, 28 May 2014



## Ambient Measurements

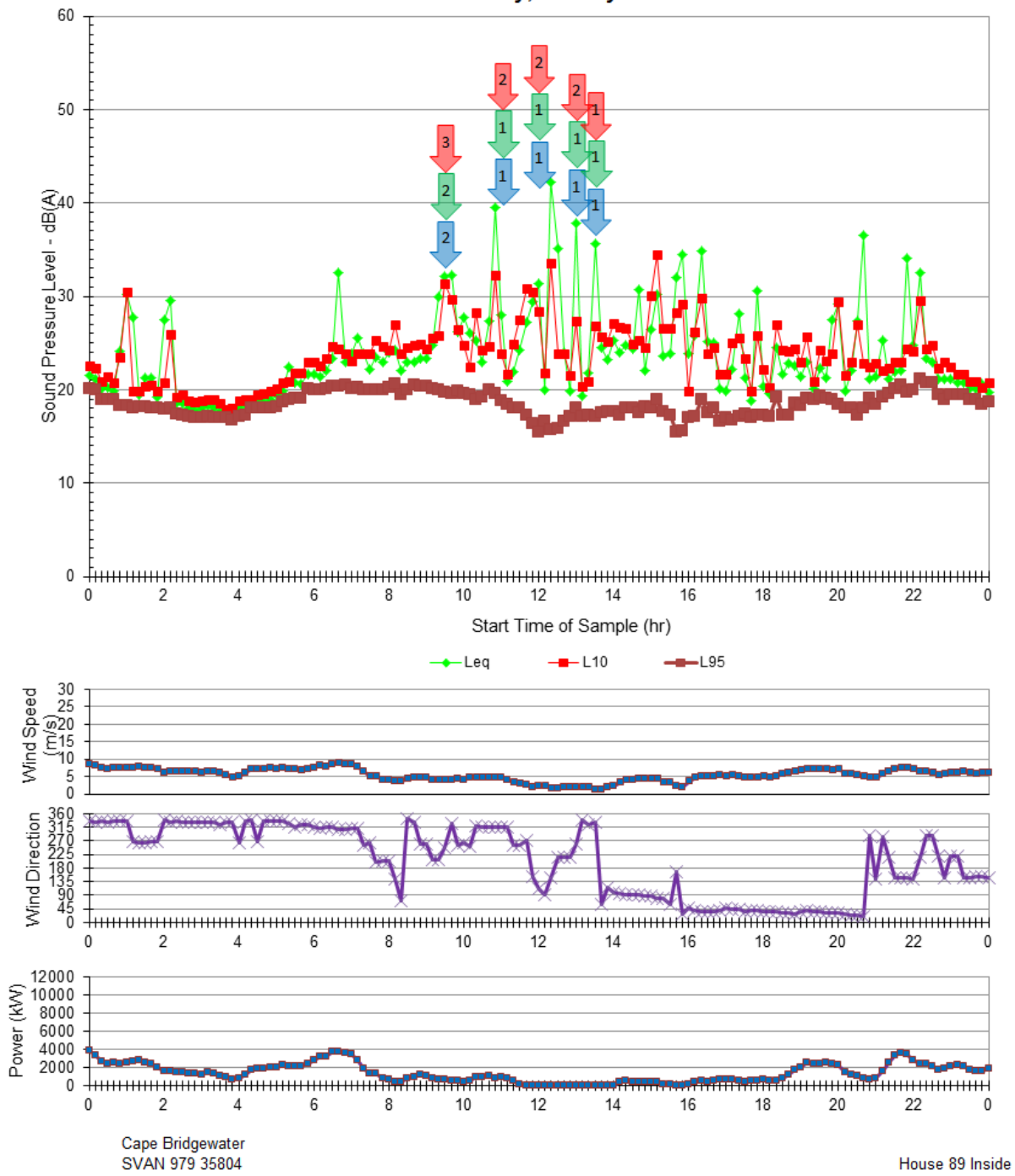
### Thursday, 29 May 2014





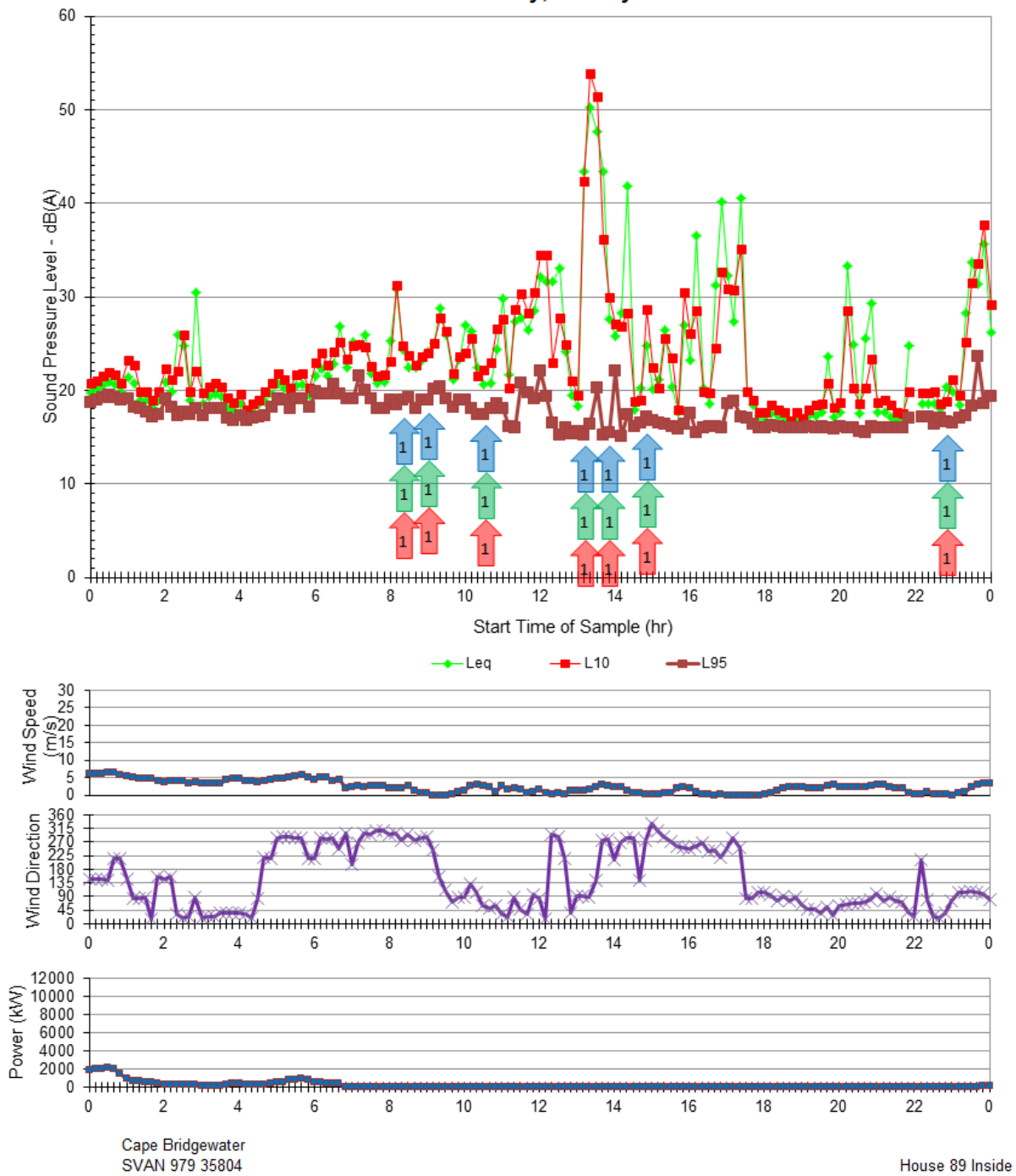
## Ambient Measurements

Friday, 30 May 2014



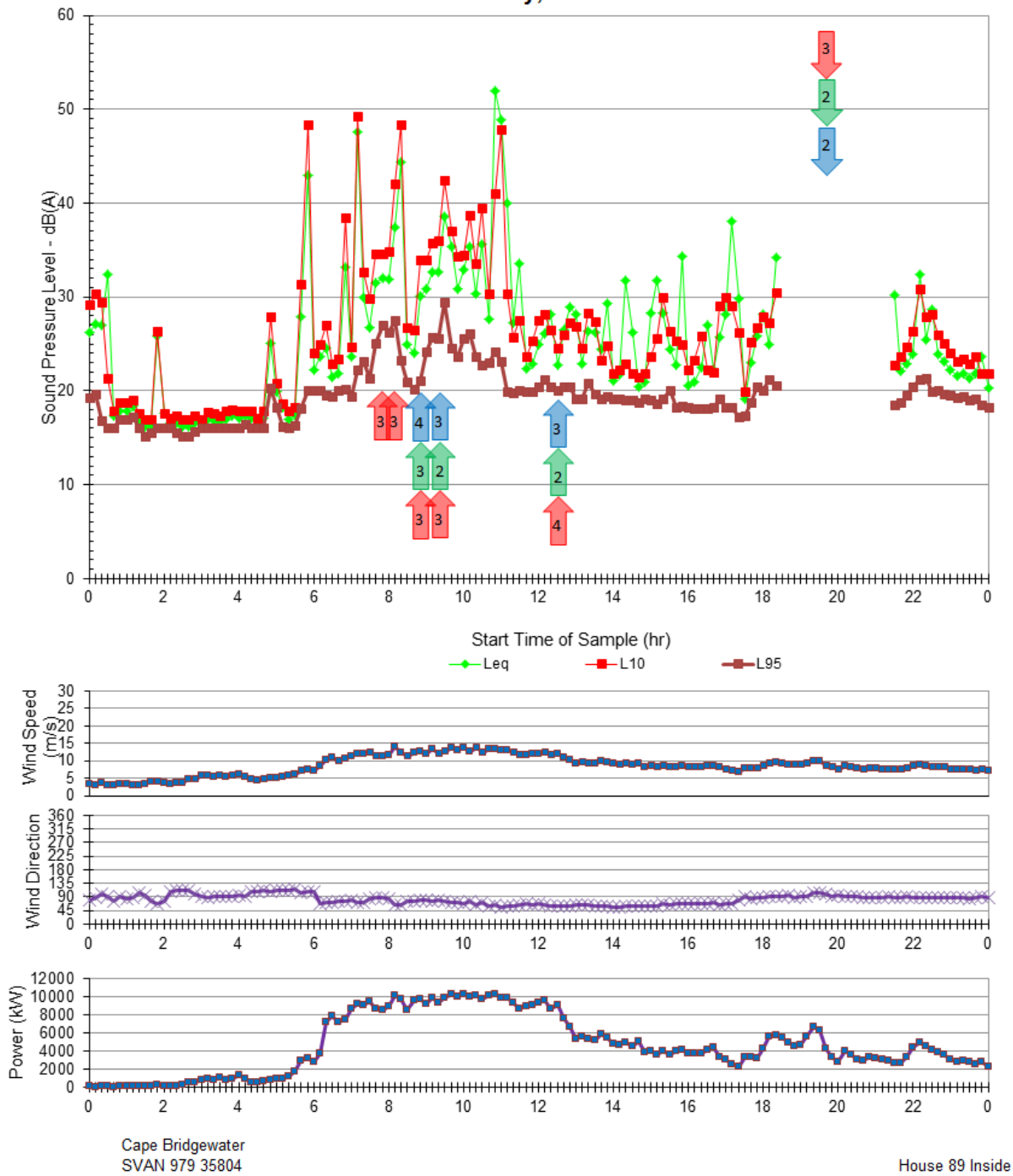
## Ambient Measurements

Saturday, 31 May 2014



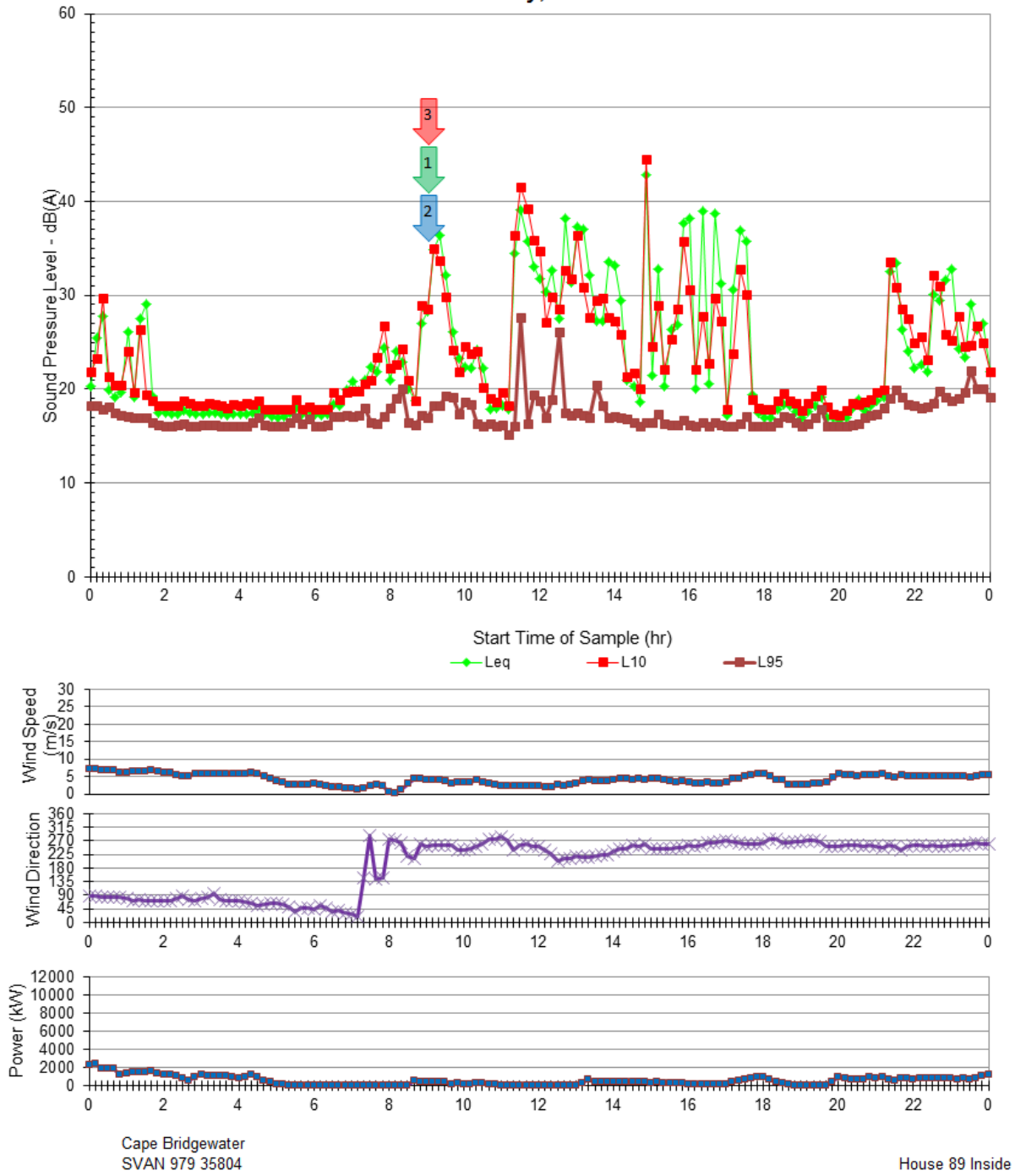
## Ambient Measurements

Sunday, 1 June 2014



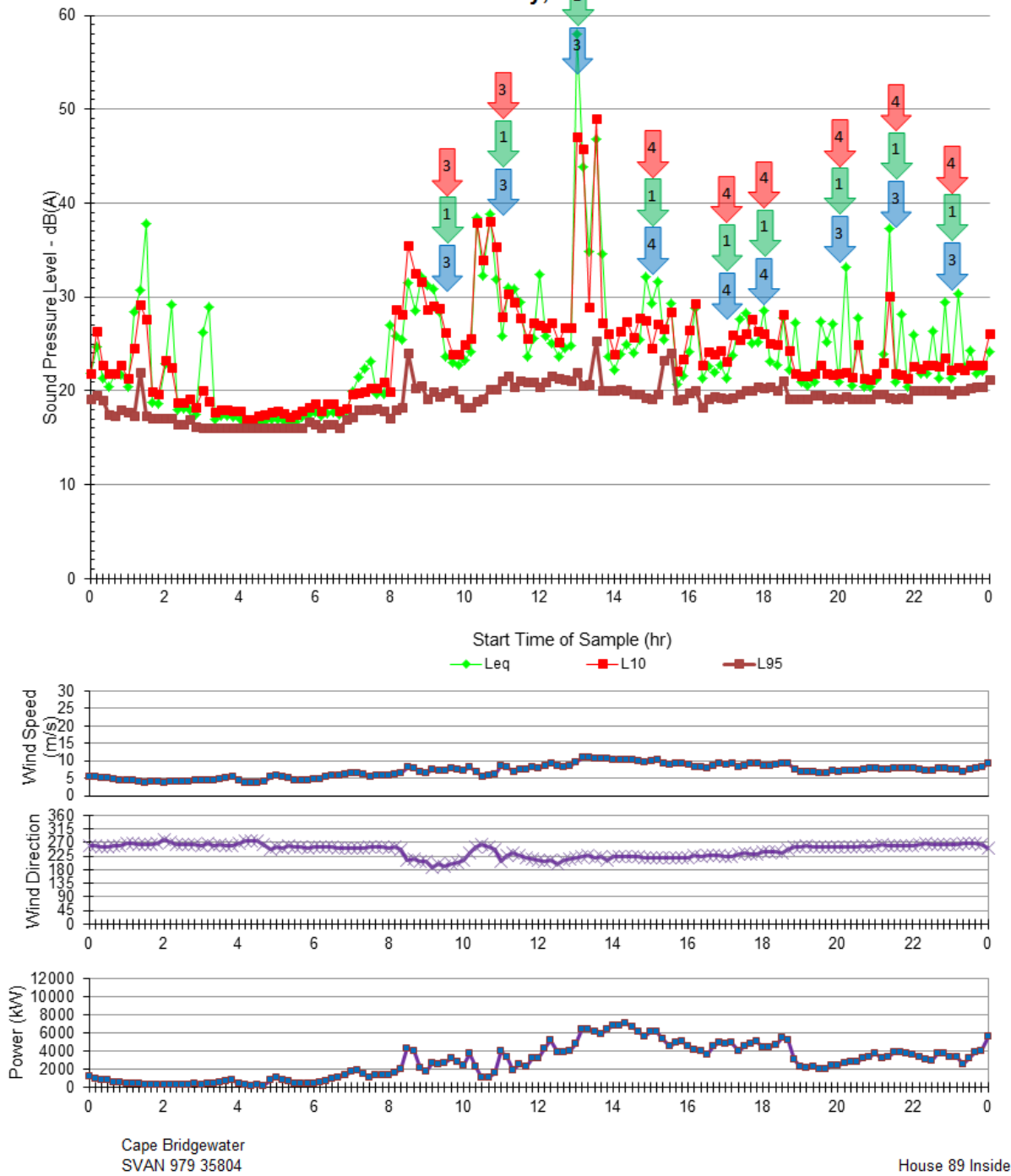
# Ambient Measurements

Monday, 2 June 2014



