

PELANGI

Application Note 31496

Trent Bridge -Gainsborough

Bridge History :

The Bridge carrying the A631 road is maintained by Lincolnshire County Council on behalf of the Transport agency. The bridge also marks the limit of the sea and the start of inland waterway navigation. Being on a difficult bend on the fast flowing river Trent, the bridge needs to be marked for night navigation. Many large barges use this communication artery, keeping considerable heavy tonnage off the roads system. Over the years, the bridge has been marked by various mains powered filament lanterns with battery backup in the event of mains failure. The size of batteries necessary to achieve this coupled with the need and additional expense to replace them was adding to the Council's maintenance problems.

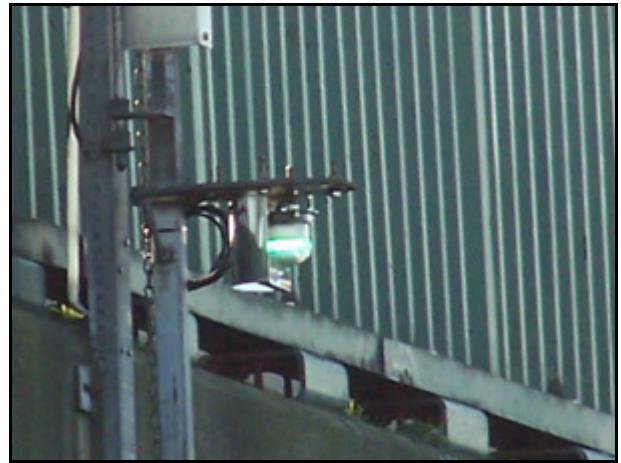
A new approach was required for the marking of the bridge. With the need to reduce maintenance costs and service call-outs for lamp replacement, and reduce the mechanical size of the power source to enable it to fit inside a roadside cubicle.



Trent Bridge looking down river showing the old lanterns marking of the centre span taken from East.

Our Technical Solution:

1. The 10 lanterns each housing 110 volt AC transformers and 10 watt lamps were replaced with **PL83 LED lanterns** consuming only 3.6 watts to achieve the same 4 miles range.
2. To increase their protection against vandalism each lantern was mounted inside a special Stainless steel guard which also included adaptation to the existing swinging columns.



Top PL83 of bi-form pair showing St/St guard

3. Instead of providing a mains powered float charge system and combined inverter to deliver 110 AC to each light, the system was reduced to a standard Mains to 12 volt DC float charge system delivering 13.5 volts to each light.
4. The previous battery, capable of delivering only 14 hours back up until full discharge could now support the system for double this period.
5. Since this is a remote site and one of a very few marine applications maintained by the Council, remote monitoring of both mains and the lights was provided direct to the Lighting engineer via automatic text messages to designated mobile phones.



Smartlink showing SIM card for GSM communication

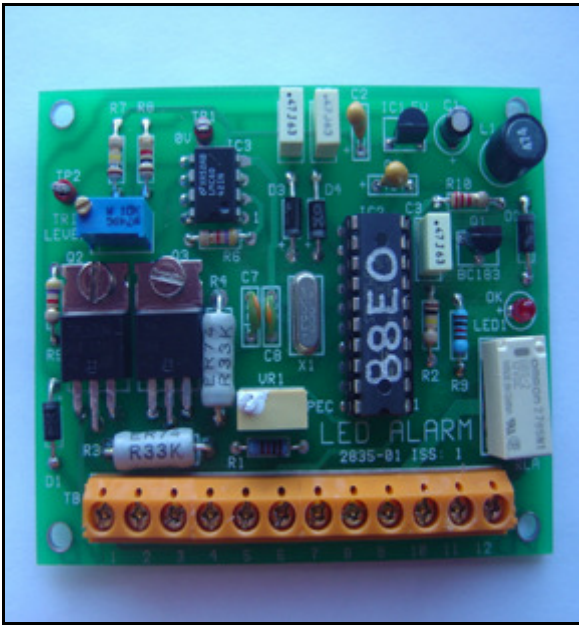
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Technical Solution: (Cont)

- Old cabling on the bridge, previously carrying 110 volts and 100 watts was now only being asked to carry 36 watts thus removing a potential hazard to the public in the event that a lantern was vandalised.



PA2835 LED monitor board

- Assisting the Council in reducing its overall power consumption was also an issue. The reduction from 100 watts to 36 watts while not being a massive overall achievement did represent a **64% saving**.
- Should the Council in the future desire to nominate the site to be fully **solar-powered** this could easily be achieved - working towards a more environmentally friendly site.



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Even in daylight the centre span is clearly indicated to assist barge traffic navigate the centre span.

Lincolnshire County Council has fully embraced LED technology in allowing Pelangi International Limited to apply modern solutions to old problems.

Technologies developed within the field of Lighthouse engineering are equally possible to apply to urban situations since:

- The lights are Remote from the customers headquarters.
- There is restricted space for power supplies and controls.
- The client has a limited specialist workforce which is continually mobile, and needs to be managed effectively preferably for preventative maintenance, rather than fire-fighting.
- The reduced power consumption supports the customers general drive to become more environmentally friendly in its use of resources.
- System designed to meet clients requirements:

