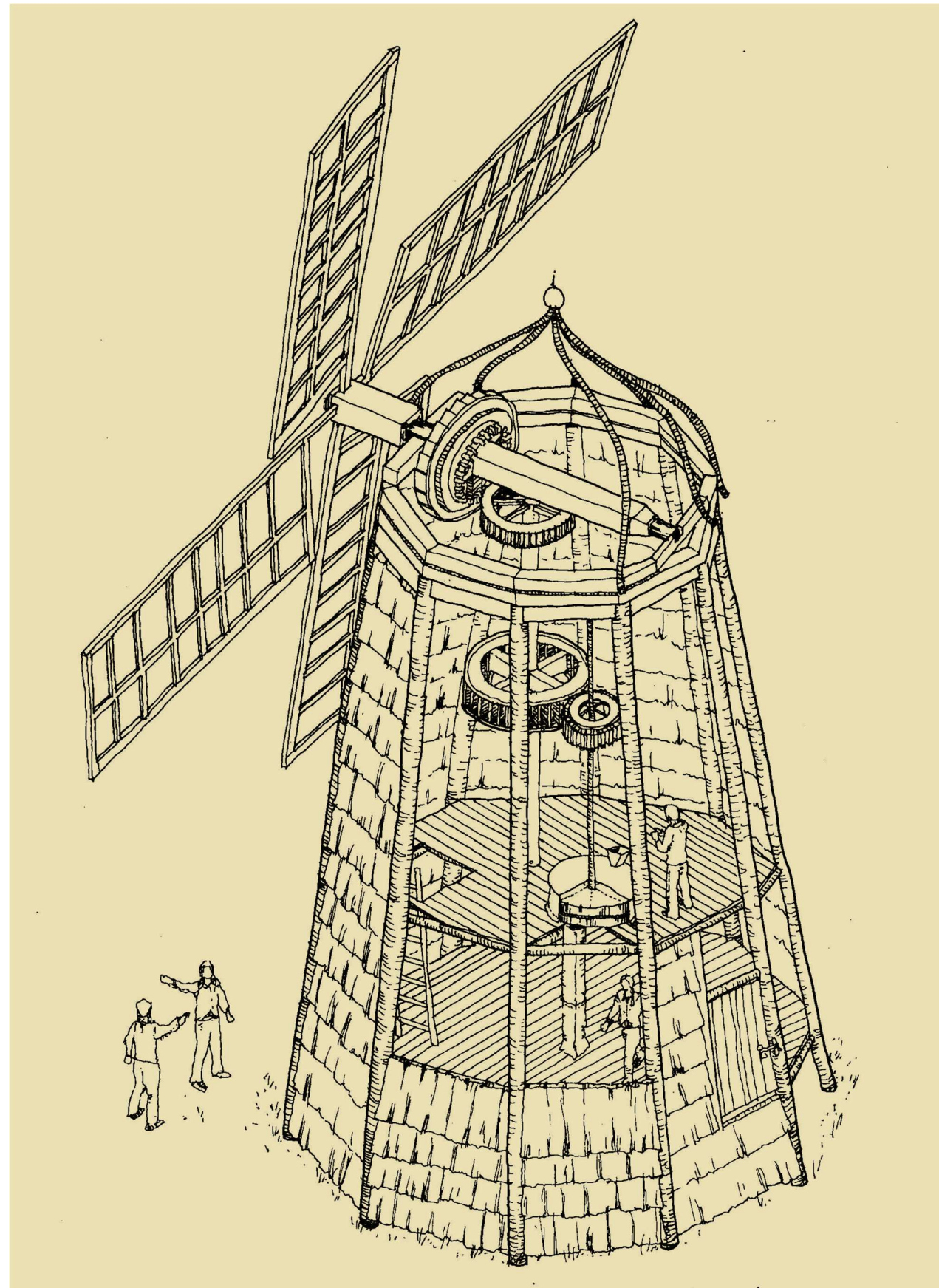


St. Peter's Indian Settlement Windmill, Transverse Section

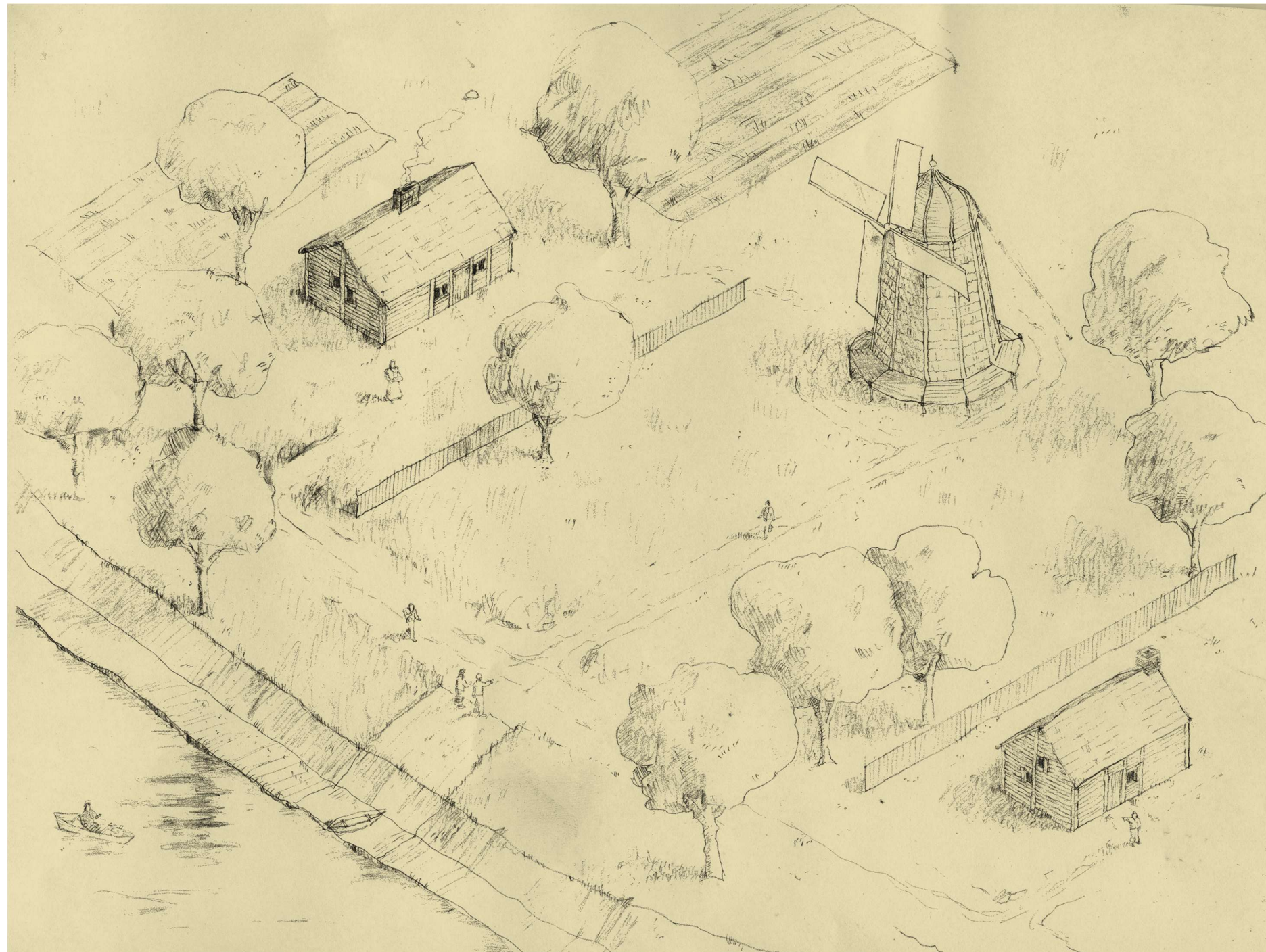
This vertical section, or cut, through the windmill from top to bottom, shows the interior arrangement of key pieces and their placement, as well as a sense of dimensions and scale suggested by the figures. We are essentially looking south, with the sails facing to the west/northwest (right on the drawing). Starting from the top of the drawing: we note a finial at the crest, decorative but with an important functional aspect – to bind in place the thin structural elements of the cap. We notice the opening at the west/front of the cap that allows the windshaft to enter the cap; note that the shaft is at a slight angle to a level position. The large wheel set on the windshaft transfers the power of the wind and sails to another gear feature in this upper level. There is not much headspace in this area – about five feet, but enough to manoeuvre to get at the shaft and wheel and other parts of the cap if they needed attention. The secondary gear, itself a wheel with slats, turns the thick shaft below it to which is attached another large gear wheel in the higher second floor of the windmill. This shaft in turn rotates the smaller gear box connected to the grinding stones, which are shown at the right (front) of the mill. Raw grain would be poured into an attached spout on the millstone housing and once ground (and manoeuvred to the edges by the design of the top stone's grooves) dropped down a chute to the main floor, where bags would be positioned to collect the resulting flour. Other features to note in this drawing: the stage around the lower floor that allowed easier access to the sails; the basic structural frame of long logs and thatch (with the thatch shown only on the far walls, given that the section cut is through the poles); the ladders that provided access to upper floors; a grain bag being hoisted on the left (east) side. It is also important to note that the drawing has been developed according to the basic dimensions provided in contemporary sources: 21.5 feet in diameter at its base, 37 feet high from ground to the top of the dome, mill stones that were 3.5 feet in diameter, and finally sails, each containing 76 yards of canvas, that were each 17.5 feet long and six feet wide. It is presumed that the long log structural posts were dug into the ground – to get past the frost line by about six feet, and thus about 40 feet long. There is of course no way of knowing the wood species used for various features, but the map of the immediate area included above identifies aspen (likely poplar), willows, elm, oak and maple as nearby tree species, and so there were considerable options for matching wood types to structural and operational requirements – thus perhaps oak for the windshaft, wheels and gears, elm for the main structural frame, maple for support features and sail lattice, and willow for the cap structure.



