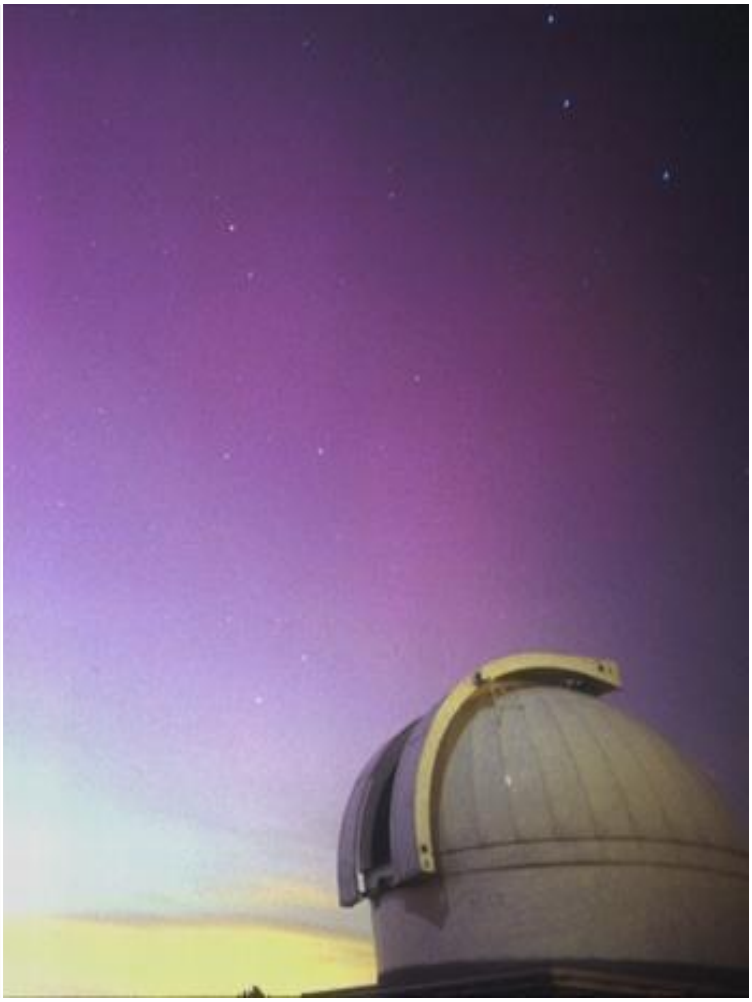
Observation Extension Feasibilty

Mexborough and Swinton Astronomical Society

2015



At the Annual General Meeting of the MSAS (Mexborough and Swinton Astronomical Society) in 2014 the membership directed the committee to explore the possibility of upgrading the facilities of the J. A. Jones Observatory at Hoober. This document outlines the findings of the group tasked with carrying out the task.

Introduction

At the Annual General Meeting of the MSAS (Mexborough and Swinton Astronomical Society) in 2014 the membership directed the committee to explore the possibility of upgrading the facilities of the J. A. Jones Observatory at Hoober.

The committee invited the entire membership to attend a meeting to discuss the scope of the project and from this meeting a Feasibility Study Group emerged. The minutes of these meetings are to be found in appendix (i).

Scope of the Study

The first task of the group was to establish the scope of the study. It was decided that the any changes to the observatory should enhance the use of the observatory for the membership and then the public. In addition the group decided that the study should be defined by the following requirements:-

i) Toilet – disabled enabled.
ii) Small kitchen area –sink, kettle, microwave, hot and cold running water.
iii) Space for at least 6 members to use computers in comfort.
iv) Space for a large table to study star maps (up to A2).
v) Larger presentation space for 10 people and 2 presenters.

In addition the committee also asked the group should explore the increase in running cost of any work done at the observatory.

The group was also asked by the committee to report by the end of September 2015.

During the group's work YW (Yorkshire Water), the land owners of the J A Jones Observatory, asked if MSAS would be interested in purchasing the land used. This offer has been passed to the committee as it is beyond the scope of this study.

Models under consideration

The group decided to limit the number of models that it would consider and only considered three models.

A) No work
B) Minimal Work – rearranging the internal layout of the ground floor.
C) 5m x 5m extension.

For the options b and c it was decided to treat the installation of a running water and toilet as a common component and deal with them separately.

Option A

No work

Doing no other work on the observatory needs to be measured against the requirements of the project.

