# Chapter 2

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## Arkholme

Arkholme is a community at the far end of the network to Quernmore. They were a long way from a telephone exchange, and their internet service was not very good. A lot of professional people live there, and they knew they had to do something.

Their first meeting with Barry was in September 2011, before B4RN was formally launched. Members of the management team and the WenNet group had already started to raise awareness in the local parishes, and many were keen to know more.

The parish got on board, and their turn to dig came in 2012. It was one of the wettest years on record. Moleploughs could not be used for most of the summer, and the diggers had to use wider buckets to stop the trenches capsizing.

At the first B4RN AGM in their village hall that year, they asked why no digging was going on in Arkholme, but Abbeystead was 'digging like mad'. The response was that Abbeystead were highly motivated and dug to meet the breakout point in Quernmore, and they were told Arkholme could do the same, as that is what it took to make it happen. Their first job was to dig to the GEO breakout point at the top of Locka Lane.

They understood, and the Activists raised some more money in digging shares, hired two big diggers, and started digging at the bottom of the village. The biggest digger was driven by Rusty (Ian Mason), the same person who had done the first rural fibre dig for the WenNet folk in the previous chapter, and his mate Adam. Adam did all the backfilling and Rusty dug.

People in the village saw the big diggers, came to find out what was going on, and came back in wellies and carrying spades.They laid 4.5 kilometres of duct, through bogs and rocks in 8 working days.

The Parish meeting at Arkholme.

The first AGM at Arkholme.


Rusty and Adam with the two big diggers.

The first dig day, and the volunteers pulled out the duct.

The first dig day, showing the duct pulled down towards the village.

The first dig day, David Smith and Michael Blacow in the trench.

Steve Duxbury levelling the mud trench.

They had to pull the duct along a route prior to the diggers coming, which also helped the diggers know where to dig.

Often there were families in the trenches, but it was mainly grannies and grandads. They laid the duct for the digger and soft filled the trenches.

Word spread, and other villages started thinking about their projects and watching Arkholme progress. Some people from other villages turned up to help and learn what was involved.

Brian was one of the three Activists who kickstarted the Arkholme dig. His house at the top of Locka is where the breakout chamber is, and he was in the trenches most days on that epic dig from the village. Once the trench is dug the bottom is levelled if need be and stones removed. The duct is lowered in and then backfilled by hand to cover it, making sure it is snug in the bottom of the trench, and then the digger backfills it. When the ground is very stony and rough the farmer often will often sacrifice the sod to go on top of the duct to keep it safe. Usually the sod goes back on top of the trench so it heals up faster.

Nicky Abraham pulling the duct through a chamber.

Brian Acott levelling a very wet trench.

While the big dig was going on across the road, Barry was planning how to get it to the village hall. Tom was on hand to assist with the ground radar to make sure there were no hidden utilities in the banking or the road. Barry had ordered a cabinet and Tom undertook to get the duct to it once the road crossing was done. He painstakingly dug under all the tree roots so the tree was not damaged.

The big dig continued and more villagers took turns to help. It was a village full of the most willing Adopters.

Sue levelled out the trenches under the hedges and fences and featured on BBC Breakfast.

Utilities were carefully found and avoided, electricity being the main concern, as land erosion means they are not always as deep as they should be. If the digger went through a drain (despite our best efforts with the scanner), we repaired it and put our duct under it. Eric became an expert. We all now know how to mend a drain.

Tom scans for utilities before the road crossing with Pat and David.

Harry and Sue Ball levelling out the bottom of the trench under the hedge

Chris Hall and Eric Lange going under drains following the digger.

Trench through bogland with added drain.

Duct going under a drain.

Tommy delivered more duct to them, and the diggers kept digging. A core team established itself, and the volunteers learned all the tricks, including proper joins and end caps on the ducts.

Mains electric found and carefully excavated around it.

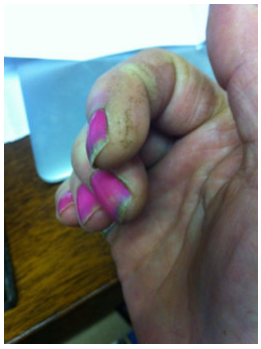
Quite a narrow trench when it was a drier day.

Eric got lots of experience and hired the big diggers for the village.

Iain helping in a tricky area, using alkathene pipe for extra protection.

During the big 4.5km dig in Arkholme people used our trenches to bury water pipe and even lay drains while the digger was there. Thinking outside of the box. One day that stands out in Arkholme is when we dug through six septic tank feeds. We mended them all but our hands were a bit smelly. Then this lovely lady appeared with home made scones and jam... We ate the scones. Washing our hands in those days didn't seem to make much difference. (Our health and safety officer would not have let us eat the scones these days). Tommy actually gave us the solution,- keep some rubber gloves handy to put on after the work so you can eat. Working together in this way the rest of the villagers learnt what was going on, and so they hired the big diggers themselves after the 'big dig' to dig right round the rest of Arkholme village and get everyone on.

Lovely lady with scones, Pat and Barry.



The big dig was 8 days in October 2012 Multitasking. where everyone mucked in and learnt all the tricks - learning on the job.

Tommy organised more duct delivery, chamber installs, and did some lane crossings with his directional mole.

The villagers organised the routes round the rest of the village, got permission from landowners and got going once the big dig was done. This also saved the return haulage costs of the diggers.

The main road crossing was done with contractors and the cabinet installed at the village hall.

There was one property that stopped the connection getting to the village school, the householder had a very

The big digger almost at the top of Locka.

Volunteers laying drains, utility ducts and B4RN duct in the trench.

Tommy kept supplies coming.

Chris Hall and Eric Lange making a join in customer duct on a long dig.

Pat Close, Charles Waddington and Rusty at a lane crossing.

The lane crossing done so Rusty could keep digging.

The road crossing at the village hall. To the cabinet.

The dig down from the road to the cabinet.

long garden and refused wayleave. With no more ado the PTA swung into action and dug through the village school field to the cabinet to connect the school. They did a really good job, and when they finished you could hardly see a mark.

As we learned more, we shared the knowledge, and we held impromptu meetings to do training. Bruce and Tommy from the B4RN management team spent a lot of time organising as well as doing the job themselves.

Chris May from the B4RN management team and the volunteers get stuck in.

The dig down the school field.

A local digger dug down the school field.

Backfilling the trench.

Putting soft fill on the duct.

David, Chris and the other volunteers laying the duct.

Finished dig through the hall garden and to the school.

After the digging, another new learning curve for the volunteers started - blowing the fibre into the ducts they had laid.

The management team were learning too, and Emtelle sent Mark Graham and Dave Rames, to show us how to blow the fibre. They also arranged training days for companies like Virgin, and they came to see how it was done in rural areas, which meant we got a lot of blows done.

We knew we would have to buy our own blowing kit, and Tommy set to and started sourcing it. He also bought a little trailer to hold all the gear in, including

Tommy holds a management meeting.

Bruce holds a management meeting with Brian, Eric and Chris.

the large compressor that would be needed. Iain fitted the trailer out so that it could also be used to blow house fibre, too.

Volunteers started doing garden digs and installing the house kits.

Eric and Andy working on garden digs.

Sue and Andrew doing the first Arkholme fleet at Locka.

The fleet turned over and Mark ready to blow it again.

Lee Norris, a fusion splicer of grit. He volunteered for us.