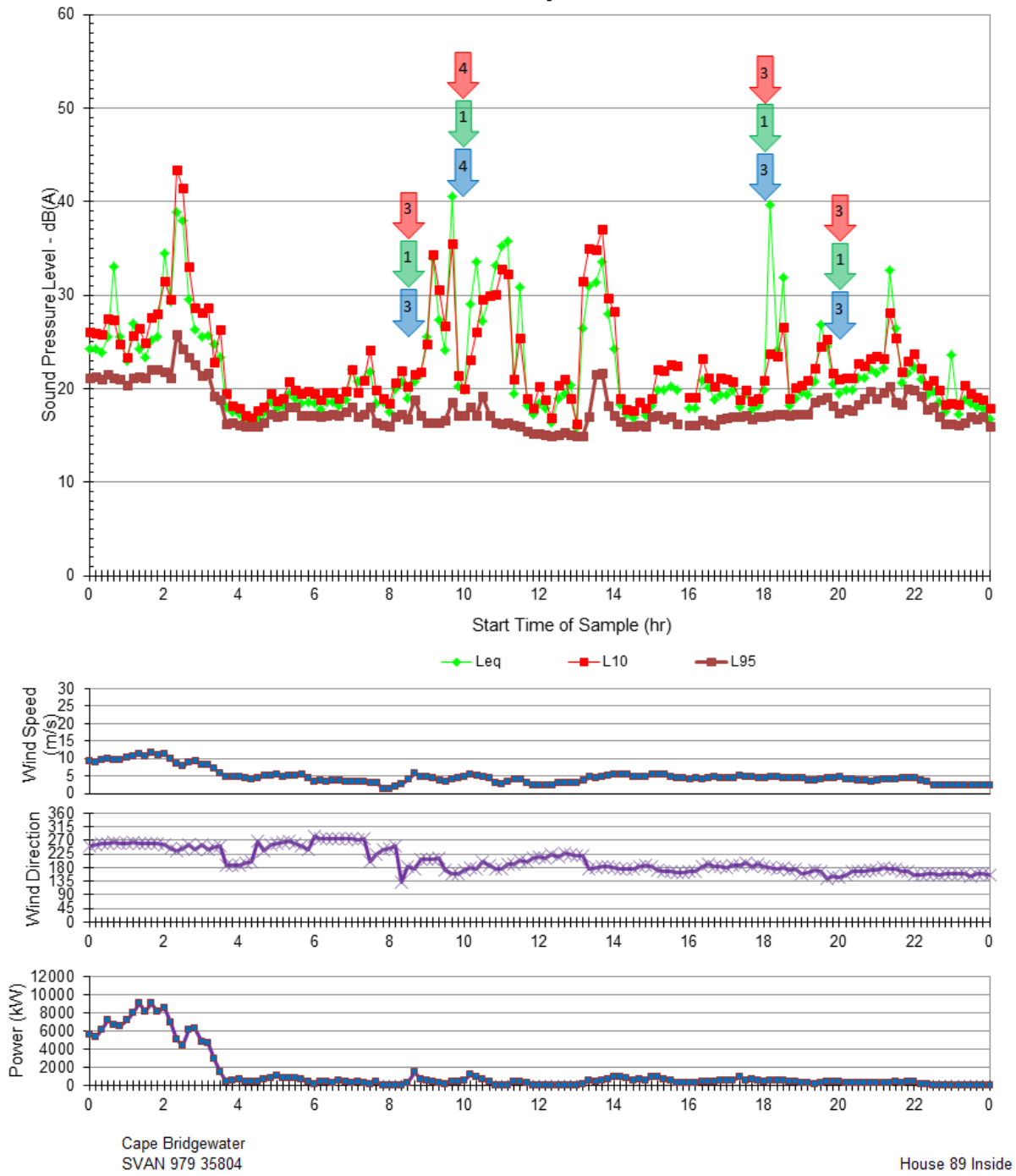
## Ambient Measurements

Tuesday, 3 June 2014

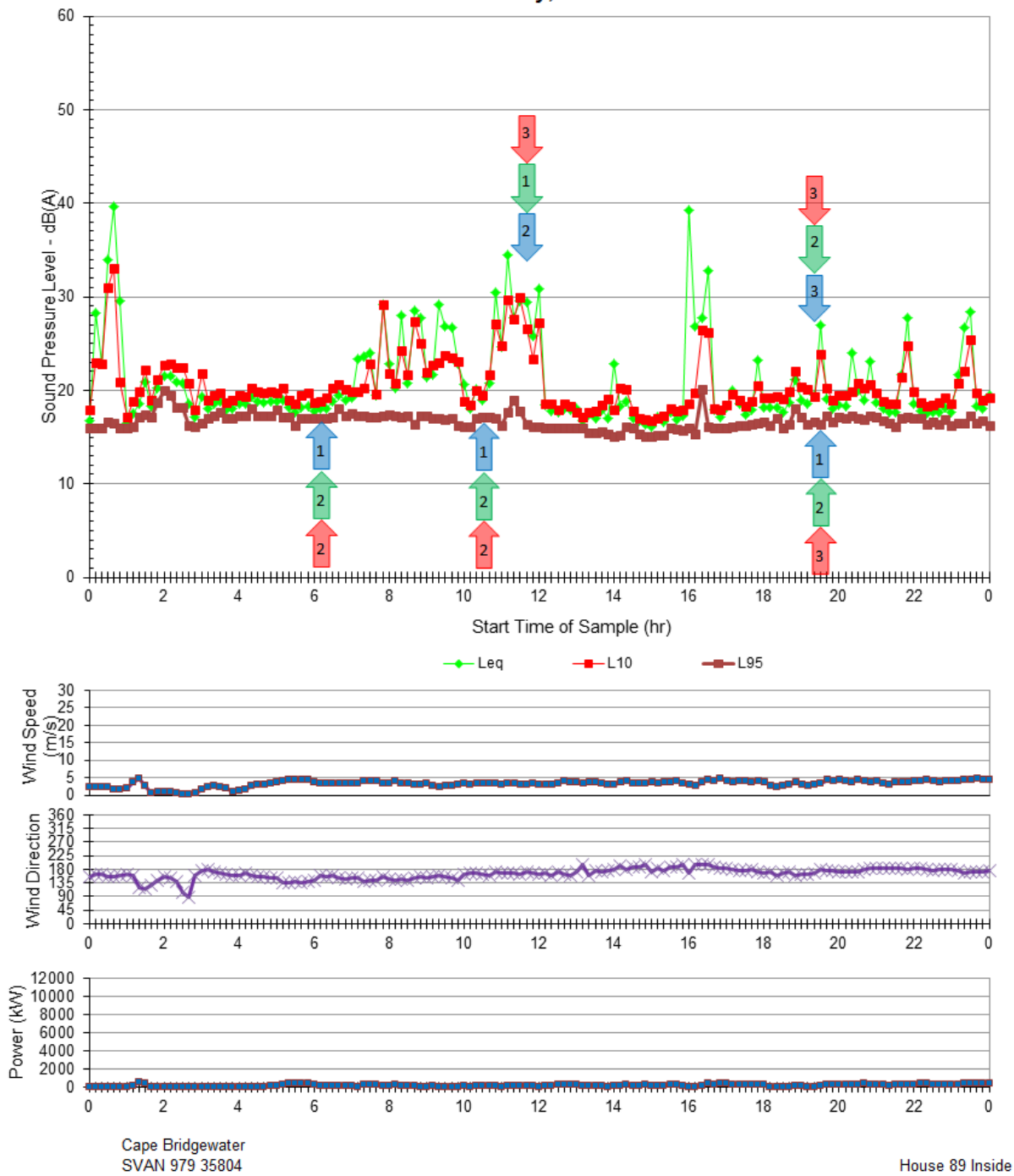


# Ambient Measurements

Wednesday, 4 June 2014

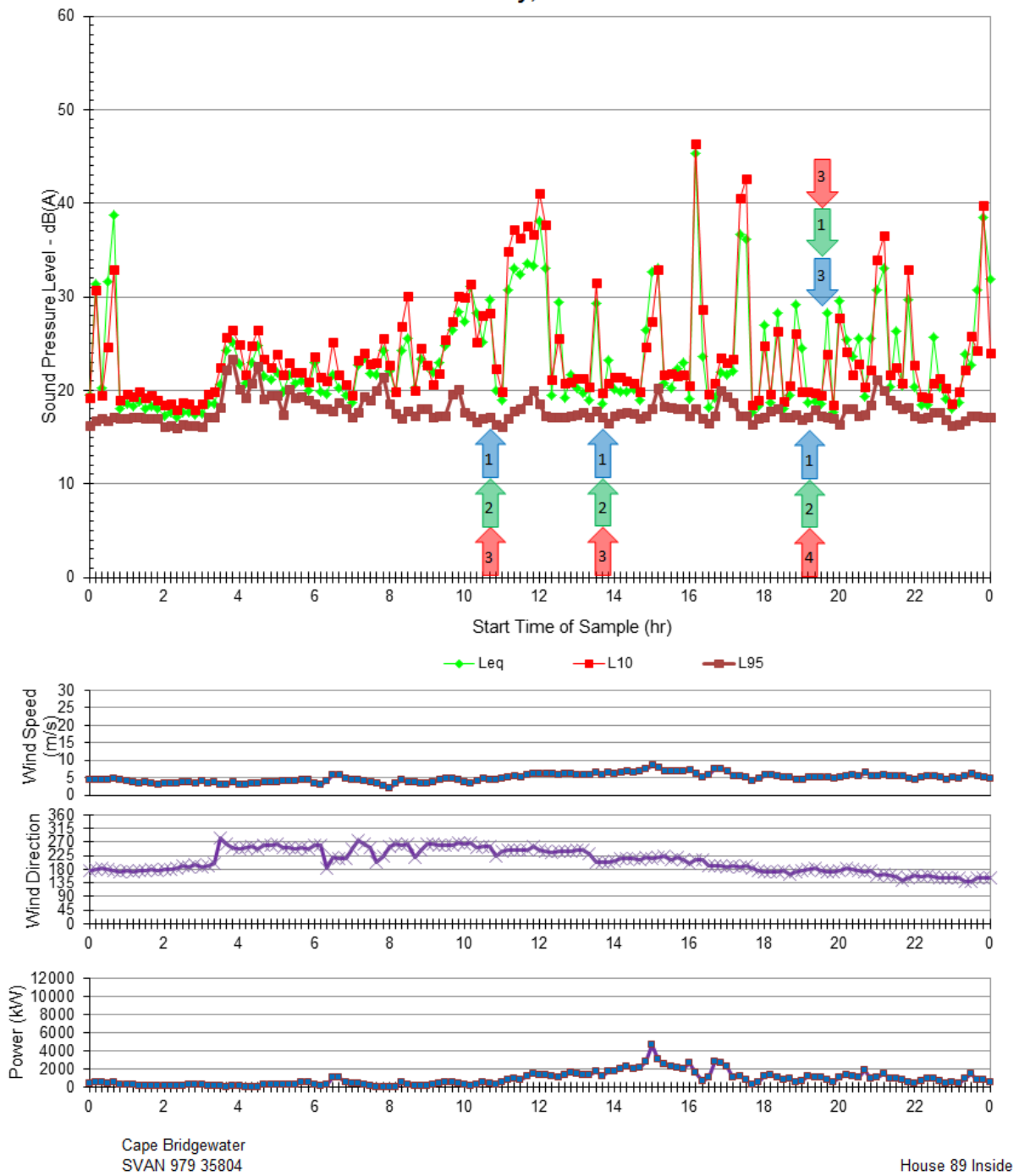


## Ambient Measurements Thursday, 5 June 2014



## Ambient Measurements

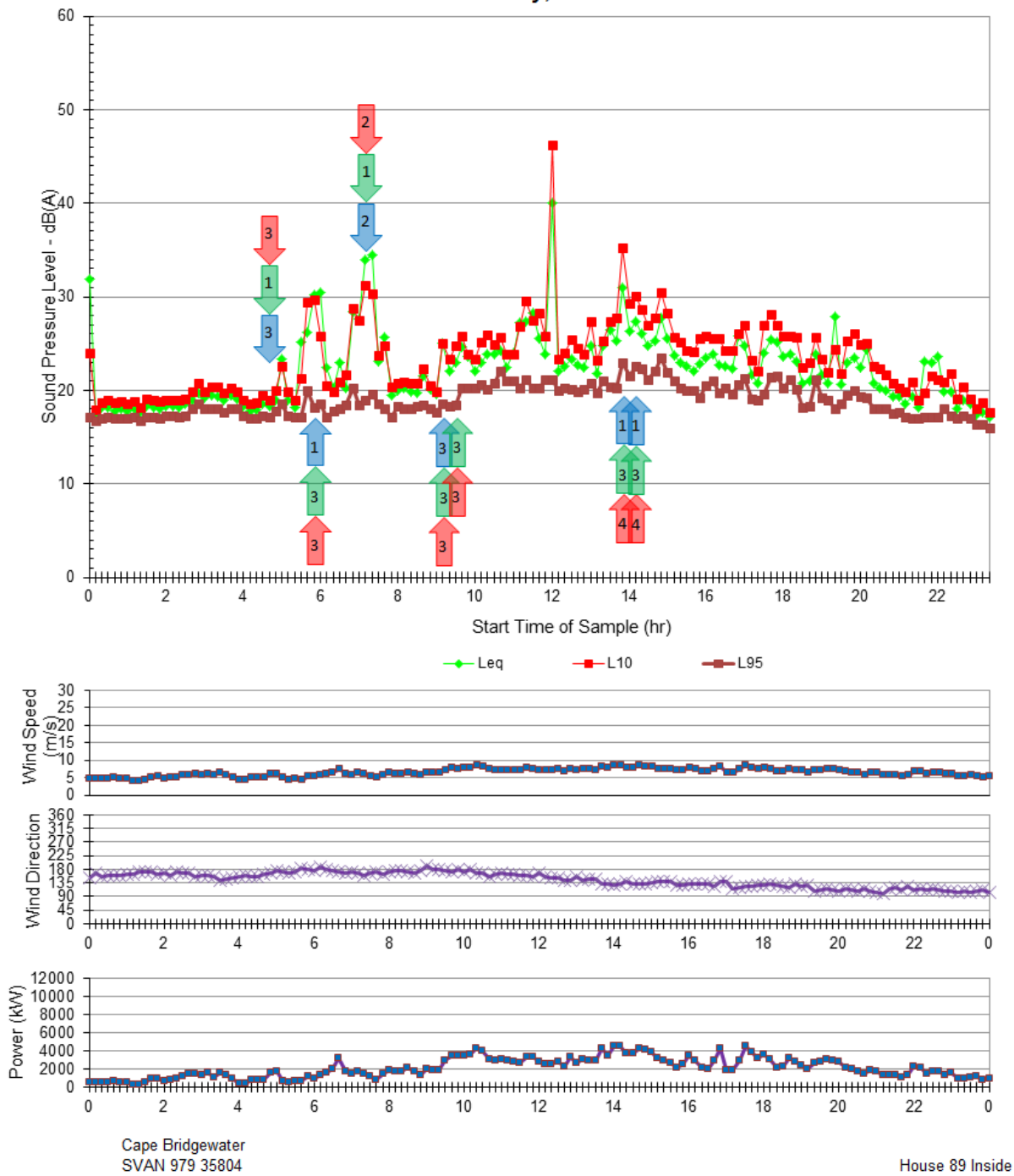
Friday, 6 June 2014



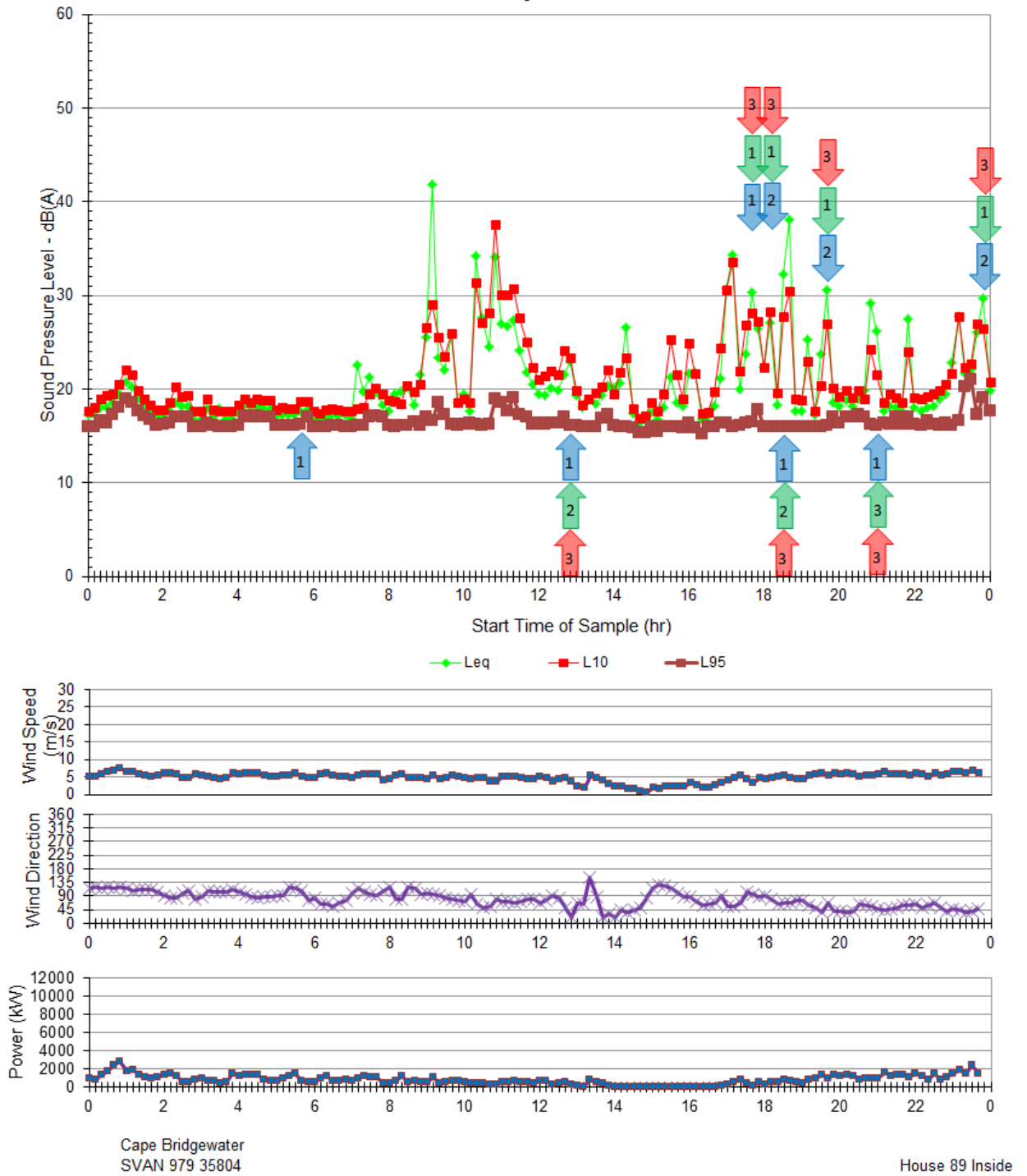


# Ambient Measurements

Saturday, 7 June 2014