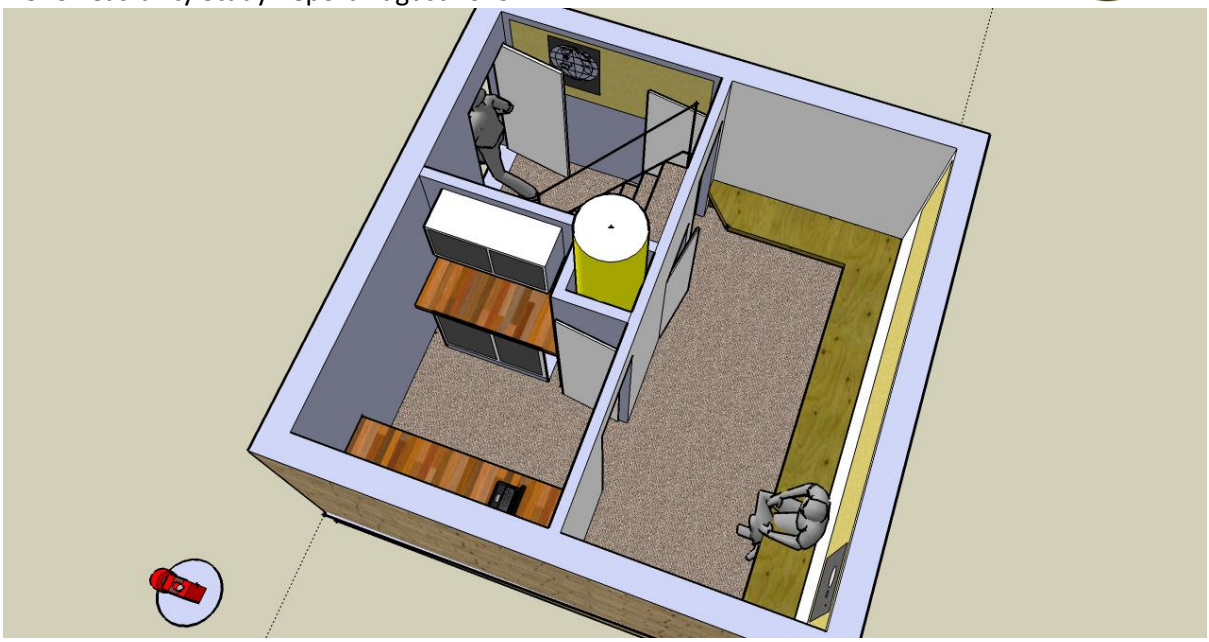


Figure 1 Existing Layout

Option B

Minimal Work

The minimal work model envisages using the fact that all the internal walls on the ground floor of the observatory are stud and plaster allowing the internal arrangement to be easily modified.

