BUREAU OF ENGINEERING AND SURVEYS
Department of Public Works
City of Philadelphia

March 18, 1929.

Hon. H. A. Mackey,
Mayor of Philadelphia.

Dear Mayor:

THE HISTORY OF SEWAGE TREATMENT IN THE CITY OF PHILADELPHIA BEGAN WITH THE ACT OF LEGISLATURE OF APRIL 22, 1905.

The Act created the Department of Health of the State of Pennsylvania "to preserve the purity of the waters of the State for the protection of the public health", and empowered the Commissioner thereof to control the discharge of sewage into the waters of the State. The authority for this control was provided through the necessity of obtaining an approval from the Commissioner of Health for any constructions, additions, or changes to the sewer systems of municipalities within the State.

In accordance with the provisions of this Act an application was made by the City of Philadelphia, in 1907, for permission to make certain extensions to the sewer system. On April 23, 1907, the Department of Health granted a permit for the extension of sewers in the Frankford Creek and Pennypack Creek drainage districts, subject to the submission of plans for the treating of sewage in these drainage watersheds. This was followed by permits granted on April 25, 1907, for the extension of sewers in the Cobbs Creek, Main Delaware River and Schuylkill River drainage districts, subject to the same restriction, which proviso read as follows:

> "That the City shall, on or before January 1, 1912, prepare and submit to the State Department of Health, for approval, a plan for the collection and disposal of the sewage of the entire City of Philadelphia".

On May 10 and July 5, 1907, ordinances of Councils were approved appropriating $150,000 for the construction of intercepting sewers and sewage treatment works for a portion of the Pennypack Creek drainage district. Studies for the preparation of the required report were authorized by Council in an ordinance approved July 20, 1907, making an appropriation of $7,500 to the Bureau of Surveys, for "investigations and to report upon a comprehensive plan for disposal of sewage of the entire city".

At that time, sewage treatment was practically unknown in America, and an organization was assembled for research work, experimental laboratories

1-1929

established, and representatives were sent to Europe for study of methods in use in England and in Germany. There was little data available to guide in the solution of a project of such magnitude as the treatment of the sewage of the entire City of Philadelphia. The control of such vast quantities was, then beyond engineering consideration, and an extension of the time limit for submitting the report beyond January 1, 1912, was necessary, and was granted. In the meantime, the Pennypack Treatment Works were completed and placed in operation December 1, 1912, as a trial of processes recommended in the report.

The report in very complete detail was forwarded to the Commissioner of Health on April 1, 1915, and approved August 31, 1915. It recommended the entire project being carried to completion in seven successive steps, as follows:

1. The purchase of land for treatment sites.

   This has been complied with for the Northeast, Southwest and Southeast Works - the three locations on which plant and equipment are to be erected.

2. The construction of the Frankford Creek High Level Collector, Grit Chamber, conduit to the treatment works and the first section of the Northeast Treatment Works.

   This has been completed and the works placed in operation in 1923.

3. Completion of the collecting systems and treatment works for the Northeast section of the City.

   The additions to the Northeast Works are being constructed. The Upper Delaware and Pennypack collectors are under constract and plans are being drafted for the Frankford Creek intercepters.

4. The first section of the main collector in West Philadelphia and the first units of the Southwest Works.

   The first units of the Southwest Works, a sewage pumping station with a capacity of 130,000,000 gallons daily, are completed and in operation. This project would have been further advanced at this date but the City has been unable to secure from the United States Government a satisfactory permit for the construction of the Outfall conduit discharging into the Delaware River.

5. The collectors to rid the Schuylkill River of sewage pollution.

   These are not proceeding at present, as all energies and funds have been directed to the Northeast section for the protection of the water supply at the Torresdale intake, as the paramount issue.

6. Extension of the main collector leading to the Southwest Works and the extension of the Northeast and the Southwest Works.

   The work at the Southwest has now reached a vital stage and the

application which was made to the Commissioner of Health December 28, 1928, contemplated the expenditure of $7,640,000 in the years 1929, 1930 and 1931, for this section of the general project.

7. Construction of the Southeast Works and collecting system.

This is of last importance, as the sewage discharge does not threaten the water supply of Philadelphia or any other municipality.

The first appropriation of any size ($500,000) was made by an ordinance of Council approved July 8, 1915, and subsequent thereto until September 19, 1916, the City secured permits from the State for a section of the Frankford Creek collecting sewer; for the storm water overflow sewer connection of that sewer, and for certain sections of the Frankford Creek high level collector.

On July 20, 1916, the first major appropriation was made to the Sewage Treatment Program when, by ordinance of Council, $3,200,000 was granted to the Department of Public Works for the purpose. Construction work of magnitude in the carrying out of the steps in the general plan may be recorded as beginning with this appropriation. Efforts were concentrated in the Northeast section of the City because of the proximity of the sewage discharge points to the Torresdale intake of the large City filtration plant, and the influencing of the flow of sewage in the river by tidal action. In addition to the construction of units at the works site proper, Wheatsheaf lane and the Delaware River, several large contracts were entered into in 1916 and 1917.

At this period the War intervened. A ban was declared upon municipal construction activities, and practically the entire Planning Personnel enlisted in the various branches of the military service. The holder of the contract for the Northeast Works defaulted and the ensuing legal entanglements halted the work for two years. These units were finally completed and sewage treatment begain in November 1923.

The Commissioner of Health recognized that Philadelphia was proceeding with all the haste that was desirable and safe. Every step taken to that time met with full approval, and Philadelphia has no scrap heap of discarded and costly failures to exhibit, as has been the unfortunate experience of many other municipalities. Taking cognizance of the situation causing delay in construction, over which the City of Philadelphia had no control whatever, the Commissioner of Health, on March 10, 1921, granted a permit extending the time for the submission of plans and continuing the discharge of untreated sewage into the rivers until December 31, 1922.

On July 7, 1922, a uniform policy for the treatment of sewage entering the Delaware River was adopted by the State Department of Health of Pennsylvania and New Jersey, and required the following:

"From the northern limits of the States to the northern boundary of the City of Easton, discharges shall be clarified and oxidized;

From Easton to the northern boundary of Morrisville and Trenton, sedimentation subject to further refinement when deemed necessary;

From Trenton to Philadelphia, sedimentation and discharge into deep water except in the vicinity of water supply sources, where such refinements shall be provided as may be necessary to safeguard the water supply."

This is quoted to indicate coordination between the States of Pennsylvania and New Jersey, and it is presumed that the State of Pennsylvania, particularly, is enforcing sewage treatment in the region beyond Philadelphia.

On January 24, 1924, an ordinance of Council was approved appropriating $9,000,000 towards sewage treatment, but it became necessary again to secure a permit from the Department of Health, extending the time for completion to December 31, 1926, which was granted. In the case of Philadelphia, the State Department adopted the policy of granting extensions of the permit to this City for periods of two years only. Successive extensions of time are dependent upon the good faith of the City in making appropriations sufficient to carry on the work without interruption, and the status of the construction program as set forth in the report of the Bureau of Engineering and Surveys to the State Commissioner of Health, which must accompany the application for an extension of time.

As the permit time limit of December 31, 1926, was approaching, the State Commissioner of Health, Dr. Theodore Appel, Chairman, Sanitary Water Board, secured a conference in the latter part of that year with Mayor Kendrick; Charles B. Hall, President of Council; Edwin R. Cox, Chairman of Finance Committee; George Connell, Chairman of Public Works Committee; Director Biles, Department of Public Works and various subordinate officials of the State and the City; the result of which was to secure a definite commitment from the City Administration that a stipulated amount would be included in each Electoral Loan thereafter and applied to the sewage treatment project. The amount was $3,000,000 and in a practical sense was thereafter to become a preferred encumbrance against the borrowing capacity of the City. (Council had, prior to this, by ordinance approved June 12, 1926, appropriated an additional $3,000,000 toward sewage treatment.)

With this understanding the State Commissioner of Health then approved an application granting a two-year extension of time for completion to December 31, 1928. Meanwhile, of course, the Department of Public Works had proceeded as rapidly as possible with construction work, mainly at the Northeast site. On December 31, 1928, the actual expenditures for work finished and payments on current contracts amounted to $17,100,000, and there was a balance of $2,700,000 which is now being placed under contract. All of the work contemplated under this latter sum will be under contract and actively under way before August 1, 1929.

As the time limit for the expiration of the existing permit was approaching, a conference looking toward the approval of a further extension of time was held in your office, over which you presided, attended by the President of Council, the Secretary of the State Sanitary Water Board, and the Chief, Bureau of Engineering and Surveys. The Secretary of the State Sanitary Water Board stated that he had full authority from the State Commissioner of Health to negotiate the terms upon which the application would be considered, implying that it would be desirable for the City to cease or restrict its activities in connection with the pollution of the Schuylkill and Delaware Rivers from sources outside the City that were

affecting the water supply of Philadelphia.

On December 28, 1928, you forwarded officially to Dr. Theodore Appel, Commissioner of Health, the formal application requesting an extension of two years, or until December 31, 1930, for the completion of the sewage treatment project. The application was accompanied by a report from the Chief, Bureau of Engineering and Surveys, as required by the provisions of the Act approved April 22, 1905, "as evidence of compliance by the City of Philadelphia with the terms of the permit issued under date of January 12, 1927." This report covered in detail a record of the procedure; work accomplished year by year, and the work proposed for the years 1929, 1930 and 1931. It included the status of contracts completed, uncompleted, and the itemized expenditures involved.

The report also stated that the completion of certain work in the Northeast section which was itemized, would remove all sewage pollution entering the Delaware River from existing drainage systems in the City of Philadelphia between the Northeast Sewage Treatment Works and Poquessing Creek, and that the estimated expenditure would be $4,060,000.

Successive steps were outlined for the construction of the various units in the Southwest district, where the estimated expenditure for the three years was $7,640,000. Our proposed three-year program required $11,700,000, of which, as already stated, there is available the sum of $2,700,000 to be placed under contract before August 1 of this year. The program, if carried out, will therefore make necessary items in the next three Electoral Loans of $3,000,000 each.

Further, we said that it was the intention of the City during the next three years to construct the Schuylkill River intercepting sewers between Fairmount Dam and Gray's Ferry, on both banks of the river - the estimated cost of which would be in excess of $3,000,000. This work is made necessary by the extensive terminal improvements being undertaken by the Pennsylvania Railroad Company, the Baltimore and Ohio Railroad Company and the City of Philadelphia. The work of constructing these interceptors must go on in conjunction with the work of both railroad companies, and although the sewers form an integral part in the comprehensive plan for the collection and disposal of sewage of the City of Philadelphia, they do not contribute, at the present time, to the permanent abatement of sewage pollution. We did not, therefore, include this in the program submitted for consideration, but it should be set down, nevertheless, as a credit to the sewage treatment project.

Adding the expenditures made on finished work, on current work, on contracts about to be executed, and on the three-year program contemplated for this Administration, $31,800,000 will have been invested by Philadelphia in capital outlay at the end of 1931, in order to comply with the Act of Assembly April 22, 1905.

Transmitted herewith is a copy dated March 9, 1929, of "a sewerage permit authorized to be issued by unanimous action of the Sanitary Water Board on February 28, 1929, by the Secretary of Health, in accordance with the provisions of the laws of the State", which is the State Department of Health's reply to your application requesting an extension of time to complete the sewage treatment project, dated December 28, 1929, There is, also, attached herewith a copy of the transmittal letter signed by J. R. Hoffert, Assistant Secretary, Sanitary Water

Board. The letter stipulates that before this permit becomes operative it must be recorded in the office of the Recorder of Deeds for Philadelphia County, with which we have not yet complied.

The State Department has not granted the extension of time requested, but has in lieu thereof issued a sewage permit "approving the program submitted subject to certain conditions, but temporarily withholding an extension of time for permission to discharge sewage into the waters of the State." Your attention is called to paragraphs 2, 3, 4 and 5, on page 3 of the copy of the sewage permit. Heretofore, the State has granted permits for the extension of time and not a mere sewage permit. You will note in paragraph 2, that "the Sanitary Water Board is attempting to establish an equitable policy with regard to all such streams, but will be unable to establish such a policy until further studies are made; that meanwhile and pending the erection of such a policy it appears in justice to all concerned that an extension of time for the discharge of Philadelphia's sewage should be temporarily withheld." In view of the record of Philadelphia in its progressive compliance with the Act of Assembly; financial policy established in relation thereto, and program of actual construction completed, under way and developed, it does not appear quite clear as to why the State should differentiate between our position today and as of December 31, 1926, when an extension of time was applied for and granted. But the purpose of withholding the permit may, also, be obvious.

On page 4, the third condition is a new insertion, although it is a part of the original permit approving the report of August 30, 1915. It has been our custom to submit the detailed plans to the Sanitary Water Board for approval simultaneously with the advertisement of the contract. The literal enforcement of this condition might delay the City in placing the work under contract prior to the actual receipt of a State permit.

The fourth condition appears for the first time, requiring the City to keep all land acquired for the purpose intact, and prohibiting any disposition of any part thereof without the permission of the Sanitary Water Board. The city should have the right to sell or dispose of any portion of these lands that may be found to be in excess of the requirements. If this condition is to remain it should be amended to give the City that option.

We are aware of the object of inserting the fifth condition, and offer no objection to it. It concerns a change in the original comprehensive plan for collection, etc., made necessary by the Pennsylvania Terminal Improvements which were not anticipated as far back as 1915. This matter is now under discussion.

The seventh condition places complete authority as to what constitutes a public nuisance or a menace in the hands of the Sanitary Water Board, and the City can proceed only in the manner approved by that Board.

The permit as issued to the City of Philadelphia is unsatisfactory - first, because it is not an outright permit extending the time of completion for a period of two years, to which we believe we are entitled on past performance and the obligations to which the City has committed itself to the end of the year 1931; and secondly, because it specifically places more firmly than ever before the control of the program of the City of Philadelphia, and in effect dictates how it shall proceed. It prohibits rather than permits.

6-1929

In the Assistant Secretary's letter of transmittal he states that "if.....any of the conditions are not clear the matter can be pursued further by correspondence, or, if preferred, by a personal conference in this office."

In view of the unsatisfactory verbiage of this permit an appeal should be taken so that we may understand the reason for declination of the State authorities to issue the extension of time, as requested, and the object sought in placing restrictions in it.

Meanwhile, we shall not proceed with the recording of this document in the office of the Recorder of Deeds for Philadelphia County.

Very truly yours,

J. H. NEESON

Chief Engineer and Surveyor.

Commonwealth of Pennsylvania
Department of Health

SANITARY WATER BOARD,
Harrisburg

March 9, 1929.

Mr. J. H. Neeson,
Chief Engineer, Bureau of Engineering & Surveys,
Department of Public Works,
City Hall,
Philadelphia, Pa.

Dear Sir:

We transmit herewith a sewerage permit authorized to be issued by unanimous action of the Sanitary Water Board on February 28, 1929, by the Secretary of Health, in accordance with the provisions of the laws of the State.

If, after the document has been carefully studied, any of the conditions are not clear, the matter can be pursued further by correspondence or, if preferred, by a personal conference in this office.

Kindly acknowledge receipt of this permit and note that before it becomes operative it must be recorded in the office of the Recorder of Deeds for Philadelphia County.

There is enclosed herewith a blank certificate and stamped envelope which please deliver to the Recorder of Deeds with the request that when the permit is recorded he shall fill in the blank, sign, attach his official seal, and return it to W. L. Stevenson, Chief Engineer, State Department of Health, Harrisburg, Pa.

Very truly yours,

J. R. Hoffert,
Assistant Secretary,
Sanitary Water Board.

8-1929

COMMONWEALTH OF PENNSYLVANIA

DEPARTMENT OF HEALTH

HARRISBURG

The Secretary.

To the Honorable the Mayor and City Council of
Philadelphia, Philadelphia County,
Pennsylvania.

