

# The Bureau of Engineering

OF

THE PUBLIC SERVICE COMMISSION

OF THE

COMMONWEALTH OF PENNSYLVANIA

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FIRST ANNUAL REPORT

For the Year Ending June 30th, 1914.

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in a connection with the Pennsylvania and the Lehigh tracks. The only way that the cars of the D. & H. and Pennsylvania Lines can pass northerly to the other tracks of the D. & H. in Wilkes-Barre, or vice versa, is by use of the tracks of the Lehigh Valley Railroad (or the Central) traversing the narrow zone in the centre of the City. It is stated that this transference amounts to many train movements each 24 hours and that the annual charges amount to a sum sufficient to warrant the cost of the building of the proposed connecting line around the city between the tracks of the Pennsylvania and the D. & H. on the south and the main line of the D. & H. to the north of the City in Plains Township. Furthermore, the avoidance of great delay in train movements through the City, due to switching and hold-ups at grade crossings has been an important consideration. By means of the new connecting line around the City instead of train movements comprising a few cars per movement, the traffic will be composed of heavy slow moving trains of many cars, thus shortening the time of transit and reducing the cost of operation.

It will be possible in the future to send through Lehigh freight trains around the city over the proposed connecting line if this were found to be desirable.

It is not contemplated by the railroads to give up any of their holdings in the city, or to abandon the use of their lines and track facilities to industrial plants; but the improvement will relieve the congestion of traffic due to the haulage of freight through the City, and to this extent, materially reduce the existing delay to the street traffic, at the highway crossings hereinbefore mentioned.

### Proposed Wilkes-Barre Connecting Railroad.

This road is to be 7 miles long. It is to begin at a point of connection with the Northern Coal and Iron Company's railroad (understood to be a subsidiary of the D. & H.) at or near Hudson Station on the D. & H. Railroad in Plains Township, thence westerly through Plains Township, Miners Mills Borough, and in said township, passing by and near Parsons Borough and the City of Wilkes-Barre to the Susquehanna River, near the mouth of Mill Creek; thence across the said river and southerly along the flats through the Boroughs of Dorranceton and Edwardsville to the Susquehanna River; and thence across said river and through a new developed section of Wilkes-Barre, commonly termed South Wilkes-Barre, to Hanover Township; and thence continuing southerly in said township to a connection with the Sunbury Division of the Pennsylvania at Buttonwood in said township.

The said connecting railroad is planned to pass over 16 highways, over 4 steam railroads, over 1 express electric railway, over 2 farm lands. It is also planned to cross at grade 4 highways and 1 steam railroad, and by the plan, 1 street grade crossing will be abolished, making a total of 5 grade crossings proposed and 23 overhead crossings.

At Hudson the facilities of the Northern Coal and Iron Company yards will be utilized for storage purposes.

Over the Susquehanna River at the south of Mill Creek the existing bridge and tracks, for some distance on either side, of the Wilkes-Barre and Eastern Railroad Company will be utilized, enlarged and improved. The said Wilkes-Barre and Eastern Railroad was constructed many years ago. A passenger station was built on the flats at Market Street in Dorranceton, opposite the City and on the west bank of the river. From this point the road was built on an embankment northerly to the river and thence over the river and through Plains Township easterly for a number of miles. For a number of years past, that portion of the road from Plains village back of Miners Mills Borough easterly has been the only part of

the railroad that has been operated. The Wilkes-Barre Connecting Railroad Company has secured certain rights and will double track the bridge over the river for its own purposes and the use of the said Wilkes-Barre and Eastern Company; and will also provide an additional track for the Delaware, Leckawanna and Western Railroad Company that has a prior right and is constructing a narrow gauge mine track extending from the "Peach Orchard" Colliery near Parsons to the Pettibone Beraker in Dorranceton Borough to the north.

The Wilkes-Barre Connecting Railroad Company will also widen the existing bridge of the Wilkes-Barre and Eastern Railroad over the tracks of the Lackawanna and Wyoming Valley Railroad (Laurel Line) and the Harveys Lake Branch of the Lehigh Valley Railroad, and the existing bridge of the said Wilkes-Barre and Eastern Railroad over North River Street, and the existing bridge under said Wilkes-Barre and Eastern Railroad over the tracks of the Lehigh Valley Railroad and the Central Railroad of New Jersey so as to carry two standard gage tracks and one narrow gauge track, all as agreed upon by the parties mentioned. It is represented that the Wilkes-Barre Connecting Railroad Company will maintain the bridges and facilities provided by it and used by the said Wilkes-Barre and Eastern and the said D. L. & W. Railroad Companies.

In Hanover Township and South Wilkes-Barre, the existing track and bridges and facilities of the Northern Coal and Iron Company will be utilized. Said Northern Coal and Iron Company (hereinafter referred to as the Plymouth Branch of the D. & H.) operates a coal railroad from Plymouth Borough or Larksville Borough west of South Wilkes-Barre on the opposite bank of the Susquehanna River, southerly over the river and across certain highways in Wilkes-Barre to a connection with the Lehigh Valley Railroad. About 8 years ago, what is known as the Buttonwood Branch of the said Northern Coal and Iron Company (hereinafter referred to as the Buttonwood Branch of the Delaware and Hudson Railroad) was constructed from a point of connection with the Sunbury Division of the Pennsylvania Railroad at Buttonwood in Hanover Township, northerly for a distance of over a mile in said township, crossing at grade the Plymouth Ferry Road and being carried over Carey Avenue and also a farm lane in said township, to the City of Wilkes-Barre line; thence it continued northerly in said City a distance of three-fifths of a mile to and connected with the Plymouth Branch of the D. & H., being carried over the following streets by through plate girder bridges built for double track. The overhead bridge at Carey Avenue is also double tracked.

### Tabular Statement as to Existing Street Crossings.

Street crossing.	Vert. clearance bet. St. surface & bottom of bridge above.	Street span.	Proposed Alterations.
Old Ferry Road, .....	At Grade	.....	.....
Carey Avenue, .....	14.5 ft.	Bridge column in street centre, .....	None.
Simpson St., .....	13.0 ft.	Columns in street gutter, .....	None.
Willow St., .....	12.0 ft.	Clear span, .....	None.
Oak Street, .....	12.0 ft.	Clear span, .....	None.
Lawrence St., .....	13.0 ft.	Clear span, .....	None.
Horton St., .....	16.0 ft.	Clear span, .....	Bridge to be raised 2.5 ft.
Dagabert St., .....	16.0 ft.	Clear span, .....	Bridge to be raised 5 ft.

Between Dagabert Street and the said Plymouth Branch there now exists what is called an overflow bridge. It is a steel deck girder structure wide enough for two tracks and being supported on masonry piers, four in number, between the abutments. The land is low here and during flood times a very considerable body of water passes over the surface of the ground southwesterly towards the river from a point further up the valley. If the openings were not provided, the flood waters would pond up and do more damage than now. This structure is to be widened and raised from 5 to 10 feet in height and will be carried over the Catlin Farm lane, that is to say, the tracks extending beyond this overflow bridge will be carried over the lane and be connected to the proposed new construction to be built by the Wilkes-Barre Connecting Railroad.

These facilities of the Buttonwood Branch of the D. & H. Railroad have been acquired and will form a part of the Wilkes-Barre Connecting Railroad. This was done prior to the creation of the Public Service Commission, so it is represented.

The new construction work proposed by the Wilkes-Barre Connecting Railroad Company is to comprise the double tracking of the existing Buttonwood Branch and the elevation of the grades thereof approaching the tracks of the said Plymouth Branch in order that the said connecting railroad shall pass over the existing tracks of the said Plymouth Branch at the point where these two lines intersect at right angles. The clearance here is to be 18 feet only in height. The horizontal clearance between abutments is to be 57 feet, which provides for the three existing parallel tracks of the Plymouth Branch and one additional track. The plan filed by the petitioner shows the vertical distance between the top of the rail and the bottom of the main girder above of 17 feet 11 inches. The petitioner's written statement is as follows

"The said Northern Coal and Iron Company has consented that the crossing may be made as proposed and is satisfied with the plans as submitted."

It is good practice to have a vertical head room of 22 feet. There are quite a number of 18 foot clearances in existence. As the Plymouth Branch is not much more than a switch to the coal breakers across the river, and as the expense involved of increasing the proposed clearance would be very considerable, it is believed by both railroads concerned that the proposed plans are absolutely the most practicable, so it is presented by the petitioner. The railroad crossed has not objected but there is no copy of the agreement between the two companies on file in the Commission's office.

Bearing in mind that coal cars are not as high as box cars that are used on general traffic lines, it would appear that the contention of the petitioner relative to the head room at this particular crossing be reasonably sustained, and more especially since this point of crossing is the summit of the grades in either direction of the proposed connecting railroad.

The height of the proposed bridge over the Susquehanna River and its design has been determined by consideration of a waterway beneath and clearance over the highways on the flats in Dorranceton. This bridge is to be located where the main stream formerly consisted of two channels, separated by Fish Island. The North Channel is completely filled with culm and silt and at its upstream end was at one time blocked off with jetty, erected by the U. S. Government to maintain navigation. The bridge is to have 7 spans, the north abutment and 3 spans being over a portion of Fish Island, which is to be excavated. The channel north of the island will be crossed by fill. At present this channel only carries water at normal flood. There are to be 7 through truss spans, each 173 feet in length to support the tracks over the road along the bank of the river, which road is known as the Riverside Boulevard.

The tops of the piers are to be elevation 539 and the under clearance line of the steel work at elevation 542. The maximum flood elevation at this point is 538. The normal surface of the water is elevation 505 and the bed of the river at the deepest section is approximately 497. So it may be noted that the tops of the piers are located one foot above maximum flood height, and the under clearance of the bridge is four feet above this height and 37 feet above normal water elevation and 45 feet above the bed of the stream.