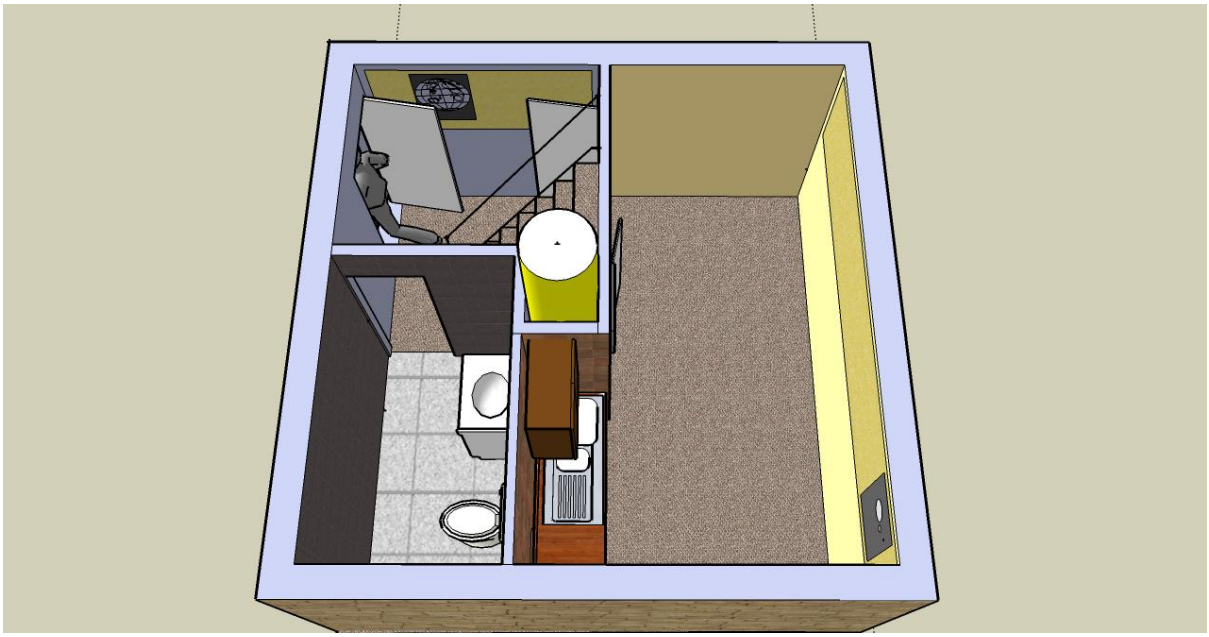


Figure 2 Minimal Changes

As the diagram shows the minimal model uses the kitchen space for the disabled toilet. The door frame for access to the toilet already exists and complies with the minimum size required for a disabled toilet.

The benching along the wall in the work room is a 'drop' table design to allow the space to be used or presentations.

The total cost of this option is £1300 and details can be found in appendix ii.

Option C

5m x 5m Extension

The extension envisages building a 5m x 5m extension on the north wall of the observatory and remodelling the ground floor of the observatory.

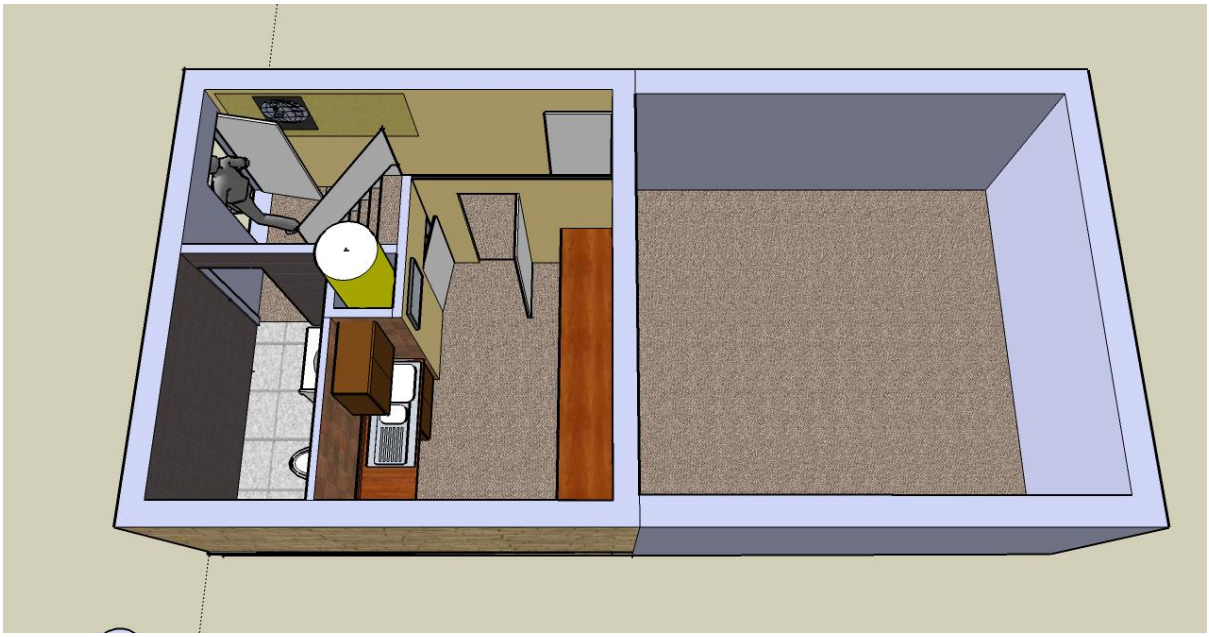


Figure 3 5m x 5m Extension

This model uses the current kitchen space as the disabled toilet and the current work room as a work area with kitchen space. This space could be used by small groups of members to work at a permanent work bench, also allowing for equipment to be left out when maintenance is required away from the public. The larger room will be used for large groups of members and PVEs (Public Viewing Evening).

The cost of the 5m x 5m is £8000 and the breakdown can be found in appendix (iii).

Disabled Toilet, Water and Sewage.

The cost of providing water, sewage and installing a disabled toilet is common to two of the models and has been treated as a separate entity regardless of which model is used.

The installation of a toilet would require a disabled enabled toilet. There are numerous manufacturers and the cost for a complete toilet would be £600, appendix iv.