On December thirty-first, one thousand nine hundred and twenty-eight, an application was received from the City of Philadelphia, requesting "An Extension of time for the completion of the various steps required in carrying out the comprehensive plan for the collection and disposal of the sewage of the City of Philadelphia, and for permission to continue the discharge of sewage into the waters of the State", in accordance with the provisions of The Administrative Code approved June seventh, one thousand nine hundred and twenty-three, amended April 13, 1927.

The application was transmitted by an explanatory letter of the Mayor dated December 28, 1928 and accompanied by a report of the Chief Engineer and Surveyor dated December 27, 1928.

Conferences were held between official representatives of the City and the State on December 18, 26 and 27, 1928 and on January 4, 1929, relative to the application and issuance of permit.

The said letters are deemed part of the application and the said conferences as relevant.

Under authority of a resolution of the Sanitary Water Board adopted July 17, 1923, the data submitted with the application have been examined by the Bureau of Engineering of the Department of Health.

It appears that upon the enactment of the "Purity of Waters Act", approved April 27, 1905, P.L. 260, the City of Philadelphia made application to the Commissioner of Health for approval of proposed extensions to the City's sewer system and in response thereto permits were issued requiring, inter alia, the preparation of a comprehensive plan for the collection, treatment and disposal of the sewage of the entire City; that after study by the engineers of the City such a plan was prepared and described in a report which was submitted to and approved by the Commissioner of Health in permit dated August 30, 1915; that numerous applications have been made from time to time for approval of plans of main and branch sewers for the needed extension of the general sewer system of the City and also for the various parts of the generally approved comprehensive plan and permits have been duly issued approving the same, subject to certain conditions; that the City has constructed certain intercepting sewers, pumping stations and sewage treatment works, including intercepting sewers along the Schuylkill River and Wissahickon Creek to an outlet below Fairmount Dam, along Cobbs Creek to an outlet at Seventy-fifth Street, along Tacony Creek to a sewage treatment works, along Pennypack Creek to a sewage treatment works, along the Delaware River from near Pennypack Creek to a treatment works and also the City has built and operates the Pennypack Creek and the Northeast Sewage Treatment Works with appurtenances; that because of the above work at present dry weather flow of sewage from Philadelphia is no longer normally discharged to the Schuylkill River above Fairmount Dam nor to Cobbs Creek above Seventy-fifth Street nor to Tacony Creek nor to Pennypack Creek and, upon

9-1929

the completion of the Upper Delaware intercepting sewer and connections made thereto from the tributary main sewers, the same will be true as to the Delaware River from Pennypack Creek to Wheatsheaf Lane; that otherwise the sewage of the City of Philadelphia is discharged directly into the waters of the State which creates a grossly polluted condition in Frankford Creek, in Cobbs Creek below Seventy-fifth Street and in the Schuylkill River below Fairmount Dam and a serious depletion of dissolved oxygen in the water of the Delaware River in the mid part of the City, and furthermore, which places a burden upon certain waterworks serving the public with drinking water; that in accordance with the approved comprehensive plan the City has acquired land as sites for the Northeast, Southeast and Southwest Sewage Treatment Works, which matter is vital to the consummation of said plan, especially in the future; that in 1923 an arrangement was made between officers of the City of Philadelphia and of the Pennsylvania Department of Health whereby, definite but limited programs for progressively carrying out the comprehensive plan should be submitted to and approved by the Sanitary Water Board and funds appropriated by the City therefor at a rate not less than three million dollars a year, in lieu of the heavy incumbrance upon the City's borrowing capacity created, in the opinion of the City Solicitor, by the aforesaid permit of 1915, which incumbrance was relieved by permit issued March 26, 1923; that permit issued January 12, 1927 granted, inter alia, permission to the City of Philadelphia to discharge sewage into the waters of the State until December 31, 1928, subject to certain conditions, among which were the placing of certain specified work under contract by specified times and the submission of a report on compliance with permit requirements and of a program for further progressive construction of the comprehensive plan.

The report now submitted by the City shows that the Council has shown good faith by making appropriations for sewage disposal purposes since January 24, 1924, amounting to fifteen million dollars, which is at the agreed to, proposed and required rate of three million dollars a year; also that during 1927 and 1928, the following work was either completed, or under contract, to wit: Wingohocking Sewer, Tacony Creek and Oak Lane intercepting sewers, certain appurtenant work at the Northeast Sewage Treatment Works, Upper Delaware Collecting Sewer, Northeast Works Pumping Station and Grit Chamber and appurtenances, Eightieth Street Sewer, Southwest Sewage Pumping Station and appurtenances, etc.

But it appears that the agreed to, proposed and required construction program is behind time inasmuch as the Upper Delaware Collecting Sewer, while nearly completed, is not in operation, no construction work has been begun on the low level intercepting sewers along Frankford Creek, the Northeast Sewage Treatment Works have not been enlarged and certain required plans of structures in the Southwest Division have not been submitted.

The program now submitted by the City for construction work during 1929, 1930 and 1931, provides for

(1) protection of the Torresdale waterworks intake against discharge of dry weather flow of sewage from Philadelphia within tidal influence of that intake and for interception of sewage now discharged into Frankford Creek and also

(2) discontinuance of discharge of sewage to Cobbs Creek at Seventy-fifth Street, making possible the providing of sewerage facilities in the built-up parts of the Fortieth Ward lowlands, the Main Gravity Collector from Grays Ferry southerly, the Sixtieth Street Cutoff, grit chamber, first part of the Southwest Sewage Treatment Works and effluent conduit therefrom, all of which are primary and essential parts of the comprehensive plan which, when completed and operated, will lighten the sewage load upon the Delaware River.

10-1929

The above three year construction program will necessitate the sum of nine million dollars being provided by future appropriations.

In the matter of granting an extension of time to Philadelphia for permission to discharge sewage into the waters of the State, the Sanitary Water Board has considered the relation of such discharge to the broader problem involving a considerable number of municipalities in the neighborhood of Philadelphia and is conducting a scientific survey of these waters which indicates that the sewage load from the City of Philadelphia is the major factor in this metropolitan area; that the sewage of the City imposes a burden upon public waterworks; that the sewage of the other municipalities places a burden on the waterworks of Philadelphia; that there is thus a community of interest involved; that the Sanitary Water Board has already taken steps to bring about a reduction of the pollution load upon the City's waterworks by requiring other municipalities, by progressive steps, to treat their sewage; that the Sanitary Water Board is attempting to establish an equitable policy with regard to all such streams, but will be unable to establish such a policy until further studies are made; that meanwhile and pending the erection of such a policy it appears in justice to all concerned that an extension of time for the discharge of Philadelphia's sewage should be temporarily withheld.

As a result of a study of data submitted and other relevant matters the Bureau of Engineering has recommended that, in response to the application, a permit be issued approving the program submitted, subject to certain conditions, but temporarily withholding an extension of time for permission to discharge sewage into the waters of the State.

The Sanitary Water Board at a meeting held on February 28, 1929, authorized the granting of a permit to the City of Philadelphia, in accordance with the recommendations of the Bureau of Engineering, approved by the Secretary of Health.

Therefore, an extension of time is hereby granted toward the completion, as herein specified, of the comprehensive plan for the collection, treatment and disposal of the sewage of the City of Philadelphia and a permit issued therefor, subject to the following conditions, but the granting of an extension of time for permission to discharge sewage into the waters of the State, as proposed in the application, is hereby temporarily withheld:

FIRST: All relevant conditions of prior sewerage permits issued to the City of Philadelphia shall be continued in full force.

SECOND: As agreed to in conferences as aforesaid and as proposed in the application, it is hereby required that the following parts of the comprehensive plan for collection, treatment and disposal of the sewage of the City of Philadelphia shall be placed under construction prior to December 31, 1931 and approximately in the following sequence:

ON OR BEFORE DECEMBER 31, 1929:

(a) Interceptors and connections to the Upper Delaware Collecting Sewer.
(b) Force mains and conduits at the Northeast Sewage Treatment Works to connect the pumping station with the works.
(c) Sandy Run sanitary sewer.
(d) Upper Frankford Creek intercepting sewer.
(e) Lower Frankford Creek intercepting sewer.
(f) Additions to structures at the Northeast Sewage treatment works to provide needed additional capacity.
(g) Extension of Upper Delaware Collecting sewer to Ashburner Street.
(h) Extension of 80th Street and Island Avenue intercepting sewer to Cobbs Creek.

(i) Outfall from Southwest Sewage Treatment Works.
(j) First installation of sewage treatment structures at the Southwest Works to provide needed capacity.

ON OR BEFORE DECEMBER 31, 1920:

(k) Main Gravity Collector to 60th Street.
(l) Connection in 60th Street from Cobbs Creek intercepting sewer to main gravity collector.

ON OR BEFORE DECEMBER 31, 1931:

(m) Main Gravity Collector from 60th Street to Schuylkill River at Grays Ferry,
(n) South branch Delaware Collecting sewer from Allegheny Avenue to Northeast Sewage Treatment Works.

THIRD: Proper detail plans accompanied by explanatory report, giving basic data of design, shall be submitted to the Sanitary Water Board with application for approval permit sufficiently in advance of beginning construction that time will be afforded for study and issuance of permit prior to the making of any contracts for the construction enumerated in the second condition of this permit.

FOURTH: The City of Philadelphia shall keep intact all land acquired or allotted for sewage disposal purposes constituting sites for the Northeast, Southeast and Southwest Sewage Treatment Works and shall not sell, or in any way dispose of any portion thereof without first making application to the Sanitary Water Board and receiving an approval permit so to do.

FIFTH: The City shall make no radical changes in the comprehensive plan for collection, treatment and disposal of sewage as submitted by the City and approved in permit issued August 30, 1915, without making application accompanied by explanatory report to demonstrate the need and wisdom of proposed changes and receiving an approval permit from the Sanitary Water Board.

SIXTH: The City of Philadelphia shall submit to the Sanitary Water Board prior to December 31, 1930, a report as to compliance with this permit and also a satisfactory program for continuing the necessary work for stating the pollution of the waters of the State by the sewage of the City of Philadelphia through progressively carrying out the approved comprehensive plan for the collection, treatment and disposal of the sewage of the City.

It is an intention of this permit to approve a construction program for progressively carrying out the comprehensive plan for the collection, treatment and disposal of the sewage of the City of Philadelphia, to the end that sewage now discharged into the waters of the State may be intercepted and conveyed to treatment works, so that the sewage pollution of the said waters may be lessened for the protection of the public health, and, therefore, monies appropriated for sewage disposal purposes shall be expended toward that end.

SEVENTH: If at any time the sewerage system of the municipality, or any part thereof, or the discharge of sewage therefrom, shall have created a public nuisance or become a menace or prejudicial to the general interests of the public health, the municipality shall forthwith adopt such remedial measures as the Sanitary Water Board may advise or approve.

12-1929

Nothing herein contained shall be construed to be an intent on the part of the Sanitary Water Board to approve any act made or to be made by the City of Philadelphia inconsistent with law.

It is required by law that this permit before being operative shall be recorded in the office of the Recorder of Deeds for Philadelphia County.

SANITARY WATER BOARD

(signed) By Theodore B. Appel (M.D.)
Chairman,

" Attest J. R. Hoffert,
Assistant Secretary.

Harrisburg, Pennsylvania,
February 28, 1929.

* *

STATE OF PENNSYLVANIA :
SS
COUNTY OF DAUPHIN :

On the 28th day of February in the year one thousand nine hundred and twenty-nine, before me, the Subscriber, a Notary Public, came the above named THEODORE B. APPEL and duly acknowledged the foregoing permit to be his act and deed and desired that the same might be recorded as such.

Witness my hand and notarial seal the day and year aforesaid.

(signed) ARTHUR V. WAGNER
Notary Public.

13-1929

BUREAU OF ENGINEERING AND SURVEYS

ANNUAL REPORT

1929

The activities of the Bureau of Engineering and Surveys are derived from the developing of the City Plan and the construction work comprised in new City bridges; the elimination of grade crossings; sewers and drainage structures and the carrying out of the sewage treatment project, including the operations incident to the treatment of sewage. From time to time, these duties are increased by the planning work required by special constructions and projects authorized by Council. The Bureau also operates the City Laboratory for the physical and chemical testing of materials entering into the City construction work and supplies purchased for the maintenance and operation of the various City institutions. It is charged with the issuing of permits for connection to the drainage system and the responsibility therefor, the investigation and control of manufacturing and trade wastes, and the checking of permits issued for utility structures, occupying space within the City streets. The members of the Board of Surveyors, a unit of the Bureau of Engineering and Surveys, are also the official measurers of properties and of quantities of work done and materials furnished in the carrying out of City contracts.

The funds available, or made available to the Bureau during the year 1929, for all purposes were $30,205,485.98. Of this amount, there was paid out for operations, maintenance and in contract estimates, the sum of $8,776,735.84. Miscellaneous receipts from Bureau operations returned to the City Treasury amounted to $340,458.24; of which the largest items were charges of the District Surveyors for services rendered - $277,324.23; and permit and assessment returns from the Sewer Registrar derived from sewer permits issued to the amount of $62,896.52.

For the year 1929, the activities of the Bureau are outlined in the following:

BOARD OF SURVEYORS.

During this year, the Board of Surveyors held 24 stated and special meetings and 3 Road Day hearings for the presentarion of views from the general public, prior to the confirmation of the changes in the City Plan. These meetings resulted in action on 111 plans. Ordinances were referred to the Board and reports rendered for revisions of the plan, the placing on or striking off of streets and the changes of names, to the number of 122. Approval was given by confirmation of 88 extensions or changes to the City Plan.

A large part of the City Plan activity has been taken up with studies for relieving conditions of traffic congestion, particularly with relation to the approaches to the Delaware River Bridge. Throughout the central City area, plans have been made showing the number, size, location and capacity of existing highways and the distribution of such highways with respect to the direction of traffic movement. The relative capacities of east-west and north-south arteries have been plotted in comparison with the relative volumes and destination of east-west and north-south travel. Studies are also in progress on the origin and destination of traffic

flowing to and from the Delaware River Bridge, and a compilation is being made of the more important suggestions received to remedy the approach conditions. Studies are proceeding on plans for the rehabilitation of the area bounded by Broad Street, Delaware River, Poplar Street and Carpenter Street. Included within these boundaries is an area of 2-2/3 square miles, which contains 600 small streets, courts and alleys where many thousands of people live under crowded and insanitary conditions. The studies being made have for an object the relocating of streets and the plotting of new ones which, it is hoped, with the assistance of owners of property, will improve living conditions and lead toward a recovery of property values.

BRIDGES.

Contracts for bridges entered into prior to 1929 and completed this year were as follows:

GIRARD AVENUE BRIDGE: The north side of the lower deck of this bridge was reconstructed as a bridle path at a cost of $47,725.60. The necessary approaches at each end of the Bridge have been completed by the Fairmount Park Commission and the bridle path is now opened for use.

GREEN LANE BRIDGE: The Green Lane Bridge over the Schuylkill River, as far as the main structure was concerned, had been completed during 1928, but a portion of the grading and the completion of the East Approach extended over to June of 1929. The East Approach was completed at a cost of $40,380.

RYAN AVENUE BRIDGE: The bridge carrying Ryan Avenue over the Sandy Run Creek is a reinforced concrete arch of 33-foot span and is stone faced. The cartway is 58 feet in width and there are two sidewalks 8 feet wide. The contract was completed at a cost of $37,352.84.

SIXTH STREET AND ALLEGHENY AVENUE: The bridge carrying the intersection of 6th Street and Allegheny Avenue over the Richmond Branch of the Reading Company had deteriorated to a point where the safety of the structure was in doubt. The entire decking was removed and a new superstructure placed upon the old stone abutments and foundations. The cost of the work was $112,343.43.

ABBOTTSFORD AVENUE BRIDGE: The bridge carrying Abbottsford Avenue over the Chestnut Hill Branch of the Pennsylvania Railroad was completed at a cost of $55,847.60, of which the Pennsylvania Railroad paid $14,799.61. The structure is of steel girder construction encased in concrete and carried on concrete abutments. It furnishes access to a large area of ground lying west of the Railroad.

ASHDALE STREET BRIDGE: The bridge made necessary by the opening of Ashdale Street, under the Philadelphia, Newtown and New York Railroad, was completed at a cost of $47,602.88.

COTTMAN STREET: A dangerous grade crossing was eliminated by the completion of the bridge carrying the Philadelphia, Newtown and New York Railroad over Cottman Street. The total cost was $37,439.63, of which the Reading Company paid $7,499.54.

SEVENTEENTH STREET FOOT BRIDGE: To provide a safe crossing for school children on the line of 17th Street over the Greenwich Branch of the Pennsylvania

15-1929

Railroad, a temporary, wooden foot-bridge was constructed at a cost of $3,824.53. The usefulness of this bridge will be ended when the grade crossing elimination work in South Philadelphia has been completed.

LEVERINGTON AVENUE BRIDGE: The new bridge on the line of Leverington Avenue over the Manayunk Canal replaced an old, iron truss with wooden floor, which had become unsafe for modern traffic loads. The total cost was $96,937.50, of which the Schuylkill Navigation Company shared to the extent of $54,091.12.

UNIVERSITY BRIDGE: The main structure of the University Bridge over the Schuylkill River was completed at a total cost of $1,311,569.22. The main bridge consists of five spans, of which the central span is an electrically operated double leaf bascule providing, when opened, a clear channel width of 100 feet between fenders. When closed, the central span has a clearance of 30 feet at mean high water. The total length between shore abutment faces is 536 feet. The deck has a cartway of 54 feet and 2 sidewalks of 9 feet each. Planning work proceeded on the approaches to this main structure, including a bridge in connection with the Pennsylvania Railroad tracks on the west bank.

LINDEN AVENUE BRIDGE: A grade crossing was eliminated by the completion of the bridge over the Philadelphia and Trenton Railroad on the line of Linden Avenue. The total cost of the work was $128,966.61, of which the portion paid by the Pennsylvania Railroad was $64,170.31.

COBB'S CREEK BRIDGE: At a cost of $19,864.30, a new stone-faced, concrete arch bridge replaced an unsafe, iron truss structure over Cobb's Creek between 65th Street and Florence Avenue.

LYCOMING STREET BRIDGE: Lycoming Street was opened to travel across the tracks of the Richmond Branch of the Reading Company by the completion of the bridge structure at a cost of $40,413.46.

The following bridges were under contract during 1929 and work was still proceeding at the close of the year:

RHAWN STREET BRIDGES: The two concrete bridges required to carry Rhawn Street over the Pennypack Creek crossings were nearing completion at the end of the year. Progress on these structures had been such that in July a contract was entered into for the grading and paving of about one mile of approach roadway, crossing Pennypack Park between Leverington Avenue and Rowland Avenue. This approach contract was for $65,000 and the progress made would indicate the completion of the bridge structures and the roadway at the same time.

RISING SUN AVENUE: Work continued on the structure carrying Rising Sun Avenue over the Tacony Creek, and an additional contract was entered into for the grading and paving of Rising Sun Avenue between Olbey Avenue and Adams Avenue to a contract limit of $100,000. Progress was such that by the end of the year, paving was completed of the east shoulder and the cartrack area, permitting traffic to use the new bridge crossing.

HUNTING PARK AVENUE BRIDGE: The Hunting Park Avenue Bridge, making possible the extension of Hunting Park Avenue across the Philadelphia and Bustleton Railroad, was placed under contract to a limit of $70,000, of which the City pays one-half and the Pennsylvania Railroad one-half. The bridge is 100 feet wide and spans two tracks of the railroad. It is constructed of steel, encased in concrete and carried on concrete abutments.

HENRY AVENUE BRIDGES: The first structure necessary to permit the opening of Henry Avenue, which will provide a direct traffic connection between the downtown section and Upper Roxborough, was placed under contract in the Henry Avenue Bridge over the tracks of the Reading Company, between Hunting Park Avenue and Roberts Avenue. The bridge is of steel, encased in concrete and carried on concrete abutments and piers. It is 100 feet wide and has a total length of 650 feet. The limit of the contract is $550,000, of which the Reading Company will pay 5.88%.

HENRY AVENUE BRIDGES: The second step in the opening of Henry Avenue was the placing under contract of the structure carrying Henry Avenue over the Wissahickon Creek. This structure is a concrete arch bridge with stone facing. It will have a main span of 288 feet, rising to a height of 185 feet above the Wissahickon Creek. The total length of the structure is 900 feet and the deck will provide for a roadway of 60 feet, with 2 sidewalks of 12 feet width. This structure is double-decked; the lower roadway being intended to accommodate a high speed trolley line from Upper Roxborough to the central City subway system. The limit of contract is $1,770,000.

WYOMING AVENUE BRIDGE: The existing bridge structure carrying Wyoming Avenue and the Roosevelt Boulevard over the North Penn Railroad was inadequate in width to permit trolley service under the proposed cross town trolley lines; and, it was found necessary to widen the bridge before a dangerous traffic condition would develop. The limit of contract is set at $100,000.

WELSH AVENUE BRIDGE: Contract has been entered into for replacing the existing stone bridge on the line of Welsh Avenue crossing the Pennypack Creek with a reinforced concrete arch structure consiting of one 90-foot arch and two 40-foot arches. It provides for a street width of 70 feet and a total length of 300 feet. The limit of contract is $190,000.

Plans have been completed and awaiting advertisement for the bridge carrying CAYUGA STREET over the North Penn Railroad and for the crossing of OLNEY AVENUE over the Philadelphia, Newtown and New York Railroad. Planning work is proceeding on the following bridge projects:

RISING SUN AVENUE and BRISTOL STREET over the Philadelphia, Newtown and New York Railroad;

56TH STREET under the Chester Branch of the Reading Company;

70TH STREET over the Philadelphia, Baltimore and Washington Railroad;

UNIVERSITY AVENUE under the Philadelphia, Baltimore and Washington Railroad;

WALNUT LANE over Lincoln Drive;

MASCHER STREET over the Richmond Branch of the Reading Company.

ABOLITION OF GRADE CROSSINGS.

SOUTH PHILADELPHIA TRACK ELEVATION: The two-track elevated structure along the line of 25th Street between Washington Avenue and Passyunk Avenue was completed and placed in service. Following this, the surface tracks were removed from 25th Street, which has been graded and is awaiting permanent paving. The tracks of the

17 1129

Baltimore & Ohio Railroad were reset on earth embankments and bridges were completed over 28th Street and Passyunk Avenue. The bridge structures for the running tracks of the Pennsylvania Railroad and the Baltimore & Ohio Railroad and the joint six-track line have been completed over Vare Avenue, 26th Street, Harttranft Street and Penrose Avenue. Work is proceeding on the fill for raising the tracks of the joint line between Passyunk Avenue and Delaware Avenue. The new coal handling pier at the Delaware River front has been completed by the Pennsylvania Railroad and is in operation. This equipment replaces the coal handling equipment at the Greenwich piers, which will be taken over by the City and placed out of service. The expenditures on this project during the year amounted to $1,190,574.17.

PENNSYLVANIA TERMINAL IMPROVEMENT: During the year 1929, the main activity in construction work in which the City participated was carried on east of the Schuylkill River. The construction and reconstruction of the sewer system between 15th Street and the Schuylkill River, and between Market Street and Arch Street, necessary to provide for the Pennsylvania Subway and the 15th Street Station, was practically completed. The subway structure is well advanced between 15th Street and 22nd Street and the station building is nearing completion. A portion of the Schuylkill River bulkhead has been placed under contract and the work is being pushed forward actively on both sides of the Schuylkill River. The expenditures by the City during 1929 under this improvement were $2,719,323.23.

BALTIMORE & OHIO TERMINAL IMPROVEMENT: In connection with the proposed modern terminal station at 24th and Chestnut Streets, the City has taken steps to acquire the necessary real estate for carrying out its share of the work and is awaiting further action from the Baltimore & Ohio Railroad Company in order that construction work may begin.

MANAYUNK ELEVATED: Under the agreement between the City and the Reading Company for eliminating grade crossings on the Philadelphia, Germantown and Norristown Railroad, between Wissahickon Creek and Fountain Street, substantial progress has been made. One-half of the viaduct, sufficient to carry one track, has been completed and work is about to start on the raising of the second track. The expenditure by the City during the year was $706,531.42.

GERMANTOWN-CHESTNUT HILL ELEVATED: Approval was given by the Public Service Commission to the agreement between the Reading Company and the City for the abolition of grade crossings along the line of the Philadelphia-Germantown Railroad and the Chestnut Hill Railroad, between Wister Street and Bethlehem Pike. Preliminary work and plans are proceeding.

COTTMAN STREET and PINE ROAD: An appropriation of $500,000 toward the City's share in the work of eliminating grade crossings on the Philadelphia, New York and Newtown Railroad at Cottman Street and Pine Road was provided in the Electoral Loan. No further steps have been taken to carry out the project, of which this appropriation indicates an intent.

DRAINAGE.

For the year 1929, there was available for the construction of main sewers $2,979,168.11 and for branch sewers $148,454.37. From these funds contracts were entered into which resulted in the completion of 6.23 miles of main sewers and 17.15 miles of branch sewers. Contracts entered into comprised 12 for main

sewers, 35 branch sewers and 39 at private cost, which together with drainage structures built under the grade crossing work and the sewage treatment project, made a total increase of 37.53 miles to the drainage system of the City. At the end of 1929, there was a total of 1728 miles of sewers completed within the limits of the City of Philadelphia.

Main sewer contracts entered into prior to 1929 and completed during that year were as follows:

ARAMINGO AVENUE, Sepviva Street to Wheatsheaf Lane: A reinforced concrete, rectangular structure, in sizes from 5' X 6' and less, was completed to a length of 1814 feet.

BOUVIER STREET, Elston Street to Cheltenham Avenue, and in Cheltenham Avenue between Bouvier Street and Washington Lane: This was a reinforced concrete sewer 7' X 8' with vitrified clay plate lining and constructed to a length of 3362 feet.

BUTLER STREET between Aramingo Avenue and Frankford Avenue: a brick structure, 4' diameter and less in sizes, was completed to a length of 1839 feet.

GORGAS LANE from Wissahickon Low Level Intercepting Sewer to Henry Avenue, and in Henry Avenue between Gorgas Lane and Gates Street: a brick sewer 3'6" diameter, completed to a length of 3741 feet.

HAVERFORD AVENUE from Lebanon Avenue to northwest of Malvern Avenue: is an egg-shaped brick sewer, 3'6" X 2'4" and was completed to a length of 1109 feet.

LAKESIDE AVENUE between Cheltenham Avenue and 12th Street, in 12th Street from Lakeside Avenue to 69th Avenue North, and in 69th Avenue North between 12th Street and Broad Street: This was completed to a total length of 3098 feet and of various sizes of which the largest was a 6' X 7' twin section of reinforced concrete.

MANSFIELD STREET between Upsal Street and Mt. Airy Avenue: A 7'6" X 7'6" reinforced concrete sewer, completed to a length of 4463 feet.

ROBBINS STREET from Lawndale Street to Palmetto Street, Palmetto Street from Robbins Street to Hellerman Street, Hellerman Street from Palmetto Street to Rising Sun Avenue, Rising Sun Avenue between Hellerman Street and Passmore Street: This sewer was of brick construction in various sizes, of which the largest was 4'6" in diameter and was completed to a length of 2566 feet.

SHEFFIELD STREET from Rowland Avenue to Crabtree Street, and in Crabtree Street and Pennypack Park from Sheffield Street to Pennypack Creek: This was a brick sewer 4'6" in diameter and a length of 1499 feet.

TABOR AVENUE from Magee Street to Unruh Street, in Unruh Street from Tabor Avenue to Bingham Street, and in Bingham Street between Unruh Street and Longshore Street: This sewer was of various sizes, of which the largest was 5'6" X 4'6", reinforced concrete and was completed to a length of 2350 feet.

TABOR AVENUE from north of Comly Street to Benner Street, in Benner Street from Tabor Avenue to Lawndale Street, and in Lawndale Street from Benner Street to

19-1929

north of Robbins Street: This was a reinforced concrete structure in various sizes, the largest of which was 6'6" X 6'6", and was completed to a length of 1972 feet.

30TH STREET from Morris Street to Mifflin Street: A reinforced concrete sewer 5'0" X 4'6" and a length of 981 feet.

The following main sewers were placed under contract and completed in 1929:

CHELTENHAM AVENUE between Bouvier Street and Washington Lane: A 2'6" diameter brick sewer, with a length of 881 feet.

56TH STREET from 193' northwest of the bulkhead line to the Schuylkill River: This was a reinforced concrete sewer, 6'6" X 8'6" on pile foundation.

HELLERMAN STREET from Battersby Street to Bradford Street: Was constructed to a length of 2900 feet of various sizes in brick construction.

HUNTING PARK AVENUE from the Schuylkill River to East of Ridge Avenue: This was a 5' diameter sewer in rock tunnel and was completed to a total length of 1193 feet.

KNORR STREET from Roosevelt Boulevard to Brous Avenue: Was of various sizes, brick construction, to a length of 1274 feet.

MANSFIELD AVENUE between Mt. Airy Avenue and Gowen Avenue: Was a 3'6" X 2'4" brick sewer and a length of 1099 feet.

MONTOUR STREET from Tyson Avenue to Princeton Avenue, in Princeton Avenue from Montour Street to Tabor Avenue, and in Tabor Avenue between Princeton Avenue and St. Vincent Street: This was a brick sewer, 4'6" diameter, with some pile foundation, and a total length of 2084 feet.

67TH STREET between Eastwick Avenue and the Schuylkill River: This was a reinforced concrete sewer of 8' X 11' rectangular twin section, on pile foundation and was constructed to a length of 3079 feet.

WISSAHICKON LOW LEVEL COLLECTING SEWER through Fairmount Park from north of Township Line Road to Bells Mill Road: is a 30" vitrified pipe sewer, partly in tunnel and of a length of 8313 feet.

Contracts were entered into for the following sewers and the work is still proceeding:

HARTELL STREET from Bradford Street to Glendale Avenue and in Glendale Avenue from Hartell Street to Horrocks Street: This is a reinforced concrete sewer, 12' X 12', and the contract calls for the construction of 1192 feet.

HEGERMAN STREET from Southwest of Robbins Street to Robbins Street, and in Robbins Street from Hegerman Street to Northwest of Torresdale Avenue: A reinforced concrete sewer, 10' X 10', with a length under contract of 625 feet.

LITTLE TACONY CREEK SEWER from Southwest of Lewis Street to Frankford Creek: A reinforced concrete sewer, 8'6" X 9'6", with a length of 257 feet.

20-1929

WISSAHICKON HIGH LEVEL CUT-OFF SEWER in Stokley Street and Fairmount Park from Northwest of Coulter Street to Northwest of School House Lane: This is a 6' diameter sewer, constructed entirely in rock tunnel and is at a depth of approximately 200 feet below the surface of the ground.

OAK LANE PUMPING STATION: This was constructed on leased property at 69th Avenue North between Broad Street and York Road for the purpose of providing drainage to a depressed section of Oak Lane, for which the main outlet sewer had not been provided. It was placed in operation in 1916 and forced the drainage of about 80 acres over a summit to the west of this tract where a sewer outlet was available. The completion of OAK LANE MAIN SEWER during the year 1929 from Lakeside and Cheltenham Avenues to the location of the Pumping Station provided the necessary discharge point for the Oak Lane drainage. Accordingly, the Pumping Station was retired from service, machinery and equipment removed and the lease of the property cancelled on March 31, 1929.

MINGO CREEK PUMPING STATION: The Mingo Creek Station was constructed in 1896 on the west bank of the Schuylkill River, north of Penrose Ferry Road, to provide storm water drainage for about 2000 acres of lowland in the 40th Ward. This entire tract is below the level of high tide in the surrounding waters and is protected from flooding by a system of earth dikes along the water front. The natural creeks traversing this area have been converted into a system of drainage ditches and deliver their storm flow to the Mingo Creek Pumping Station where it is lifted over the dike and discharged to the Schuylkill River. It is equipped with centrifugal pumps directly connected to steam engines with power furnished by oil-fired steam boilers. It was found necessary during the year to install a feed water treatment equipment as the character of water supply for the boilers had become such that the formation of scale was very serious.

In addition to the lowland area within the City limits, the area in Delaware County southwestwardly from the City Line was also low and protected by a dike system. Due to lack of maintenance of these dikes, they were in a dangerous condition and floods resulting from breaking of the dikes were becoming more frequent and of more serious proportions. For the protection of the land within the City of Philadelphia, contracts had been entered into for a revision of the drainage channels and the construction of a dike along the boundary line between Philadelphia and Delaware Counties; and this work was completed and affords a measure of protection, which will be of greater benefit when several low spots in the dike, caused by the crossings of steam and electric railways, have been raised to a higher level.

The maintenance of this Station for the year required an expenditure of $20,459, of which $10,301 was for the purchase of fuel oil.

SEWAGE TREATMENT PROJECT.

Work proceeded under the sewage treatment project in accordance with the program approved by the State of Pennsylvania in 1915, and the supplemental agreement that work should proceed to the extent of $3,000,000 annually. As the necessity for removing pollution from the Delaware River, within influence of the Torresdale Intake of the water supply, is of paramount importance, the main activity remained in the Northeast section. The Upper Delaware Collecting Sewer was practically completed and it is anticipated that it will go into service early in 1930. This will remove the sewage pollution of the Delaware River originating within the City of Philadelphia and discharging along the six miles of water front between the mouth of Frankford Creek and the northern boundary of the City at Poquessing Creek.

21-1927

The following contracts were completed on this project during 1929:

UPPER DELAWARE COLLECTING SEWER from Robbins Street to 312 feet Southeast of State Road: Was completed at a total cost of $1,656,321.14. From 312 feet Southeast of State Road to Holmesburg Avenue was completed at a cost of $37,161.50. From State Road and Holmesburg Avenue, along Pennypack Creek, to Southeast of Frankford Avenue was completed at a cost of $313,169.42. These contracts completed the collecting conduit from the Northeast Sewage Treatment Works to Pennypack Creek and westwardly along Pennypack Creek to Bensalem Avenue.

The branch collector, known as the SANDY RUN INTERCEPTING SEWER, was completed from the Pennypack Creek to 25 feet south of Brous Avenue at a cost of $49,394.77.

The mechanical intercepting devices for diverting sanitary flows from the main sewers into the collecting sewers were constructed at COMLY STREET, DISSTON STREET, KIRKBRIDE STREET, LEVICK STREET, ORTHODOX STREET, PRINCETON STREET, SANGER STREET, BRIDGE STREET, COTTMAN STREET, MAGEE STREET and DARK RUN LANE. These various contracts and revision of drainage lines connected therewith required the expenditure of $283,904.

A connection to the TACONY CREEK INTERCEPTING SEWER between Whitaker Avenue and Ruscomb Street was also completed at a cost of $6,458.48.

The removal of sewage pollution from Frankford Creek was advanced by the placing under contract of the first section of the UPPER FRANKFORD CREEK LOW LEVEL COLLECTING SEWER, extending along Frankford Creek, from the Northeast Sewage Treatment Works to Southeast of Frankford Avenue. The amount of this contract is $275,000.

At the Northeast Sewage Treatment Works, the SEWAGE PUMPING STATION was completed and is ready to be placed in operation. The Pumping Station is required to raise the sewage delivered from the collecting sewers at a low level to an elevation sufficient to enter the treatment structures and discharge to the River. The Station itself is 65 feet wide by 140 feet long, with a reinforced concrete sub-structure and steel and brick superstructure. The vertical, centrifugal pumps are electrically driven and the present installed capacity is 132,000,000 gallons daily. The station is designed for equipment to a total capacity of 320,000,000 gallons daily.

Work is proceeding on the GRIT CHAMBER under the contracts aggregating $338,000, entered into in 1928.

The discharge mains from the Pumping Station to the conduit system leading to the treatment structures were completed at a cost of $38,541.76.

Work is proceeding under a contract with the Philadelphia Electric Company for additional transformers and power supply to cover the additional demand, which will be made from the pumping equipment.

In the Southwestern district, a contract was entered into and work is proceeding for extending the 80TH STREET AND ISLAND AVENUE INTERCEPTING SEWER from Northwest of Erwig Avenue to 75th Street and Grays Avenue. The completion of this work will permit the diversion of flow from the Cobb's Creek Intercepting Sewer to the Southwest Sewage Pumping Station and remove this pollution from the waters of Darby Creek. The amount of contract is $285,000.

22-1929

NORTHEAST SEWAGE TREATMENT WORKS.

The site of the Northeast Sewage Treatment Works is at Wheatsheaf Lane between Richmond Street and the Delaware River. The present capacity of these Works is 60,000,000 gallons per day for treatment by sedimentation and digestion of organic solids in Imhoff tanks. The Works have been in operation since 1923 and the average daily flow is now 35,000,000 gallons. The determination of settling solids by Imhoff glasses indicates a consistent removal of 100% throughout the year and the gooch crucible determination of suspended solids show a reduction of 88% total suspended solids. There were 11,222 cubic yards of wet, digested sludge produced during the year, amounting to 1.5 cubic yards per million gallons of sewage treated.

The Frankford Creek Grit Chamber, located at Lycoming and "O" Streets, provides coarse screening and preliminary sedimentation of sewage, prior to entering the Northeast Works for treatment. During the year, a total sewage flow of 12,585,000,000 gallons passed through the Grit Chamber and deposited 16,448 cubic feet of wet screenings and 40,338 cubic feet of wet grit. This grit was washed and hauled to the Northeast Works' site and used for filling material. The grease interception process resulted in the collection of 1,411 cubic feet.

Preliminary steps for the increase of capacity at the Northeast Treatment Works were taken in the entering into of a contract for additional outfall conduits and the opening, grading and paving of Wheatsheaf Lane from Carbon Street to the Outfall Pier at the River front.

The Northeast Laboratory investigated and reported on a total of 6,559 samples of sewage sludge and industrial wastes.

PENNYPACK CREEK SEWAGE TREATMENT WORKS.

These Works, located at State Road and Ashburner Street, have been in operation since 1912 and have provided a very high degree of treatment during that entire period. The placing in service of the Upper Delaware Collecting Sewer will render this plant unnecessary and its abandonment is expected early in 1930. Established originally to serve a district purely residential and institutional, it has been increasingly difficult year by year to maintain the standard of treatment required because of the gradual change in the character of development from residential to industrial and the sewage flow being heavilly charged with trade wastes from wool scouring, bleaching and dyeing establishments.

The PENNYPACK PUMPING STATION, located at State Road and Pennypack Creek, received the sewage from Municipal institutions in the vicinity and from the village of Holmesburg and pumped it to the Pennypack Treatment Works. This Station will remain in existence but will raise this low level drainage to the Upper Delaware Collecting Sewer in place of its former duty of discharging to the Pennypack Treatment Works. The expenditure for operation, maintenance and repairs of these Works was $9,409.49 for the Treatment Works, and $11,188.87 for the Pumping Station. Of this last item, $4,238.39 was the power cost for the pumpage of 850,000,000 gallons during the year.

Under the agreement entered into in 1923 by which an interchange of drainage, between the City of Philadelphia and Cheltenham Township was provided for, the first connection was made from the City of Philadelphia into the drainage system of Cheltenham at Comly Street. A recording meter was installed by Cheltenham Township for

23-1929.

measuring the amount of flow and computing the bills to be rendered therefor to the City of Philadelphia.

The industrial waste patrol has been continued in service, investigating the discharges of manufacturing processes in order to safeguard the sewer system and treatment works from materials objectionable and destructive.

DRAINAGE PERMIT DIVISION.

Permits for connection with the drainage system were issued to the number of 1171, covering 6,189 individual connections. The office records were increased by the filing of 220 plans and diaries of sewers constructed during the year.

TESTING LABORATORY.

The City Testing Laboratory, operating under the direction of the Bureau of Engineering and Surveys, carries on the physical and chemical testing of materials furnished under contracts for construction or maintenance and supplies, with the various City departments and Bureaus. Where required, inspection and collection service was also furnished by the Laboratory. The number of tests made during the year was 10,500 and cover a wide range of materials.

OFFICIAL PHOTOGRAPHER.

The work of the Division of the Official Photographer for the year 1929 comprised the making of picture negatives to the number of 2249, from which prints were made numbering 9,672. Blue prints for the various departments and bureaus were done to the extent of 227,287 square feet.

MISCELLANEOUS OPERATIONS.

Miscellaneous contracts carried on by the Bureau of Engineering and Surveys during the year were as follows:

IMPROVEMENT OF FRANKFORD AVENUE, Bridge Street to Cheltenham Avenue, upon which work is now proceeding with a contract limit of $9000.

GRADING AND PAVING OF FRANKFORD AVENUE from Bridge Street northward was completed at a cost of $65,491.23.

PAVING of the shoulders and wings of CASTOR AVENUE from Oxford Circle to Cottman Street was completed at a cost of $6,692.76.

A contract for the relocation of the Frankford, Bustleton and Byberry Surface Passenger Railway and the paving connected therewith in CASTOR AVENUE from Oxford Circle to Cottman Street was completed at a cost of $134,734.23.

Miscellaneous Construction.

Improvement of Frankford Avenue, Bridge Street to Cheltenham Avenue, amount of contract $9000 - 40% complete.

Grading and Paving Frankford Avenue, Bridge Street northward, completed at a total cost of $65,491.23.

Paving shoulders and wings of Castor Avenue, Oxford Circle to Cottman Street, at a total cost of $6,692.76.

A contract carried over from 1928 for construction of the Frankford, Bustleton & Byberry Surface Passenger Railway in Castor Avenue from Oxford Circle to Cottman Street was completed at a total cost of $134,734.23.

A contract for Churn Borings awarded in 1929 was completed at a total cost of $450.

A contract for furnishing 9-way Electric Duct to the Northeast Sewage Works was awarded in 1929, and completed at a total cost of $297.

Work on the following contracts awarded in 1929 has not been started:

Restoration of paving, Wissinoming Street from Unruh Street to Cottman Street - amount of contract $15,000.

Grading, Paving, etc., Wheatsheaf Lane at Northeast Works - amount of contract $225,000.

H. M. Beaumont
Asst. Engineer
1/27/1930

25-1929

ANNUAL REPORT

FOR 1929

TESTING LABORATORY

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

JANUARY 15TH, 1930

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

CITY OF PHILADELPHIA

CITY HALL ANNEX

January 24, 1930.

REPLY AND REFER TO: TL-AFB

From: Assistant Engineer, Testing Laboratory Division,

To: Mr. John H. Neeson, Chief Engineer & Surveyor

Subject: ANNUAL REPORT

Report of Bureau of Engineering and Surveys Testing Laboratory Division's activities for the calendar year 1929 is hereby submitted.

The work consisted of physical and chemical testing of materials, submitted by the various city departments and bureaus, in accordance with their respective specification. Inspection and collection service was performed where required or requested.

Special investigations covering a variety of materials proposed for use was made in the endeavor to select the highest quality of same for construction purposes.

Research investigations were made on several materials which had failed after being placed in the work.

The laboratory is cooperating with the American Society for Testing Materials by assisting in the forming of specifications and test methods for materials of construction and holds membership on several of this society's committees deemed important to the city's construction work.

High quality of laboratory standards and methods have been maintained and this was substantiated by cooperative tests with outside laboratories of high repute.

Total number of specimens tested show a decrease of approximately 8% under those tested the preceeding year and this is attributed to the decreased construction program for the calendar year.

The appended tables show the total, variety, distribution and percentage of distribution of the specimens submitted by city departments and bureaus.

A. F. Burbidge

A.F. Burbidge,
Assistant Engineer.

27-1929

TOTAL NUMBER OF SPECIMENS FOR 1929

Brick	491
Cast Iron	56
Cement-Hydraulic	1978
Concrete	3108
Concrete Aggregates	120
Conduit (Electrical)	2
Fabrics	5
Fire Hose	4
Foods	5
Fuels	1178
Metals	32
Miscellaneous Materials	116
Oil-Mineral	90
Paint and Paint Materials	245
Road Materials	2835
Rope	29
Sands-Asphalt	21
Soap and Soap Materials	40
Steel	44
Tile-Clay	101
TOTAL	10,500

28-1929

DISTRIBUTION OF SPECIMENS FOR 1929

	NO.OF SPECIMENS	PERCENT	NO.OF SPECIMENS	PERCENT
DEPT. OF CITY TRANSIT			1460	13.9
DEPT. OF PUBLIC HEALTH			35	0.3
Bureau of Health	35	0.3		
DEPT. OF PUBLIC SAFETY			813	7.7
Bureau of Boiler Inspection	39	0.4		
" " Building Inspection	767	7.2		
Electrical Bureau	7	0.1		
	813	7.7		
DEPT. OF PUBLIC WORKS			6930	66.0
Bureau of City Property	1	-		
" " Engineering & Survey	2806	26.7		
" " Highways	3926	37.4		
" " Water	197	1.9		
	6930	66.0		
DEPT. OF SUPPLIES			1225	11.7
DEPT. OF WHARVES,DOCKS & FERRIES			37	0.4
		TOTAL	10,500	100.0%

29-1929

HYDRAULIC CEMENT SPECIMENS FOR 1929

Domestic Portland Cement	1550
Foreign " "	223
Special Investigation "	194
TOTAL -	1967

DISTRIBUTION OF HYDRAULIC CEMENT FOR 1929

DEPARTMENT OF PUBLIC WORKS		1616
Bureau of Engineering and Surveys		
Sewer Division	615	
Sewage Disposal(construction)	136	
Bridge Division	66	
Grade Crossing Division	391	
Testing Laboratory	10	
Bins	190	
	1408	
Bureau of Highways	27	
Bureau of Highways (Piers)	180	
	207	
Bureau of Water	1	
	1616	
DEPT. OF WHARVES,DOCKS & FERRIES		7
DEPT. OF PUBLIC SAFETY		11
Building Inspection (Piers)	11	
DEPT. OF CITY TRANSIT		333
		1967

30-1929

CHEMICAL SPECIMENS FOR 1929

Cement (Chemical Analysis)			11
Coal			
	Anthracite	264	
	Bituminous	737	
	Ash	3	
		1004	1004
Fabrics			5
Fire Hose			4
Foods			5
Metals			32
	Non-ferrous 12		
	Ferrous 20		
	32		
Miscellaneous Materials			105
Oil			
	Fuel	174	
	Headlight & Gasoline	8	
	Lubricating & Lubricants	82	
		264	264
Paint and Paint Materials			
	Mixed Paints	97	
	Pigments	34	
	Pastes	36	
	Drier	21	
	Linseed Oil	30	
	Putty	1	
	Turpentine	8	
	Shellac	11	
	Varnish	7	
		245	245
Road Materials			
	Asphalt (Waterproofing)	22	
	" Compounds(Misc.)	66	
	" Cement (Bit.)	1	
	" " (Penetration)	1476	
	Tar	3	
	Wearing Surface	1267	
		2835	2835
Rope		18	18

31-1929

CHEMICAL SPECIMENS FOR 1929(CONT'D.)