The management team focussed on getting the fibre in and the cabinet live.

The very first fleet was at Arkholme, our improvised version of a fleet before Iain made us the fleeting aid. We borrowed Andrew's plant pots to do it. Fleeting is described in depth in chapter 1 of the book, but basically it is blowing the fibre as far as it will go, wrapping all the extra fibre needed on a route on to the ground in a figure of 8, turning it over and restarting the blow again. We had to learn fast - Emtelle started the early blows at Quernmore, but we had to be able to do it ourselves.

With Mark and Dave's help we got the fibre blown all the way from the breakout chamber to the village hall.

Our next problem was doing to be learning how to join all the fibres together. In the meantime, we enlisted the help of Lee Norris, a fusing contractor, who volunteered to get the cabinet live for us by just fusing the main fibres of the feeder tube, which was the one being used to bring the live feed in from the breakout point. We watched and learned! We knew we still had to join all the other fibres together. Tommy figured out how to install the enclosures (the bullets) and so they were ready for when we could fuse them.

We worked hard in all weathers, wrecked our tent and resorted to using scaffolding to protect us.

We hired Lee for another day and got the main fibre line and hence the feed, into the cabinet.

The damaged duct caused by rodents.

In December disaster struck. The best laid plans Of Mice and Men! The connection in Arkholme went down just as we were going to announce it was live. Rats or mice had chewed our fibre in some subduct next to some stables. We had to lay new armour-plated fibre for 100 metres, it took a great deal of time, trouble and expense, but we did it.

We still were not trained to fuse in those days, so John Colton found us a volunteer he had trained, Paul McHugh, from the East coast, and locals put him up in their house, and he joined the fibres for us.

The very big garden dig.

Each setback turned into an opportunity, and we had to learn faster. Any time anything else went wrong, we just fixed it and made a help pack for each new community, so the lessons did not have to be relearned.

Villagers dug into each other's houses and connected the boxes, with 90% take up. There was a mammoth hand dig in February, where the grass had to be left perfect for a marquee wedding in April!

Pat kept turning up every day with brews for the volunteers.

BBC Breakfast filming a blow in Chris Collingwood's garage.

Pat from the next village (Docker) turned up every day with tea for the diggers wherever they were working.

The village came live, thanks to a timely visit by Craig Brass from another altnet (LonsdaleNet), who fused the village hall. BBC breakfast came, and we had an open day where people could see it was all happening. So both ends of our core network duct were now 'live', both fed from the Geo dark fibre directly into Manchester, and the job

**Beyond the book:**

BBC breakfast film

Of Mice and Men

The big diggers last dig.

Mark Jameson from Heversham, volunteer fuser.

Tom and Iain prep a bullet.

Arkholme railway bridge.

was to connect them both together via the farms and villages in the phase 1 plan... this would make our resilient 'loop', meaning if one part of the network was cut, then the other end could keep the customers online.

The two big diggers hired by the villagers had reached the River Lune, and the plan was to use the railway bridge to reach Melling and then on to Wray and Wennington. This would have been half an hour's work, but Network Rail said no. We got our local MP, Eric Ollerenshaw, on the job, but they still said no. There was a defunct gas pipe attached to the bridge, so we asked if we could fix our duct to it, or thread it through.They said no. At this point we did not have enough money for a directional dig under the river, so our primary route was on hold. We had to dig over the mountain from Quernmore to Wray instead, but the duct was there at the river for when we got some money.

We also had to connect customers, and that meant learning to fuse, buying our own equipment and teaching more volunteers how to blow fibre.

So into 2013 we blithely sailed. Chris Hall was trained to blow fibre and he worked tirelessly.

**Up-skilling;** To join the customers on to the network we needed to up our skill set. Up to now we had relied on fusers who had 'day jobs' and spared us the time as volunteers to help us, but we could not carry on relying on them.

Outer sheath of the fibre removed.

Iain's bullet holder.

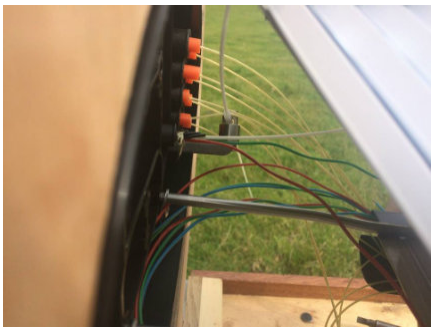
Tube sheath of the fibre removed.

We sent Iain and Tommy off to John Colton at Lucid to learn how to fuse the fibre and assemble trays in the cabinets and bullets in the chambers. Tommy and Iain were stars, and they quickly learned how to get the fibre into the enclosures.

Iain made some wooden holders for the bullets, and designed a table to fit them to, or we used the bench in the back of his car. Our bullets are supplied by Hellerman Tyton, and they came to train us all how to fit them.

Lubricating the grommet that holds the fibres/duct.


Our colour code cheat sheet.



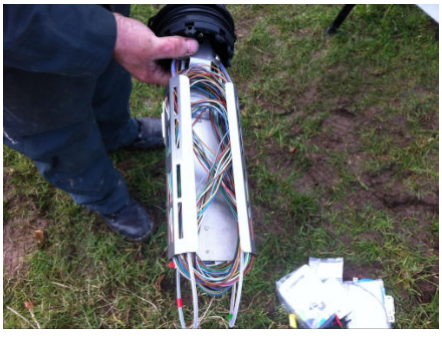
The ducts secured to enclosure with the fibre ready to fuse,.

Tommy and Iain installed all the bullets, different sizes for different uses. The large bullets for big joins and lots of customer ducts, and the smaller ones where a loopthrough method was used and only a single tube broken out for customers. Iain made holders for all the sizes of bullets.

Fibre cables consist of colour -coded tubes, and we wrote the code on the holders until we memorised them. The outer core is stripped off the fibre tubes, and the inner carbon strength member and protective kevlar removed. It is then lubricated and passed through a locking device or a rubber grommet, and secured in the lid of the bullet. Once the fibre tubes are in the bullet, their coloured sheath is removed, and the fibres are passed through a clear transport tube, and attached to the correct tray in the bullet. The fibres are then cleaned and wrapped in the tray ready for fusing. The unused tubes 'the pass through tubes' are coiled up in the basket.

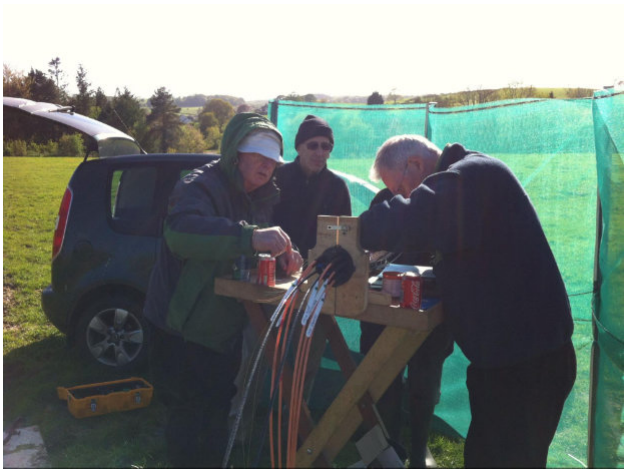
Clear tubes take the 12 fibres into the trays.

A tray with the 24 fibres ready to fuse.



The tubes not split are coiled below.

Fusing in the little red van.



Fusing in the shelter of the windbreak Iain made.

Customer fibres are then passed through and wrapped in the right numbered tray. Then the completed enclosure was put into the chamber.

As the core fibre got installed, the fusing had begun. Several volunteers were trained, and we improvised in the early days before Iain got his trailer. One way of fusing was to jam the enclosure in the window and fuse inside the car. Or put the table on the passenger side of a vehicle, and fuse from the driving seat. That depended on getting close enough to the chamber though, and some work still had to be done outside, because the fields were often too wet to drive a vehicle on to.

To do a successful fuse everything had to be kept clean and dust free, and wind free. We tried a tent, but it soon got wrecked in the wind. The windbreak Iain had made was great if it was not raining. When we could not get vehicles onto the fields, we had to carry everything to the chambers.

Iain building the scaffold tent.

So we improvised, and we used scaffolding poles to build a tent frame. The winds played havoc with that... but it meant we could fuse quite happily on wet days, there were nearly always rocks about, to weight it down.

On dark nights we double-skinned it with our fleeting tarpaulin for extra warmth and carried lights to where we were fusing.

Scaffolding tent, version 1.

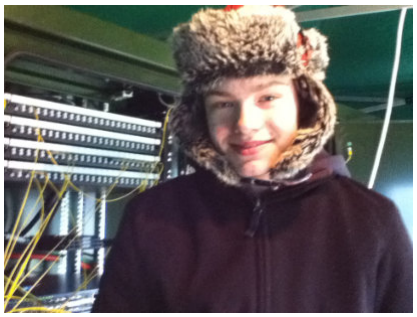
Version 2 with tarpaulins,

Version 3 - double skinned + lights.

Frank taking a tea break out of the gazebo and drinking bush tea.

Frank testing each fibre for light with his old towel over his head.

Tom working outside the tent on a sunny day.



Tom, the apprentice.

Alistair and Frank teaching apprentices in the caravan.

Inside the caravan Frank built for splicing cabinets.


The splicing caravan in all its glory.

We also at this time started a 'Sponsor a metre' of B4RN duct programme, where we would write names on the duct for a fiver (£5) a metre. This brought in more money for essential tools: Special knives to cut the duct, red-light pens to test the fibre etc.

People sponsored us from all over the world. Martyn Dews set us a Paypal account up and bought us the stuff we asked for.

Then we had another 'interesting' experience.

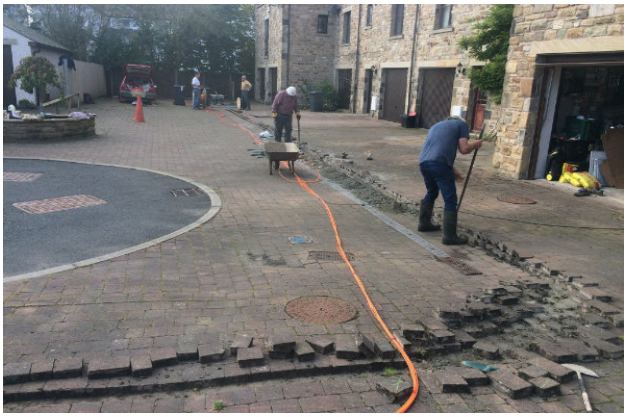
**Beyond the book:**
Sponsored Duct photo gallery

The foreman inspects.

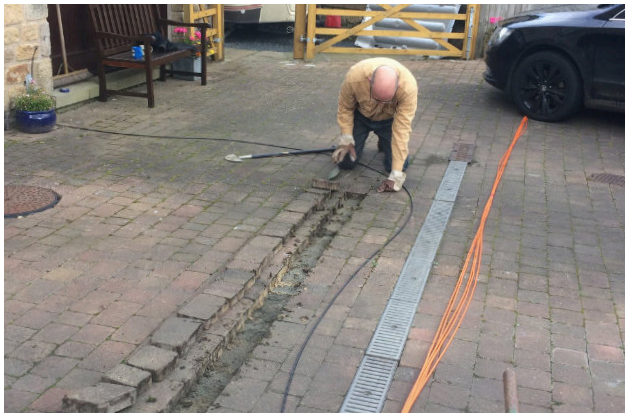
The residents at a small, new estate in Arkholme had built their own homes and run ducting through it to each one. BT then came and put phone lines in for them. This served them well for many years, but when B4RN came they all threaded the B4RN ducts through the existing ducting and chambers to their homes. They believed that because they had built and paid for it that everything within their curtilage was theirs. The houses came live and everyone was happy. Until one day a few years later, a tractor parked on a driveway and cracked the lid of the chamber, and BT were called out to repair it. They then saw B4RN duct in 'their' chamber. B4RN were told to remove it all immediately or face a massive fine. The residents marshalled their forces, called in other volunteers and the villagers came out in force once again. They took out all the ducts and enclosures, built another chamber, and reassembled everything under the paving. A local farmer brought them more duct and they put it all in new trenches and reconnected all the houses. Even Walter from Surrey came to help. The cobble miners were minors on one stretch. Everyone helped.

There was LOTS of tea and cake and warm scones and home made damson jam. They were all ready for it after all that digging.

Laying out the new ducts.

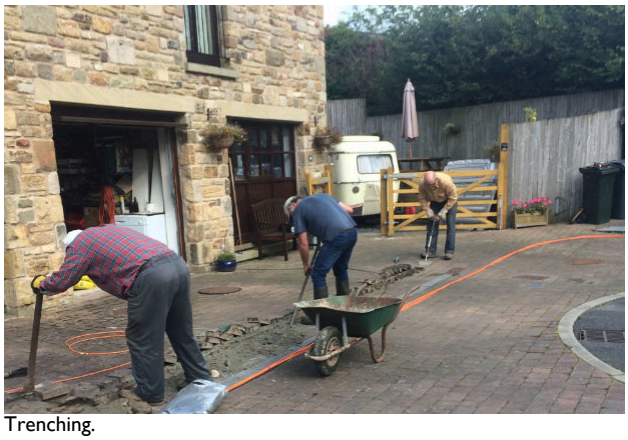


Digging out the trench.



Chris May cobble mining.

Digging the chamber.



Trenching.

The chamber finished.

Chamber and ducts in.

Child labourers.

Chris Hall gets his spade award.

David Smith gets his spade award.

Then once the duct was laid, it all had to be reinstated, and Michael Cryan, Chris Collingwood, Chris Hall, Chris May, and Pat Benson got all the cobbles back with lots of help from Walter. A good job, well done and in super quick time, too. Well done to all the Arkholme volunteers, and especially the 'charwallas' (photos above). The next day the B4RN team arrived to fuse it all up again in the new chamber, and they were live again.

## Bring on the cats.

The third 'A' (see previous chapter) is when the Adopters inspire the Apathetics. The Adopters in Arkholme proved this theory. Lots of other villages suddenly came on board, but in the words of Eric Morecambe, "But not necessarily in the right order"... North and East the villages were digging to Arkholme. Chris and David were awarded their spades for all the work they did helping them all. A great section of the network was built before we got across the river to Melling, but as this was the route it 'should' have taken, eventually, a few years later, it happened. Read on.