Throughout the Feasibility Study the provision of water and sewage had been the most difficult issue. The position of the J A Jones Observatory some 25 m from a distribution reservoir has created difficulties. YW has been unable to offer us a direct connection to the reservoir and requires a feed

pipe to be run down to the farm buildings at Lee Brook Lane. YW are estimating that they would charge in the region of £25000 to lay and connect a water pipe from the farm buildings at the end of Lea Brook lane to the observatory site.

Waste from the sink and toilet would have to be collected in a sealed cess pool and removed by contractor. The cost of installing water and a sealed cess pool would be £5000 and can be found in appendix v.

As mentioned the YW offer to sell the land to MSAS has obfuscated the decision on the installation of a sealed cesspool and we are still waiting for a final recommendation from YW.

Running Costs

Any changes in the observatory will bring increases in the running costs. The study group looked at increases in insurance, electricity, phone, water and waste removal. These can be found in appendix vi. The observatory running cost would increase by £219 and would leave MSAS a surplus of over £200 per annum. This indicates that there would be no need to increase the subscription rate.

The Feasibility Study Group's Recommendation

The group scored each of the options against the criteria set out above (Scope of the Study).

i) Toilet – disabled enabled.
ii) Small kitchen area –sink, kettle, microwave, hot and cold running water.
iii) Space for at least 6 members to use computers in comfort.
iv) Space for a large table to study star maps (up to A2).
v) Larger presentation space for 10 people and 2 presenters.

Each criterion was score out of 2 and the results shown in below.

Model	i	ii	iii	iv	v	Total
No work	0	1	1	1	0	3
Minimal	2	2	1	1	0	6
5m x 5m	2	2	2	2	2	10

The group has put the needs of the members of the society at the upper most in their discussions. The group acknowledges that to currently use the observatory members need to be fit and healthy. There is an obvious need for toilet facilities to allow all members to use the society equipment in safety and comfort.

The Feasibility Study Group recommends that a 5m x 5m extension, with a disabled toilet should be built at the J A Jones Observatory.

END

Appendix I Minutes of Meetings

Meeting #1 **Date;** Wed 25 June 14

Members Present; GG, TM, RG, PD, JK, TW, AC, ST, JR, MS, PM, DF, LHM

Start 8.00

"That a study is undertaken by the committee and some of the general membership to determine the feasibility of building an meeting room extension on the J.A. Jones Hoober Observatory"

Proposed by Alan Birch and seconded by Mike Scollan.

Shaun O'Dell

All

For tomorrow's meeting, I picked up a couple of requests or idea's

1) A better car parking area on site at the OB (Tarmac/Chippings maybe)

2) A Toilet facility (I know someone big in Toilets) LOL

3) An improved Kitchen area to allow us to put on warm drinks, biscuits anything

pre-packaged etc.

Regards Trev

Just as a comment, we have talked about the car park before and didn't do anything about it, To make it look better we could try using some grass terrain, I have sent a link separately,

Also for the meeting I have three proposals

a) a 5m extension
b) a 7.5m extension
c) a 10m extension

all of these would include a kitchen, workshop, WC and lecture room.

Regards Phil

What follows are the notes taken from the discussions at the meeting by LHM.

In general the members present at this meeting were of the opinion that an extension is a good idea and would serve a worthwhile purpose.

It was stated that any further action on the subject should not include the words 'meeting room'. Any extension is to be for the society as a whole to further its objects and give more working area within the observatory. Any extra working area will allow us to better provide for our customers, particularly the elderly and disabled. There is a need for toilet facilities for use by all, particularly our elderly and disabled visitors. There is need for refreshment and lecture areas together with a storage area.

Updating our observatory building would finally help to bring us into the 21st Century and provide a facility for us to continue the work that we have been doing continually for the past 36 years.

Immediate thoughts were:

- What size?
- Can we afford it?
- Can we provide the man power to run it?

Before any decision on any extension to the observatory can be taken we must first seek the feelings of the Yorkshire Water Services from whom we rent the land.

AN IMMEDIATE TO DO LIST:

- Two members to measure the site area at the observatory and give us definitive dimensions of the area that we pay rent for. (26th June 2014 MC & ST)

- A letter to YWS asking their opinion on us having an extension to the observatory. (SO is in possession of the original 'Lease' signed in 1992 to help him with dates for the letter.)

- The society to be active in some costings. (MW)

- Depending on the YWS answer we need to speak to the local planning department or not.

Closed: 9.50

Wednesday 3rd December 2014 Start: 20.00

Feasibility Study Meeting #2

Members Present: TM, MC, AB, MS, LM

Minutes of the previous meeting: OK

Notifications:

Group requirements: Chairman (LM acted in both these positions)

Order of Procedure:

1. The actions of these meetings will be relayed to the society Executive Committee at their monthly meetings and to the membership via the 'Messenger'.