Sands			
	Asphalt	21	
	Concrete	12	
		33	33
Soap & Soap Materials			40
		TOTAL -	4601

SPECIMENS FOR PHYSICAL TEST 1929

BRICK				491
	Paving	6		
	Sewer	95		
	Building	390		
		491		
CAST IRON	(Arbitration Bars)			56
CONCRETE				3216
	Aggregate, Fine (Sand)			
	" ,Coarse(Gravel,Slag		52	
	Grit,Pebbles)		56	
	Block, Building		310	
	Cores		577	
	Cylinders		2216	
	Prism		5	
			3216	
CONDUIT	(Electrical)			2
MISCELLANEOUS MATERIALS				9
ROPE				11
RUBBER				2
STEEL				44
TILE				101
				3932

34-1929

SPECIMENS FOR PHYSICAL TEST 1929

BRICK			491
	Paving	6	
	Sewer	95	
	Building	390	
		491	
CAST IRON	(Arbitration Bars)		56
CONCRETE			3216
	Aggregate, Fine (Sand)	52	
	" ,Coarse(Gravel,Slag	56	
	Grit,Pebbles)		
	Block, Building	310	
	Cores	577	
	Cylinders	2216	
	Prism	5	
		3216	
CONDUIT (Electrical)			2
MISCELLANEOUS MATERIALS			9
ROPE			11
RUBBER			2
STEEL			44
TILE			101
			3932

34-1929

DISTRIBUTION OF PHYSICAL SPECIMENS FOR 1929

DEPT. OF CITY TRANSIT		1033
DEPT. OF PUBLIC SAFETY		756
Bureau of Building Inspection	756	
DEPT. OF PUBLIC WORKS		2130
Bureau of Engineering & Surveys	1297	
" " Highways	831	
" " Water	2	
	2130	
DEPT.OF SUPPLIES		13
		3932

35-1929

PENNYPACK CREEK SEWAGE PUMPING STATION - OPERATION 1929

STARTED - 12-1-1912 CAPITAL INVESTMENT { Buildings & Machinery $31,000 / 3100 ft. 14" C.I. Force Main $4100 } PUMPING HEAD 50 FT.

PERIOD	PUMPAGE MILLION GALS. TOTAL	PUMPAGE MILLION GALS. DAILY	ELEC CURRENT K.W. HOURS POWER	ELEC CURRENT K.W. HOURS LIGHT	SCREENINGS cu.ft. TOTAL WET	SCREENINGS cu.ft. PER MILLION GALS	STATION EFFIENCY %	COST WAGES	COST POWER HEAT LIGHT	COST OIL WASTE PACKING	COST SUNDRIES REPAIRS EQUIPMENT	COST TOTAL	COST PER MILLION GALS.
1913	286.490	0.785	PRODUCER GAS	NAT GAS	540	1.9		$ 6000	$ 988.80	$ 272	$ 600	$ 7900	$ 27.62
1914	382,242	1.047			675	1.8		6500	773.08	344	700	8300	21.73
1915	462,011	1.266			945	2.0		6800	921.20	406	850	9000	19.48
1916	452.131	1.235			891	2.0		6900	895.58	440	1000	9200	20.35
1917	417.314	1.143			810	2.0		7200	1114.75	435	1400	10200	24.46
1918	399.688	1.095			783	2.0		8600	1603.60	485	1600	12300	30.76
1919	582,875	1.597		4-19-1920	756	1.3		8900	1927.96	905	1900	13600	23.33
1920	622 705	1.701		2312	729	1.2		10300	2227.89	1347	2200	16100	25.84
1921	380.659	1.043	9-20-1921	1812	702	1.9		10900	2836.14	963	2500	17200	45.14
1922	564.779	1.547	169868	1476	5599	9.9	51.0	6200	4965.27	141	983	12295	21.77
1923	544,116	1.491	169870	1216	3246	6.0	51.0	6140	4851.00	135	195	11322	20.81
1924	591,960	1.618	175490	1108	3351	5.8	53.2	6372	4581.00	126	156	11225	18.97
1925	572,700	1.570	172900	1192	2917	5.7	52.3	6341	4416.00	184	96	11037	19.27
1926	657.965	1.802	194560	1050	3126	4.9	53.3	6050	4493.00	139	1205	11888	18.05
1927	801,684	2.224	224750	1178	2964	3.7	57.0	6204	4631.00	194	265	11294	14.00
1928	872,320	2.383	238810	970	2321	2.7	57.0	6047	4741.00	85	135	11008	12.62
AVER.	536.977	1.472	192321	1368	1897	3.4	53.7	7216	2872.95	413	987	11492	22.26
JAN	63.360	2.044	17590	118	112	1.8		$ 516	$ 369.32	$ 8	$ 10	$ 903.32	$ 14.24
FEB	57.570	2.056	12960	93	99	1.8		483	326.66	7	20	836.66	14.52
MAR	71.650	2.305	15910	74	193	2.7		507	357.75	9	22	895.75	12.50
APR	63.100	2.103	13480	71	101	1.6		483	333.10	8	17	841.10	13.33
MAY	71.300	2.300	17220	61	163	2.3		531	368.34	9	14	922.34	12.93
JUN	73.350	2.445	18720	53	189	2.6		539	369.74	10	40	958.74	13.07
JUL	73.660	2.376	18394	54	181	2.5		563	357.12	10	91	1021.12	13.86
AUG	73.020	2.356	18960	55	159	2.2		519	362.72	10	50	941.72	12.90
SEP	70.990	2.366	17180	61	174	2.4		558	351.18	9	100	1018.18	14.34
OCT	79.970	2.580	23560	87	242	3.0		551	420.55	12	20	1003.55	12.50
NOV	74.870	2.496	21070	93	215	2.9		531	398.53	10.36	20	959.89	12.82
DEC	76.830	2.479	15150	67	220	2.9		491	355.75	11	28.75	886.50	11.54
TOTAL	845.670	2.328	210194	887	2048	2.4	17.2	$ 6272	$ 4370.76	$ 113.36	$ 432.75	$ 11188.87	$ 13.17

FRANKFORD CREEK GRIT CHAMBER - OPERATION 1929

STARTED 10-29-1923 CAPITAL INVESTMENT { LAND 7,386 ACRES $15,260. / BUILDINGS & MACHINERY 240,950. / TOTAL 256,210. } CAPACITY 150 M.G.D.

PERIOD	RAIN FALL TOTAL INCHES	DAYS IN SERVICE	SEWAGE FLOW: TOTAL MILLION GALLONS	SEWAGE FLOW: VELOCITY FEET PER SECOND	GRIT: CUBIC FEET TOTAL	GRIT: CUBIC FEET PER MILL GAL. SEWAGE	GRIT: % VOLATILE WASHED	SCREENINGS CU. FT. WET: TOTAL	SCREENINGS CU. FT. WET: PER MILL. GAL SEWAGE	ASHES FROM INCINERATOR CU. FT.	GREASE CUBIC FEET: TOTAL	GREASE CUBIC FEET: PER MILL GAL. SEWAGE	COST: WAGES	COST: POWER & LIGHT	COST: BURNING SCREENINGS & HEATING	COST: OIL WASTE & PACKING	COST: REPAIRS MAINTENANCE & EQUIPMENT	COST: TOTAL	COST: PER MILL GAL. SEWAGE
1924	43.11	346.	9169.	0.85	23,100.	2.5	5.0	26950.	3.0	631.	1890.	—	$9269.	$530.	$1004.	$31.	$1524.	$12358.	$1.35
1925	32.40	365.	9277.	0.85	18,264.	2.0	7.7	11829.	1.3	620.	3309.	0.4	11077.	772.	1110.	53.	1535.	14547.	1.57
1926	44.91	359.	9139.	0.83	18,117.	2.0	7.6	6671.	0.7	646.	2674.	0.3	10108.	648.	1237.	100.	2613.	14706.	1.69
1927	43.15	316.	7720.	0.87	20,710.	2.7	6.3	5403.	0.7	658.	660.	0.08	10281.	625.39	1438.	22.	1638.	13504.	1.75
1928	38.66	346.	12048.	0.84	36262.	3.0	6.2	15008.	1.2	560	3908.	0.32	8664.	762.	1205.	30.	2496.	13157	1.09
AVER.	40.45	346.	9471.	0.85	23291.	2.4	6.6	13171.	1.4	611	2488.	0.28	9880.	667.48	1199.	47.20	1961.	13654	1.49
JAN.	2.70	31	1188	0.75	1863	1.6	6.0	1427	1.2	—	124	0.10	$711	$69	110	$2	$100	$992	$0.84
FEB.	4.24	28	949	0.65	2943	3.1	6.8	1594	1.7	—	155	0.16	671	65	100	2	150	988	1.04
MAR.	2.22	31	1132	0.65	2187	2.0	10.6	2301	2.0	—	126	0.11	720	50	95	2	200	1067	0.94
APR.	6.44	30	1124	0.72	3105	2.8	9.9	1341	1.2	—	106	0.09	705	62	70	2	200	1039	0.92
MAY.	2.28	31	1171	0.71	7317	6.2	9.0	1347	1.2	—	110	0.10	768	76	50	2	250	1146	0.98
JUN.	2.74	30	1085	0.70	3051	2.8	3.8	1340	1.2	—	87	0.08	685	52	—	2	250	989	0.91
JUL.	1.53	31	958	0.70	4023	4.2	2.8	1027	1.0	—	100	0.14	752	90	—	2	250	1094	1.10
AUG.	3.22	31	953	0.71	4536	4.7	7.7	963	1.0	—	89	0.09	774	103	—	2	250	1129	1.18
SEP.	6.51	30	997	0.70	3996	4.0	6.4	1207	1.2	—	85	0.09	723	78	—	2	250	1053	1.06
OCT.	3.59	31	1016	0.75	4914	4.8	3.7	1301	1.2	—	97	0.10	747	92	40	2	200	1081	1.06
NOV.	3.11	30	988	0.70	1323	1.3	8.4	1306	1.2		82	0.08	704	57	60	2	200	1023	1.03
DEC.	2.98	31	1024	0.70	1080	1.0	2.5	1294	1.3		250	0.24	690	$40.86	70	2	191.57	994.43	0.97
TOTAL	41.56	365	12585	0.70	40338	3.2	6.4	16448	1.3		1711	0.11	$8650	$834.86	$595	$24	$2491.57	$12595.43	$1.00

ITEM A-39 WAGES NORTHEAST SEWAGE WORKS & FKFD. GRIT CHAMBER 1929.

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEP.	OCT.	NOV.	DEC.	TOTAL	1928	1927	1926	1925	1924
			NORTHEAST			SEWAGE			TREATMENT				WORKS					
OVERHEAD	425.00	425.00	425.00	425.00	425.-	425.-	425.-	425.-	425.-	425.-	425.-	425	5100	4643.00	4713.33	4703.00	4200.00	2400.-
LABORATORY	175.00	175.00	175.00	175.00	175.-	175.-	175.-	175.-	175.-	300.-	300.-	292	2467	2100.00	2100.00	2100.00	2100.00	—
SAMPLING	501.50	491.00	531.00	533.50	549.-	483.-	519.-	552.-	485.-	485.-	497.-	467	6094	5987.50	5050.00	4558.00	4500.-	2000.-
SCUM & FOAM	536.50	470.00	514.50	522.00	454.-	418.-	457.-	418.-	396.-	459.50	506.-	496	5647.50	5977.00	5000.00	4000.00	4500.-	3500.-
SKIMMING	895.00	783.00	858.00	872.00	758.-	697.-	761.-	697.-	660.-	764.-	842.-	825	9412.-	8698.00	8000.00	6000.00	7000.-	8000.-
SLUDGE MEAUS.	22.00	22.00	22.00	22.00	22.-	22.-	22.-	22.-	22.-	22.-	22.-	22.-	264.-	413.50	300.00	300.00	323.79	200.-
" REMOVAL	123.00	108.00	122.00	118.00	121.50	113.-	118	116.50	112.-	127.50	115.50	113	1408.-	1100.00	3300.00	3000.00	3000.00	—
PRS. BLDGS. & MAC.	150.00	100.00	150.00	150.00	350.-	350.-	483	445.-	450.-	425.-	225.	150	3428	2885.00	1000.00	100.-	500.-	500.-
" PIPE & VALVES	—	50.00	—	—	50.-	87.47	58.97	49.97	49.97	49.97	33.47	—	429.82	1160.53	406.37	300.00	500.-	500.-
" TOOLS & EQUIP.	128.00	120.00	128.00	120.00	128.-	120.-	128.-	124.-	124.-	128.-	132.-	124.-	1504.-	2016.00	1000.00	361.82	600.-	500.-
" ELECTRICAL	150.00	150.00	150.00	150.00	150.-	150.-	150.-	150.-	150.-	150.-	150.-	150.-	1800.-	1800.00	1800.00	1800.00	1800.00	—
GARAGE	274.50	280.00	300.00	260.00	212.50	261.50	268.-	270.-	261.-	272.-	260.-	272	3191.50	3202.58	177.00	100.00	—	—
HEATING PLANT	893.97	865.97	832.47	825.97	599.97	462.50	386.-	400.-	400.-	425.-	719.-	862	7672.85	6225.05	6000.00	3000.-	2800.-	—
SEDIM. UNITS	252.50	246.00	257.50	247.00	259.-	256.-	333.-	302.-	260.-	262.-	258.-	294	3227.-	3723.50	4203.50	5560.00	4500.-	—
OUTFALL PIER	256.00	262.50	472.00	326.00	350.-	396.50	445.-	425.-	400.-	383.-	314.67	328	4358.67	4292.00	3541.00	2951.00	—	—
N.D. PUMP STA.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
N.D GRIT CHAM.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
JANITOR	108.00	84.00	110.00	92.00	102.-	88.-	118.-	100.-	86.-	108	90	92	1178.-	1367.29	1252.00	600.00	500.00	400.-
GROUNDS					181.-	224.-	239.-	234.-	206.-	110	—	—	1194.-	1676.00	1300.00	1320.00	1000.00	1054.67
TOTAL	4880.97	4632.47	5047.47	4838.47	4896.97	4728.97	5085.97	4905.47	4611.97	4895.97	4889.64	4912	58376.34	57266.95	49143.20	48753.82	37823.79	19054.67
					FRANKFORD		GRIT		CHAMBER									
SCREENINGS	225.00	200.00	225.00	225.00	200.-	200.-	200.-	200.-	200.-	200.-	200.-	200	2475.-	2179.00	2000.00	2100.00	2500.00	2800.00
GREASE	50.00	50.00	50.00	40.00	50.-	40.-	50	50.-	40.-	40.-	50.-	60	570.-	547.00	531.01	700.00	800.00	600.00
GRIT	200.00	200.00	200.00	225.00	225.-	200.-	250	250.-	225.-	250.-	200.-	220	2645.-	3355.00	3100.00	3000.00	3500.00	4000.00
PRS. BLDGS	75.00	60.00	79.50	30.00	50.-	40.-	30	50	40.-	40.-	50.-	75	619.50	408.50	400.00	412.80	400.00	200.00
" MACH & EQUIP.	50.00	50.00	50.00	20.00	50.-	30.-	30	30	30.-	40.-	50.-	25	455.-	300.00	300.00	350.00	300.00	100.00
GROUNDS	11.00	11.00	16.00	64.50	92.50	75.50	92	94	87.50	77.50	54.-	10	685.-	675.00	700.00	550.00	477.00	245.00
WATCHMAN	100.00	100.00	100.00	100.00	100.-	100.-	100	100	100.-	100.-	100	100	1200.-	1200.00	1200.00	1200.00	1200.00	1200.00
TOTAL	711.00	671.00	720.50	704.50	767.50	685.50	752	774	722.50	747.50	704	690	8650.	8644.50	8231.01	8312.00	9177.00	9148.00
MONTHLY TOTAL	5591.97	5303.47	5767.97	5543.97	5664.47	5414.47	5837.97	5679.47	5334.47	5643.47	5593.64	5602	67026.34	65931.45	57374.21	49096.82	47000.79	28199.67
SEWAGE FLOW M.G.	1188	949	1132	1124	1171	1085	958	953	997	1016	988	1024	12585	12089	7403	9139	138	8102
COST PER M.G.	$4.71	$5.59	$5.10	$4.93	$4.84	$4.99	$6.09	$5.96	$5.40	$5.55	$5.66	$5.47	$5.33	5.45	7.75	5.37	5.64	3.48

NORTHEAST SEWAGE TREATMENT WORKS

POWER AND LIGHT COSTS OF 1929

STAND-BY CHARGE - $212.50 PER MON. POWER FACTOR - 94.6 %

	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	1929	1928	1927	1926
LOCKER BLDG. LT.	$2	2	1	1	1	1	1	1	1	1	1	1	$14	$14.	$15.	$19.
TRANSFORMER BLDG. LT.	2	2	1	1	1	1	1	1	1	1	1	1	14	10.	6.	8.
ADMINISTRATION BLDG. LT.	10	8	10	10	6	6	5	5	5	6	5	8	84	56.	74.	95.
" " PR.	25	22	15	20	20	14	17	18	20	22	21	18	232	232.	141.	95.
GARAGE & ~~FIELD OFFICE~~ PR.	2	4	1	1	1	1	1	2	1	2	1	2	19	20.	24.	25.
" " " LT.	3	2	1	1	1	1	1	1	1	1	1	2	16	30.	8.	30.
HEATING PLANT (BOILER RM.) LT.	35	37	22	21	11	2	1	1	1	2	10	25	168	196.	202.	300.
" " " PR.	3	3	1	1	1	2	1	1	1	1	1	1	17	13.	40.	50.
" " (COMPR. RM.) PR	1	10	60	75	50	14	80	60	80	161	90	64	745	457.	341.	400.
" " " " LT.	3	3	3	3	1	1	—	—	1	1	1	1	18	21.	40.	80.
" " (MACH. SHOP) LT.	7	6	4	3	2	1	—	—	1	1	1	3	29	17.	60.	120.
" " " " PR.	4	2	1	2	2	2	2	3	4	5	2	2	31	38.	80.	100.
SEDIMENT. UNITS PR.	15	15	18	6	6	5	6	17	13	18	44	7	170	198.	180.	534.
" " LT.	15	8	8	6	4	4	8	11	10	10	10	16	110	63.	34.	92.
OUTFALL PIER LT.	69	64	23	22	20	18	17	20	25	36	31	36	381	417.	624.	400.
" " (PUMP STA.) PR.	—	—	135	168	190	270	244	260	270	270	130	—	1937	1945.	1627.	—
STREET LAMPS LT.	200	190	117	106	94	90	80	90	105	148	150	105	1475	1624.	1830.	2374.
U.D. PUMPING STATION LT.	—	—	—	—	—	—	—	16	18	26	10	9	80	—	—	—
" " " PR.	—	—	—	—	—	—	—	202	206	41	156	150	755	—	—	—
U.D. GRIT CHAMBER LT.	—	—	—	—	—	—	—	—	—	3	4	2	9	—	—	—
" " " PR.	—	—	—	—	—	—	—	—	1	10	1	2	14	—	—	—
TOTAL COST	$395.72	$378.68	$421.31	$446.64	$411.25	$433.19	$465.40	$708.90	$765.00	$766.28	$670.77	$454.97	$6318.11	$5351.	$5326.	$4722.
TOTAL K.W. HOURS	10,200	8500	13,000	14,700	11,900	14,300	18100	25400	22300	32200	20506	9500	200,700	172000	157500	107600
COST PER ..W. HR.	3.8¢	4.4¢	3.2¢	3.0¢	3.5¢	3.0	.6¢	2.8¢	3.4¢	2.4¢	3.3¢	4.8¢	3.1¢	3.1¢	¼¢	4.4¢

SOUTHWEST SEWAGE PUMPING STATION - OPERATION - 1929.

OPERATION STARTED AUG. 23RD. 1927 — CAPITAL INVESTMENT = $300,000. — PUMPING HEAD = 50. FT.

PERIOD	PUMPAGE MILLION GALLONS		PUMPING HOURS		SCREENINGS CU. FT.		PERCENTAGE MECHANICAL EFFICIENCY	COSTS						
	TOTAL	DAILY	14" PUMP	12" PUMP	TOTAL WET	PER MIL. GALS. SEWAGE		WAGES	POWER AND LIGHT	HEAT	LUBRICANTS WASTE & PACKING	SUNDRIES REPAIRS & EQUIPMENT	TOTAL	PER. MIL. GALLONS SEWAGE
	TOTAL	DAILY						$10837.	$4288.	$333.	$15.	$3191.	$18664.	$73.27
1928	254.740	0.696	660	541	36	0.14								
JAN.	22.5	0.73	66	37	3			965.97	370	46	1	100	$1482.97	$65.91
FEB.	21.4	0.69	64	34	3			941.97	360	83	1	100	1485.97	69.44
MAR.	18.1	0.59	67	11	3			965.97	350	47	1	100	1463.97	80.88
APR.	17.5	0.58	58	20	3			951.97	354.63	47	1	200	1560.60	89.18
MAY	18.2	0.59	60	21	3			969.97	350	—	1	200	1520.97	83.57
JUNE	16.5	0.55	56	17	2			949.97	344	—	1	200	1494.97	90.42
JULY	15.0	0.48	47	21	1.			965.97	345	—	1	200	1511.97	100.79
AUG.	14.3	0.46	47	17	1.			973.97	204	—	1	300	1478.97	103.42
SEPT.	16.6	0.55	52	22	2			961.97	200	—	1	300	1462.97	85.96
OCT.	18.2	0.59	61	20	3			977.97	196	—	1	300	1474.97	81.04
NOV.	17.9	0.60	64	14	3			981.97	160	84	1	300	1526.97	85.31
DEC.	16.1	0.52	56	15	3			958.33	120	74.69	1	212.85	1366.87	84.90
TOTAL	212.~~..~~ 30	0.582	698	249	30	0.14		$72.00	$3353.63	$381.69	$12	$2512.85	$17832.17	$83.99

MINGO CREEK PUMPING STATION - OPERATION 1929

STARTED 3-13-1896. CAPITAL INVESTMENT $35,000. PUMPING HEAD - 12 FEET.

PERIOD	RAIN-FALL TOTAL INCHES	ESTIMATED PUMPAGE MILLION GALLONS	HOURS IN SERVICE			FUEL OIL USED - GALLONS				COST OF OPERATION & MAINTENANCE					
			ONE PUMP	ONE BOILER		TOTAL	CHARGEABLE TO		PER MILLION GALLONS PUMPED	WAGES	POWER HEAT & LIGHT	LUBRICANTS WASTE & PACKING	SUNDRIES REPAIRS & EQUIPMENT	TOTAL	PER MILLION GALLONS PUMPED
				POWER	HEAT-ING		POWER	HEAT							
1922	29.31	2425	1616	2000	77	124,079	119500	4.579	49	$ 7017	$ 6014	$ 252	$ 1806	$ 15,089	$ 6.22
1923	39.19	3186	2115	2277	321	162,583	157,213	5 370	51	5853	9429	216	692	16.190	5.08
1924	43.10	4146	2762	2944	319	231,307	226,349	4.958	56	6220	11208	261	1836	19,525	4.69
1925	52.40	3354	2234	2500	257	198 138	192,947	5.191	59	7417	11471	237	2794	21,919	6.54
1926	44.91	4563	3042	3368	212	227,489	222 786	4 703	63	7776	16313	332	4145	28,566	6.26
1927	43.15	4131	2754	3057	505	245,723	241,146	4.577	59	7828	12760	252	2845	23,685	5.73
1928	38.66	5329	3554	4480	603	312,581	307847	4 734	52	7848	12097	222	1997	22,164	4.16
AVER.	38 68	3876	2582	2947	328	214557	209,684	4,873	55	7137	11328	253	2302	21.019	5.53
JAN.	2.70	297	198	291	85	20,122	—	—	68	$ 659	$ 767	$ 20	$ 80	$ 1526	$ 5.14
FEB.	4,24	369	246	266	74	20195	—	—	54	635	776	20	80	1511	4.09
MAR	2.22	465	310	456	63	24945	—	—	54	671	954	20	100	1745	3.75
APR.	644	542	361	459	63	33621	—	—	62	647	1275	20	120	2062	3.80
MAY	2.28	387	258	298	82	23779	—	—	61	659	908	20	130	1717	4.44
JUN.	2.74	286	159	266	—	15832	—	—	55	635	608	20	120	1383	4.84
JUL.	1.53	270	150	292	—	14703	—	—	55	659	564	20	100	1343	4.97
AUG.	3.22	288	160	284	—	20143	—	—	70	659	767	20	110	1556	5.40
SEP.	6.51	365	203	294	—	18611	—	—	51	639	710	20	100	1469	4.03
OCT.	3.59	560	311	478	—	24178	—	—	43	659	924	20	200	1803	3.22
NOV.	3.11	754	419	697	—	36385	—	—	48	675	1393	20	400	2488	3.30
DEC.	2.98	355	197	250	75	22188	—	—	62	667	860	20	309.68	1856.68	5.23
TOTAL	41.56	4938	2972	4331	442	274702	27000	47 2	56	$ 7864	$ 10506	$ 240	$ 1849.68	2 39.68	$ 4.14

FINANCIAL STATEMENT 1929.

Appropriation, 1929,		$ 979,615.17
Additional General Funds 1929		42,706.76
Balance Available from former years, Loan Fund		29,135,059.75
Additional Loan funds - 1929,		73,104.30
		$30,230,485.98
Transfer to Bureau of Highways 6/29/29		25,000.00
Balance 1929		**$30,205 ,485.98**

Expenditures, 1929,	$ 8,776,735.84	
Balance of Loan Funds 1929	21,343,404.80	
Balance General Funds, 1929,	25,165.26	
Balance Merged, 1929,	60,180.08	
	$30,205,485.98	$30,205,485.98

Receipts, 1929	
Receipts Sewer Registrar	62,896.52
Registry Division	17.50
Dist. Surveyor	277,324.23
Miscellaneous	105.00
Refund	114.99
	$ 340,458.24

43-1929

January 1, 1929

SEWER CONSTRUCTION

$2,500,000.00 was appropriated by Council for the Construction of Main Sewers. 2,979,168.11

$900,000.00 was appropriated by Council for the Construction of Branch Sewers.
148.457.37

MAIN AND BRANCH SEWERS.

151 branch sewer contracts were started in 1928. 111 branch sewer contracts were completed during the year 1928 and 40 are now in the course of construction.

6.91 miles of main sewers were completed. Sixteen new main sewers were started during the year 1928.

MAIN SEWERS PLACED UNDER CONTRACT PREVIOUS TO 1928 AND COMPLETED IN 1928.

Aramingo Avenue from Frankford Creek to Sepviva Street and in Sepviva Street from Aramingo Avenue to Butler Street and in Butler Street between Sepviva Street and Frankford Avenue. Size 5' x 5'6" reinforced concrete sewer on piles and 5' x 4'6" reinforced concrete and various smaller sized. Total length of sewer completed 5266.20 lin. ft.

Cranford Avenue from Oxford Avenue to Benner Street, in Benner Street from Cranford Avenue to Whitaker Avenue, in Whitaker Avenue from Benner Street to Comly Street, in Comly Street from Whitaker Avenue to Tabor Avenue, in Tabor Avenue from Comly Street to Benner Street, in Benner Street from Tabor Avenue to Lawndale Street and in Lawndale Street from Benner Street to north of Robbins Avenue. Sizes 7'6" x 8' reinforced concrete in open cut, 7'6" x 8' reinforced concrete in tunnel, 7' x 7' reinforced concrete, 6'6" x 6'6" reinforced concrete and various smaller sizes. Total length of sewer completed 3578.02 lin. ft.

Forrest Avenue from southeast of Mt. Airy Avenue to Gowen Avenue, in Gowen Avenue from Forrest Avenue to Williams Avenue and in Williams Avenue between Gowen Avenue and Cresheim Avenue. Sizes 6'6" reduced cradle with stone block invert, 5'0" reduced cradle with stone block invert and various smaller sizes. Total length of sewer completed 2832.46 lin. ft.

Greenwood Avenue from Cheltenham Avenue to Vernon Road. Size 2'6" diameter brick sewer with 10" diameter vitrified pipe and various other sizes of pipe sewers. Total length of sewer completed 2020 lin. ft.

Hellerman Street from Tackawanna Street to Battersby Street. Size 10'6" x 8' reinforced concrete sewer with stone block invert and various smaller sizes. Total length of sewer completed 2145.87 lin. ft.

Large Street from Everett Avenue to Magee Avenue, in Magee Ave. from Large Street to Horrocks Street, in Horrocks Street from Magee Avenue to Unruh Street and in Unruh Street from Horrocks Street to Eastwood Street. Size 4'6 diameter brick sewer in full cradle 4'6" diameter brick sewer in reduced cradle with vitrified shale brick invert and various smaller sizes. Total length of sewer completed 2807.44 lin. ft.

Tabor Avenue from Sanger Street to Cheltenham Avenue. Size 3'6" diameter brick sewer and various smaller sizes. Total length of sewer completed 595 lin. ft.

Tioga Street from present terminus near Richmond Street to Salmon Street, in Salmon Street from Tioga Street to Schiller Street, in Schiller Street from Salmon Street to Gaul Street and in Gaul Street from Schiller Street to Ontario Street. Size 6' x 7'6" reinforced concrete on earth and 6' x 7'6" reinforced concrete sewer on piles. Total length of sewer completed 2287 lin. ft.

Washington Lane from present terminus near Boyer Street northeastwardly. Size 3'6" diameter brick sewer with stone block invert and 3'2" diameter brick sewer with vitrified shale brick invert. Total length of sewer completed 1299 lin. ft.

Washington Lane from Chew Street to Boyer Street. Size 5'0" diameter brick sewer with vitrified shale brick invert, 4'6" diameter brick sewer with stone block invert and various smaller sizes. Total length of sewer completed 752 lin. ft.

MAIN SEWERS STARTED IN 1928 AND COMPLETED IN 1928.

Battersby Street from Hellerman Street to Unruh Street, in Unruh Street from Battersby Street to Brous Street, in Brous Street from Unruh Street to Tyosn Street and in Tyson Street between Brous Street and Roosevelt Blvd. Size 10' x 8' reinforced concrete sewer with stone block invert, 8' x 7'6" reinforced concrete sewer with stone block invert and various smaller sizes. Total length of sewer completed 4218.8 lin. ft.

Haverford Avenue from 69th Street to Lebanon Avenue. Size 4'6" diameter brick sewer in reduced cradle with stone block invert, 4'6" diameter brick sewer in reduced cradle with 15" diameter vitrified pipe and various smaller sizes. Total length of sewer completed 1008 lin. ft.

Packer Avenue between Delaware River and a point 650' east of Delaware Avenue. This was an outlet channel from end of the Packer Avenue sewer to the Delaware River

Salmon Street from Tioga Street to Schiller Street, in Schiller Street from Salmon Street to Gaul Street and in Gaul Street from Schiller St. to Ontario Street. Size 6' x 7'6" reinforced concrete sewer. Total length of sewer completed 370.89 lin. ft.

45-1929

Extension of Little Tacony Creek Sewer from present terminus at Lewis Street southwestwardly. Size 8'6" x 9(6" reinforced concrete sewer with vitrified shale invert lining. Total length of sewer completed 324.06 lin. ft.

Placed Under Contract Previously

MAIN SEWERS STARTED IN 1928 BUT NOT COMPLETED.

Aramingo Avenue from Sepviva Street to Wheatsheaf Lane. Size 5' x 6' reinforced concrete, 4'6" x 4'6" reinforced concrete and various other sizes. Length of sewer completed ~~1568~~ 1813.79 lin. ft.

Bouvier Street from Elston Street to Cheltenham Avenue and in Cheltenham Avenue between Bouvier Street and Washington Lane. Sizes 7' x 8' reinforced concrete sewer with vitrified plate lining and various other sizes. Length of sewer completed ~~2723~~ 3362 lin. ft.