## Melling

The route from Arkholme was supposed to go to Melling from Arkholme. We were still trying to get across the River Lune but could not afford a directional drill to go under it, and so Melling was on hold. Other areas had started their digs, and Melling had not yet been motivated. Mary Jackson from Melling became a member of the management team at B4RN in 2012 and was company secretary. She had been involved with fibre networks when she worked at Sefton and had been to the launch at The Storey and wanted 'to be useful', which indeed she was. There was no equipment in the tiny B4RN office at Lancaster Auction Mart, so she printed the share certificates and wayleaves at home, working in a spare bedroom for three years.


Melling was slow in realising that B4RN could service their village, and many were convinced BT would bring them fibre. This was reinforced when FTTC was installed in the village, which gave them a much better service than they had before. Nevertheless, a few dedicated activists knew that FTTC was not future-proof, and they wanted real fibre for their community. The problem was that we could not get the fibre over the river. Time went on. By now it was 2015 and n the meantime B4RN had dug over the fells from Quernmore to get to Wray, with the intention of reaching Melling via Wennington.

The Parish Council at Melling knew they had to do something, and Stef Williams who was on the council at the time with John Marsh, who was chairman, asked her husband Paul if he could dig the duct in, as he had a digger. Her dad, Ged Kelbrick, was one of the volunteers, and he backed her up, and Paul agreed to dig; little did he know what he had let himself in for - Melling is an amazing story.

The dig from Wennington had been blocked by landowners, so Barry organised a dig under the River Lune for them, as by now we had the finances from shares, and paying customers.


Stef Williams.

We had John Hamlett from Gressingham on our management team by then, John had managed to get his village (Gressingham) joined on to Arkholme and had learned many skills. He came to the village hall and did a presentation and inspired many more Adopters to join the project. Once they had their 'Activists' in order, they swung into action. Their story is different from many other villages. John's own story is in the Gressingham chapter, but several people have contributed theirs to the Melling one.


John Marsh, chair of Melling Parish council.

David Nott's story and timeline.

## Bringing B4RN to Melling

In early Spring 2015, I volunteered for a task which was to occupy me for part of several months: to organise and be part of a team of Melling residents who followed the (mole) plough with rake and spade, preparing the trenches into which the B4RN ducting for high-speed broadband would be laid, across fields (and sometimes through bogs and copses) to the boundary of every property in Melling.

What follows is the story of how I became involved in this task, its joys and frustrations, its helpers and its hindrances.

### 2011

I was a member of the Melling-with-Wrayton Parish Council from July 2011 to August 2023, serving as Chair from May 2016 to May 2022. In August 2011 I attended a County Council 'Rural broadband workshop' in Hornby, for community representatives on Superfast Broadband (SFBB) provision. It soon became clear that the 8 rural parishes in the Lune Valley would not be included in the County's £30M 2011-14 scheme for SFBB.

At this stage, much of the discussion about the B4RN project was carried forward by the Melling-with-Wrayton parish councillors; in advance of a Special Parish Meeting on 17 August 2011 (which I was unable to attend), I wrote on 11 August to my colleagues:

I have one specific question re the B4RN offer: would most of the capital costs be the same, however many or few households chose to be connected? If the answer is yes, it would seem to me highly desirable for us to pursue discussions with B4RN with a view to maximising connections and thus minimising the costs for each household.

I believe that we have to consider the present and future interests of the village as a whole, not just the interests of those who would make immediate use of superfast broadband [SFBB]. [...] In tomorrow's world, SFBB connection to every home will be seen as essential as mains water, electricity or the telephone.

I can only suggest that the councillors and residents attending the SPC meeting on the 17th attempt to thrash out what kind of SFBB provision would be in the best interests of the parish not just for today, but for tomorrow. We may also need to do some hard talking with B4RN, to see if coverage (within the parish) can be pushed towards 100%.

At this meeting, however, the Parish Clerk was asked to write to LALC, as follows:

'The Parish Council is being asked to support a commercial organisation concerned with the supply of broadband. This is a not for profit organisation but its customers will be asked to pay monthly subscriptions and also to purchase shares. The company is involved in a competitive bid and tender situation with two other organisations in the North West neither of whom has yet been approved.

'The Council is being asked to endorse one particular bidder through the provision of facilities for meetings, providing refreshments and endorsing their literature which has been produced to encourage Parishioners to sign up to an agreement with the Company.

'Our questions are:

Can we legitimately support a commercial organisation of any type against another.

The implications for prejudicial interest should all Councillors sign up.'

In response, the advice from LALC was as follows:

'I don't think this is a good idea for the council to be involved in. If you had the power of well-being, you would be able to consider this providing it brought benefit to the area, but there is no power to allow councils to promote commercial undertakings. There would be issues of impartiality if another company wanted the council's consideration for their project as well. If cllrs sign up they will have to declare personal and prejudicial interests in any discussion.'

I include these extracts from email exchanges as they illustrate how easily a brilliant idea (B4RN) can get off on the wrong foot and appear problematic in a forum such as a Parish Council aware of its duty to do everything 'by the board'. I must add that any resident attempting, in 2011/2012, to get a clear idea of what was involved in bringing SFBB (superfast broadband) to every property in the village would find it difficult!

Fortunately for B4RN and for Melling, matters did not stop there. On 5 September 2011 my wife and I attended a B4RN meeting in Arkholme. The presentation was by Barry Forde. For the first time, I was able to form a reasonably clear idea of what the B4RN project entailed. Two or three young men from small businesses in nearby Newton expressed immediate, even urgent interest ('When does it start? How do we do it?') and asked: 'Will there be long-term jobs?' (In 2024 the B4RN payroll was more than 70 FTEs...).

The message I took from this meeting was that B4RN was a community project, not only because it would serve the whole residential and business community, but because the project would be underwritten and undertaken in each village by investment and labour (digging).

**2012-2014**

At meetings in Melling in the years 2012-2014 several residents expressed their concerns about the B4RN project, how it would affect their home, their garden and their wallet, etc. Unfortunately, there was at least one meeting where some residents left feeling that their concerns had not been acknowledged, or were even dismissed, by the representative from B4RN. In two cases, residents previously interested in, and supportive of the B4RN project turned strongly against it, just at the stage where residents' support was most needed.

**2014**

Additional meetings were held in Melling in May and June, and in June-July a survey was carried out to find out which households in Melling would be interested in a B4RN broadband connection. For example, of the 14 households I visited in 'my' sector of the village, the responses were: YES 6, NO 4, 'DON'T KNOW' 2, 'TO FOLLOW UP' 2.

Sometimes the response to the B4RN scheme was not just indifference or apathy, but outright opposition:

* In one group of properties subject, I think, to a leasehold agreement, most homeowners wanted the B4RN connection, but could not have it, because of the veto by one owner who mainly lived in Manchester.

* Several householders were clearly unsettled by the prospect of 'digging up their garden' in order to bring B4RN to their property; in one case, a refusal for the ducting to pass along to end of the back garden meant that three other households could not be connected; in another, a householder wanted to be paid for allowing the B4RN connection to pass through their garden in order for their neighbour to be connected.

B4RN was presented as a community project that would only happen if sufficient numbers of residents invested. But by the time digging was scheduled to begin in Melling, only a small number [2-4?] of residents, including myself, had invested. So how was it that Melling found itself in this position? I admit that I did not fully understand at this stage whether a village had a minimum target for investments to demonstrate support, or whether a village could 'earmark' its investment to pay for digging. This issue came to a head a year or two later when there was discussion as to whether 3 'late' investments in shares by Melling residents could be counted towards paying for the digging: see below, January 2016. It would be interesting to know whether any other local communities encountered this, or similar difficulties or confusion regarding shares/loans or donations of time/effort etc.