2. **What Size?** It was thought that a 7M long X 5m wide extension would be an adequate size but could we afford it? A 5.5M long X 5M wide was also discussed in some detail. It might be that we are only allowed a 5M X 5M from the council planning dept. A flat roof will be used on the building enabling us to catch rainwater to be used for flushing the toilet and a procedure for doing this was agreed. There is a lot of detailed discussion to be done on all these matters.

3. **What can we afford?** We will need to embark on some serious fundraising to afford even the size mentioned above.

4. **Notify Yorkshire Water.** This was done some months ago and they informed us recently that they don't see any problems with an extension so long as we do not go outside our boundary.

5. **RMBC Planning Dept**. It was thought best to ask Phil if he can make inroads to the procedure that we need to follow.

6. **Notify The Farmer** R Collier & Son, Barrow Farm Barrow Hill Wentworth, Rotherham, South Yorkshire S62 7TT 1226 743247

7. **Building Contractors.** No discussion yet.

8. **A Lottery Grant.** We are to seek the help of the South Yorkshire Community Foundation for their advice on the procedure we need to follow.

9. **The Observatory.** It was decided that a site visit, Sat 6th Dec at 9.00am, was necessary to confirm the measurements of the site and to confirm that a 7M X 5M building will indeed fit inside our boundary.

10. **Date of next meeting 17th Dec at 1745.**

Closed 2230

Mexborough and Swinton Astronomical Society
Observatory Feasibility Group
Meeting #3.
Wednesday 17th December 2014
Present AKV, AB, MS, TM, PM, ST, GG, PDS
Apologies MW, LM
ST proposed that the meeting should finish at 10:00 pm. All agreed.
Notes from the last meeting were discussed. The meeting resolved that all future minutes should be distributed to all members who have attended at least one meeting and be displayed on the notice board.

1. Outcome of site visit on 6th December 2014
   All subsequent discussions will be based on the boundary marked out on the original tenancy agreement with YWA (Yorkshire Water Authority). Any extension that remains within these boundaries will not incur an increase in rent.
2. AKV proposed that a basic set of requirements be produced and that all subsequent proposals must meet them. The meeting decided on the following requirements.
   vi) Toilet – disabled enabled.
   vii) Small kitchen area –sink, kettle, microwave, hot and cold running water.
   viii) Space for at least 6 members to use computers in comfort.
   ix) Space for a large table to study star maps (up to A2).
   x) Larger presentation space for 10 people and 2 presenters.
3. The meeting discussed the need for mains water. PM was tasked to find out where the nearest mains water to the observatory is located. In addition it was noted that there may an additional cost for the disposal of rain water.
4. Number of Options.
   The meeting discussed the options laid out in LM's e-mail. After much discussion the meeting decided that two options should be explored.
   i) A maximum 5m X 5m extension.
   ii) A zero extension, rearranging the current use of space.
5. The group resolved to explore these options.
   i) AB will lead a sub group to cost an extension a maximum of 5mX5m.
   ii) TM will lead a sub group to cost a minimalist conversion.
   iii) PDS will lead a sub group that will cost common features i.e. water and sewage.
6. Next meeting.
   The next meeting will take place on 21st January 2015.
   The agenda will be:-
   1. Minutes of the last meeting.
   2. Matters arising.
   3. Presentations from the subgroups.
   4. Financial considerations (i.e. costing, running costs, financial security).

Meeting closed at 9:40pm

Meeting #4.
Wednesday 21st January 2015
Present AKV, AB, MS, TM, ST, GG, PDS, LHM
Apologies MW, PH

1. Minutes from the previous meeting accepted.
2. Presentation from the sub groups.
   ST, PDS
   a. Water – YW (Yorkshire Water) approached via their 'Safe Move' and reported that we would have to connect to the mains water at the farm. YW (Developer Services) stated that they would charge up to £30,000 for the work. We could find a private contractor to do the work and they would charge £112 for a site survey and £285 connection charge.
   b. Sewage and waste water – Developer Services stated that we could not have a septic tank as this required a run off. Low ground storage would be a likely alternative requiring a sealed tank. A 3000 litre tank would cost £780 plus the cost of a 230mm concrete sleeve at £111 per cubic metre.
   c. Toilet Facilities – Disabled Toilet, Doc M Pack costs £600.