The normal width of the south channel of the river here is 750 feet and the entire length of the proposed grade from the north abutment to the south river bank is 1211 feet, so that approximately 460 feet of Fish Island are to be spanned by the bridge. As before stated, it is proposed to excavate the island from the river edge on the north bank to the north abutment, the material amounting to about one million cubic yards of culm, gravel, sand and clay to be used in making the embankment to support the railroad across the flats and north of the north abutment of the bridge. This excavating of the island will increase the width of the river at this point to an average of 1,200 feet.

The State Water Supply Commission has approved this structure with the stipulation:

1. That the material excavated from abutment and pier foundations be deposited at points to be approved by the Commission.
2. That in case navigation is improved on this river by State or Federal authorities, the applicants agree to install a draw span in this bridge at their own expense, if required.
3. That all false work piling, used in the construction of the superstructure or piers or abutments, be removed from the river when the work is completed.

In South Wilkes-Barre, between the railroad bridge and the crossing over the Plymouth Branch of the D. & H., the proposed connecting line will cross by overhead bridges the following streets. Marlborough, Amherst, Maffet and Miner. Also Riverside Boulevard, hereinbefore referred to. The crossing of Academy and Birch Streets will be avoided by extending Pickering Street parallel to the railroad to intersect the two.

With respect to the streets and matters of drainage flood protection, etc., the City of Wilkes-Barre, the land owners and the railroad company are now conferring, and it is probable that one or all of these 4 proposed crossings may be entirely abandoned by substituting a fill over them and the construction of a flood dyke along the south bank of the river. To this end an agreement in writing is now being considered and if signed, a copy will be presented to the Commission, and the petitioners will ask for a modification of the plan to conform to the provisions of the agreement.

The railroad embankment through the flats in Edwardsville and Dorranceton is being surface lined to above the flood level with concrete slabs. At Northampton and Pierce Streets clear span bridges are provided with head rooms of 17 and 20 feet respectively. At Market Street the vertical clearance is 14 feet 10 inches only, between the under side of the plate girder and the street car rails, all local parties in interest having agreed to this height.

Relative to the Wilkes-Barre and Eastern Railroad bridge over the river at the mouth of Mill Creek, which is to be improved and used as a part of the proposed connecting line, this bridge at present consists of six spans over the river proper and a crossing over the Lehigh Valley Branch Line standard gauge and a mine

track narrow gauge and over the two tracks of the Laurel Electric Railway. The latter are located on an embankment along the east bank of the river; vertical head room 16 feet plus. The said Lehigh tracks are parallel to the Laurel Line but located in a depression with a vertical clearance of 32 feet. The span across the Laurel Line is 35 feet and across the Lehigh tracks 65 feet with an intervening connecting span of 17.5 feet. The rails will be raised 1.31 feet above the present level and new plate girders will be placed on the existing piers and abutments, this being made necessary on account of the heavier trains and traffic proposed for the said connecting railroad.

The clearance line of the bridge over the river on the Wilkes-Barre side is elevation 352, or 11.2 feet above high watermark. The grade descends so that at the west abutment on the other side of the river the clearance elevation is 549 or 8.2 feet above maximum flood.

In utilizing this structure, the applicant proposed adding 5 short deck girded spans, 3 of which were to be 60 feet centre to centre of piers, and the other two 75 feet each; these additional spans to be on the Dorranceton flats beyond the west end of the present bridge, they being provided to afford a passage way for flood waters. The plan provided that the approach to this bridge with the additional spans should be on fill 45 feet high with side slopes 1.5 to 1, the fill being on a 4° curve. The additional spans proposed would have afforded an increased waterway area of 2,210 square feet below the maximum flood line, making a total of 30,271 square feet under the bridge as proposed to be altered. The following information was furnished by the applicant:

**Comparative Statement of Flood Areas of Susquehanna River  
Bridges, Overflow Bridges, Etc., in the Vicinity of Wilkes-Barre,  
Pa., Below High Water, 1902 Flood.**

Going Down Stream in Regular Order.	Degree of skew.	River bridge.	Clear Opening.		Total.
			Overflow Br. No. 1.	Overflow Br. No. 2.	
L. V. R. R. bridge, Port Bowkley, .....	70	30,000	.....	.....	30,800
W. B. & E. R. R., bridge, .....	80	28,061	2,210	.....	30,271
Pierce Street, .....	75	24,206	4,023	3,182	31,411
Market Street, .....	Slight	22,520	1,200	400	24,120
W. B. C. R. R., bridge, .....	60	37,400	.....	960	38,360
D. & H. Co., Plymouth Branch, .....	Slight	28,135	5,255	2,360	30,750
D. L. & W. B. R., bridge, .....	65	28,067	.....	8,094	36,151

It will be seen that the smallest bridge opening is at Market Street and that the next smallest, after adding the five additional spans, is the said existing bridge over the river at the mouth of Mill Creek. Past floods have clearly demonstrated that the Market Street bridge is insufficient. There is a project on foot to elevate Market Street across the flats and to build a new structure over the river.