Butler Street between Aramingo Avenue and Frankford Avenue. Size 4'0" diameter brick sewer in reduced cradle with vitrified shale brick invert, 3'6" diameter brick sewer in reduced cradle with vitrified shale brick invert and various other sizes. Length of sewer completed ~~1222~~ 1839.68 lin. ft.

Gorgas Lane from Wissahickon Low Level Intercepting Sewer to Henry Avenue and in Henry Avenue between Gorgas Lane and Gates Street. Size 3'6" diameter brick sewer in reduced cradle 3'6" diameter brick sewer in hard rock and various other sizes. Length of sewer completed 3418.06 3740.88 lin. ft.

Haverford Avenue from Lebanon Avenue to a point northwest of Malvern Avenue. Size 3'6" x 2'4" brick sewer with vitrified shale brick invert, 3'6" x 2'4" brick sewer in hard rock with vitrified shale brick invert. Length of sewer completed 1009 lin. ft.

Lakeside Avenue between Cheltenham Avenue and 12th Street, in 12th Street from Lakeside Avenue to 69th Avenue North and in 69th Avenue N. between 12th Street and Broad Street. Size 6' x 7' twin section reinforced concrete sewer with 24" diameter and 12" diameter vitrified pipe in concrete, 7'6" x 9'6" reinforced concrete sewer with 24" and 12" diameter vitrified pipe and various smaller sizes. Length of sewer completed ~~2664.22~~ 3098 lin. ft.

Mansfield Avenue between Upsal Street and Mt. Airy Avenue. Size 7'6" x 7'6" reinforced concrete sewer with stone block invert, 7'6" x 6'0" reinforced concrete sewer with stone block invert and various sizes. Length of sewer completed ~~399~~ 463.60 lin. ft.

Robbins Street from Lawndale Street to Palmetto Street, in Palmetto Street from Robbins Street to Hellerman Street, in Hellerman St. from Palmetto Street to Rising Sun Avenue and in Rising Sun Avenue between Hellerman Street and Passmore Street. Sizes 4'6" diameter brick sewer in reduced cradle with vitrified shale brick invert, 4'6" diameter brick sewer in hard rock and other sizes. Length of sewer completed ~~980~~ 2566 lin. ft.

46-1929

Sheffield Street from Rowland Avenue to Crabtree Street and in Crabtree Street and Pennypack Park from Sheffield Street to Pennypack Creek. Size 4'6" diameter brick sewer in reduced cradle with stone block invert and various sizes. Length of sewer completed ~~1304.9~~ 1498.7 lin. ft.

Tabor Avenue from Magee Street to Unruh Street and in Unruh Street from Tabor Avenue to Bingham Street and in Bingham Street between Unruh Street and Longshore Street. Size 5'6" x 4'6" reinforced concrete sewer with vitrified plate invert, 4'0" diameter brick sewer in full cradle with stone block invert and various sizes. Length of sewer completed ~~698~~ 2350.13 lin. ft.

30th Street from Morris Street to Mifflin Street. Size 5' x 4'6" reinforced concrete sewer. Length of sewer completed 980 lin. ft. 980.6

SEWERS STARTED PREVIOUS TO 1928 BUT NOT COMPLETED IN 1928

Tabor Avenue from the present terminus north of Comly Street to Benner Street, in Benner Street from Tabor Avenue to Lawndale Street and in Lawndale Street from Benner Street to north of Robbins Street. Size 6'6" x 6'6" reinforced concrete sewer, 5'6" x 6'6" reinforced concrete sewer, 6' x 6' reinforced concrete sewer and various sizes. Length of sewer completed ~~1939~~ 1972 lin. ft.

INLETS, LATERALS, etc.

One inlet contract was carried over from 1927 and completed in 1928.

SEWAGE DISPOSAL

Loans	Appropriations	Authorized	Amount Available	Loan Items
October 1, 1920	February 17, 1921	April 27, 1921	83,264.94	264
October 5, 1923	January 24, 1924	June 15, 1925	15,797.26	300
April 10, 1926	June 12, 1926	February 21, 1927	348,150.30	386
March 21, 1928	May 17, 1928	July 5, 1928	2,258,000.00	442
Available January 1, 1929			2,705,212.50	
Placed under contract		1,199,450.00		
Expenditures, bills, etc		94,318.71		
		1,293,768.71		
Reduction by contract recredits		134,890.26		
Cash cost		1,158,878.45	1,158,878.45	
Balance			1,546,334.05	
Reserved			46,334.05	
Available balance			1,500,000.00	

Improvement of Frankford and Castor Avenues

Loans	Appropriations	Authorized	Amount Available	Loan Items
October 5, 1923	January 24, 1924	July 11, 1928	18,020.53	310
March 21, 1928	May 17, 1928	July 11, 1928	241,922.69	450
			259,943.22	
Placed under contract		80,500.00		
Expenditures, bills etc		0.00		
Charged off		80,500.00		
Reduction by recredits		22,023.25		
Cash cost		58,476.75	58,476.75	
Balance			201,466.47	
Reserved for work awarded			1800.00	
Available balance			199,666.47	

ANNUAL REPORT - 1929

DRAINAGE DIVISION

Oak Lane Sewage Pumping Station

This station, formerly located on private property at 69th Avenue North between Broad Street and Old York Road, was dismantled and the property returned to the owner on March 31, 1929.

It was placed in operation in 1916 to provide drainage for an area of approximately 80 acres until such time as the main sewers could be extended to this locality. The completion of the main sewer in Lakeside Avenue from Cheltenham Avenue to Broad Street and 69th Avenue at that time made possible the abandonment of the Station.

Mingo Creek Pumping Station.

This Station is located on the west bank of the Schuylkill River north of Penrose Ferry Road, and was constructed in 1896 to provide surface drainage for the lowlands of the 40th Ward. The surface elevations throughout the lowlands are generally below the high tide level in the surrounding rivers, and this area is therefore protected from flooding by a system of dikes along the water front. The natural creeks traversing this area have been converted into a system of drainage ditches and discharge into the main channel of Mingo Creek, which terminates at the site of the Pumping Station.

Two 150 horsepower oil fired boilers provide steam for driving 2 horizontal centrifugal pumps of a combined capacity to lift 60 million gallons per day and discharge the water into the Schuylkill River against a head of 13 feet.

During the year the employees of the station painted the interior walls of the boiler and engine room and the metal window sash and doors, at a cost of $58.05 for painting material.

The wooden ceiling over the engine and boiler room was painted at a cost of $90.00.

Both boiler stacks were painted at a cost of $48.00.

48-1929

On February 23, 1929, the stem and nut of the 36" discharge valve Pump #1 failed and was replaced with a new stem and nut at a cost of $50.60.

On April 16, 1929, the main stop valve of Boiler #1 was found to be cracked while steaming up the boiler. Fortunately no one was injured, and a new valve was installed at a cost of $71.20.

Repairs to boiler brickwork and the extension of the front vertical stays on both boilers were done at a cost of $96.50.

Prior to 1926, the boiler feed water supply was obtained from Mingo Creek. The increasing quantity of sewage and trade wastes discharged into the tributary drainage channels so affected the quality of the Creek water as to make it unfit for boiler feed water purposes. Accordingly an extension from the City water main in Penrose Avenue to the Pumping Station was made. The substitution of City water for Creek water resulted in much less mud deposit in the boilers, but the character of scale formation on the tubes, sheets and headers was very hard and difficult to remove, and pitting of the metal became noticeable, ~~in varying quantities~~. Soda ash was employed as a water softener, but neutralized the lime content of the water and therefore resulted in little improvement. After investigation of several water treatment processes, it was decided to employ the Coleman method.

Results after two months use of the reagents appear to be very gratifying. Great quantities of scale have been removed from both boilers, and the resulting scale is softer and more easily removed, and indicates that this treatment will eliminate pitting and scaling.

Failure of the dikes along Darby Creek in Delaware County resulted in serious flooding in the Eastwick section during October and November.

A contract entered into during 1928 and another during 1929 for open stormwater channels along the County Line between Darby Creek and Church Creek were completed at a cost of $149,916.30 and $17,640 respectively. The excavation from these channels was used to form a dike along this line, and upon the raising

of the roadbeds of the steam and electric railways crossing the line to the levels of the dike, further protection of the 40th Ward Lowlands from drainage originating in Delaware County will have been effected.

The pumping hours for one unit during the year totalled 2972 hours and the fuel oil consumption amounted to 274,702 gallons at a cost of $10,301.58 for fuel oil. The total expenditure for operation, maintenance, repairs and equipment amounted to $20,459.68.

SEWAGE DISPOSAL DIVISION

Southwest Sewage Pumping Station.

This Station is located on a 1000 acre tract near Penrose Ferry Road and Island Avenue, the proposed site of the Southwest Sewage Treatment Works.

The motor driven pumping equipment now installed consists of 4 vertical volute pumps designed for a total daily pumpage of 50 million gallons against a 40-ft. head. Future installations will increase the pumping capacity of this Station to 160 million gallons daily.

This Station was placed in operation August 24, 1927.

The collecting sewer has been constructed from the Pumping Station to a point near 82nd Street and Bartram Avenue.

The small quantity of sewage now collected requires about 3 hours daily pump operation, and will continue to be discharged into Eagle Creek pending the design and construction of the Sewage Treatment Works to be located adjacent to this Station.

The total cost of maintenance, operation and equipment of this Station for 1929 amounted to $17,832.17, of which $11,572 was for salary and wages, $3353.63 for power and light, and $2906.54 for maintenance and supplies.

A contract entered into in 1929 for the extension of the 80th Street and Island Avenue Low Level Intercepting Sewer from 126 ft. northwest of Erwig Avenue to 75th and Grays Avenue, to the amount of $255,000 is 22% complete.

Frankford Creek Grit Chamber.

This Station is located on a tract bounded by N Street, Hunting Park Avenue, O Street and Lycoming Street, and provides coarse screening and preliminary sedimentation for sewage collected by the Wingohocking and Tacony Creek Intercepting Sewers, so as to remove coarse material and sand from the sewage before it enters the pressure conduit constructed in Wheatsheaf Lane, and leading to the Northeast Sewage Treatment Works.

The Frankford Creek High Level Collector leading to the Grit Chamber is designed for a flow as high as 200% of the average dry weather flow, to afford additional protection to that portion of the Frankford Creek flowing through Juniata Park.

The permit issued by the Pennsylvania State Department of Health provides, and the Grit Chamber and Treatment Works have been designed for the treatment of sewage flows as high as 141% of the average dry weather flow. Accordingly, a stormwater overflow weir has been constructed at a point in the sewer where it connects with the Grit Chamber, and the excess of stormwater is conveyed directly to Frankford Creek below the park property.

During the period January 1 to December 31, 1929, from a total sewage flow of 12,585 million gallons, 16,448 cubic feet of wet screenings were intercepted, which equalled 1.3 cubic feet per million gallons of sewage.

40,338 cubic feet of wet grit, equal to 3.2 cubic feet per million gallons of sewage, were intercepted, washed and hauled to the Northeast Sewage Treatment Works for disposal on low ground.

Analysis of the grit removed indicated a volatile matter content of 6.4%.

1411 cubic feet of grease were intercepted and disposed of with the screenings.

The metal fence surrounding the grounds was painted at a cost of $266.

The total expenditure for maintenance, operation, repairs and equipment during 1929 amounted to $12,595.43, or $1.00 per million gallons of sewage treated.

Northeast Sewage Treatment Works

These Works are located along Wheatsheaf Lane between Richmond Street and the Delaware River. The first section of these Works, comprising 32 reverse flow Imhofftanks and 80 sludge drying beds, is designed for a sewage flow of 60 million gallons per day, at a detention period of 3 hours. These Works were placed in operation October 29, 1923, and the average daily flow of 35 million gallons is cared for by 24 of the Imhoff tanks.

The character of the sewage varies from a rather heavy concentrated day flow containing much trade waste highly colored with dyes, to a more dilute night flow. The volume of dry weather flow fluctuates between a minimum rate of flow of 25 MGD occurring about 5 A.M., and a maximum rate of about 50 MGD occurring about 5 P.M.

Determination of settling solids by Imhoff settling glasses indicates a consistent removal of 100% throughout the year.

Samples for suspended solids collected at 3 hour intervals and made into a weekly composite sample for Gooch crucible determination indicate the following average total suspended solid content:

Works influent	200 PPM
Works effluent	24 PPM

or a reduction of 88% total suspended solids.

While oxidation processes are not employed at these Works, there is an improvement noted in the effluent, as indicated in the biochemical oxygen demand tests which are reported as follows:

Works influent	246 PPM
Works effluent	160 PPM

The total sewage flow for the period January 21 to December 31 amounted to 12585 million gallons and produced 11222 cubic yards of wet digested sludge, or 1.5 cubic yards per million gallons of sewage treated.

The total quantity of sludge withdrawn from the Imhoff tanks during the year

amounted to 17,600 cubic yards. This sludge was dark in color, well digested, and flowed freely. Offensive odors were not noted at any time in the vicinity of the lagoon into which the sludge was discharge.

Laboratory analysis of the sludge withdrawn is reported as follows:

Specific gravity	1.018
Moisture	91.7%
Dry residue, volatile	51.8%
fats	48.2%
Alkalinity(methol orange)	1071 PPM

Temperature of sludge taken near the bottom of the Imhoff tanks indicated a range from 46½° F. in January to 71.3° F. in September.

Gas ebullition has been very active in nearly all gas vents of the tanks during the year, and foaming was in evidence in varying degrees of intensity from April 1st to November 15th.

The exterior wood work of the Sedimentation Units Pump House, Operating Houses and Office Building were painted at a cost of $142.

The exterior metal work of the Truck Garage Building was painted at a cost of $136.

The interior plastered walls and ceilings of the hallways of the Adminstration Building were painted at a cost of $125.

Bureau employees placed a 9-way electric conduit from the junction manhole opposite the Administration Building to the Transformer Building, and removed the brick bulkhead from the outlet of the Upper Delaware Collecting Sewer at the recently completed Grit Chamber.

Northeast Sewage Works Laboratory.

A total of 6559 samples of sewage waters, sewage sludge and trade wastes have been examined and reported upon during the year. The origin of these samples is as follows: Northeast Sewage Treatment Works, Frankford Creek Grit Chamber, Pennypack Sewage Treatment Works, Byberry Sewage Treatment Works, Industrial Waste Survey and Schuylkill River Sanitary Survey.

Pennypack Pumping Station.

This Station is located on Pennypack Creek near State Road. Sewage from the Municipal institutions in the vicinity and from the village of Holmesburg is collected in the intercepting sewer along the creek and conveyed to the Pumping Station, where it is forced by electrically driven centrifugal pumps to the Treatment Works at Ashburner Street and State Road.

On June 1st, about noon, a break occurred in the 14" cast iron force main extending from the Pumping Station to the Sewage Treatment Works at a point in State Road south of Ashburner Street. This resulted from blasting operations in connection with the laying of a 96" water main in State Road. Repairs to the damaged 14" force main were made by the contractor for the water main, and operation of the Pumping Station was resumed about 9.30 P.M. of that day.

The total pumpage for the year amounted to 850 million gallons, at a power cost of $4238.39.

The total expenditures for operation, maintenance and repairs of plant and equipment amounted to $11,188.87.

Pennypack Sewage Treatment Works.

These Works have been in operation since 1912, and have consistently produced an effluent that is clear, non-putrescible, and nearly sterile. The treatment processes employed are as follows: Clarification in Imhoff tanks, oxidation in trickling filters, disinfection by calcium hypochlorite, and sedimentation in secondary settling tanks.

Prior to 1925, the character of the sewage delivered to these Works was industrial and residential. Manufacturing industries having moved into this section, trade wastes from wool scouring and dyeing establishments, from a hosiery factory and from a cotton goods bleachers, have resulted in a more concentrated sewage, highly alkaline, and of increased fat content.