      Questions to be resolved:-
      Can we run water in the 4inch Duct?
      Can we use a septic tank?
      Contact has been made with the Southern Area Surveyor, Ms Gaynor Craigie and a site visit has been arranged for 6th February 2015.

      5m Extension
      AB,MS,PH
   d. Presentation of spreadsheet – see attached
      Contactor bill would be in the region of £12,500. Own build would be £5000.
      Model needs changing to include Marshall Lite natural split blocks.
      Does not include breakout, doors and changes to internal structures.

      Minimal Extension
      TM,GG
   e. TM expressed the need to optimise the space. And went on to show how this could be done for £1000.
      Asked to create a detailed budget and cost a 6" screen.
3. The meeting discussed running costs including:- Water/sewage, electricity increases, Insurance and building rates.

   For the next meeting TM to do toilet costs and rates, AVM to explore electricity usage and increases, and GG to look at increase in insurance.

   Next Meeting TBA

   Meeting closed at 9:55pm

Mexborough and Swinton Astronomical Society
Observatory Feasibility Group
Meeting #5.
Wednesday 20th May 2015
19:42
Present: LM, AB, PH, PDS, MS/TM
Apologies ST, MW

1. Minutes from the previous meeting accepted.

2. Matters arising. MSAS have been invited to make an offer for the land currently rented from YW (Yorkshire Water). This matter has been passed onto the full executive committee as it is beyond the remit of this group.

3. Update from subgroups
   Water and sewage. We are still in negotiation with YW on permission to have a waste storage tank. Gaynor Craigie has suggested that we would be in a more favourable position if we owned the land (item #2).
   PDS to explore the possibility of laying a pipe in the fields across the road (we believe belong to the Fitzwilliam Estate).

   5m x 5m Extension
   Prices remain at the same level as presented in the submissions.
   PH to create first draft of working drawings for next meeting.

   Minimal Extension
   TM reiterated prices that included the disabled bathroom.
   TM to create working drawings and costings for the next meeting.

4. The executive committee have asked that this working group report to the society before the 30th September 2015. After some heated discussion on the timing of the SPG the meeting agreed the proposed date.

   PDS to initiate a SPG (special general meeting) to report and vote on the extension project. Seconded by MS, LM and AB.

5. Way forward

   The meetings agreed the following time table for the following monthly meetings.

June	Review of costings and drawings. What are we going to report? How are we going to report?
July	The Feasibility Study Group's Decision
August	Draft of final report and voting arrangements.

6. Next Meeting 17th June 2015
   Meeting closed at 20:50

Mexborough and Swinton Astronomical Society
Observatory Feasibility Group
Meeting #6.
Wednesday 17th June 2015
19:40
Present: LM, AB, PF, PDS, ST/TM
Apologies MS, MW

4. Minutes from the previous meeting accepted.

5. Matters arising.
   PDS reported that St Margaret's Church, Swinton has its cesspool emptied between 12 and 18 months. On the last occasion 3470 litres of waste was removed at a cost of £158 by the local

authority. The church has two toilets and one kitchen. There is a footfall of 15000 per year (this is a very conservative estimate).

There was further discussion on the issue of buying the land from YW (Yorkshire Water).

6. Review of costings and drawings
   No further updates were made for costings.
   PM presented 3D drawings of the current layout, the minimal model and the 5m x 5m model. This allowed the group to explore the layouts in a very dynamic manner.

   LM presented a ppt(Power Point Presentation) on several layouts including a pre-ramble on discussions with YW.

7. What are we going to report?
   The meeting decided that it would propose one model for consideration to the general membership and that any documentation produced by the group should include the frame of reference and models discussed.

8. Financial Model
   TM reminded the meeting that the financial model for the running of the observatory had not been costed properly. The meeting agreed that this should be done and ST and PDS are tasked to complete this by the end of June 2015.

9. Next Meeting
   The next meeting will be on **Wednesday 15th July**.
   The meeting will:-
   - i) discuss the running costs of an upgraded observatory
   - ii) Present final submission for the different models
     Water and Sewage ST
     Minimum extension TM
     5m x 5m extension AB
   - iii) Decision on which model to present to the membership.

   Meeting closed at 21:45

Mexborough and Swinton Astronomical Society
Observatory Feasibility Group
Meeting #7.
Wednesday 15th July 2015
19:40
Present: ST, AKV, MS, AB, DF, JR, PDS, RW, LM, PM / TM
Apologies MW
Minutes from the previous meeting accepted

Discussion on the footfall at St Margret's Church compared to the observatory. The meeting decided that it was in the ratio 500:15000 per year.

