

2004.057.0036

REPORT

OF THE

WATERING COMMITTEE

OF THE

SELECT AND COMMON COUNCILS OF PHILADELPHIA,

RELATIVE TO

THE TERMINATION

OF THE

**COLUMBIA AND PHILADELPHIA
RAIL ROAD.**

PHILADELPHIA:

PRINTED BY LYDIA R. BAILEY, No. 10 NORTH ALLEY.

1830.

In Select Council, Dec'r. 24, 1829.

Whereas the Councils of the City, during the last Session of the General Assembly, on two several occasions expressed their decided approbation of the termination of the Columbia and Philadelphia Rail Road at the corner of Broad and Vine streets, and communicated the same to the Representatives of the City in the Senate and House of Representatives :—And whereas it appears that the Board of Canal Commissioners has recommended to the Legislature another route, on the western side of the Schuylkill, and intended to cross at or near our important works at Fair Mount, contrary to the opinions of four of the most distinguished engineers of the State, who have uniformly recommended the route and termination approved by the constituted authorities of the City. And, whereas it appears that the location so recommended by the Board of Canal Commissioners will be highly detrimental to the interests of the City at large, and may prove greatly injurious, if not destructive, to our Dam and works at Fair Mount, and it is right and proper that so important a subject should be duly weighed and considered, and the opinion of Councils deliberately expressed, after full information, therefore,

Be it resolved, by the Select and Common Councils, that the Watering Committee be, and they are hereby directed, to make a full inquiry into the probable effects of the route for the Philadelphia and Columbia Rail Road proposed by the Canal Commissioners, on the general interests of the City, and particularly on our establishment at Fair Mount, and to report the result thereof, with such measures as they may deem expedient to be adopted, at the next meeting of Councils.

Common Council concurred.

Extract from the Minutes.

THOMAS BRADFORD, JUNR.

Clerk of Select Council.

The first of these is the fact that the present
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BEFORE &c.

REPORT, &c.

The Watering Committee, who were directed by a resolution of the Select and Common Councils, of the 24th instant, "to make a full inquiry into the probable effects of the route for the Philadelphia and Columbia Rail Road proposed by the Canal Commissioners, on the general interests of the city, and particularly on our establishment at Fair Mount, and to report the result thereof, with such measures as they may deem expedient to be adopted, at the next meeting of Councils,"

REPORT,

That they have made as full an inquiry into the subject referred to their consideration, as the short time allowed them would permit, and the result of it they will briefly lay before Councils.

The first object proposed by the resolution, was the probable effect of the route proposed by the present Board of Canal Commissioners, on the general interests of the city. The route recommended by the Canal Commissioners for the termination of the Rail-way, is one surveyed by Major Douglass, under the orders of the Board of the 11th and 21st August last, and commences "from the inclined plane near the farm of the late Judge Peters," and extends "*down the western side of the river Schuylkill to a point near Fair Mount, thence across the said river and down its eastern side to sloop navigation between Market and Chesnut streets.*" Upon examining the report of Major Douglass, and the map accompanying this report,

your Committee find that the line continues on the western bank of the river until a short distance above the Upper Ferry Bridge, from whence it crosses the river obliquely by a bridge of six spans, two of 90 feet, and four of 103 feet, with five piers set in the thread of the stream; and it is then carried through the bridge property, and at the distance of 26 chains it turns and continues on the eastern front of the Schuylkill, and passing through the eastern abutment of the Permanent Bridge, terminates one chain south of it. It would therefore appear not to be the intention of the Canal Commissioners, to extend the benefits of the Rail Road to the centre of the city and the Delaware front, nor to the adjoining districts, but to confine them exclusively to a small portion of the water front of the Schuylkill. *This route has never received the approbation of any engineer in the service of the state.*

The route originally located by Major Wilson, and subsequently reviewed and approved by Messrs. Robinson, Hopkins and Douglass, crosses at Peters' Island, by a bridge of seven spans, and 824 feet between the abutments, and passes into the bed of the Union Canal.—The main line is continued to the intersection of Vine and Broad streets, and a branch line, diverging at the Four Nations' Hotel, turns into the direction of Fair Mount street, and passes along the western front of the City, and through the eastern abutment of the Permanent Bridge, and terminates also to the southward of it. The Watering Committee think that the comparative merits of these two routes cannot be better expressed than in the language of the Engineers of the state. Major Douglass says, “comparing these two lines with regard to the *expense*, we find, from the estimates given, a balance of \$33,018.30 in favour of that which crosses at Peters' Island. With regard to *distance*, the same line has the advantage of 14.40 chains, in

reaching Broad street, and of 20.40 in reaching the Permanent Bridge. In point of *rise and fall*, it has also the advantage by 34 feet on the line to Broad street. Lastly, in point of *convenience*, for connexion with the various localities of the City, it is thought also to have the advantage, as conforming more nearly with the views already suggested on this point, and particularly being more apart from the ordinary travel of the streets."

Messrs. Robinson, Hopkins and Wilson say, "we conclude by stating what we presume has been already inferred, that the line adopted by the Board of Canal Commissioners (*the former Board,*) crossing opposite Judge Peters', and following the bed of the old Union Canal, with the change in its graduation proposed, presents, in our opinion, the most eligible and least expensive route to the City, and at and near its point of termination, offers as many facilities for an extensive distribution of, and consequently a full and free competition for the trade of the Columbia Rail Road by branch Rail Roads, as any one locality can combine."

A more decided expression of opinion could not have been given by these distinguished engineers.

The Watering Committee think it however their duty, to present their views of the effect of the two routes on the general interests of the City. The route by the western side, it appears by the report of Major Douglass, must cross at *Fair Mount, or not at all*, as his decided disapprobation of the erection of a bridge between the Upper Ferry and Permanent Bridges, leaves this as the dernier resort of the advocates of the western side of the Schuylkill. If, as we shall see hereafter, this plan of a bridge at Fair Mount is not feasible without a vast destruction of public and private interest, then the railway on the western bank of the river must be exclusively confined to that

side, and must terminate on a comparatively uninhabited and unimproved shore, instead of in the heart of a populous district of nearly 200,000 inhabitants. Such a location might suit *the interests of a few individuals, owners of property on the western bank*, but would injure vitally the interests of the City and Districts, and jeopardise the great advantages expected by our fellow-citizens in the interior, from a successful completion of this great state work; the object of which is to introduce, by the best and cheapest means, to the best and most profitable market, the various productions of their soil and industry. Supposing it to pass at Fair Mount, the line now recommended by the board terminates nearly two miles from the Delaware front, and confines the whole trade that may cross, to the sparsely settled front of the Schuylkill. The location on the western bank is in fact a *private*, not a *public* concern; and if it is needed, private capital, assuming the shape of an incorporated company, can easily be found to complete it.

The route on the eastern side passes along a levelled track, through the heart of Penn Township, strikes into Spring Garden, and terminates at the intersection of Vine and Broad streets. From different parts of this route, branch railways can be readily taken to accommodate the flourishing districts of Spring Garden, the Northern Liberties, and Kensington—it can also be taken to any part of our city plat, and by conducting a line through the centre of Broad street, it will also suit our fellow-citizens in Moyamensing and Southwark, who will have their share of the trade of the interior by this noble improvement. Our western front will also be supplied by their branch as before described. The Watering Committee are therefore decidedly of opinion, that the route proposed by the present Board of Canal Commissioners, by the way of Fair Mount, would be highly injurious to the interests of the

City and the State, and that the route by Peters' Island is the only proper mode of terminating the Columbia and Philadelphia Rail Road.

Your committee will next proceed to consider its effects on our establishment at Fair Mount. A short description of these works and their cost, will better enable Councils to judge of its operation on them.

"In the year 1799, Councils, sensible of the importance of a supply of water to the City, appointed a Committee to ascertain whether it could be introduced by means of water power, and whether such power was to be found within a reasonable distance of the city, and to report on the subject.

"Mr. Latrobe was employed by the Committee, and after considerable pains it was believed that no water power could be had adequate to the purpose, and Councils finally decided upon constructing two steam-engines, the one on Chesnut street (Schuylkill), and the other in the Centre Square, and by these means to supply the City with water from the Schuylkill."

These works cost, - - - - - \$ 275,861 10

"In the course of a few years, these works were found insufficient, and very expensive, which induced Councils once more to look for a more frugal means of supply." The consequence was the erection of two steam-engines and works at Fair Mount, and the raising of the water at that spot.

These engines and works cost, - - - - - 200,700 32

"The constant and great expense attending steam-engines, and the vexation occasioned by repeated accidents," induced the Watering Committee to pro-

pose the present method of raising the water by water power, which was adopted, and the present works were accordingly erected.

These works consist of a Dam across the Schuylkill, of which the height of fall at high water is six feet six inches. The overfall part of the Dam is 1204 feet long, and the mound Dam 212 feet, making together 1416 feet from shore to shore.

The mill buildings, containing the wheels and pumps, are 238 feet front, by 56 feet deep, and contain apertures for eight wheels, and pumps opening into the forebay between the mill buildings and the hill.

There are now four wheels and pumps put up and in use, and of course room for four more.

Each pump raises in twenty-four hours about 1,200,000 gallons of water. The grounds owned by the City at Fair Mount contain about thirty acres.

There are now three finished Reservoirs on the hill, which is ninety-eight feet above high water mark, which occupy about six acres.

	Gallons.
No. 1, contains, - -	3,917,659
No. 2, do. - -	3,298,434
No. 3, do. - -	2,707,275
	<hr/>
Gallons,	9,923,368

Reservoir No. 4, which is now erecting, will contain about, - - - 10,000,000 and occupy also about six acres of ground; and the estimated cost of it is \$ 50,000.

	Total contents, 19,923,368
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The iron mains and pipes which distribute the water from the Reservoirs laid in the City to December 31, 1829, amount to 36 miles.*

The whole cost of the last Water Works, including laying pipes and mains, with the expenses of the former works, and these works from August 1812, to December 31st, 1829, is,	\$ 1,307,081 32
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Making the total cost of all the works,	\$ 1,783,642 74
From which deduct estimated loss by works abandoned, - - - -	500,000 00

And it leaves, - - - -	\$ 1,283,642 74
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the cost of the works now in use, with Iron Pipes, Reservoirs, &c., included.

What will be the effect of the contemplated bridge and rail road at Fair Mount, on this valuable property?

The river at the Upper Ferry Bridge is contracted to 340 feet between the abutments. The contemplated bridge

* The iron pipes laid in the Districts to December 31st, 1829, amount to nineteen miles, which, with thirty-six miles in the City, make fifty-five miles of iron mains and pipes supplied from the Reservoirs at Fair Mount.

begins a short distance above, on the western bank, crosses the marsh below it, and terminates on the bridge property at Fair Mount, on the eastern side. There are to be six spans, and five piers, and two abutments. The piers cannot be safely less than twenty-eight feet wide at the base, as they will be sunk in the water twenty-three feet deep, and they are to be carried twenty-two feet above the water line, making forty-five feet in height. This will of course narrow the river at this point from *eighty to one hundred feet, but a short distance below our works*, and where the river is but 400 feet wide. Past experience supplies us with ample materials to foretell the inevitable and fatal consequences of such an obstruction. In February, 1822, the water rose nineteen feet five inches at the Falls of Schuylkill, and was eight feet eleven inches perpendicular on the Dam at Fair Mount, and the water below the Dam was on a level with it. What would have been the effect of a rail way bridge at that time, cutting off a fifth of the natural channel of the river below the Dam?

This freshet, if the works had been in operation, would have rendered them entirely useless for twenty-four hours, without such an impediment. A common ice freshet in February, 1829, of five feet, stopped the water wheels for eighteen hours, and the ordinary full moon tides stop them six hours in the twenty-four.

A rail way bridge must greatly increase this evil, and, in the opinion of our scientific superintendent, Mr. Frederick Graff, "will, in part, if not effectually, destroy a public work, which has cost the City upwards of a million of dollars."

The Watering Committee think it unnecessary to state more fully the reasons upon which this opinion is founded, as they are detailed at length by Mr. Graff in a letter attached to this report. Even a temporary stoppage of the

water would expose us to all the horrors of conflagration, without the means of relief, and deprive us of a most necessary element, upon which all classes of citizens depend for the ordinary purposes of life. The works are superior to any similar ones in the civilized world, and do honour to the enterprise of Philadelphia; and your Committee cannot for a moment suppose the legislature of the state will place them at the mercy of a rash experiment, which may, nay, *will*, destroy the comforts of 200,000 people.

The Watering Committee are conscious, that after the liberal protection extended to these works by the legislature in 1829, that it will not be permitted, in 1830, to erect a bridge at this spot, which will do such vast injury to the community.

Your Committee have with some surprise observed that there is no estimate of the damages to be sustained by the City by this location of the bridge and road. The almost incalculable injury to the works which will be sustained, together with the damages the Schuylkill Canal and works may sustain, and which the City by contract is bound to pay, your Committee have thought should fairly enter into the calculation of the cost of this route.

In conclusion, the Watering Committee trust and believe that the same liberal spirit which was manifested in the location of the western canal, so as to suit the convenience of our western sister Pittsburgh, will be displayed towards her eastern sister Philadelphia, in the termination and location of this rail way.

They offer for consideration the following Resolutions:—

Resolved, by the Select and Common Councils, That in their opinion the location of the Philadelphia and Columbia rail road, recommended by the present Board of Canal Commissioners, would be greatly injurious to the in-

terests of the City and the State, and destructive to the valuable property owned by the City at Fair Mount, and the Water Works thereon erected.

Resolved, by the authority aforesaid, That Councils do most cordially approve of the proposed route for the rail way crossing at Peters's Island, and terminating at the intersection of Vine and Broad streets, with a branch rail way to accommodate the eastern front of the Schuylkill, as best calculated to promote the interests of the City and adjoining districts, and of the commonwealth.

Resolved, by the authority aforesaid, That the Presidents of Councils be, and they are hereby requested, to cause to be prepared memorials to the Senate and House of Representatives, expressive of the sentiments of Councils on this important subject.

Resolved, by the authority aforesaid, That the Watering Committee be, and they are hereby authorized, to take such measures as they may deem expedient to carry into effect the views of Councils.

THOMAS HALE, *Chairman.*

The Resolutions were *unanimously* adopted, by both the Select and the Common Council.

THOMAS HALE ESQ.

Chairman of the Watering Committee.

SIR,

I have received a letter from Harrisburgh, informing me that the Canal Commissioners have adopted the route for the state rail road, along the western side of the river Schuylkill, terminating opposite Fair Mount; at which place it is contemplated to cross the river by a rail way bridge, to be constructed with five piers; which, in addition to the contraction already existing in the river, by the abutments of the Upper Ferry Bridge, will, in my opinion, form such an obstruction to the passage of the ice and water in times of freshets, as will completely inundate the canal and mill buildings at the Fair Mount water works, in such manner as to prevent the regular supply of water to the City and districts.

From the experience I have had since the erection of these works, I can readily conceive what will be the result, if any further impediments should be thrown into this river, already too much contracted.

During the freshet of February 1822, the water and ice rose eight feet eleven inches perpendicular on the dam at Fair Mount, completely inundating the canal locks and guard pier on the west side of Schuylkill, and at the same time swelled the water below the dam to the height of five feet above the pumps in the mill house of the water works, which, had they been ready for operation, would have been rendered useless for upwards of 24 hours.

In February 1829, a common ice freshet, of five feet, occasioned so much swell in the river as to stop the water wheels for 18 hours, and as it cannot be calculated at what time the ice in the dam may break up, it is impossible to guard the water works at all times, in such manner as to have the reservoirs full; for at periods when the water is turbid in the river, the pumping is suspended, and the pure water in the reservoirs is permitted to flow to the City until they are nearly empty. At such time, should an ice freshet take place and the works be inundated thereby, great part of the City and Districts might be destroyed by fire, without the aid of water from the works; as was the case lately at Cincinnati, merely from the circumstance of one of the valves of the pump being out of order, and which could not be got at during a freshet in the river. If such destruction has taken place from such a cause, should not the citizens of Philadelphia be alive to prevent a similar accident happening to their works?

Independent of the contemplated piers of the rail road bridge, it behooves the citizens of Philadelphia to guard the Fair Mount works from innovations of every description. As from late surveys of the Schuylkill, made for the purpose of building a bridge across the river at Race street, it has been found that the bottom is rock; consequently, when improvements by wharfing shall be extended, the river will naturally become contracted in width; and as it cannot deepen in the ratio as it is narrowed, on account of the rock bottom, an increased swell of water must be expected, and which will of course have a tendency to check the operations of the water wheels at Fair Mount, which, at the present day, are frequently stopped eight hours out of twenty-four, on account of high waters.

Although the bridge at the Falls of Schuylkill was 20 feet above the common water line of the river, the ice freshet

of 1822 raised it from its bed, and swept it down the current. That bridge had but *two* piers:—the one intended for the Rail Road at Fair Mount is to have *five*; the space below the Falls bridge widened for the spread of the water, whilst the space below the contemplated bridge at Fair Mount contracts to 340 feet.

From these circumstances the consequences may be conjectured, should the rail way bridge be built. As the ice and water could not find vent between the abutments of the Upper Ferry Bridge, it will react with double force, and pass up the western shore of the river, and occasion destruction to the canal, the water works, and in all probability to the rail road bridge itself.

The freshet of 1822 rose to within about one foot of the springing line of the arch of the Upper Ferry Bridge, and although the water got vent by the increased width of the river below the bridge, still it swelled to such a degree, between the upper and middle ferries, as to inundate all the wharves and store houses; and had it not been for the low lands on the west side of the Schuylkill, at High street, giving vent to the ice and water, the damage above would have been immense. As it was, the store houses and buildings south of High street bridge were inundated and materially injured.

Under every circumstance, either as regards convenience or economy; it is my opinion that the location of the rail way, so as to cross Schuylkill near Fair Mount, is a bad one.

1. The distance is greater than Major Douglass' route by the Union Canal.
2. The grade of levels is thirty-four feet higher.
3. It will cost 33,000 dollars more.
4. It is located contrary to the opinions and judgment of many of our most scientific engineers.

5. And it will in part, if not effectually, destroy a public work, which has cost the City of Philadelphia upwards of one million of dollars.

With great respect,
Your humble Servant,
FREDERICK GRAFF.

Dec'r. 26th, 1829.

N. B. Since writing the above, I have received information, from good authority, that Major Douglass has surveyed the route marked on the plan herewith annexed, locating the rail way bridge immediately adjoining the north side of the Upper Ferry Bridge, so as to cross the ferry road at the toll house, and from thence ranging along the south line of the ferry road, through the ground of Messrs. Nixon, Williams, Ridgway, and others. The level plane of the bridge, by this route, is only twenty-two feet above the tide; and owing to its being located at a very narrowed space of the river, will increase the danger of the Fair Mount Works in a twofold degree.

FREDERICK GRAFF.