Anyway, a meeting was held in Melling in October 2014, with the focus at last on how the scheme could get off the ground – or more precisely into the ground - in Melling: who would volunteer to do the ploughing and mole-ploughing? Paul Williams (was) volunteered to take it on. In addition, a team of residents would be needed, to 'follow the plough'; I volunteered to be this 'gangmaster' and it looked as if we would have enough volunteer diggers/helpers to make a start. So we were in business – or were we? For at no point did Melling appoint a Project Manager. I think Melling would have appointed one if B4RN had made clear, and insisted, that it was essential to appoint a Project Manager before proceeding.

The question has to be asked: did the B4RN management simply assume that, as B4RN Secretary (and Melling Parish Council member since November 2011), Mary Jackson was de facto Project Manager for Melling? If so, this was unfair to all concerned, not least to Mary, as she was in some sense reporting to herself. Certainly in 2014-2015, Mary was the channel for communication between B4RN and Melling about the broadband project (1) through the Parish Council, of which we were both members, and (2) directly with me and other volunteers.

Before B4RN could lay the ducting trenches, advance permission ('wayleave') would be needed from landowners; it was agreed that Paul would seek and secure permissions as and when required. Because Paul knew the landowners, this speeded up the process of getting started, in a situation where Melling was already way behind the field (no pun intended) in terms of getting the job done. However, a serious error was made in respect of the ownership of land between Lodge Farm and Melling village, with the result that a major link in the Melling network had to remain underground, unblown and unconnected. This would not have occurred if there had been in place a strict line of communication and feedback from B4RN HQ via a Melling Project Manager to the contractor, Paul.

**2015**

In February 2015, a very timely and successful meeting of 30-40 villagers was held, at which John Hamlett of Gressingham gave a masterly and lucid presentation of how the high-speed broadband worked and how

experienced in decades of university life... Nevertheless, no one-man demonstration, however inspiring, can provide the targeted follow-up advice and intervention that would enable non-technically-minded residents to make B4RN a reality for them.

March 2015 – digging begins

This is the place to pay tribute to Paul Williams for his drive (and, most of the time, his driving) and dogged energy. What would we have achieved without him?

'Digging for Melling' began in mid-March 2015. As 'gangmaster' I organised the roster of helpers, including myself, normally 2-4 bodies for each morning or afternoon session of digging. I understand from other villages that the operation tended to depend on a 'core team' of volunteers, and Melling was no exception. My core team, in alphabetical order, was Colin Townley, David Smith, Ged Kelbrick, Gordon Park and John Marsh. Also seen with rake, spade or camera in hand, were Luke Smith, Judith & Roger Jones, Elspeth Edmondson, Ray Frost and Marie Baker.

Getting B4RN fibre to all Melling properties involved negotiating some tricky terrain, which I came to know intimately:

* Boggy ground behind the properties on the west side of the main road; this was where I momentarily lost a welly.

* Woodland undergrowth behind properties to the north of Lodge Lane and Gillison Close;

* The steep wooded gully to the south of Lodge Lane and up towards the west end of Moorside Close (on this site, there was no question of burying the orange ducting: I scrambled along the top edge of the gulley, attaching it as well as I could, in its black alkathene sleeves).

September 2015

- the network node (the B4RN cabinet) in Melling Institute (now Village Hall) goes live, just about the same time as the BT cabinets appear on Melling Green...

September/October 2015 - I have various conversations with Lodge Lane/Moorside residents about how to bring B4RN to their property

November 2015 - the first fibre in Melling was blown

2016

January 2016 – although 3 more Melling householders had invested to enable Paul to be fully paid and the remaining digging completed, there was a disappointing lack of clarity from B4RN as to whether these contributions could be used for this purpose. (ie 'ear-marked')

it could be brought into the home. His lecturer/demonstrator technique surpassed most of what I had

8 April 2016 - our own B4RN connection goes 'live'; we owe deep thanks to Paul Whatmough of Wennington for getting the trunking into our house, through the attic and into the router.
A 'feelgood story': a couple had just moved into the School House, by Moorside; I went to tell them about B4RN, and asked if they were interested. Were they? Of course! They were connected within 3 weeks.
The reader of this piece may be forgiven for thinking that its title should have been 'Bringing Melling to B4RN' (already in Victorian England Melling had a reputation for conservatism...).
Finally, I would like to pay tribute to the founders of B4RN and to all those who have contributed to the growth of the project. B4RN today is a shining example of enterprise, in a world of complacent corporations and rapacious fund managers.

*David Nott Melling, February 2024*

**Ged Kelbrick's story**

Ged had gone to the parish council meeting because he was sick of his awful phone line, but was appalled at how apathetic a lot of the villagers were. They all seemed convinced BT would arrive and give them new lines and broadband. A lot did not even know what broadband was or care. Barry Forde did a presentation, and it was clear to Ged that he knew what he was talking about. He said to Paul, "Let's do it, it is like the coming of mains water or gas, we have to make it happen".

Mary Jackson came forward to do all the paperwork, and they had meetings at her house to figure out what to do. Different people from around the village supported them - Harold White was great and got shares from the people on his estate behind Melling Hall, David Nott took over the top estate and motivated people to sign up, John Marsh who was quite technical explained it all to people.

David and John joined Ged in the trenches when they got going with the digging, and people often helped as they were digging past their houses. Stef also came out in the trenches too, together with the children, but mainly it was the 'old fogies' doing it.

Ged remembers that when they started the dig, it was quite a long way from the village, about a mile, and John could not walk that far, so Paul made a trailer to hold the duct and they put cushions in it so John did not have to walk. One day the cows in the field, who were always curious, got hold of a cushion and one was clearly determined to eat it. He didn't think the farmer would be impressed if a cow died, so they ran after it and grabbed it. They won the tug of war, but no photos were taken... and they all had a laugh. He soon stopped laughing when a cheeky heifer came up and pulled the hat off his head as he was bent over in the trench so he had to run and catch that one, too.

Despite the tribulations, they reached the village, but more near disasters were on the horizon. They were digging through a very boggy bit at the bottom of his garden, and they were in the trench levelling it out as best

they could when David got stuck. He could not free his feet from the mud. They downed tools and eventually got hold of him under his arms and pulled him out. It does not do to lose a volunteer! Paul eventually dug the wellies out of the trench ,and they continued.

Ged remembers that they had a very rough track to go up towards the institute, it was not very long, but was rock, and that took them a long time. Once that was done they could bring the village live.

Bruce came with the blower and blew the fibre over from Arkholme. Ged borrowed Paul's big drill and put the house boxes on with training from John Hamlett at Gressingham and Paul from Wennington, and helped the people who wanted it dig through their gardens.

They took the duct up to the end of the village, and Hornby took over the dig, as they too were cut off from Wray at that time due to landowner issues.

Ged and the team then dug round the top end of the village, and connected all those people too. It was quite a while into the project before Ged got connected, but he says it is absolutely brilliant to have been part of, and he loves his connection.

**Paul Williams's story:**

Paul Williams had been asked by Stef (his wife) to 'do some digging'.

Bruce blowing the fibre at Melling.

The Parish Council wanted it done, but there was no organisation and nobody knew what to do. Bruce Alexander, who was a volunteer at the time was a great help and taught him many things. He went straight to Bruce when he wanted something or wanted advice. Barry gave him maps of where the duct was to be dug and how many ducts to put in a trench. Tube (duct) maps had not really been invented, and Bruce generally did them on the back of old envelopes. Bruce did some house kit fittings for them, and Paul Whatmough from Wennington came and helped them, too. Paul walked the routes Barry had given him and arranged access. One landowner took an awful long time to persuade, so Paul concentrated on the ones he could do, and on getting to the institute from Arkholme.

Paul's dig behind the village.

B4RN had by this time reached Wennington, but that route to them was blocked by landowners, so Barry managed to raise the funds for a directional dig under the Lune. Tony Swidenbank had done this, and installed a chamber on the Melling side which was ready to connect to. In order to minimise the impact on the fields, Paul bought a mole plough for his tractor, and together with the digger and his 'old fogies', they got the whole route up to the track done in a couple of days. By the time they

Digging down the lane to the houses.

Ready for the road crossing.

He dig round the back of the village institute.

David Nott digging at the school.

finished the track, you could not see where they had been in the fields.

Paul then dug round that side of the village as far as he could on Edward Towers's land and the houses got connected. He left duct for the houses that didn't want it at their boundaries. He collected his own duct when he needed it.. From 'doing a bit of digging', he'd had to morph into a telecoms contractor and manager. He says the moleing was great and very efficient, but some of the digs were tedious if there were no volunteers to help. He would ring them in the morning and tell them where he would be working, and most days they turned up though. His mother-in-law kept them supplied with tea.

Then they had to go to the other side of the village. To do this, they had to do a road crossing, so that was booked, and the landowners consulted. It was a real help that they could see what had been done at the other side of the road and how little impact it had on the land, and he won them over. They chose their own routes through very rough patches of their land, but he got it all dug and the trench reached David Nott and Moorside. Once it got there, another road crossing was needed to reach the school and to get to Harold at Gillison close.

David Nott dug down the track by the school, and he and Paul's children helped get the connection under the wall and into the school. Gordon Park also came to help. The school at Melling had been fed from Wrayton with a microwave link from B4RN, and they were super happy to get their connection at last. They now get free service instead of paying the County Council (and hence BT) a fortune every year. Paul then got in the field and completed the route. Once he had a route completed and they had got the houses ready, he rang Bruce who came and blew the core and house fibres and organised the volunteer fusers to come and bring them live.

Paul Parsons from B4RN and John Marsh helped Bruce blow the house fibre. Paul Whatmough from

Paul Whatmough mans the walkie talkie to the blowers.


John Marsh and Paul Parsons blowing house fibre.


The customer tubes getting their fibre blown.

Paul Parsons fusing the fibres, with the FTTH husky mascot.

Wennington also came to help with the blowing as he knew where the majority of house kits were and he manned the walkie talkie to let Bruce know the fibre had landed in the properties. The houses were fused and the customers came live when Paul Parsons fused the bullets in the fields.

Paul Williams was paid as a contractor for the digging, both in money and in shares, but worked tirelessly as a volunteer, too. This is the only project where the digging and organising was done by the same person. Paul dug over 9 kilometres of trench around the village.

The cabinet was sited at the institute, and they, too, get a free service for hosting it, and the village church also get free service, thanks to the committed work of a few.

The last stage of the Melling project came when B4RN relocated their office depot to Melling in September 2015. Recycom was a location with plenty of storage and had hosted the link to the school. B4RN took over this site, and Paul was asked to bring the fibre from the school chamber, down the field and to the new depot. He decided to do this with his mole plough, and lucky for him Leonard (George's son from Gressingham), wanted to borrow his tractor at the same time. Paul's tractor was small enough to go into his farm building to stir the slurry tank. Leonard's tractor was much bigger, so he arranged a swap, and the big tractor did the job in a very short time. The mark on the field was never seen. The B4RN office had been fed from the microwave link the school did not need any more, but they were glad to get on the real fibre!

This was a different village approach, as mentioned before: there was not a committee, or a leader, and very little help from B4RN, apart from Bruce and other volunteers. A very small team completed all the work and the connections. B4RN itself was a bit disorganised as well at the time, having many different parishes digging, about to take on more staff, and also to move from the tiny office at the Auction Mart into the new premises at Melling. A lot of changes were happening. Melling succeeded despite all this. That is why it is amazing!

But then, another disaster was waiting in the wings. January 2016 brought the worst storm for years, and the river Lune


The new offices at Melling.

Floating duct on the River Lune.

The broken duct beached.

John Wightman's house at Locka, where we sited the antenna that could see Melling Institute.

burst over the flood plain that was the valley. Higher up, it took out a mile of water main for Whittington as the bed of the river changed, and one field was obliterated and appeared as gravel on the other side of the river as the flood subsided. As the flood waters receded, a local resident noticed something floating in the river, and as he had been involved in the trenching, he knew it was our duct. From the following photos you can see Melling in the distance, and their feed floating on the receding flood water. (As the network is owned by the people, they tend to keep an eye on things). He sent a photo in, (left) but the river was still too high to do anything. A tree then came down the river with tremendous force and broke it all, and the bullet floated away. It took out the chamber that Paul had connected to, and it all floated free. The duct and fibre ended up at the other side of the river having been pulled out of its underground sheath. Melling and the connection to Hornby went off. At this point there was no second route into either village, they were under construction, but the 'loop' was not finished.

The repair team sprang into action. Tommy was recruited to climb ladders and install equipment on the Melling Institute and a house they could see in Arkholme. We used the kit we had left over from the WenNet network and put another connection into Andrew Wightman's house at the top of Locka Lane in Arkholme, it had a clear view to Melling. Tom Rigg worked his technical magic, and both Melling and Hornby came live again. The signal was restored, albeit at a lower speed than the customers had got used to, because it was wireless not fibre, but it worked fine and a lot better than their old phone lines used to, so nobody complained.

The directional drill was booked again, and a new drilled route under the changed course of the river was done, plus a new chamber installed further up the field. Who knows if such a flood will happen again, but the timely response meant that normality was quickly returned, new fibre blown and fused, and the wifi links removed.

Alistair Adams Huset and James Clapham at the chamber.

James re-blowing new fibre.

In September 2020 fate had another trick up its sleeve for Melling.

September is notorious for fibre strikes, as farmers plough their fields.

Melling was hit with a plough cut, and because it was close to the depot it was fixed even quicker than usual. It happened at the end of the day (as usual), when the staff were going home, but as usual the core team led by Alistair were there to put things right. Jorj and Will had just got back from working in Heversham, and they helped too. The civils team with JamesTaylor and Ashley McClements came to dig new trench. The network was diverted, so most customers were not affected. Resilient links were becoming more common now.The duct had been severed in a few places, so they repaired the duct and pulled out the old fibre.Then James re-blew the fibre, and they terminated the ends again in the chambers.The whole process was completed in under 12 hours.

James, Jorj, Alistair and Will in the van fusing the bullet.

The benefit of having a van with workspace and everything to hand.

## Hornby

Hornby was not part of our phase 1, and Tommy Hartley from the original WenNet project and the B4RN management team lived there. He became the local champion and tried to get the village going. He was really up against it here. The village itself had a telephone exchange, and most people were on short line lengths and had a working connection. By this time the County Council had given the funding to BT and they were rolling out FTTC in Hornby, Farleton and Claughton. This technology was slightly better than the ADSL, but still nowhere near as good as real fibre, and it confused many of the villagers. Farmers and people on long lines did not benefit from FTTC, and still would have very poor connectivity. However, there were enough of them supporting Tommy and B4RN to make a go of it. They had a tribe at last.

David Collins and the Hornby team rallied round him and took over the organisation of the village. They raised interest in it and got shares coming in. One local landowner, who really wanted to help the village, put up a large amount of money into the loan scheme as it was such good interest. Tommy bought his own small mole plough for their use and started getting the routes into Hornby and helping other villages too. Their initial feed into the village had come from Melling, once the Lune had been crossed, later another joined in from Wray. Getting to Farleton was not too difficult, and it was the route to Claughton too, which was planned to eventually join the Littledale/Caton route and help Brookhouse as well. He said at this time he felt he was juggling balls every day and it was an exhausting period of his life, but he really got satisfaction from doing it. These routes also helped a lot of rural homes and businesses on the way.

The village central had two main landowners who proved to be very difficult to convince, but they came round in the end and were very supportive, and the village got digging.

They also had one landowner who could not be convinced and so they avoided his land, at some expense but it was 'easier than arguing'. Some duct had been laid in his field, which the volunteers had assumed belonged to his father, who had given wayleaves on all his land. The son demanded that all the duct was removed, which was duly done but was very hard work. All the volunteers mentioned this, so it made a lasting impression on them.

Some amazing volunteers came forward ,and a lot of people were involved, including one 96 year old lady, Jayne Summers, who helped by Rachel Murton dug her own garden.

The volunteers did all the house installs and helped with garden digs. They had meetings at the village pub. Tommy remembers the massive amount of volunteers when they had to go over the river bridge and they had a winch to pull the B4RN duct through the existing duct in the pavement.

Jayne Summers and Rachel Murton.

David Collins remembers he had a passionate interest in getting the B4RN service for himself and his village, and he knew the best way was to pitch in and help. Tommy had got the duct to the village and so he did what he could to help and became hooked and led the project through the gardens, literally.

Tommy and Dave Connor winching the duct over the bridge.

James Wilkinson and Tommy.

The B4RN civils team come for the hard dig.


Volunteers organising the ducts.

Hard pavement dig done by the civils team.


Duct laid under the pavement in sub ducts.

David did a lot of the house installs himself, but says that Dave Conner and Brian Wilkinson helped, and James Wilkinson did most of his entire estate. Norman Silcock did a lot of work, too, and also mentored the Claughton champion, Graham, who sneaked into their meetings at the pub to learn how it was done. Norman trained them all on how to do the house installs.

Rachel Murton was a sterling digger and put a lot of work in, quietly enthusiastic and willing. Dave Conner was also a digger, and David said he would have dug to London given the chance. He was nicknamed the 'Ace of

Norman Silcock, Dave Connor and Brian Wilkinson doing house installs.

Rachel Murton digging under a wall.

Rachel getting under paving.

Dave the Ace of Spades.

Spades' by James. Speaking to Dave, he remembers doing a lot with Tommy, Big Bertha machine, and the digger, and digging right up to the castle and right round the estates with the other volunteers. They left a duct for every house. David organised them and kept records. Because they were digging through a lot of back gardens, they often had to move piles of junk, then put it all back afterwards. One or two gardens were much tidier for their efforts and he got a couple of bottles of wine for his trouble. At one point on a mole dig under a track, one side was

Dave working with the digger man.

Dave working with Tommy and Big Bertha.

higher than the other, and they angled the mole so it went upwards, but the mole decided to go straight and they had a mammoth dig at the other side to find it. Tommy also remembers using his vibrating mole to go under a greenhouse (because of the landowner who would not let them through his field), and the whole greenhouse was quivering. It was showtime, and everyone watched until the successful little mole popped out at the other side

and the duct was through. Dave's lowest point was in a garden in the corner of a small estate. The owner had specified that they could go through the flower bed but not the lawn, but he had forgotten and went through the lawn. It was a very tidy job, but the house owner was livid. He made them take it all out again. They'd had to dig right under a big wall to get into his garden, which had taken them a long time, and thread multiple ducts through for the other houses. They all had to be pulled back and re-routed right round the house and garden. It made him and Brian feel very bad. He got the duct to all the other houses, and that made them all feel better again.

Dave recalls getting it through to the Institute was a massive job because of concrete and walls and gardens, and getting it over the bridge, with a civils company cutting the pavement and leaving a subduct for them. They did some superb work and had very tidy chambers.

Another one of the volunteers said he had no idea at all what he was doing, but he just did as he was told and everything worked.

Bruce appeared to blow the fibre into the village church which got a free connection as a place of worship. So did the schools and the Catholic church across the road.

Bruce blows fibre to the church.

Walter from Surrey was also part of the Hornby team when fibre was blown down the main street. He was awarded his fibre spade on that day for the persistence he showed when we had a blockage.

Paul and Alex did the bullets in the chambers and the cabinet was sited in the village hall.

A very tidy chamber at the Castle.

Hornby dug over 15 kilometres of trench.

Dave Connor and his spade.


Walter Willcox and his spade.

John with his spade for house installs.

Dave Collins and the village spade.

Alex Colton and Paul Parsons fusing the bullets in the chambers.

## Farleton

Graham Hayter and his village spade.

The village spade on the first Farleton house.

The route Tommy had dug continued down the valley to eventually connect up to the Caton/Littledale route. On the way, it went through Farleton, and the local champ there, Graham Hayter connected up the houses who were interested, including the local farmer who had let it through his land.

It was only a tiny hamlet, and BT had just installed an FTTC cabinet there, so many thought they were ok. Time has proved them wrong, but at the time only half took the service from B4RN. Graham got his spade anyway... and the local farmer was very happy.

Duct was left available for all the other properties and, as time has gone on, most of them have joined B4RN. It is relatively easy to connect properties when the project is in action. It is more difficult to do it years later ,unless the original volunteers are still there. They always know where they left the duct for one thing. They also know who to ask for permission to dig it up, as it is left at the property boundary, usually. Anyway, Graham and Tommy got the dig through to where Claughton took over, great job done.

## Claughton

Graham McGee

Graham McGee had been attending the Hornby pub meetings to find out what it was all about. He talked to the local farmers, who were up for the job, and they borrowed Tommy's mole plough and cracked on.

The 3 principal landowners in Claughton gave their permission to install the ducting on their land, all of them being farmers: Ronnie and Isaac Bargh, Shirley and John Harvey, and Rachel and Mike Thomas.

Graham did the planning and the farmers dug where he said to. They owned all the land, so there were no tricky negotiations involved. Graham and his son Robbie had been to see every property owner and tell them about B4RN and many invested in shares but it was not enough. Graham and Robbie then went to see SWS, an industrial unit in the village. They had been quoted an exorbitant amount from BT to get a fibre to their offices. SWS invested the money in B4RN instead, and the project was a 'Go'.

Feeding the duct into the mole plough.

Straight after the mole plough had got the duct to the cabinet site.

A few days later and you can't tell it was done.

Bruce arrives to blow the fibre, with the safety barriers.

Once they had the funding, Graham planned the layout with Bruce Alexander. The construction was done by the aforementioned landowners, assisted by a number of local volunteers, not surprisingly including Graham.

Individual house owners also assisted, including the loan of a very welcome mini digger. John Harvey helped with the house digs. Isaac had some great digs with the mole, very tidy work. John and Isaac got it to SWS, and that was where the cabinet was to be sited. You can hardly see the plough trench in the photos.

Tommy was a huge help and produced the ground radar device. Mike Thomas did digging in the village, too, and they got round all the houses.

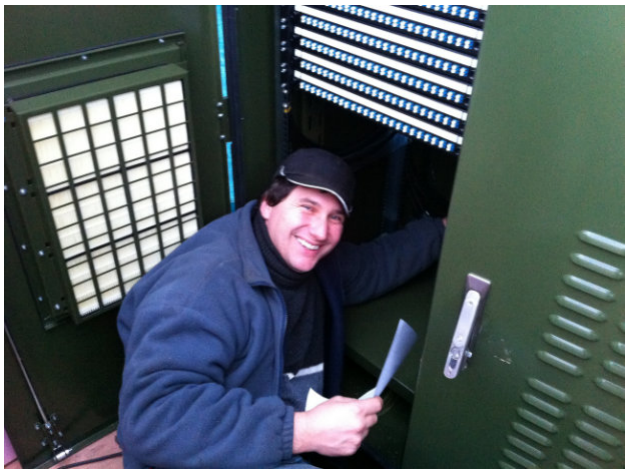
Bruce Alexander and Graham sorted all the ducts and properties out, Graham says Bruce was invaluable and kept the Claughton ship sailing.

They had very unique safety barriers. Pallets were used to keep the sheep away from the chamber. Bruce appeared to get the fibre in, and the fusers and cabinet appeared.

Norman Silcock from Hornby trained Graham to do the house installs, and helped out until he got the hang of it.

Once the ducting was in place, Fred Frobisher and Graham did the installation of the individual property kits. Graham's worst experience was drilling houses that had horsehair insulation. He says 'the drill goes in easy at first, then all of a sudden you get the feeling you are going to spin round with it, but the drill actually stops when you get '5 horses wrapped round'.

Graham says it was all a marvellous experience and a great thing to do. He notes: 'Most private properties in the east of the village took the system. Take up was patchy in some of the terraces. Not all businesses took the service, but some joined later. We built redundancy into the system to allow for future



Frank fitting out the cabinet.

Graham patching customers.

Graham making off with some waste duct to re-use.

connections. The Claughton scheme probably would be done differently now, but what fun it was in doing it ourselves'.

Frank Balassa and his team came to fit all the kit in the cabinet, and the excitement built up as the great day dawned when it was switched on, and the first customers took the service in September 2015.

Graham had the deep joy of patching the first live connection in his cabinet, hosted by SWS, who had helped make the project happen.

He says it has proved to be a robust and reliable network and he was awarded the village spade.

Graham is pictured stealing some left over 16mm to thread under his driveway to thread his 7mm house duct through for protection.

Claughton dug 13 kilometres of trenching,

Graham and the village spade..

## Caton Green

The view from Caton Green down to Claughton.

Peter Hearne and Iain Robertson reeling out at Quernmore.

Above Graham's patch at Claughton is another cluster of homes, farms, and a nursing home, and they wanted it, too. There were some more businesses on the way, and Peter Hearne, who had been helping at Quernmore took up the baton. Or spade. Peter has close to 50 years' experience in the development and management of organisations, in both the commercial and charitable sectors. Peter had known Barry from his working life, and when he found out about B4RN and that Barry was involved, he knew it would be viable. He knew Barry was technically brilliant, so he called a meeting at his house, provided tea and biscuits and found out his community were brilliant too and they wanted the opportunity to join on. 'Word' about B4RN was spreading, and a lot knew a bit about it and wanted to help in different ways. The youngsters would help the older folk dig through the gardens. To finance it they all bought shares, and some bought extra to give free connections to those who could not afford it. They also found diggers who would work for digging shares. Digging shares were used a lot in those days for farmers who wanted to dig their own land, or for farmers who wanted to specify a trusted digger rather than a stranger. The digging shares were £1.50 a metre. David Platt dug all his own land and the rest of the 'bottom' route from his farm and business units up the hill to Caton Green. On Joe Townley's recommendation, Peter asked Bob Hutchinson and his son, John to do the digging on the 'top' route from Claughton to Mears Ghyll because of their known reliability.

Joe, a local farmer said, 'Aye well, it's a bit flinty', meaning there were some big rocks in his field, but the diggers did a great job. Mick had dug to where the routes split above Claughton, with one route going through Mears Ghyll and onwards to several homes and farms before joining the Littledale route, and Mike Cave took over that, and one route followed the road to David's farm and business units. It then went up the hill to Caton Green where Bob took over. The route stopped there because of an absentee landowner, and never did go into Brookhouse as planned. Maybe it will in the future, but in the meantime Brookhouse joined onto Littledale via Caton and got sorted.

Peter had already learned how to reel out the fibre from an expeditionary trip to see what was happening above Quernmore, and he'd been to Hornby to have lessons with Norman on fitting house kits. He fitted most of them, because he already had a drill. Some of the younger chaps borrowed his drill and did their own. though. Peter says their main problem in those days was the weather hampering the dig.

The photo above shows some of Peter's family and neighbours who helped on one of the digs. Trisha and Grant Griffiths turned out to help him, too, and the photo shows them in the centre, with David and Mary Platt and children, and Martin Knowles. He had a great tribe.


Peter Hearne with his JFDI spade.

Other volunteers appeared in different areas but hardly any photos are available. Graham Ransome from Mears Ghyll also helped dig the duct to older people's properties. Peter remained impressed by everyone's enthusiasm, and they got all the ducting done.

Then Bruce came and blew the fibre, the fusers came, and they were live on the Claughton cabinet.

Peter got his spade.

A while later he was invited to be a B4RN director, bringing in lots of experience from his working life.

There was no government funding for this project, so no dig grants. The communities kept their costs down by doing a lot of the work themselves. Volunteers cannot be paid, because, as is so often pointed out - 'volunteers are priceless'. B4RN however insures all the volunteers in case they hurt themselves or damage property.

The Arkholme branch continued onwards with other branches and stories as it opened up the routes to so many other villages.

Chris Hall helping with the mole plough from Arkholme to Newton.

Chris turned many fleets as he blew the fibre from Quernmore to Wray.

Chris wrapping a bullet with its fibres.

Chris puts the lid on after Iain has shown him how to do a bullet.

## Chris Hall

One of the local chaps at Arkholme who had been volunteering a lot had become our second volunteer blower.

Chris was one of the first volunteers in the trenches, and when Tommy started the blows he took a keen interest. Chris was an ex BT engineer, and he was very interested in all the processes, so he learnt to blow the fibre.

Tommy and Chris Hall blew all the fibre in the first communities.

Tommy had a very busy day job and was happy to hand over to Chris, who was available most of the year except for lambing time.

Chris would collect duct and fibre with his pickup, and he knew all the farmers, who could get it where it needed to be with their tractors on the wet land of 2012. He also learned how to fuse and helped out with quite a lot of the bullets on nearby villages, as two pairs of hands are always better than one.

He features in a lot of stories so look out for him throughout the book!

Chris re-instating the cobbles after a dig in Arkholme.