1. Running Costs
   PDS reviewed the document distributed on the 30th June. The change in running costs was estimated to be an extra £400 per year. The meeting asked PDS to explore the individual changes between current and proposed costs as it was unclear how the current costs are broken down.

2. Final Presentations of Different Models

   Final presentations of the different models were made. The water and sewage presented separately as it is common to both models.

   i) Water and Sewage
   ST presented an overview of the situation with figures. The figures for installing a cesspool and water totalled to approximately £5000, not including labour, plant hire and legal costs.

   ii) Minimal Extension
   TM presented an overview of the minimal extension. TM stated the proposal would cost £1000 plus labour costs.

   iii) 5m x 5m Extension
   MS presented an overview of a 5m x 5m extension explaining why the society needed the work completing. MS stated that the cost of the extension would be £8000 plus labour costs.

3. LM presented alternative plans for a 5m x 5m extension. During this presentation PM displayed 3D models of all the models. The group decided that only one layout for a 5m x 5m extension should be presented and that should be the 3 room model.

4. The Decision
   PDS recommended that each model should be marked against the criteria set out in meeting #3 and the model with the most points be selected. This was agreed unanimously.
   The criteria are that every model should fulfil:-

   xi) Toilet – disabled enabled.
   xii) Small kitchen area –sink, kettle, microwave, hot and cold running water.
   xiii) Space for at least 6 members to use computers in comfort.
   xiv) Space for a large table to study star maps (up to A2).
   xv) Larger presentation space for 10 people and 2 presenters.

   Each criterion would be given a mark of 0, 1 or 2 depending on whether it did not meet the requirement, partially met the requirement or fully met the requirement respectively. The meeting came to agreement for each score and scores the models as follows:-

Model	i	ii	iii	iv	v	Total
No work	0	1	1	1	0	3
Minimal	2	2	1	1	0	6
5m x 5m	2	2	2	2	2	10

   The meeting agreed that the 5m x 5m extension was to be adopted as the desired model.

5. Final report
   PDS asked that all contributors to the group should send him all facts / figures pertaining to any discussions as soon as possible so that he can produce a first draft to the final report. The first draft should be out by the 2nd August.

6. Next meeting 19th August 2015
   Agenda
   1. Final Report

2. Ratify the question to be presented to the general membership.

Meeting closed at 10:07pm

Mexborough and Swinton Astronomical Society
Observatory Feasibility Group
Meeting #8.
Wednesday 19th August 2015
19:40
Present: MS, AB, JR, LM, PDS / TM
Apologies: RG, ST, PM
Minutes from the previous meeting accepted

1. Final Report.
   The group went through the final report and discussed changes. PDS presented a working copy of the presentation to be used at the SGM. The group made and suggested amendments.
2. The proposal for the meeting was discussed at length. There was a discussion regarding the need for a proposer and seconder. PDS will propose the motion and Mike Scollan will second it.
3. PDS stated that this should be the final meeting of the Feasibility Study Group and thanked all the members of the group for their attendance, enthusiasm and hard work over the past year and hopes that the whole society will move together as one.

Meeting closed at 20:40

Appendix II Minimal Work

- Laptop worktop & fittings £100 – £250 depending on the wall we choose to use
- 220v Sockets & trunking above new workbench £175
- Ethernet points on new trunking £50
- Wall rework after bench removed £ 100
- New seating £500
- New carpet for main room £100
- Ceiling mount for the projector £25.00 (Self build)
- Maybe look at lighting to remove ceiling clutter & save energy
    - Dimmable LED's £100 (including dimmer)

Total cost range – £1050 to £1200 depending on wall used for worktop
£1300 including new lighting

Appendix III 5m x 5m Extension

Until we have proper plans it is difficult to know what material is to be used in the build.This is our best Gu