St. Peter's Indian Settlement Windmill, Building Isometric

This image presents a three-dimensional view of the building. Certain parts of the building have been cut away to better present interior features, arrangements and conditions. The main-floor platform encircling the tower, best seen on section drawing above, is not featured to ensure a better focus on the mill structure and interior. It should be noted that there would have been an opening in the second storey, likely in the section that also contained the door (but above it), which would have provided light into that area – it is also likely that stretched fish skins were used rather than glass, which was not readily available at this time. There is not much more to be said here about the building or its operations – the drawing is mainly to be explored and enjoyed. The image on the cover of this booklet offers another three-dimensional view of the structure, from a different viewpoint.

This view of the windmill can be enlivened through some imaginative thoughts. While this project has focused on the 1834/35 windmill (given that this mill is the only one with measurements of a Red River Settlement mill), we might also recall that it was repaired in 1845 and then joined by a new mill in 1846. And both appear to have been operating for several years, including in 1851 when there were 87 families, and nearly 500 people, industriously involved in farming and in grinding their grain at their two windmills. Imagining this mill at that time reminds us that by this time this was no rough pioneer situation – this was a small but busy and industrious community, and the windmills must have been a very visible symbol of their success.



St. Peter's Indian Settlement Windmill, Context Isometric

This final drawing shows our windmill in context, with the Red River at lower left and two adjacent farm properties, one likely for the miller. Two details are worth noting: the long pole at the back of the windmill, used to turn the cap into the wind (not shown on earlier drawings); and the presence of fences that divide farmsites, as noted in Reverend Cockran's descriptions of the settlement.

This view, looking to the northeast, shows just a section of the Indian Settlement, focused on the immediate vicinity of the windmill. We can imagine it's the summer of 1837, when the mill had been in operation for a few years. A skiff has beached on the river bank and two men make their way up the bank, heading to the mill; a man in another small boat, with a sack of grain in the bow, manoeuvres his way to the same spot. Other figures go about their business – a man on the main road along the river's edge is carrying his own sack of grain, presumably heading to the mill. The scene is bucolic and inviting – and why not: a "pretty day" as they used to say at the time.

But we should recall that this is the scene of profound pioneer experience. These people, and many others at the Red River Settlement, were struggling to wrest a living from a completely new environment. And in their buildings we can see real evidence of that struggle – of small log buildings with tiny windows and rudimentary construction of logs and grasses.

And we can see those qualities in the windmill, with its body covered with thatch and the long log poles that define its framework, suggestive of the nearly medieval construction practices required when building only with materials at hand. But we can also see in the windmill the deep reservoirs of technical and architectural sophistication that were beginning to define the whole of the Red River Settlement, with fine churches, stone forts and scores of busy little farms.

The first windmill at St. Peter's Indian Settlement was a grand achievement for all involved – Reverend Cockran, Chief Peguis, the mill builders, the local people. And while every vestige of its existence is long gone, it is hoped that this project has stirred some wonder at its mere existence, as well as a humble recognition of the determination and hard work that must have gone into its creation and operation.