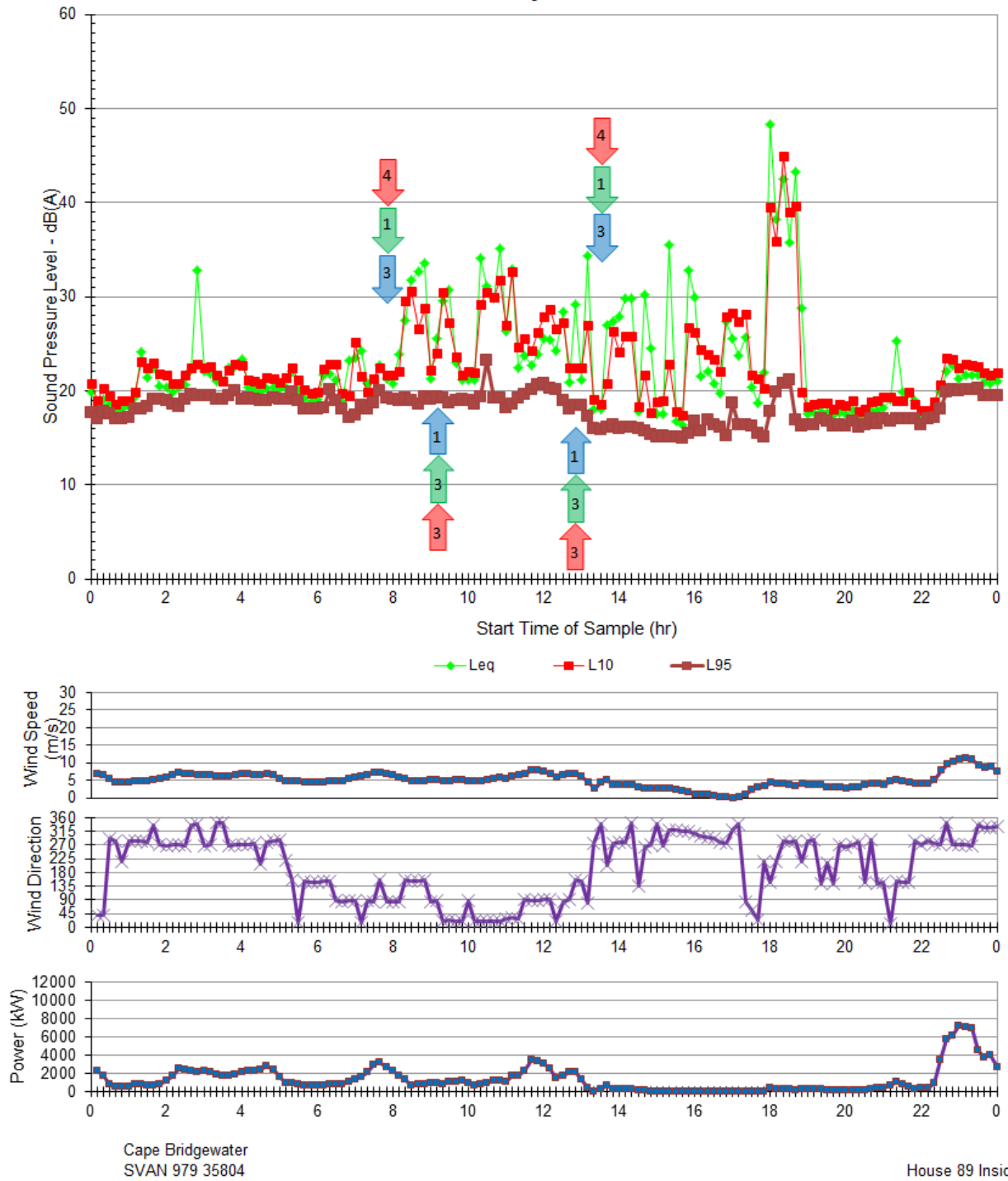


## Ambient Measurements Sunday, 8 June 2014

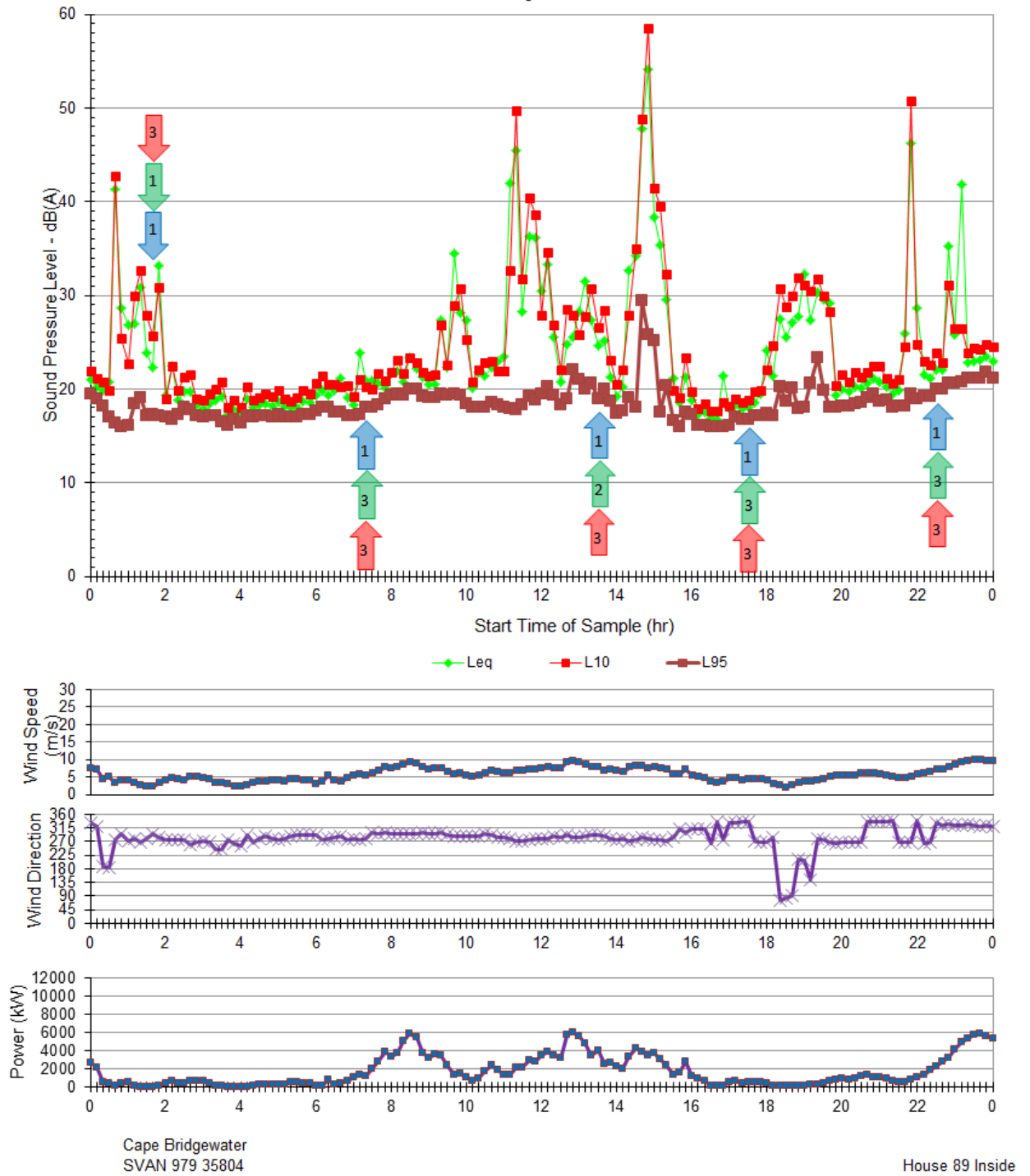


# Ambient Measurements

Monday, 9 June 2014

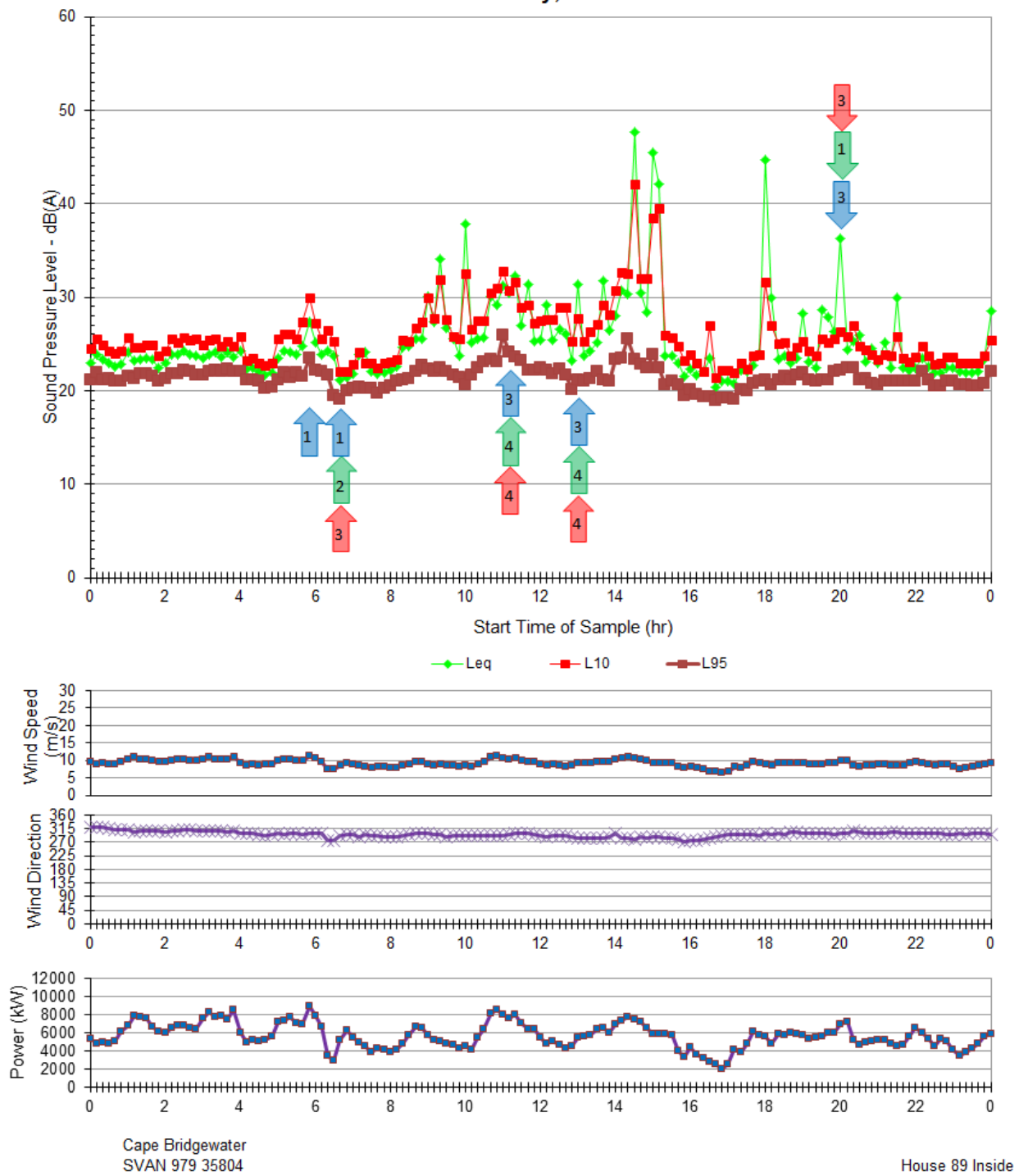


## Ambient Measurements Tuesday, 10 June 2014



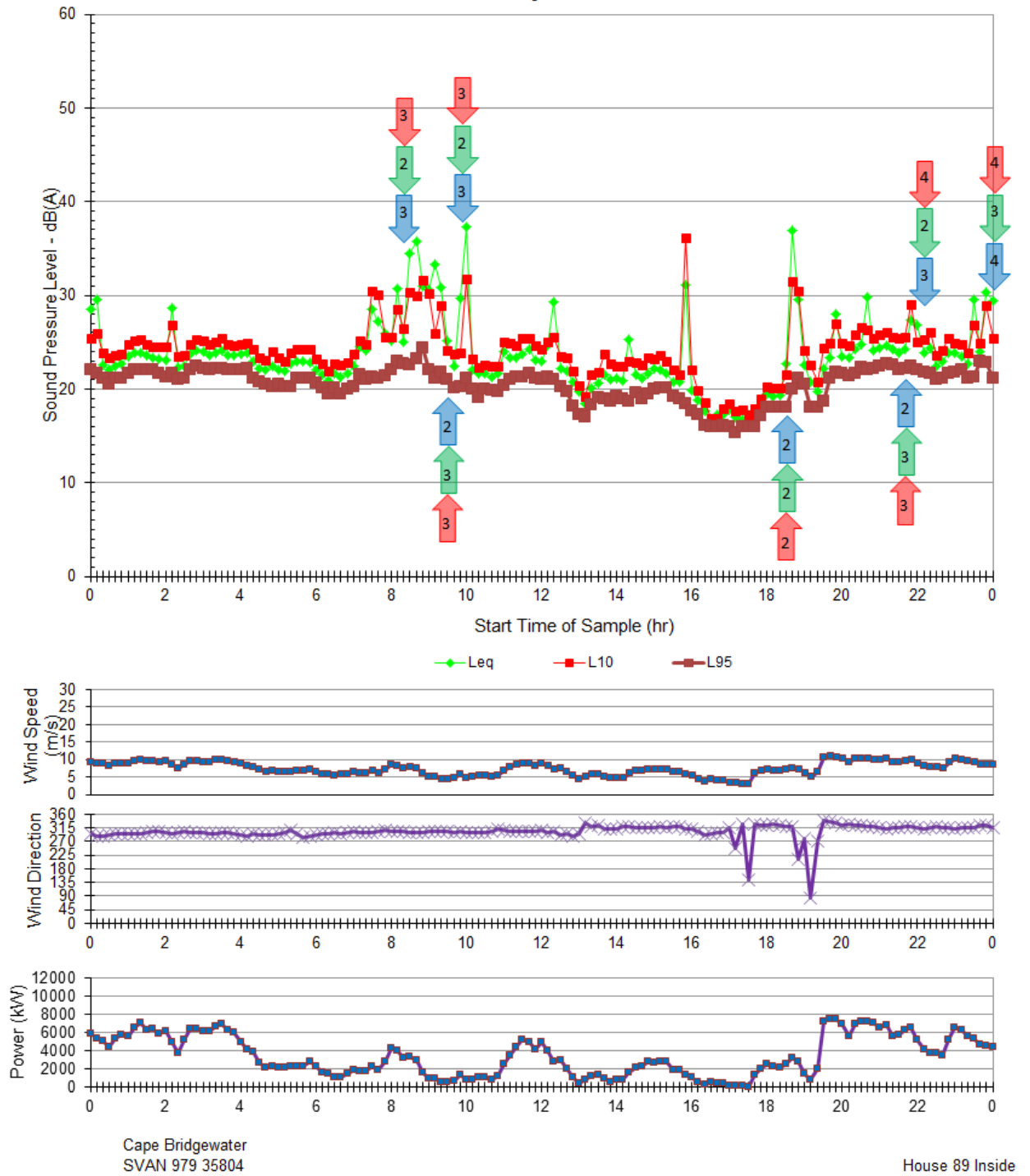
## Ambient Measurements

### Wednesday, 11 June 2014



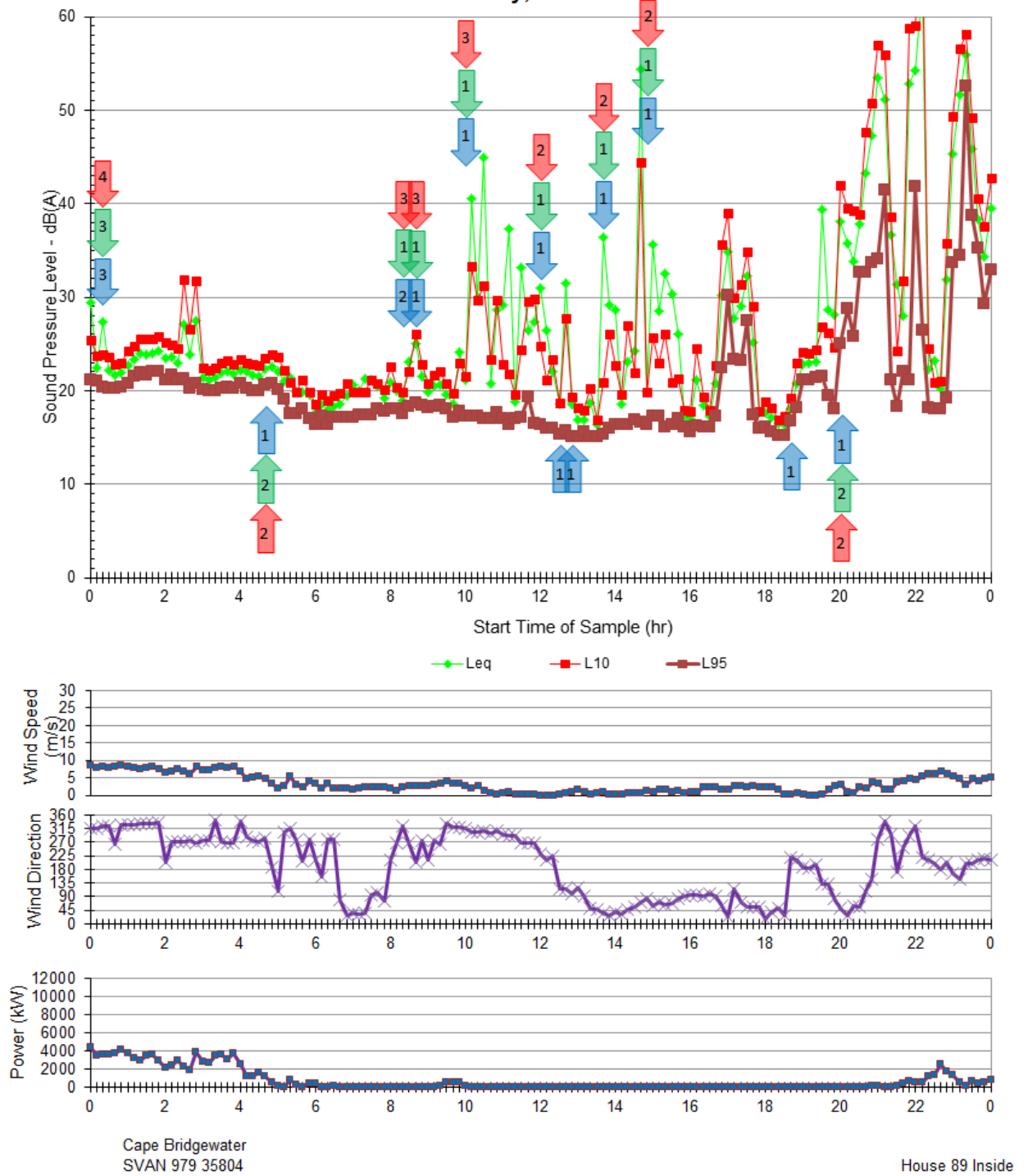
## Ambient Measurements

### Thursday, 12 June 2014

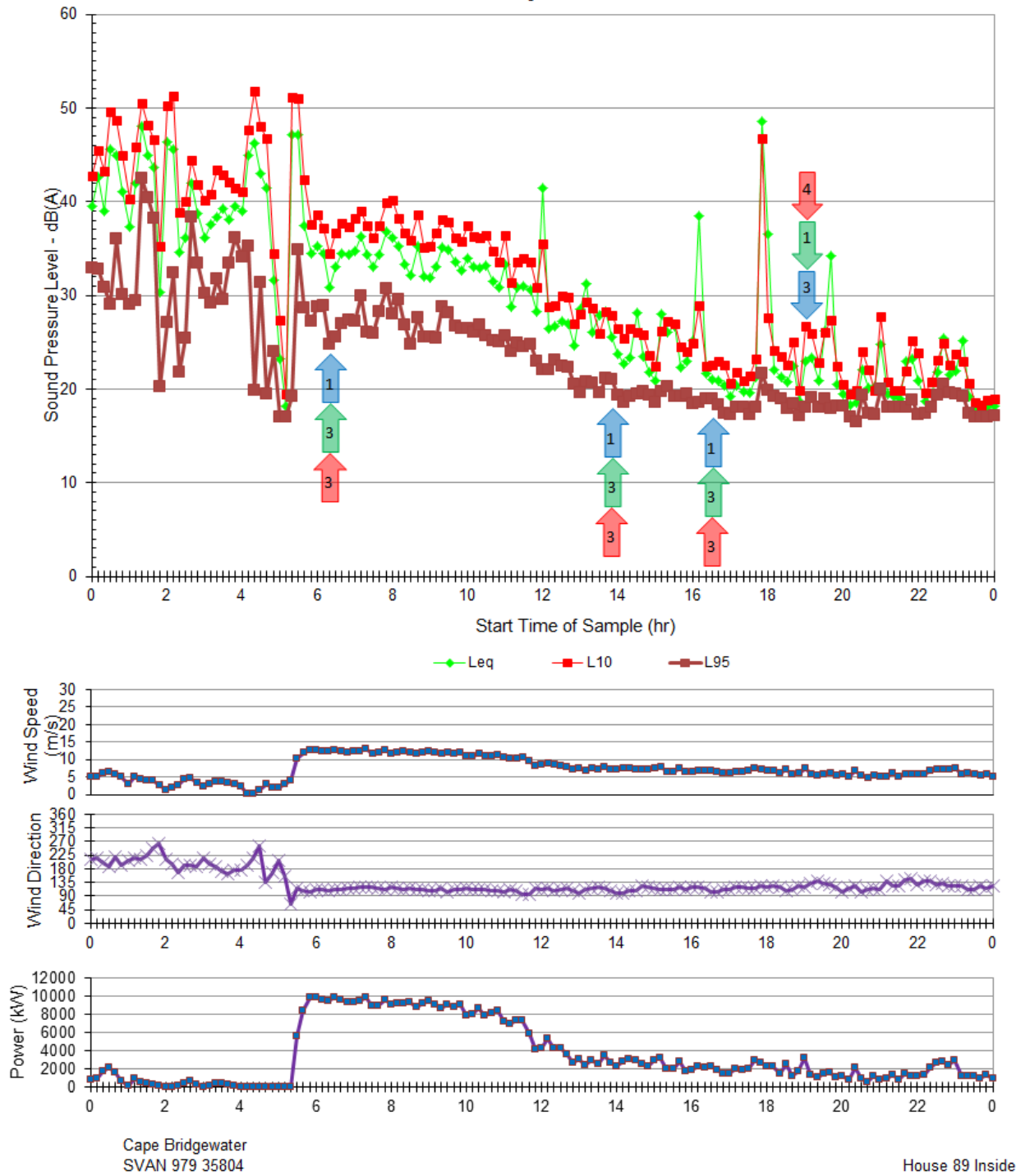


## Ambient Measurements

Friday, 13 June 2014

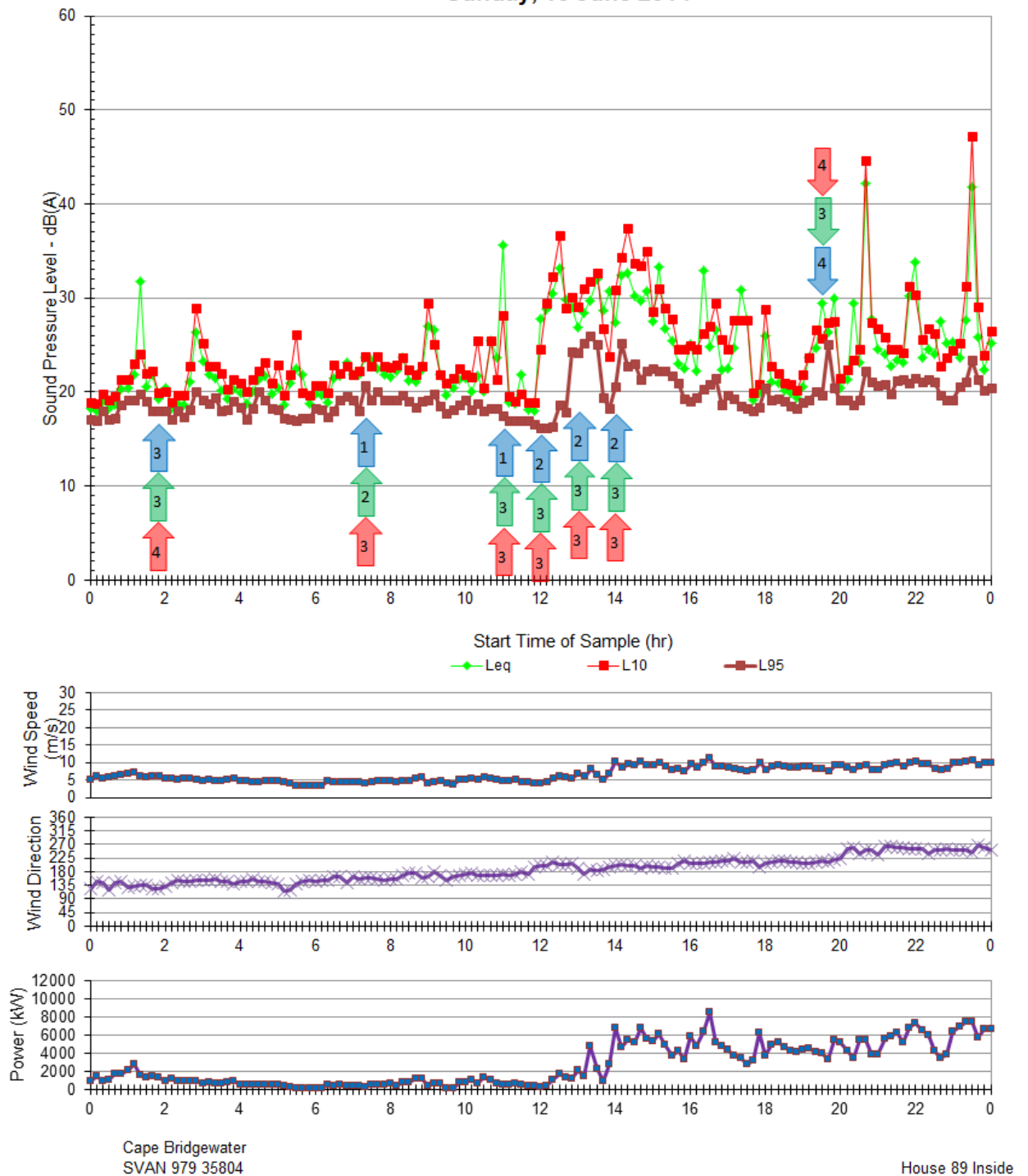


## Ambient Measurements Saturday, 14 June 2014

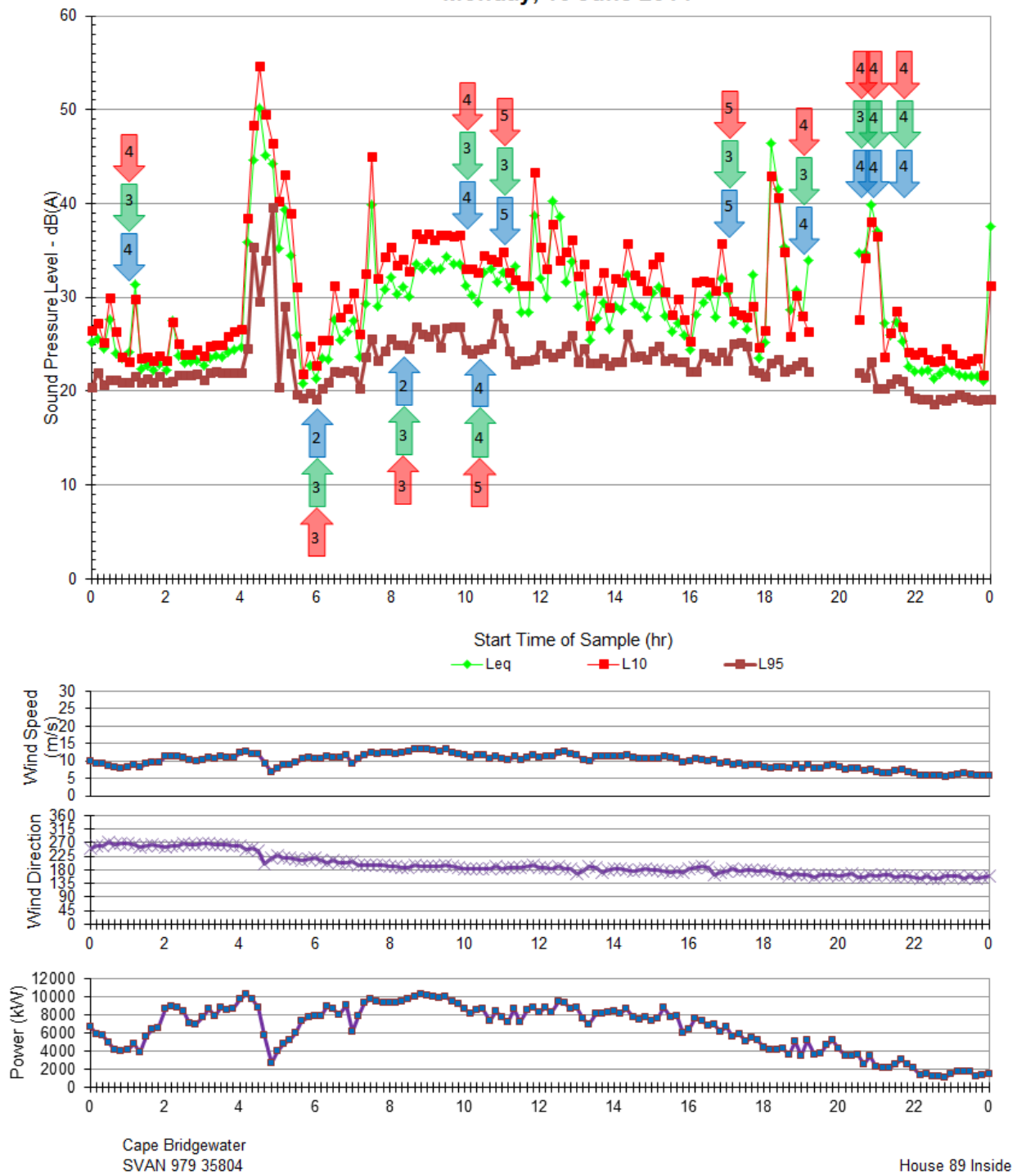




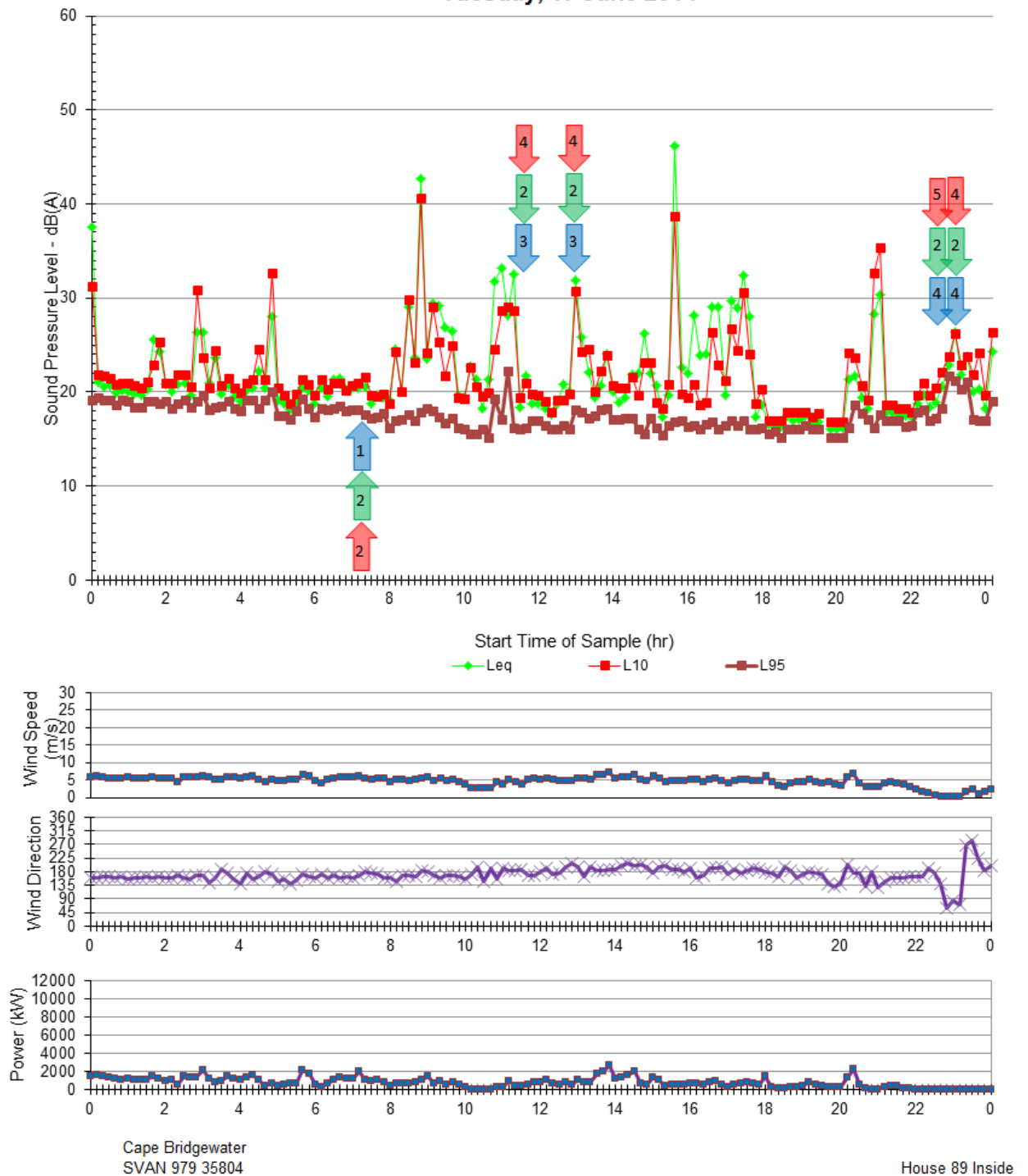
## Ambient Measurements Sunday, 15 June 2014



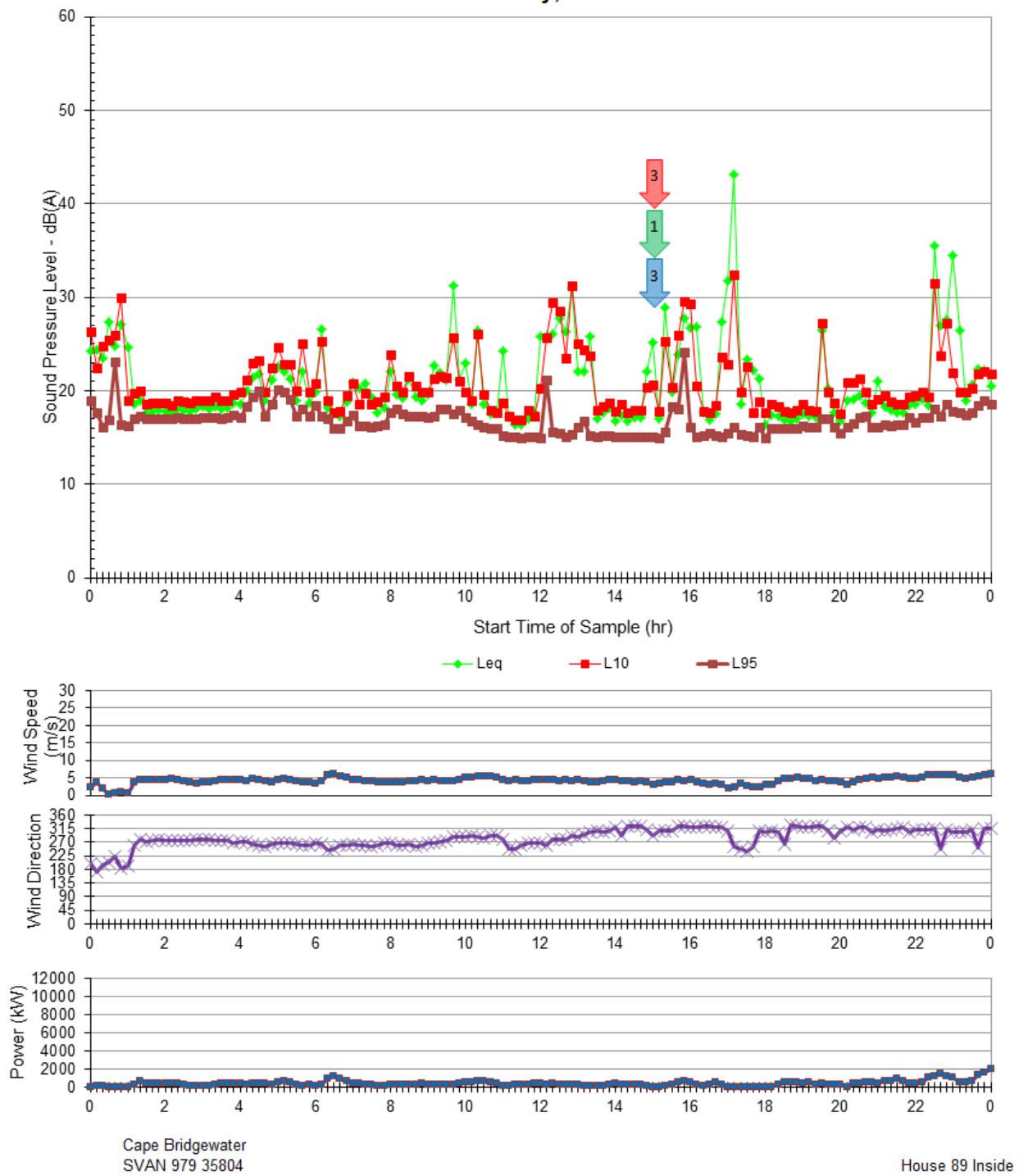
## Ambient Measurements Monday, 16 June 2014



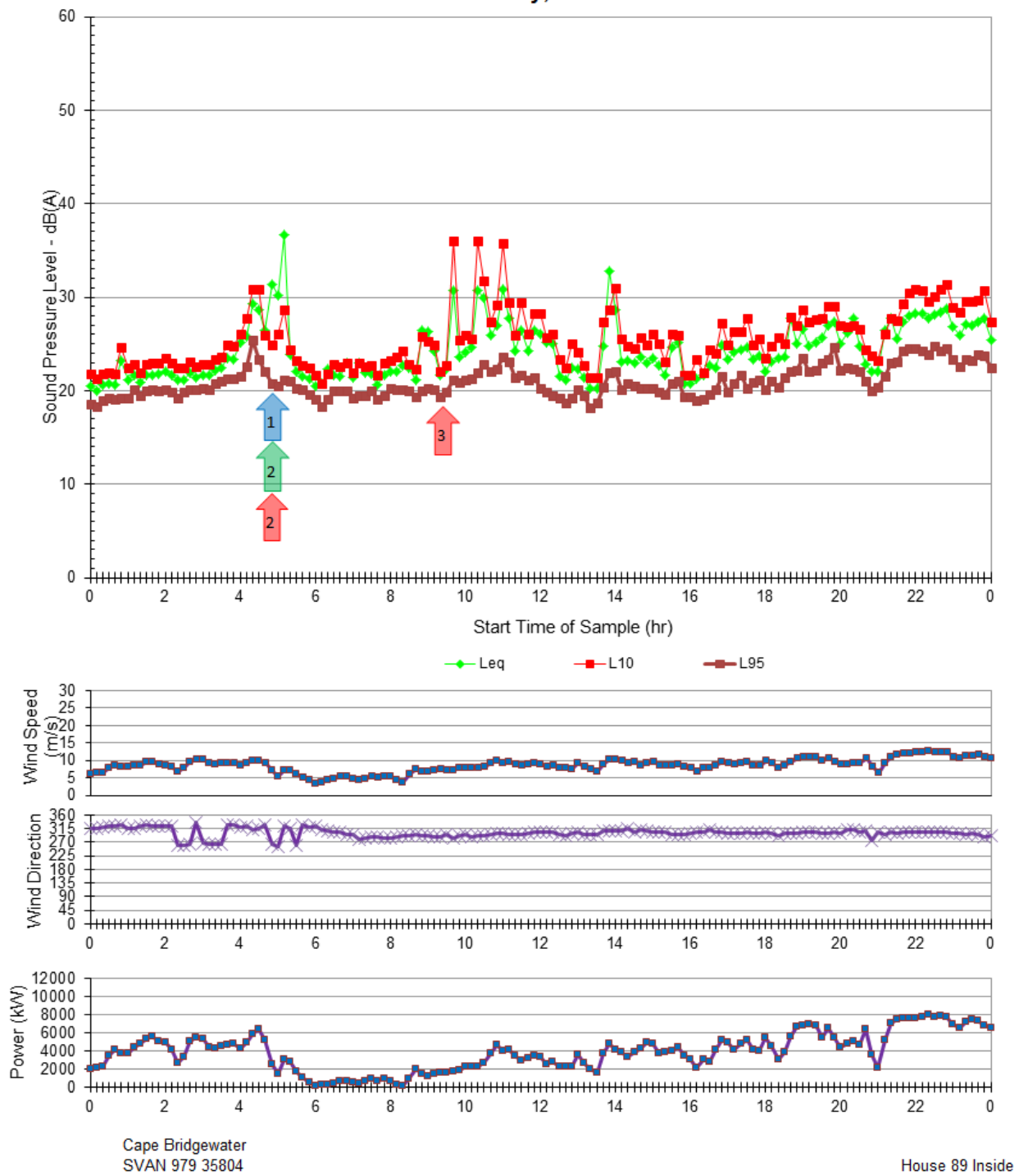
## Ambient Measurements Tuesday, 17 June 2014



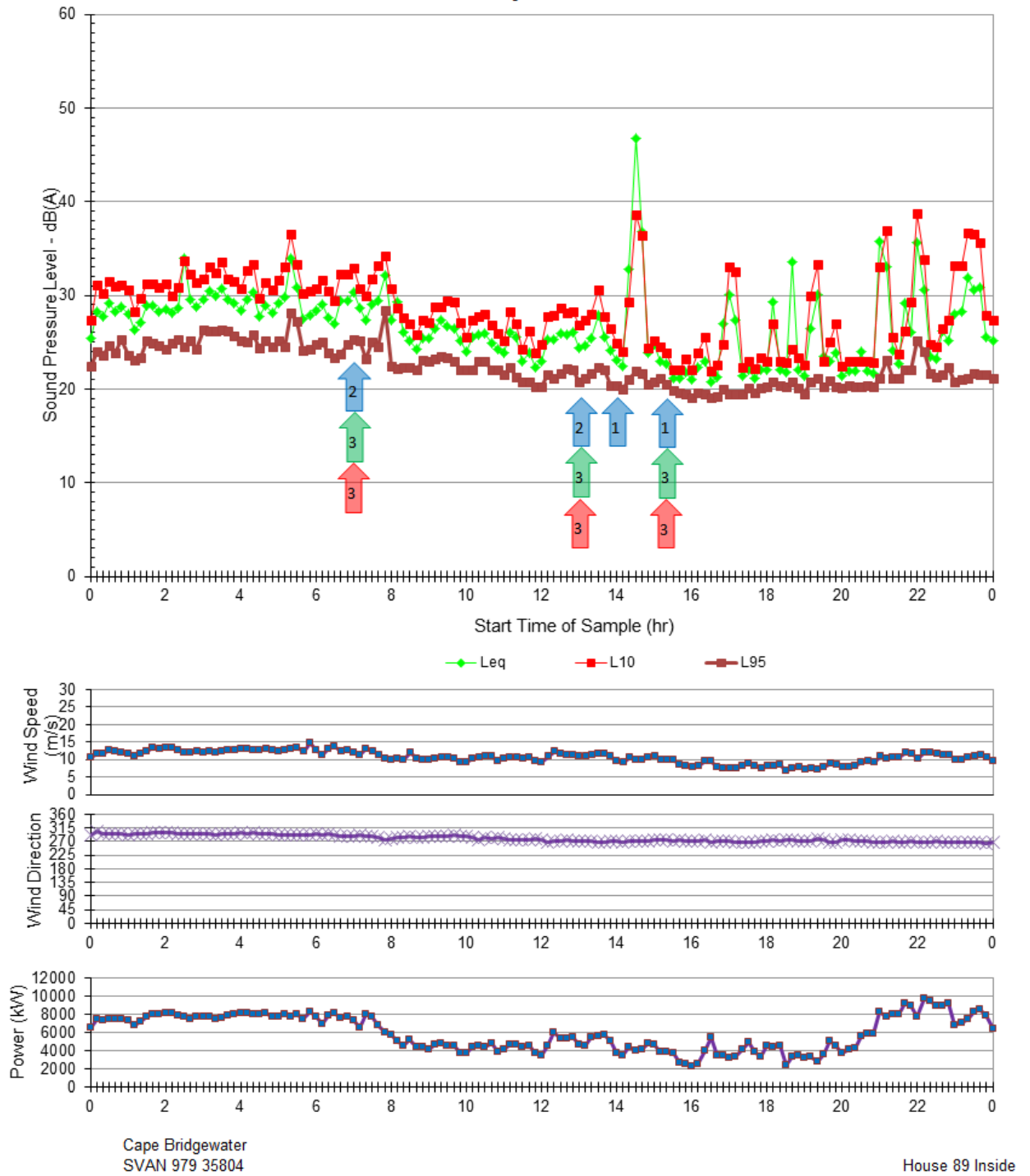
## Ambient Measurements Wednesday, 18 June 2014



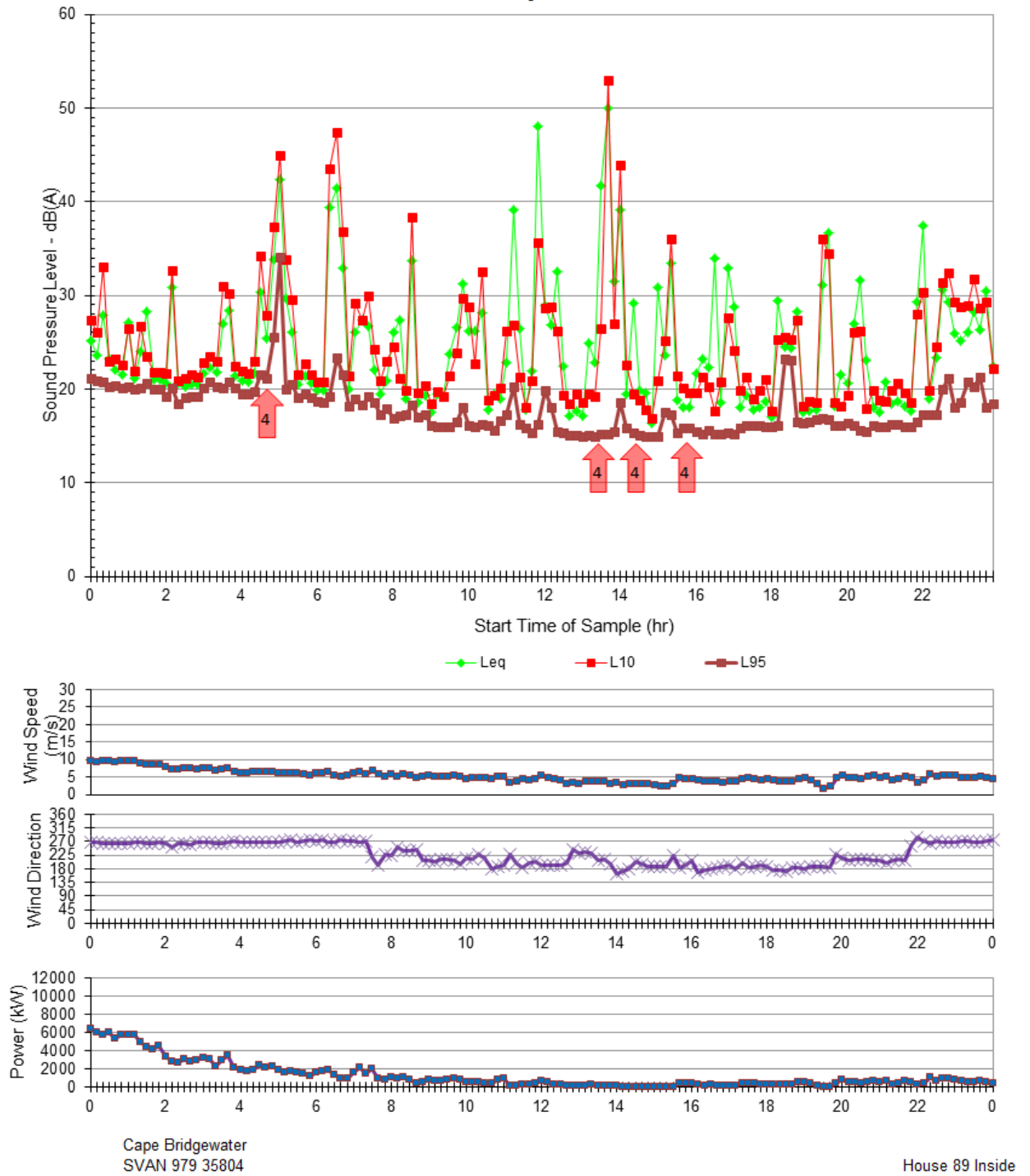
## Ambient Measurements Thursday, 19 June 2014



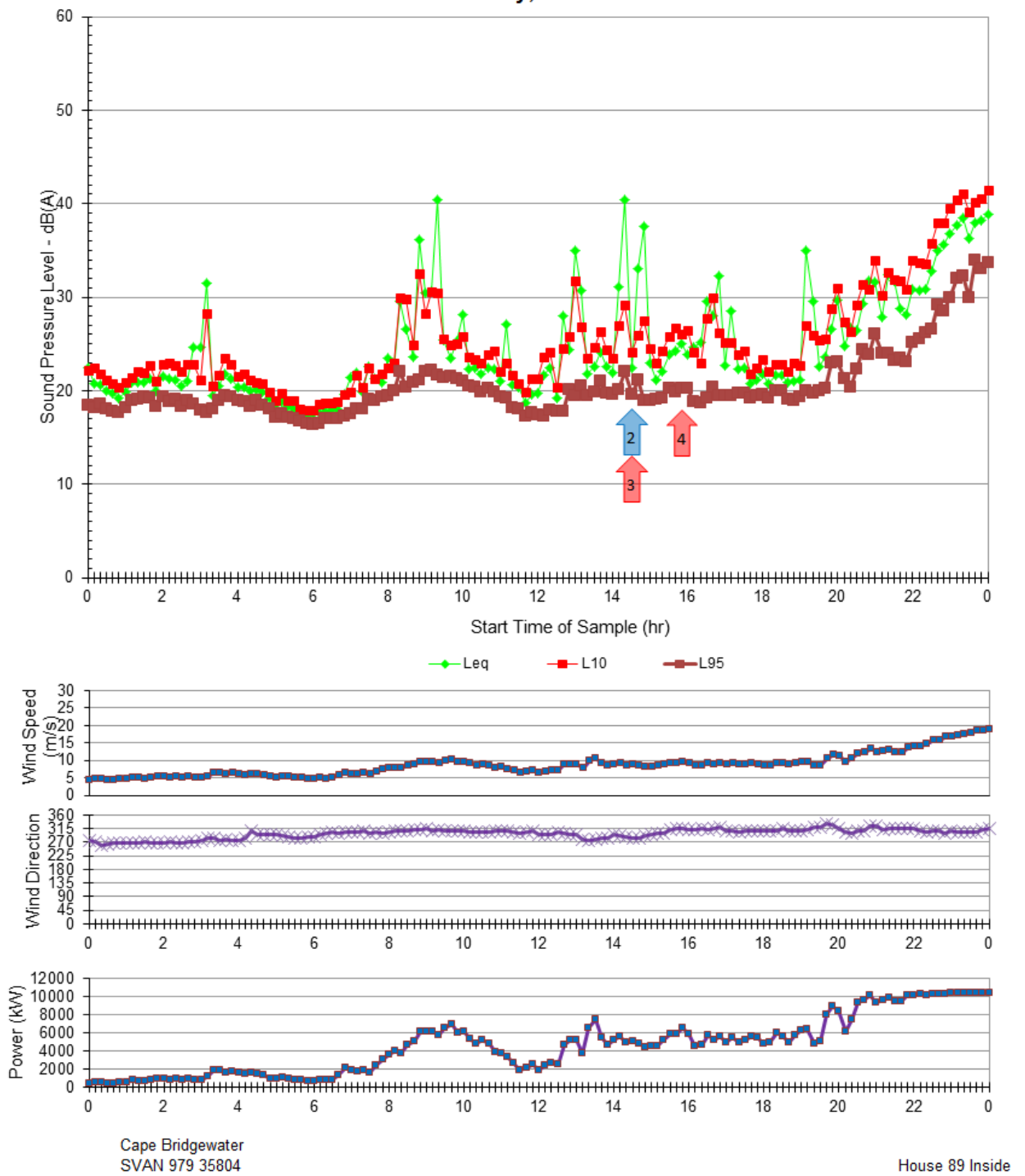
## Ambient Measurements Friday, 20 June 2014



## Ambient Measurements Saturday, 21 June 2014



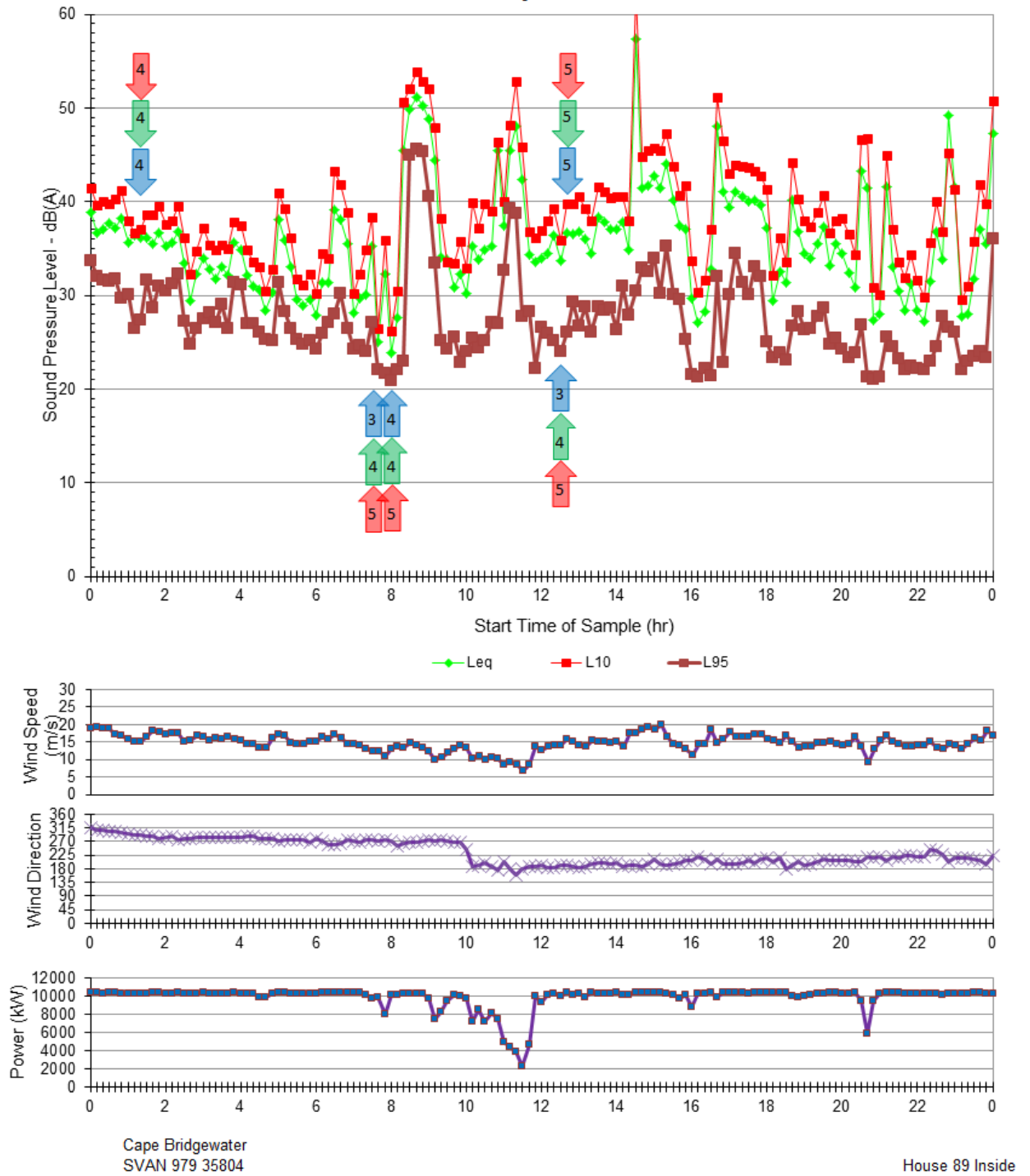
## Ambient Measurements Sunday, 22 June 2014





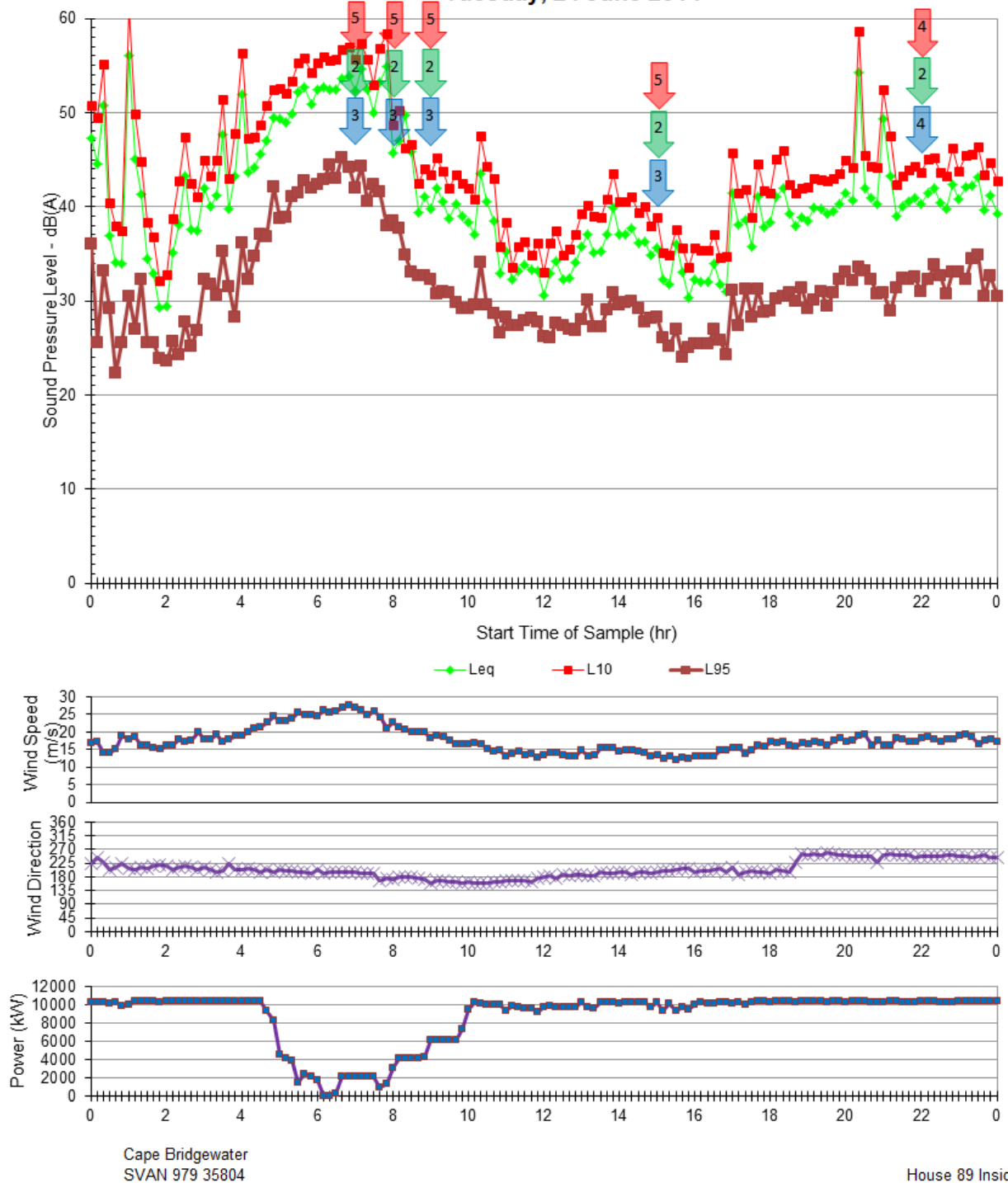
## Ambient Measurements

### Monday, 23 June 2014



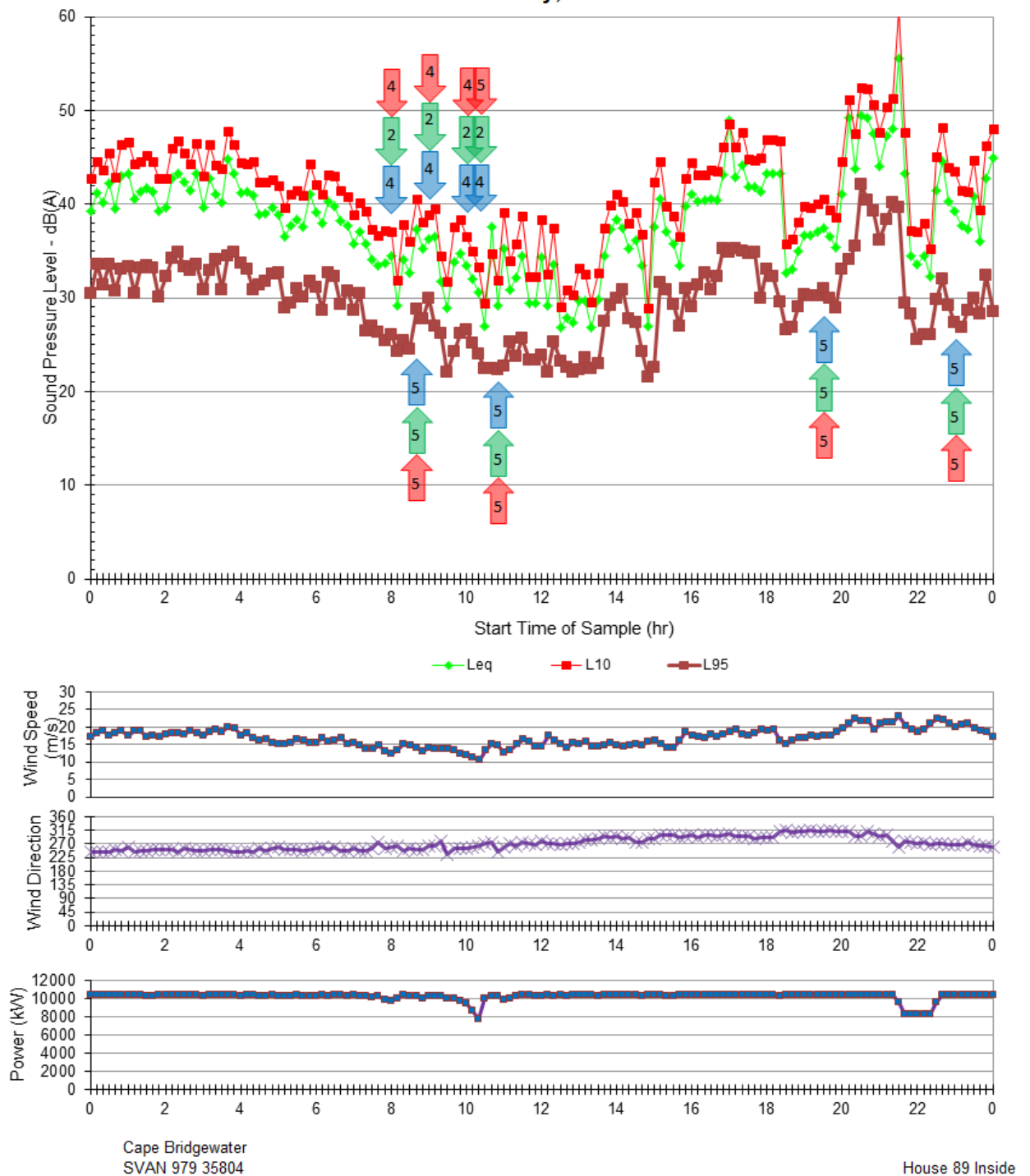
## Ambient Measurements

Tuesday, 24 June 2014



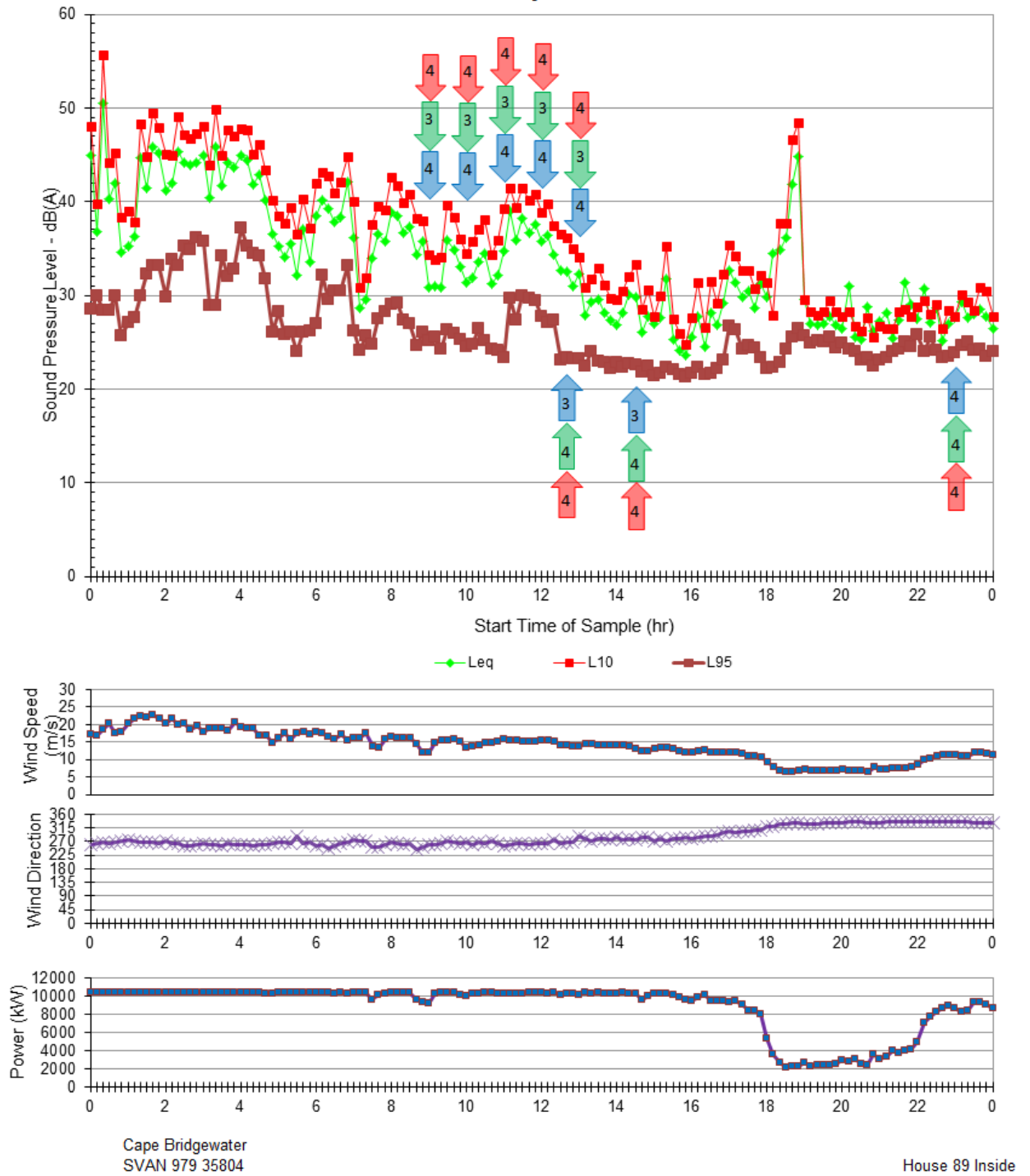
## Ambient Measurements

### Wednesday, 25 June 2014



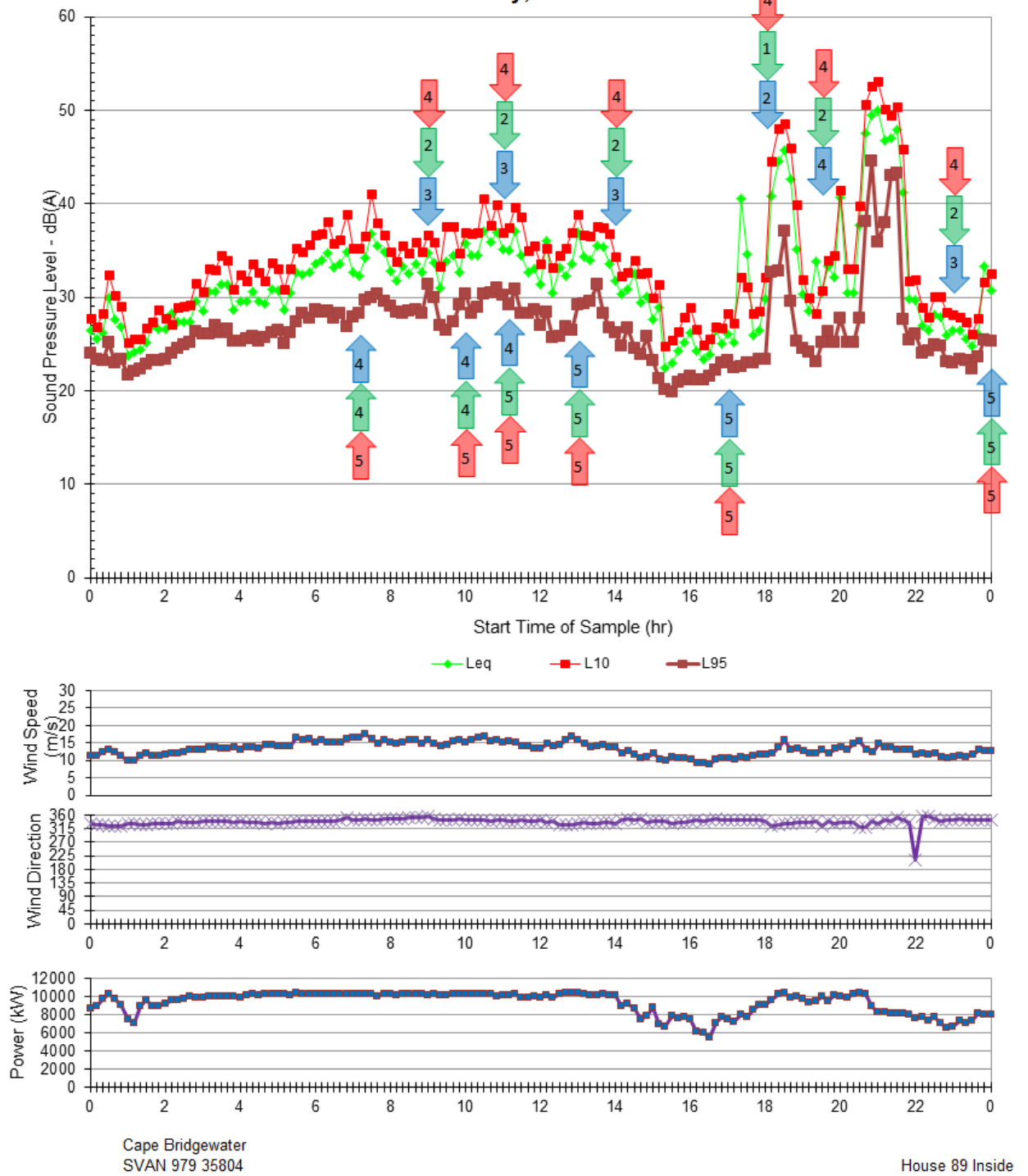
## Ambient Measurements

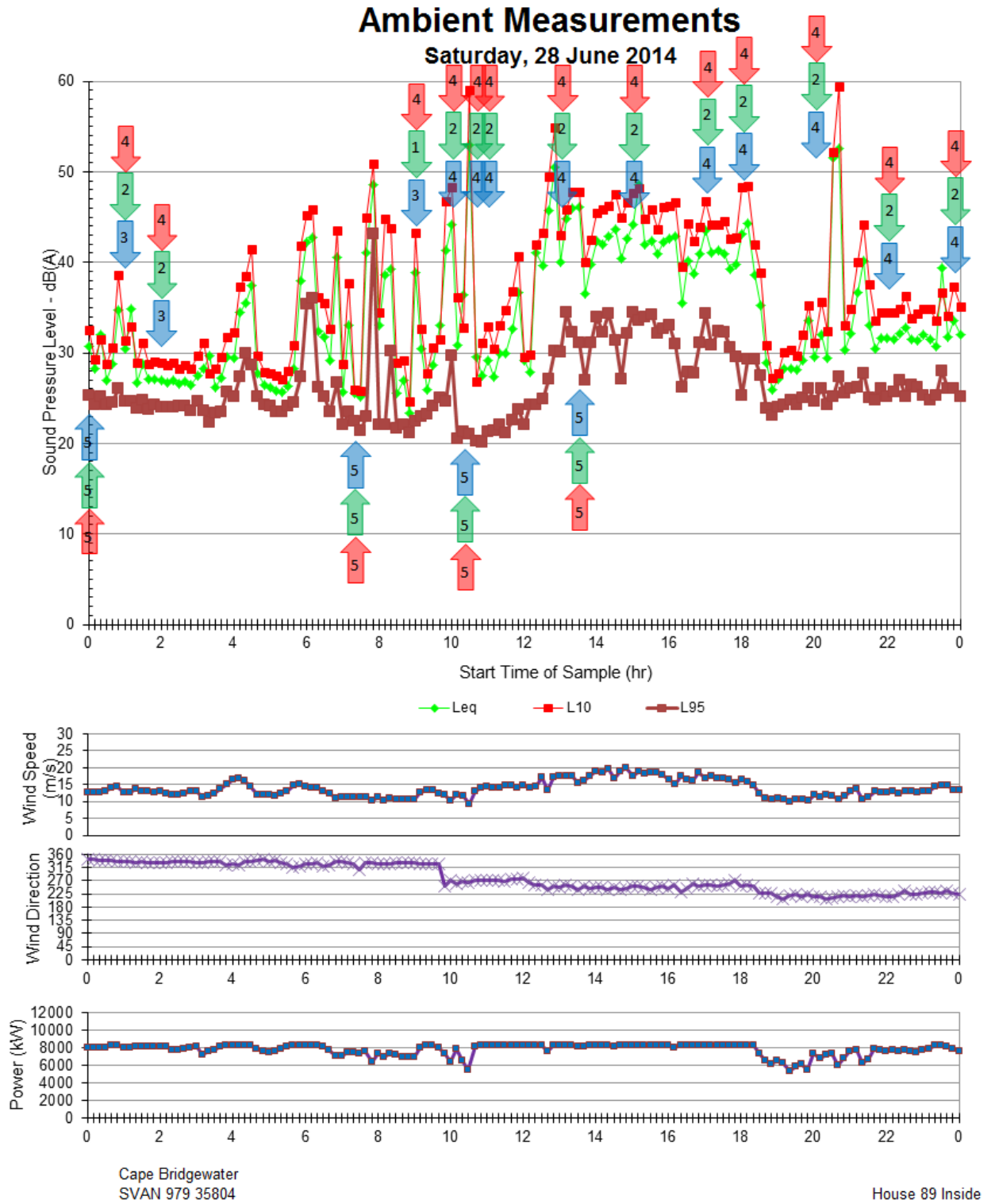
### Thursday, 26 June 2014



## Ambient Measurements

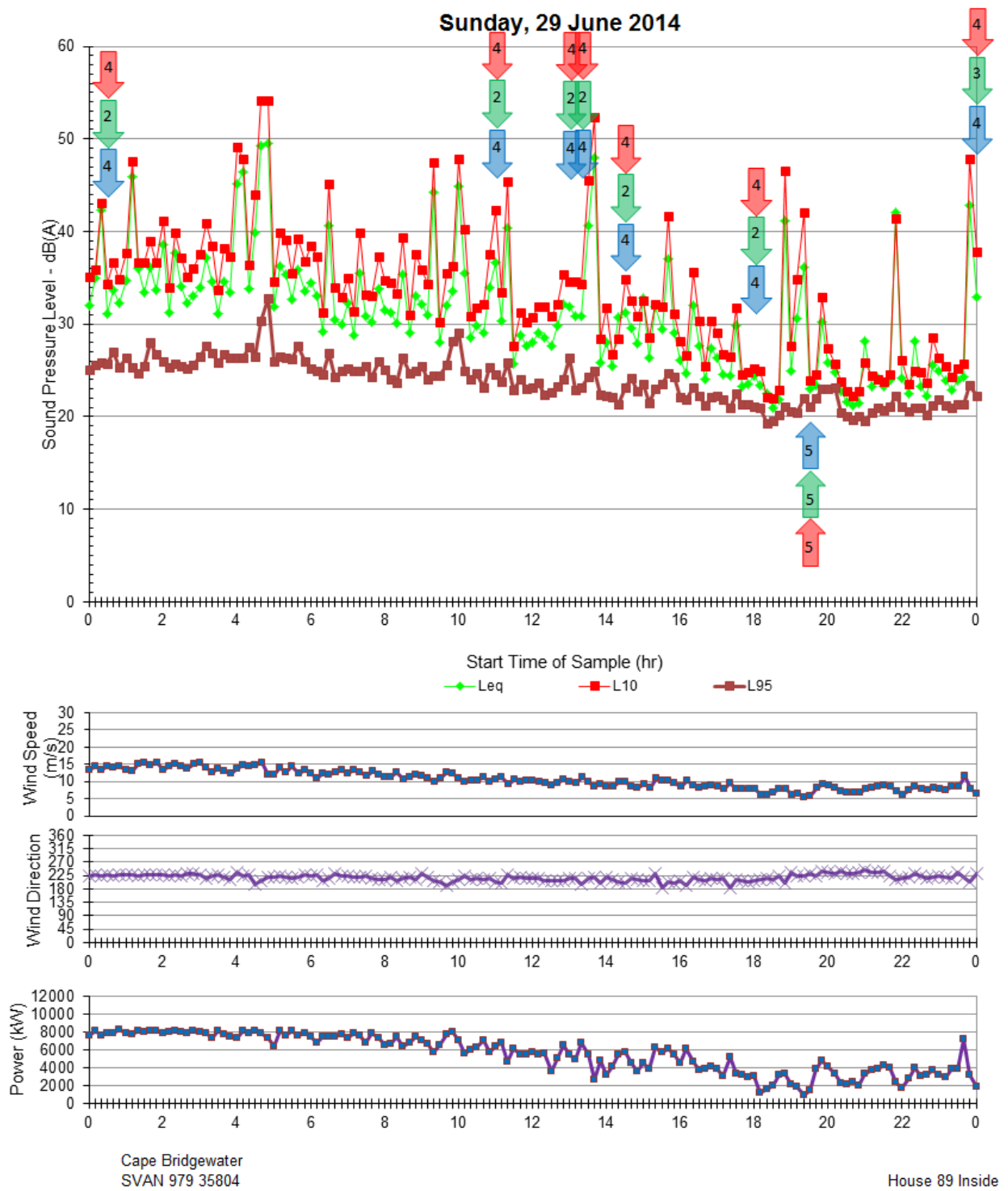
Friday, 27 June 2014



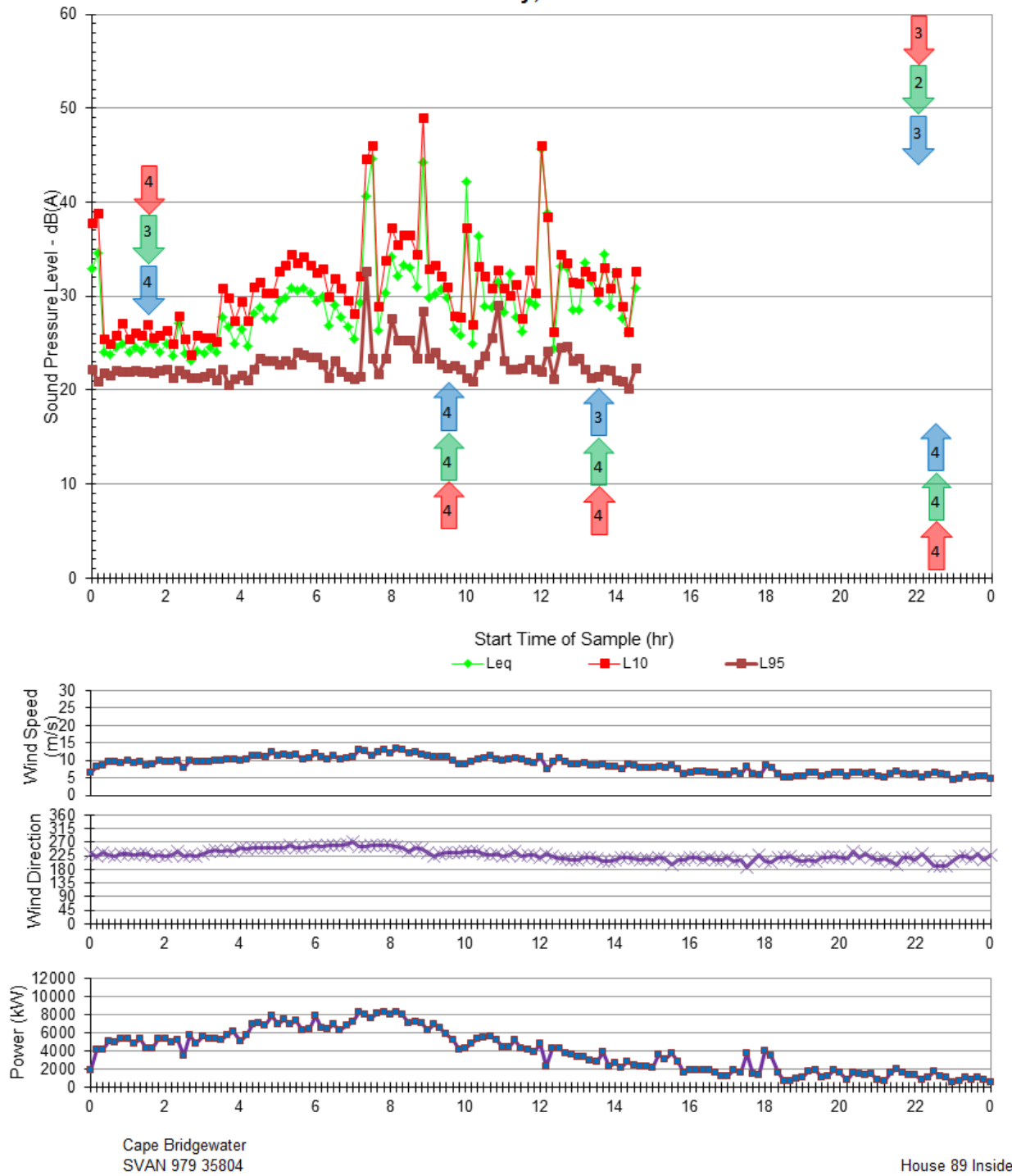


## Ambient Measurements

Sunday, 29 June 2014



## Ambient Measurements Monday, 30 June 2014





## **APPENDIX M: Resident's Comments on the Study**

### **SUMMARY OF OBSERVATIONS & SYMPTOMS House 87 JULY 2014 (Resident 1)**

Over the previous eight week period of noise, vibration and sensation summaries, there was an obvious direct link between the operation of the wind turbines and impacts to our health compared to when the turbines were shut down and not operating.

These impacts were governed by wind strength, direction and climatic conditions, which were variable day and night.

At a distance of at least five kilometres from our property and the wind farm, these negative effects become noticeable. Firstly head pressure, and headache central to my forehead, increasing until migraine strength, causing difficulty in cognitive ability to perform tasks. My eyes were greatly affected; blurring made my vision greatly impaired. My eyesight deteriorated dramatically in the two months of attending the wind farm zone I now have constant visual difficulty.

Upon arrival at our home, approximately 1.5 kilometres from the southern wind facility at Cape Bridgewater, I noticed an overwhelming sense of heaviness, fullness in ears, confusion, and often pain around the region of one or both of the ears. I also felt an urge to empty my bladder or bowels immediately after arrival regardless of routine. A sense of being anxious and irritable was quite overpowering and I unwillingly had to leave the premises before completing necessary tasks. This enhanced the level of stress and negative emotion further.

On departure there was a sense of pressure and bodily readjustment and on occasions I would have nose bleeds both onsite and out of the five kilometre zone, always in the left nostril. Also, at varying times I was suffering vertigo and unable to drive a vehicle, with dizziness followed by nausea. For health and safety reasons my wife accompanied me on most occasions to give assistance where needed.

The symptoms which evolved whilst nearby the wind facility, always continued for about twelve hours after leaving. On occasions and depending on the severity of symptoms, weather conditions and operation of the wind turbines, I would be impacted and disabled for a twenty four hour period with extreme fatigue.



These negative symptoms (noise, vibration, and sensations) were often prolonged or triggered by other electrical environments giving an awareness of my heightened sensitivity. It is notable that my normal range of sound perception is becoming greater and my tolerance of everyday sounds is very low, especially after visiting the wind farm zone.

At our house, I noticed when turning my body in different directions there was a sensation of increased and/or decreased pressure// ear fullness. This was also noticeable when moving my body from a lying, sitting and standing position, where the sensations varied.

When bending my body forward to unlock/lock the farm gate there was a noticeable sensation of pressure change, being greater at the lower level.

This was always only evident when the turbines were operating.

When the shutdown occurred and the wind turbines were completely stationary, I observed no pain, pressure, or other negative sensation and felt agile and light, able to think clearly and positively perform tasks. In this environment it was a pleasure to stay and perform duties as I had, prior to the operation of the neighbouring wind facility.

There is no doubt after the eight weeks of regularly visiting and recording my symptoms and observations, that there is a correlation between my wellbeing and the nearby wind facility.

Our house was totally vacated and isolated of everyday interruptions as we were not living there during the testing period.. Only ourselves and the acoustician visited the house during this period. We slept away from our house in a bus for most of this period at a location five kilometres north of the Cape Bridgewater wind facility. There were many occasions we could feel the same impacts of the wind facility and had great difficulty sleeping more than a few hours at a time. We could hear the wind facility and it would be annoying with the noise being enhanced like tinnitus, more and more until daylight hours. This was identical to our symptoms prior to leaving our house in 2010.

The last week of testing my wife and I stayed at a house two kilometres east of the south wind farm site and approximately three kilometres south of the north wind farm site at Cape Bridgewater. There was a noticeable cluster of symptoms including headache, noise, ear pain, and difficulty sleeping after three am in the morning. Fatigue and heaviness were also predominant.

The testing period from May to July 2014 has highlighted the serious nature of trauma suffered whilst my wife and I were exposed to the neighbouring wind facility, whilst in operation.



## **SUMMARY OF OBSERVATIONS AND SYMPTOMS JULY 2014 HOUSE 87 (Resident 2)**

The types of symptoms I noted on a regular basis when attending the zone of the neighbouring operating wind farm and our house were:

- Headache: mostly at the front and top of the head helmet-like.
- Pressure : in head and ears as if head in a vice getting stronger until we leave the area
- Pain and inflammation in both jaws
- Pain in face and nose with dripping or bleeding of nose often.
- Nausea: especially when the turbines were turning slowly or changing direction with the wind.
- Cognitive impairment and confusion in performing simple tasks
- Pressure and blurring of eyes also watering occasionally
- Heart palpitations, elevated heart rate and chest pain.
- Stimulation of bladder and bowel and intestinal muscles.
- Pain and/or cramping in bone and soft tissue of arms, hands legs and feet
- Fatigue and heaviness in entire body
- Breathlessness
- Anxiety attacks & motor nerve dysfunction.

These occur in most wind directions while the turbines are operating but the westerly wind direction is the most detrimental to our health due to the proximity of the neighbouring wind farm to our home.

- There appeared to be a direct correlation between the operation of the wind facility at Cape Bridgewater and the cluster of symptoms which we suffered as a result of being in the vicinity and the location of our house.
- On the days the wind facility was not operating and especially during the planned shutdown we were exceptionally well, feeling light and energetic, clear in the mind and happy.
- Each wind direction appeared to create a specific cluster of symptoms. Head pain and pressure were always associated with the wind farm operation. If the turbines were turning slowly this would be a torture of nausea with uncomfortable bowel & muscle stimulation.



- Another terrifying aspect of the wind turbine operation was my lack of ability to carry out simple daily tasks with any degree of efficiency. It was very difficult to complete my diary as I was so confused and frozen in my thoughts and memory for periods of time. Even though my husband & I were together for the testing period we struggled to remember and carry out routine commitments with any clarity.
- I noticed the effects from a considerable distance, possibly ten kilometres from the wind facility. As we were travelling to Hamilton also during this period, both my husband and I were feeling a shift in sensation of pressure and weight after thirty minutes away from the wind farm sites. This seems impossible but we are both incredibly sensitive now the time and level of exposure has increased. As I became within five kilometres of the wind farm sites at Cape Bridgewater the pain and pressure increased within my ears and head. This sequence was the same when leaving the wind turbine zone, but in the reverse that I felt a relief of pain and discomfort whilst moving away.
- I carried out a series of exercises to determine if there was any pattern of linking different positions with sensations. I found that if lying down on the ground at my house and the wind turbines were not operating there was only natural environmental sensation, noise or vibration. Adversely, if the wind turbines were operating there was a strong sensation often with sound through my head, and ears. A sense of dizziness or imbalance followed. The sensations became a little stronger if my head was facing the nearby wind facility. I would feel the vibration through the ground on some occasions. I also noted a vibration on my lips and tongue at different times both inside and outside the house.
- I also noted if sitting or bending forward from a standing position, my ears were trying to equalise and often popping as if there was an altitude change.
- If sitting inside my house the head pain was more intense than if I stood up and went outside.
- There were many locations both inside and outside my house and property which I felt the symptoms were more intense and difficult to remain in the locality due to discomfort.
- The symptoms I developed whilst at my house would remain for hours after leaving the area and I was especially fatigued.
- When the planned shutdown occurred during testing I felt so light, energetic and pain free it was astounding and pleasurable to be at my house. This was direct confirmation of the link between the neighbouring wind facility and my adverse health affects.



- My husband and I stayed at two other locations during the testing period, both five kilometres or less from the two wind facilities at Cape Bridgewater. I could feel the symptoms noted above on a lesser level whilst staying at these sites overnight, with difficulty sleeping past 3am in the morning.