Item	Size	Quantity	Unit price	Total (ex VA	VAT	Total (Inc VAT)
Roof						
Joists	47x225x5400	11	£18.85	£207.35	£41.47	£248.82
Ply-Sheet		10	£47.35	£947.00	£189.40	£486.30
GRP roofing kit		1	£352.21	£388.80	£97.40	£422.65
facia trim		5	£11.69	£58.45	£11.69	£70.14
corners		2	£9.25	£18.50	£3.70	£22.20
6x6mm hole wire mesh		1	£74.90	£74.90	£14.98	£89.88
dry lining	1220x900	10	£2.53	£25.30	£5.06	£30.36
insulation	6.5m covera	4	£16.66	£66.64	£13.33	£79.97
sundries						£100.00
Foundations & Building						
Joists	47x225x5400	11	£18.85	£207.35	£41.47	£248.82
Concrete footing 4.5 cubic meter @£111.00 per cubic meter5.0+5.0 +5.0 =15(0.5*0.6)=4.5 cubic m		4.5 Cu Mete	£111.00	£420.00	£80.00	£500.00
Air Bricks		10	£5.00	£45.00	£5.00	£50.00
Hire of excavator for one week				£380.00	£76.00	£456.00
Celcon/Thermalite 100mm 3.6 n Blocks 440 x 215 x 100 mm (10 blocks per meter) double skin		540	£1.21	£385.00	£142.14	£527.14
Stainless steel universal wall starters;		8	£6.10	£40.00	£8.00	£48.00
sand		3 tonne	£60	£144.00	£36.00	£180.00
cement 10 bag per ton 30 bags *£6/bag*		30 bags	£6	£144.00	£36.00	£180.00
Guttering,		3		£38.00	£12.00	£45.00
Fascia Brackets & Couplings 90 degree angles				£42.00	£8.00	£50.00
Down Pipe & Running Out let				£28.00	£8.00	£36.00
Moisture resistant caberdek chipboard 22 x 600 x 2400 Floor Covering 25 SqM		18	£7.50	£112.50	£22.50	£135.00
Electrical Led Light		20	£ 10.00	£200.00	£50.00	£250.00
Electrical Fittings cable				£160.00	£40.00	£200.00
Zedex Danp Proof Course 225mm wide		2	£15.00	£24.00	£6.00	£30.00
sundries						£200.00
carpet		25 sq M	5sqM			£125.00
Electic heat Dimplex 2000w PLX Panel Heater		1	£112.00			£112.00
Celotex 450 x 1200 x 40mm CW4040Z Cavity Insulation Sheets (previously CW3040Z)		48	£52.08			£2,500.00
Metal door & frame						£750
				£4,156.79	£948.14	**£8,173.28**

Appendix IV Disabled Toilet

The cost of providing a disabled toilet is common to two of the models and has been treated as a separate entity regardless of which model is used.

Disabled Toilet M Pack £ 613

Appendix V Cesspool

Connection Fee to Mains supply

Application for survey for connection		£145
Infrastructure charge of		£354
Actual connection cost which is determined after survey.		£500 (Approx)
Yorkshire Water Charges.	Total	£ 854 Approx.

Pipe to connect to mains water.

The cost of providing water is common to two of the models and has been treated as a separate entity regardless of which model is used.

32mm Alkathene = £119.76 incl vat per 100m 250m £ 299.40

Cost to lay pipe ? In the region of £0 to £28,000.

Installation of Cesspool (5000 litres)

The cost of providing sewage is common to two of the models and has been treated as a separate entity regardless of which model is used.

Conder Millenium Cesspool Granular backfill

Tank (inc vat) £ 1258.80

Cost of Granular fill = 20.75 m^3 (36 tonne)@ £21.80 per tonne + vat = £ 941.00

Total £ 2199.80

Installation of Cesspool (3000 litres)

Conder Millenium Cesspool Granular backfill

Tank (**Inc vat)** £ 958.80

Cost of Granular fill = 17.83 m3 @ per m^3 £ 810.00

Total £ 1768.80

Appendix VI Increase in Running Costs

1. Actual Obs Running Costs FY 14-15

Item				Total Cost Per @
Electricity				£ 315.00
Phone				£ 60.00
Insurance				£ 804.11
Yorkshire Water Rent				£ 90.00
RMBC Rates				£ 78.88
Misc Spend				£ -
				£ -
GRAND TOTAL				**£ 1,347.99**

2. Forecast Running Costs per @ based on FY14-15 actuals **5X extension**

Item			% Age Uplift	Total Cost Per @
Electricity			20%	£ 378.00
Phone			0%	£ 60.00
Insurance			10%	£ 884.52
Yorkshire Water Rent			0%	£ 90.00
RMBC Rates			100%	£ 157.76
Water				£ 50.00
Septic Tank Emptying				£ 126.40
New Cost Line 3				£ -
New Cost Line 4				£ -
Ad Hoc 1				
Grand Total				£ 1,746.68

This is for the 5m x 5x extension to explore the largest change.

The final table indicates a yearly surplus against current figures.

Subscriptions 14 -15	£	2,931.00
Club Room Running Exp 14-15	£	913.00
Observatory Running Exp 14-15	£	1,347.99
Surplus	£	670.01
Possible Amount to run Ob Per @	£	2,018.00
Shortfall against current £ available	£	271.32