- The last weeks of the testing I was living at a location 2kilometres east of the south wind facility and 3 -4 kilometres south of the north facility. After several days of waking with a constant buzzing sound in my ears and head, I had an attack upon rising which presented a series of symptoms emulating a Trans Ischemic Attack and my husband took me to the hospital for observation and testing to be carried out. I then had a series of ocular migraine symptoms over the next four weeks with numbness in face & legs, speech difficulty, slowing of heart rate, fatigue and muscle weakness. I have been away from the Cape Bridgewater area for most of this time and my symptoms have improved to date with no eye blindness for one week as at 11<sup>th</sup> August.
- This series of acute events confirmed in my mind the exposure to the neighbouring wind facility is a direct trigger to the onset and severity of my symptoms. I had only been visiting the area 2-3 times per week at most prior to testing. My daily commitment to the diarising of my observations and symptoms has made me even more sensitive in my ears like hyperacusis. I suffer to be in an environment which simulates the same symptoms as the neighbouring wind facility and my sensitivity to electrical or magnetic fields is evident with discomfort and annoyance. This is alienating me from the society and community I need to integrate with to have quality of life.
- I feel that my life and health have has been threatened by trying to coexist with the nearby industrial wind facility and it is not possible to return to my home whilst the wind facility is operating.



### **(Draft) SUMMARY OF PERSONAL OBSERVATIONS – House 88 (Resident 3)**

Documented and reported problems of unendurable noise and vibration in and outside our home over the previous six years require resolution, hence request of and participation in this independent noise study as part of a solution finding process. A process of many meetings, emails and discussions; eventually providing complete access to our home and private lives for collection of data and information; specifically to and for assessment in this intensive Noise Study conducted by Acoustician Mr. Steven Cooper.

Participation Involved hourly personal observations of impacts and submitting a diary each week for comparison with the noise data being collected. We vacated our home and measurements were obtained without the family's usual farmhouse noise occurring. Pacific Hydro funded accommodation for two nights. Much equipment was in place so we couldn't actually physically stay in the house, but were available close by to fully assist the Study as required.

All types of unrecognisable and extensive equipment, comprised of computers, monitors, many microphones and leads, were positioned throughout our house from floors to ceiling and windows in a three dimensional array. A station of solar panels, and devices set up outside monitored wind speed and direction and also recorded noise and vibration. Valuable and sensitive equipment was able to detect whispers and floor creaks and I imagine it could 'hear' or detect a pin drop.

Knowledge is the core of preventative action; so the aim of participation for me was to learn about what is occurring; to educate about direct impacts of wind farms by noise inside and outside our residence at 800m from the Cape Bridgewater wind facility; to benefit others enduring wind farm impacts; to assist awareness of noise and thus health impacts, particularly prior to the Governments proposed independent health studies near wind farms; to assist in implementation of more appropriate and protective noise guidelines for wind projects through understanding of problems experienced; mainly to assist Pacific Hydro in resolution of problems experienced in order to restore the previous good quality of our lives; and mostly in the hope that with use of this information others lives may be protected from potential harm.



The study is based on lots of field data, from inside and outside our house, graphs and numbers and anecdotal evidence; and meaningfully rated and frequent observations of what daily life is like living in close proximity of a wind project. This co-operative work, supported directly by Senator Madigan and staff, provides an interchange of information that is allowing for greater depth of knowledge and insights into wind farm cause and effect and has given me, a wider community and Pacific Hydro greater understanding of the impacts on us and my family. To then beneficially assist resolving wind farm noise problems for people living in nearby residences.

Throughout the time of the Noise Study some personal experiences have been distressing, harrowing, and not easy to live through and never easy to re-read; often bringing me to tears while reviewing my diary entries regarding the wind farm. I appreciate the sensitivity shown towards the handling of our personal information and material by Steven Cooper and staff, and also by Pacific Hydro. Many compassionate people have offered their full support while the study was underway and during recent release of personal information to the wider public. I appreciate that support.

The Cape Bridgewater noise study is the reality of life when those acoustical numbers are high or low, when the wind is blowing, where from and how hard. It is about conditions we reside with and escape from, and the physical, emotional and mental impacts of constant noise and vibration bombardment on my/our senses that even the most expensive equipment available cannot detect nor interpret in the same way as human beings.

To me the most important aspect of the noise study is the confirmation of direct correlation between wind farm operations, the connection between wind farm output and impacts experienced. Confirmation of what I and the other families participating in the study have been sensing and experiencing for the past six years.

The Study period included wind farm shutdowns and start-ups providing important data for comparison of different conditions. As shutdowns rarely occur here at Cape Bridgewater, it also gave an opportunity to almost experience life in our rural environment as it used to be, prior to this recent industrialisation and presence of an electricity producing plant.



I experienced broadly conflicting emotions during the shutdown and frequent turning on/off the turbines ranging from the bliss of restored natural peace and quiet and the awareness of how life used to be, experiencing lessening of noise, 'pressure' and health impacts; to a feeling of dread knowing each evening at some time, the turbines would be operational and the peace would be gone. This see-sawing dragged on and on without notice, becoming more difficult to endure each time they came back on and the relief became far more noticeable and immediate during shutdown mode.

Even while turbines are supposedly 'off' or in shutdown, I continue to experience and sense noise and vibration through the ground, house and my body, so the harmful impacts rarely fully cease, they gradually lessen. Impacts also lessen whilst driving away or being away from the wind farm when there is a definite sense of the 'pressure' lifting off and gradual easing of symptoms. I don't refer to the mental stress with its own particular sense of pressure; I refer to distinct physical body stress that eases and lightens with each kilometre travelled or changes in topography.

Mental, physical and emotional pressure lifts while away. Recovery would take at least 6 weeks based on the month long holiday we had away in 2010. Longer exposure means longer recovery is required and I am no longer unaffected in Portland with the cumulative impacts of surrounding turbines. I have heightened awareness of and am impacted by other infrasound sources and noises.

My sensitivity to noise and changes in my environment has increased and am now disturbed by large air-conditioning systems in large buildings, even noise from lights in office buildings, fans and air movement against my skin, peak hour traffic noise, to irritating sounds of paper rustling, the minute sound of a fork clicking against teeth is agonising. Machinery operating and vibrating or creating noise is increasingly unbearable. Boxed goods being unexpectedly slammed down in a supermarket aisle now causes an instant frightened reaction and pain. 'Doof Doof' music from a car in the street causes intense sensations from noise felt in my sternum, throat and head. I feel I could pass out or yell out in pain and distress and have similar response to noises at home.

With a hearing impediment I don't always hear noises emitted from the wind facility. I feel with my senses, through and on my skin every knock, thump and pressure wave of normal and compliant operations. My body feels these intrusive disturbances even during the night while asleep and has a reactive autonomic response to the disturbances even when I don't know if the turbines are operating or stopped.





I explain this sensation of hearing with more than my ears as similar to experiencing a movie at the cinema; where modern sound effects slam us into the seats from the level of noise and we watch filled with suspense or dread as the music changes tone and depth. Musical changes mean our heart may beat faster or hairs prickle on our arms in autonomic response; reacting differently watching it later on a muted telly.

Wind farm noise either 'felt', or heard or unheard, has similar effects and body responses as at the cinema but with all negative impacts and none of the good feelings. Wind farm disturbance is endless, you can't always get up and walk out and you never get used to the sound, like you can to traffic noise as over time sensitivity increases and the noise frequency is variable and damaging.

The worst impacts occur during gale force North Westerly winds. When these winds don't stop for days on end the house literally shudders from top to bottom and wind farm noise becomes indescribable and unbearable to the point of fleeing or in desperation contacting a service such as Beyond Blue. As the output of electricity production from the facility goes up during stronger winds, or more productive wind direction, so does the bombardment on my body to the point where levels of distress exceed my limits of tolerance.

To reach out for so many years for unobtainable help and seeking assistance while noise issues and health impacts near wind farms are negated, is an impact in itself.

There are few days with little impact and also include feelings of lethargy as my body never has the chance to fully recover from the bombardment. Feeling energetic is a rarity. This is one of the worst impacts because you feel so drained there's no motivation for chores or activities. You lose clear thinking.

Tiredness from sleep disturbances saps ability to think clearly, raising risk of injury; its possible brain function and pathways of the brain are being altered by exposure to constant noise. Evident when hours later I realise I've left a pot on the gas ring or constantly having small injuries or falling over unseen objects. The constant wind farm noise disturbance and disharmony literally steals your life.

I always appreciate an Easterly and gentle wind but feel awful knowing that while I have a little respite; for others an Easterly is the equivalent of our North Westerly hell.



By completing a range of exercises particularly outside I became newly aware of sounds when standing sideways to the turbine blades e.g. When the rotor faces SE and I face a similar direction and the blades are spinning with the tips towards my right ear I hear the sound and hear it differently. Usually if looking at the turbines, I face them and sound moving over the four tiny microphones in my hearing aids is perceived differently. If I lie on a table above the ground with my head to the East I hear a reverberation off the West wall of the house behind me. Bending over doing the exercises caused feelings of nausea, no matter what direction or stance. I discovered I now lose my balance with my eyes closed.

During the shutdown and when I am away, I have noticed and been concerned that hypertensive medication I have been taking for over 12 months plays havoc with my blood pressure levels. My BP lowered during the shutdown and when the turbines, without my awareness turned on, it elevated again. Recently in Ballarat a GP was concerned my BP had dropped to 97/67 which I explained happens often when I am away from the wind farm or during low output and low noise.

I have been instructed by GP's to continue with the medication regardless of low BP and instructed by a Cardiac Specialist to take medication as without it there is a serious risk of me having a heart attack. I am most concerned about instabilities in my blood pressure when it elevates during noise/vibration events near the wind farm. Often my pulse is racing, irregular or skips/ jumps a beat. I call it a 'heart jump'. This heart jump can be felt as an enormous chest heaving thump that wakes me in fright or utter panic in the night, causing breathlessness in the day or night. I believe the heart thump and panic are a response to noise, vibration or pressure. When on holidays my sleep is regular, restorative and except for the BP drops due to medication, so is the functioning of my heart normal and stable.

As this was not a health study I won't detail the many impacts on me and my family's health. I suggest noise and health studies are conducted in tandem so wind farm health impacts are thoroughly measured, documented and analysed by experts in noise and/or health. Anecdotal evidence is a vitally important contributor to understanding what is occurring. It is distressing to have personal 'anecdotal' experiences derided and dismissed because unrecognised symptoms are being ignored or misdiagnosed.



While noise and vibration issues continue unabated, I remain submitting official complaints and using this methodology of recording observations every 1-2 hrs using a scale of 1-5 on noise, vibration and sensations experienced. I compare what I experience to the PWEF output graph available on Mr A. Miskelly's website <http://energy.anero.id.au/wind-energy>. These are the only options currently available to deal with ongoing issues until a permanent, effective, independent noise monitoring system and official scrutiny is undertaken in proximity to wind farms to ensure the protection of rural residents from industrial disturbances.

Thanks to Steven Cooper, his family, and his team for their professionalism and their utmost honest endeavours to discover exactly what is occurring at our home and the wind facility. All your hard work is appreciated. Thanks Senator Madigan and staff for all ongoing supportive efforts to have unbearable conditions of life near wind farms recognised, heard and resolved through implementation of the 7 recommendations made in the parliamentary inquiry of 2011 into wind farms.

Thanks also to the other families' participation and commitment to seeing this study accomplished. The Waubra Foundation's ongoing efforts and support are vital in ensuring studies in noise and health near wind facilities are implemented so the epidemic of 'wind turbine syndrome' may be prevented. Thanks to the wider community for phone calls, emails and driving long distances across the country to attend meetings to support us.

The noise study conclusions and recognition of our experiences would be difficult without Pacific Hydros recent commitment to be publically accountable for the problems being caused. By co-operation and negotiation they met some of our conditions and requirements so this intensive noise study could occur. I am grateful for this public commitment and co-operation for the completion of this important world-first and ground breaking study.

With the conclusion of the Noise Study I anticipate and expect much needed changes for resolution of wind farm problems; so the quality of our lives, our health, our physical, mental and emotional well-being, and peace and quiet without industrial noise and vibration is rightfully restored.



## **SUMMARY OF PERSONAL OBSERVATIONS – House 88 (Resident 4)**

Steven Cooper has been testing the operational characteristics of the Cape Bridgewater Wind factory on our behalf, (facilitated by Senator John Madigan), and this has resulted in a pleasant and welcome surprise. I had no problems with his integrity and desire on finding out how this nearby industrial complex had destroyed our lives, health and wellbeing but had concerns his work may have been influenced by the wind company. These doubts were erased during our very first meeting with him late last year.

At first filling out the diary was a challenging experience.

After changing to a new format of how to document, this became a lot easier but more confronting at the same time.

The recording of sensation in my diary exposed the true extent of this industrial intrusion into our lives and the real impact it was having on us as a family. How debilitating, was amplified greatly, as I normally do not focus on the negatives in my life.

During the shutdown, (turbines off), I was able to complete many jobs around the property. E.g. Lawn mowing was a pleasure and I actually felt like finishing the edges. It surprised me that it took a lot less time than I was used to.

Lots of little 30 minute tasks were started and completed easily.

There were times which resulted in family belly laughter because we all realised what a different reaction would normally happen in a similar scenario. This is how we used to live. We now barely exist. This too is sad because this is not the environment we would choose to raise a family.

It was amazing what an uninterrupted sleep could do to recharge my body, mind and spirit.

This I have not experienced for a very long time. This in turn saddened me as I'd planned a meditation and health retreat for stressed executives as a stay at home business in one of the most serene, beautiful locations in the world.



When the wind factory is operating I feel so weary that only the most needed jobs get done. General maintenance, vegetable gardening are some of the jobs that aren't attempted because I feel so lethargic and listless when there are extended periods of really high wind but the turbines are still operating.

Once I started to record on the hour with my eyes closed, I noticed the sensations were much more intense than previously observed because I was having to concentrate on what I felt and made me feel worse.

As a separate issue, on completing the standing/lying directional exercise that was suggested I experienced such intense sensation and nausea that I had to leave. It took a long time to start feeling better, nearly three and a half hours before the intense sickness and headache symptoms dissipated. Since then I only record with my eyes open. Sensation level 5 is something I do not want to experience again too soon. This made me appreciate what Melissa feels on many occasions.

In conclusion I have to congratulate Steven and Pacific Hydro for completing this ground breaking work and hope the findings and mitigation recommendations are swiftly enacted upon with the same good faith and honesty in which I and my family have shown to this project thus far.



## **SUMMARY OF PERSONAL OBSERVATIONS – House 89 – Resident 5**

After more than five years, living beside wind turbines, the nearest being at a distance of 600 metres, I was more than willing to participate in the Cape Bridgewater wind farm study.

The Testing was mutually agreed upon during negotiations between Pacific Hydro Wind Energy Company and Mr Steven Cooper, the independent Acoustician accepted by the residents.

The testing was to be carried out, transparently, for a period of eight weeks.

Three resident families participated. Two families, who were residing in their homes, agreed to vacate their properties for a period of three days and two nights during early part of the eight week testing period. Furniture and fittings were to be left exactly in place, so as not to interrupt the everyday flow of the interior of the house. Monitoring equipment would be located throughout the house during the three day period, and in the garden to the south of the house.

On the completion of the three day period, one piece of equipment was retained in a bedroom on the south side of the house, which overlooked the northern aspect of the turbine installation. This, together with the garden equipment, remained until the conclusion of the testing period.

Fluctuating levels of anxiety, sensations of heavy toxic air in the house, pressure to the chest, head and ears, and a range of symptoms, many of which stemmed from chronic sleep deprivation and a lack of fulsome rest, made the opportunity for acoustic testing, a relief beyond bounds.

Diary extracts of panic attacks regularly experienced through broken sleep patterns

21 May.	6.10.am.	Sudden awakening (awakening with a start/adrenalin surge to gut)
5 June.	6.10am !	Dark.Awoke gut surge. Burning. Anxious.
6 June.	6.50 am.	Burning sensation. Anxious. Exhausted.
9 June.	3.40am.	Anxiety. Pressure in chest.
	7.50 am.	Feel ill. Confused. Chest pressure. Nauseous
23 June.	7.05 am.	Feel threatened.
	7.30 am.	Awoken feeling exhausted. Anxious Frightened Everything seems too difficult to achieve. Threatening sensation.

During the second week, the Wind Facility was in shutdown for eleven days, due to work being undertaken on the power lines.



These days coincided with some of Steven Cooper's attended measurements. This enabled him to obtain information regarding the natural sounds of Cape Bridgewater. The range of sounds from the ocean, the trees etc., which existed before the construction of the Wind Facility, could at this time, be assessed.

For the residents, and no doubt other people at the Cape, a blissful period ensued.

The experience of a shutdown highlighted the immense difference in disturbance and general atmospherics existing when the wind turbines were operational versus non-operational. During the shutdown we slept.

#### DIARY MAINTENANCE

For the duration of the testing, we were required to maintain a daily diary. During the first few days the page layout, consisting of columns with various headings relating to sensation, vibration and noise experienced on a scale of one to five, was adjusted. Five being intolerable, graded down to one, when there was no sense of impaction felt.

The diary maintenance was a steep learning curve.

The required discipline was a struggle, maintaining one to two hourly entries.

Complications would arise when the toxic nature inside my house, necessitated getting out and away. An overall sensation of muddy, dull air could prevail at times. The general workings within the house created interruptions. My difficulty though, was mainly with the required discipline.

We had to commit sensations to paper as they were experienced. My most invasive sensation is one of pressure fluctuations in the house.

There are 'hot spots'. Entering from the spacious surrounds of my house, through a door into a studio area, and through the rear door of the house, passing through a small porch into the kitchen, can be a torturous journey. The pressure felt in the head and body is exacerbated as one walks through the different sized areas. Spaciousness in the fields, change of room sizes, the conduit of the porch area to the kitchen change the perception of the sensation I receive. Of itself the kitchen can be toxic, facing southwest, through the wind installation.

Balance exercises suggested by Mr Cooper were of help to some of the participants in gaining an appreciation of different impacts. One required standing to face the turbines from a location known to impact. In my case a rear door to the house, Stand and face the turbines. Turn 90 degrees, bend from the waist, stand tall. Repeat at compass points. Note changes in sensation and noise levels at each turn and bend. The differences in the perception and effect of sensation was dramatic.

Differences in wind direction driving the turbines, can dictate the ability to work and reside in the house.



Due east is very noisy. Blades are facing the house. Not a day for gardening or concentration.

West and southwest winds create the grinding, whooshing thumping pulsing cocktail that is the stuff of madness.

Due north, presents impacts on the approach road to the house from the north. Most of the 29 turbine installation is visible from the top of the approach road. It can be particularly threatening as we return home.

On return down the lane to my house, my ears are affected at a particular spot giving sudden ear cracking, pain bolts to the head.

When leaving on bad days, relief comes after a distance of at least 5 to 10ks from my house.

Towards the end of the monitoring we experienced very strong winds for an extended period of time requiring us to leave our home and travel to town for respite.

#### FOR OTHERS

For people who wish to undertake the diary process, I would suggest a degree of understanding of the working turbines, the turning and positioning of the blades, feathering, pulsing, shadow flicker, the monitoring equipment, graphs, weather patterns in your area and a concise understanding of your specific symptoms and sensations.

Acoustics was a new language. Graphs, though meant to simplify, confused me. The monitoring equipment astounded me...reading and recording mysterious happenings in and around my house. Seeing the different waveforms/graphs change during the day with peak agreeing with my change in sensation was of assistance and encouraged me to continue with the diary in the hope of helping others.

When the monitoring equipment was dismantled and gathered from our house and garden, family members agreed that we had felt comforted whilst the meters were working away. The installation and maintenance of this equipment was finally a recognition of our predicament.

Exhausted and depleted people like us, were being recognised.

There were serious problems, and now they were being scientifically assessed.

During the testing program Steven Cooper revealed some of his preliminary findings. The fact that he had established correlations between the residents recorded observations and the operations of the wind turbines, was immensely encouraging, particularly in light of PREVIOUS assertions by Pacific Hydro that there was no cause for complaint by the adjacent residents in the village of cape Bridgewater.

In my experience over the years of intermittent screechings, sleep deprivation beyond endurance and so much more, I must comment that the existing threshold for acoustic compliance is undoubtedly questionable. It can no longer remain an immovable feast for the wind industry, with no ordinary concern for ordinary people.





## **SUMMARY OF PERSONAL OBSERVATIONS – House 89 – Resident 6**

When I visited my family at Cape Bridgewater in November 2007, it was my intention to undertake a body of work to illustrate the natural beauty of this unique part of Australia, whilst enjoying rare time with my family. Instead, I innocently became a witness to massive disturbance and environmental vandalism.

During the ensuing months my Mother's health became of concern to me, and to her. We discussed the sensations we were both now experiencing. Poor sleep patterns and very low energy as well as many other health concerns. Our family decided I should postpone my return to the UK and assist her to resolve the problem. I could not leave her in this predicament.

Since the towering turbines of the Pacific Hydro Industrial Wind Facility first went up in early 2008, the equilibrium of both the atmosphere and the community around Cape Bridgewater have been thrown into disarray. The company and planning departments have very effectively joined forces to develop what is now to all intents and purposes the Cape Bridgewater high rise development precinct. A precinct that is completely at odds with its rural environment and the people and wildlife who actually live here and call Cape Bridgewater home. The Cape is now a high rise development precinct/industrial zone which has been created in one of the most beautiful locations on the Planet, all in the name of supposedly saving it. A society that treats an area of such outstanding beauty this way simply does not deserve it. The wind developer has overseen the corporatization of Cape Bridgewater.

The natural sights and sounds in the environment around the Cape have now been altered. To accompany this development there is now a cocktail of health effects that simply cannot be ignored any longer. For many residents life has changed completely. Some have now resorted to simply walking away from their homes. They cannot stand it anymore. For the uninitiated I would simply ask them to stop what they are doing and take a moment to reflect upon what this devastating turn of events would actually entail for them. How serious does a situation have to be that you would resort to abandoning your home?

After a prolonged period of discussion with the wind facility operator Pacific Hydro through their monthly community meetings, they agreed to undertake testing with an acoustician of our choice. Several families in the community asked for the Acoustician Steven Cooper to investigate. We are grateful for this opportunity.

Our home is located approximately 600m from the closest 110m high 2 megawatt wind turbine, one of 29 at the Cape Bridgewater wind facility. During the early stages of the testing, Steven Cooper requested that we vacate our family home for a period of 3 days so that clear and uninterrupted audio recordings could be undertaken. We were invited to visit our home briefly during this stage of the process. There was no doubt in our minds as to just how extensive this testing was going to be. The house was full of leads and cables running the entire length of the hallway to and from the various rooms, connecting microphones to the software and hardware devices brought in to monitor the task. It would have been virtually impossible to live in our home over the 3 days that this phase of testing was undertaken. However, a number of microphones were left in situ over the following weeks, whilst we resumed our lives at our family home in Cape Bridgewater.

The testing also happened to align with rare periods of time in which the wind facility was actually shut down. This would appear to have been in connection with the construction of Pacific Hydro's Stage IV development in and around Portland. When the turbines were off, the sounds of the wind and the wildlife could be heard as nature intended. This feeling was profound. The atmosphere around the house returned to its former state and the wind could be heard blowing through the trees in a natural manner. Not in a mechanised manner as occurs often around our home when the turbines are going.



The sea could also be heard at times. But this is a natural sound and has been for many a century at Cape Bridgewater. The atmosphere had been returned to equilibrium. I shed many a tear during these times as they were a small window into the past before the turbines came. During this time I felt I could breathe normally without a feeling of anxiety with every breath or a pain across my chest. When the turbines operate it can sometimes feel as if we are competing with them for oxygen. When they were off, we were no longer living in a microclimate created by the turbines. When I placed my head on the pillow for a rest, there were no longer tonnes of spinning steel and fibreglass just 600m away from where I lay.

At Steven's request to gain an appreciation of any effects, tests were undertaken where I would stand facing the turbines from a vantage point at our home. Then move through 90 degree intervals and record the noise and sensations. I could make out slight differences in the sounds from the turbines and my headache sensations would alter slightly. Earache from pressure, aches and pains could be noted to change slightly also. But there was always a slight loss of balance.

Then the same tests were undertaken whilst leaning over and moving through the same cycle of 90 degree intervals. These produced more pronounced effects especially the sensation of a loss of balance and increased sense of nausea. Earache would sometimes increase as well as the pressure band across my head. A more obvious sense of anxiety was felt overall. These tests would explain my sensations when leaning over the kitchen sink to wash the dishes or the cooker at the opposite side of the room.

The tests when done in a doorway leading outside made me more aware of the subtle variations emanating from the noise frequencies both inside and out. This was unsettling to say the least. When listening to the outside frequencies of the blades, you were aware of the size and proximity of the turbines. Whereas inside you were more aware of the extreme weight of the turbines and an overall hum or bass frequency and vibration from the site as the energy was absorbed and dispersed into the ground.

A diary was kept throughout the testing. Initially this took a little getting used to. But later it would become a useful tool to finally record what you were feeling. Without a diary you tended to take each day a day at a time. However, you may well be sick one day with thoughts of leaving the property only to then go on to experience a better day the next. So you struggle on whilst deluding yourself that things are OK when clearly they are not. This accumulates over time and you become more unwell largely I feel through a lack of proper sleep.

A diary of events quickly pulls you up and makes you realise exactly what you have been putting yourself and therefore your mind and body through all of the time. It is a delirious almost dream like feeling. A bad dream! Not a good feeling at all. Everything is such an effort. Your spirit and joy for life is no longer there. It is like a gigantic magnet that is sucking the life out of you over an extremely long period of time.

The feeling of joy when you drive away from the area is liberating. And yet when I leave our home it can take some time to return to anything like a sense of normality. For myself it can take 24 to 48 hours. I call this the "hangover" effect. I would compare this to the jet lag that one might experience having completed a long distance flight. Some passengers like myself suffer earache during descent and landing. This can sometimes take me a day or two to overcome. My ears do return to normal though. However, since the turbines went up at Cape Bridgewater, I am in something akin to an eternal state of jet lag accompanied by earache that never seems to go away.

I have recently had my ears checked by a hearing specialist. Considering my earlier years spent as a professional drummer performing in bands at many events, including the Glastonbury Music Festival, my hearing tests came up well. The hearing specialist was pleased with the results. But they stated that I am susceptible to events such as cabin pressure changes in flight. However, I now experience



these changes here on the ground at Cape Bridgewater. I did not experience these feelings and sensations before the turbines went up. They are deeply disturbing to me.

I recently spent a night away in Port Fairy, a town located approximately 15 kilometres from the nearest large scale wind facility. I went to sleep and woke up the next morning. Amazing! I had almost forgotten just how good this feeling can be. It was immediately apparent to me that there was a lack of the usual chest pressure and heart palpitations that I frequently experience living here at Cape Bridgewater. These have only ever been evident to me ever since the turbines went up. I can also experience the “hangover” effect as previously stated. But this tends to relate more to the earache and headache sensations as they take time to readjust to normality. An example of this could be that one has attended an extremely loud concert or a night club the night before, and yet your ears are still ringing the next day.

I await the TAG findings with great interest. It has been of great comfort to me knowing that these problems are finally being thoroughly investigated. This will not only be of benefit to the families and the local community around Cape Bridgewater, but will also be a benchmark for many others around the world who are also suffering from the proximity issues of poorly sited Industrial Wind Facilities.