A total sewage flow of 850 million gallons produced 731 cubic yards of wet Imhoff tank sludge, or 0.9 cubic yards per million gallons of sewage treated.

Laboratory analysis of the sludge withdrawn was reported as follows:

Specific gravity	1.024
Moisture	89.4%
Dry residue, volatile	54.1%
fats	23.4%

The high rate of flow reported in 1927 and 1928 continued during 1929.

The designed capacity of 2 million gallons daily has generally been exceeded, resulting in a lesser detention period during the preliminary treatment and a greater deposit of solid material in the Imhoff tanks. This has resulted generally in incomplete sludge digestion.

The secondary processes, such as the trickling filters, disinfecting plant and final settling basin, appear to be ample to provide satisfactory for the greater flow.

The final effluent of these works during the year, however, was satisfactory. Laboratory analysis was reported as follows:

Suspended solids	15 PPM
Fats	4 PPM
Dissolved oxygen saturation	68%
Total bacteria	19 per CC on litmus lactose agar at 37° in 24 hours.

The total expenditures for operation, maintenance and repairs to plant and equipment amounted to $9409.49.

Field Corps.

The Field Corps furnished lines and grades and compiled estimates on the following construction work:

Pumping Station	at	the	Northeast	Sewage	Treatment	Works
Grit Chamber	"	"	"	"	"	"
Force Mains	"	"	"	"	"	"

Preliminary surveys were made for preparation of contract drawings for Effluent Conduits and Paving at the Northeast Works; topographical survey for

Penrose Avenue for a distance of 2000 feet east and west of the Schuylkill River and including soundings in the Schuylkill River; locations and elevations furnished for taking borings in Schuylkill River in line of Penrose Avenue.

Upper Delaware Low Level Collecting Sewer.

The Upper Delaware Low Level Collecting Sewer, beginning at the Northeast Sewage Treatment Works extends along the Delaware River to Pennypack Creek, where connection is made to the existing Pennypack Creek Intercepting Sewer near Frankford Avenue. Upon completion of this work, a collecting sewer shall have been provided for the interception of sewage discharged from that portion of the City draining to the Delaware River between Wheatsheaf Lane and Pennypack Creek and to the Pennypack Creek between the Delaware River and Bensalem Avenue.

Progress along this project during 1929 is as follows:

Upper Delaware Collecting Sewer from Robbins Street to 312 feet southeast of State Road, work on which was begun in 1927, was completed at a total cost of $1,656,321.14.

From a point 312 ft southeast of State to State Road and Holmesburg a contract carried over from 1928 was completed at a total cost of $37,161.50.

In State Road southeast of Holmesburg Avenue to Holmesburg Avenue, and in Holmesburg Avenue to a point 182 ft. southeast of Frankford Avenue, a contract carried over from 1928 was completed at a total cost of $313,169.42.

The Sandy Run Intercepting Sewer extending from the Pennypack Creek Intercepting Sewer to 25 ft. southe of Brous Avenue, contract for which was awarded in 1929, was completed at a total cost of $49,394.77.

Intercepter connections to the Upper Delaware Collecting Sewer were provided as following during 1929.

Comly Street	100% complete	total cost	$8,474.50
Disston Street	" "	" "	16,262.37
Kirkbride Street	" "	" "	23,463.49

Levick Street	100%	complete	total cost	$7,665.02
Orthodox Street (1st contract)	100%	"	" "	54,848.93
Princeton Street	100%	"	" "	22,360.61
Sanger Street	100%	"	" "	14,832.96

Other contracts awarded for intercepter connections to the Upper Delaware Collecting Sewer are as follows:

Bridge Street	amount of contract	$10,000.	97% complete
Cottman "	" " "	50,000.	35% "
Magee "	" " "	40,000.	96% "
Dark Run Lane	" " "	3,000.	99% "
Orthodox Street (2nd contract)		33,000.	no work done

The interception of the sewage from the Dark Run Lane Sewer is accomplished by means of a slot and adjustable plate which may be opened or closed to accommodate the sewage flow to be intercepted. Dark Run Lane is not included in the confirmed City Plan, and the present arrangement is a temporary measure. It is proposed at some later time to provide an outlet for the drainage area now served by this sewer in another sewer to be constructed in Van Kirk Street.

The interception of sewage at the other points aforementioned is accomplished by means of hydraulically operated sluice gates.

At each point of interception, two gates are employed, one of the vertical type and known as the intercepting gate, while the other is of the horizontal type and is known as the stormwater and tidewater gate.

The cycle of operation is described as follows:

During times of dry weather, the intercepter gate will remain in an open position and the stormwater gate in a closed position. The entrance of storm flow and the resulting rise in elevation of the water level in the main sewer at the intercepter will cause a float located in the float chamber to rise and operate a pilot valve, direct connected to the float. The pilot valve is also connected to a City water main, and during operation admits City water under pressure to the operating cylinder of a four-way piston valve. The piston valve is also connected to the City water

main and in turn passes water under pressure to the cylinders of the hydraulically operated sluice gates, referred to as the intercepting gate and the stormwater gate, respectively.

The piping from the above mentioned piston valve is so arranged that City water is admitted simultaneously to the upper or closing side of the intercepting gate cylinder, and to the bottom or opening side of the stormwater gate cylinder, thus causing the intercepting gate to close and the stormwater gate to open. As a result of this operation, the storm flow that has been kept out of the intercepting sewer by the closed intercepting gate will passout to the river through the open stormwater gate.

The passing of the storm and the consequent lowering of the water level in the existing sewer to normal, causes the float in the float chamber to fall, operating the pilot valve, admitting water to the other side of the cylinder of the four-way piston valve. This operation admits City water to the cylinders of the hydraulically operated sluice gates in the reverse direction to the operation described above, causing the intercepting gate to open and the stormwater gate to close.

As a result of this operation, the flow that has been kept out of the intercepting sewer by the closed intercepting gate is now permitted to enter it through the open intercepting gate, and the tidewater is kept out of the intercepting sewer by the closed stormwater gate.

Upper Frankford Creek Low Level Sewer.

The Upper Frankford Creek Low Level Collecting Sewer will extend along Frankford Creek from the Northeast Sewage Treatment Works to the vicinity of Castor Avenue and Frankford Creek, and will intercept sewage from that portion of the Frankford Creek watershed between Aramingo Avenue and Castor Avenue.

The contract was awarded in 1929 for the construction of a portion of this sewer from the Northeast Sewage Treatment Works to a point 320 feet southeast

of Frankford Avenue. The amount of contract is $275,000, on which 42% of the work has been completed.

Extension to Tacony Creek Sewer.

Contract for an extension to Tacony Creek Sewer between Whitaker Avenue and Ruscomb Street was awarded in 1929 and completed at a total cost of $6453.48.

Northeast Sewage Works Construction.

Contracts for the Northeast Low Level Sewage Pumping Station and equipment, entered into in 1927, were completed in 1929, as follows:

Sub- and superstructures	total cost	$357,300.
Mechanical equipment	"	182,300.
Electrical "	"	74,088.
Plumbing "	"	3,900.
Heating "	"	5,200.

Contracts entered into 1928 for the construction of the Northeast Low Level Grit Chamber and equipment were completed as follows:

Sub- and superstructures	total cost	$195,000.
Electrical equipment	"	17,630.
Heating "	"	1,380.

The contract for the mechanical equipment of the Grit Chamber, awarded in 1928 in the amount of $125,000, is 99% complete.

A contract for force mains from the Northeast Low Level Pumping Station to the influent conduit in Wheatsheaf Lane entered into in 1929 was completed at a total cost of $38,541.76.

A contract for additional Electricity Service at the Northeast Sewage Treatment Works, awarded in 1929 to the amount of $1300, is 20% complete. The larger transformer capacity will provide for the operation of the Pumping Station and Grit Chamber..

January 1, 1930

SEWER CONSTRUCTION

$2,979,168.11 was available for the construction of main sewers.

$148,454.37 was available for the construction of branch sewers.

MAIN AND BRANCH SEWERS

44 branch sewer contracts were started in 1929. 42 branch sewer contracts were completed during the year 1929 and two are now in the course of construction.

6.23 miles of main sewers were completed. Thirteen new main sewers were started during the year 1929.

MAIN SEWERS PLACED UNDER CONTRACT PREVIOUS TO 1929 AND COMPLETED IN 1929.

Aramingo Avenue from Sepviva Street to Wheatsheaf Lane. Size 5'0" x 6'0" reinforced concrete, 4'6" x 4'6" reinforced concrete and various other sizes. Total length of sewer completed 1813.79 lin. ft.

Bouvier Street from Elston Street to Cheltenham Avenue and in Cheltenham Avenue between Bouvier Street and Washington Lane. Sizes 7'0" x 8'0" reinforced concrete sewer with vitrified plate lining and various other sizes. Total length of sewer completed 3362 lin. ft.

Butler Street between Aramingo Avenue and Frankford Avenue. Size 4'0" diameter brick sewer in reduced cradle with vitrified shale brick invert, 3'6" diameter brick sewer in reduced cradle with vitrified shale brick invert and various other sizes. Total length of sewer completed 1839.68 lin. ft.

Gorgas Lane from Wissahickon Low Level Intercepting Sewer to Henry Avenue and in Henry Avenue between Gorgas Lane and Gates Street. Size 3'6" diameter brick sewer in reduced cradle 3'6" diameter brick sewer in hard rock and various other sizes. Total length of sewer completed 3740.88 lin. ft.

Haverford Avenue from Lebanon Avenue to a point northwest of Malvern Avenue. Size 3'6" x 2'4" brick sewer with vitrified shale brick invert, 3'6" x 2'4" brick sewer in hard rock with vitrified shale brick invert. Total length of sewer completed 1009 lin. ft.

Lakeside Avenue between Cheltenham Avenue and 12th Street, in 12th Street from Lakeside Avenue to 69th Avenue North and in 69th Avenue N. between 12th Street and Broad Street. Size 6'0" x 7'0" twin section reinforced concrete sewer with 24" diameter and 12" diameter vitrified pipe in concrete, 7'6" x 9'6" reinforced concrete sewer with 24" and 12" diameter vitrified pipe and various smaller sizes. Total length of sewer completed 3098 lin. ft.

Mansfield Avenue between Upsal Street and Mt. Airy Avenue. Size 7'6" x 7'6" reinforced concrete sewer with stone block invert, 7'6" x 6'0" reinforced concrete sewer with stone block invert and various sizes. Total length of sewer completed 4463.60 lin. ft.

Robbins Street from Lawndale Street to Palmetto Street, in Palmetto Street from Robbins Street to Hellerman Street, in Hellerman St. from Palmetto Street to Rising Sun Avenue and in Rising Sun Avenue between Hellerman Street and Passmore Street. Sizes 4'6" diameter brick sewer in reduced cradle with vitrified shale brick invert, 4'6" diameter brick sewer in hard rock and other sizes. Total length of sewer completed 2566 lin. ft.

Sheffield Street from Rowland Avenue to Crabtree Street and in Crabtree Street and Pennypack Park from Sheffield Street to Pennypack Creek. Size 4'6" diameter brick sewer in reduced cradle with stone block invert and various sizes. Total length of sewer completed 1498.7 lin. ft.

Tabor Avenue from Magee Street to Unruh Street and in Unruh Street from Tabor Avenue to Bingham Street and in Bingham Street between Unruh Street and Longshore Street. Size 5'6" x 4'6" reinforced concrete sewer with vitrified plate invert, 4'0" diameter brick sewer in full cradle with stone block invert and various sizes. Length of sewer completed 2350.13 lin. ft.

Tabor Avenue from the present terminus north of Comly Street to Benner Street, in Benner Street from Tabor Avenue to Lawndale Street and in Lawndale Street from Benner Street to north of Robbins Street. Size 6'6" x 6'6" reinforced concrete sewer, 5'6" x 6'6" reinforced concrete sewer, 6'0" x 6'0" reinforced concrete sewer and various sizes. Total length of sewer completed 1972 lin. ft.

30th Street from Morris Street to Mifflin Street. Size 5'0" x 4'6" reinforced concrete sewer. Total length of sewer completed 980.6 lin. ft.

61-1929

MAIN SEWERS STARTED IN 1929 AND COMPLETED IN 1929

Completion of Main Sewer in Bouvier Street from Elston Street to Cheltenham Avenue and in Cheltenham Avenue between Bouvier Street and Washington Lane. Size 10" x 2'6" diameter brick sewer in reduced cradle with stone block invert and various other sizes. Total length of sewer completed 881 lin. ft.

56th Street at Schuylkill River from present outlet 193 ft. northwest of Bulkhead Line to Bulkhead Line. Size 6'6" x 8'6" reinforced concrete sewer on piles, platform and vitrified pipe and 6'6" x 8'6" brick sewer on cribbing with vitrified plate lining. Total length of sewer completed 192 lin. ft.

Hellerman Street from Battersby Street to Bradford Street. This sewer was constructed of various sizes. Total length of sewer completed 2900.80 lin. ft.

Hunting Park Avenue from Schuylkill River to 105 ft. east of Ridge Avenue. Size 5'0" sewer, 15" vitrified pipe, with stone block invert in rock and 5'0" sewer, 15" vitrified pipe, with stone block invert, in tunnel and various other sizes. Total length of sewer completed 1192.90 lin. ft.

Knorr Street from Roosevelt Boulevard to Brous Avenue. This sewer was constructed of various sizes. Total length of sewer completed 1273.60 lin. ft.

Mansfield Avenue between Mt. Airy Avenue and Gowen Avenue. Size 3'6" x 2'4" brick sewer with vitrified stone block invert and 12" pipe and various other sizes. Total length of sewer completed 1099.20 lin. ft.

Montour Street from Tyson Avenue to Princeton Avenue, in Princeton Avenue from Montour Street to Tabor Avenue and in Tabor Avenue between Princeton Avenue and St. Vincent Street. Size 4'6" diameter brick sewer on piles and 4'6" diameter brick sewer in reduced cradle with shale brick invert and various other sizes. Total length of sewer completed 2084 lin. ft.

67th Street between Eastwick Avenue and Schuylkill River. Size 8'0" x 11'0" reinforced concrete sewer in earth, 8'0" x 11'0" reinforced concrete twin sewer with vitrified pipe invert on piles, and 8'0" x 11'0" reinforced concrete twin sewer with vitrified plates under the Railroad. Total length of sewer completed 3079.13 lin. ft.

Wissahickon Low Level Collecting Sewer through Fairmount Park between the present terminus about 630 ft. north of Township Line Road and Bell's Mill Road. Size 30" vitrified pipe sewer in concrete in earth, 30" vitrified pipe sewer in concrete in hard rock, 30" vitrified pipe sewer in concrete in tunnel and various other sizes. Total length of sewer completed 8313.40 lin. ft.

62-1929

MAIN SEWERS STARTED IN 1929 BUT NOT COMPLETED

Hartel Street from Bradford Street to Glendale Avenue and in Glendale Avenue from Hartel Avenue to Horrocks Street. Size 12'0" x 12'0" reinforced concrete storm sewer with stone block invert and various other sizes. Length of sewer completed 1192 lin. ft.

Hegerman Street from present sewer southwest of Robbins Street to Robbins Street and in Robbins Street from Hegerman Street to northwest of Torresdale Avenue. Size 10'0" x 10'0" reinforced concrete sewer with stone block invert and various other sizes. Length of sewer completed 624.90 lin. ft.

Little Tacony Creek Sewer from southwest of Lewis Street to Frankford Creek. Size 8'6" x 9'6" reinforced concrete sewer with vitrified plate invert and 24" cast iron pipe in concrete and Intercepter including chambers, sewer, manholes and all equipment complete. Length of sewer completed 257 lin. ft.

Wissahickon High Level Cut-off Sewer in Stokley Street and in Fairmount Park from the present terminus northwest of Coulter Street to a point about 1060 ft. northwest of School House Lane. Size 6'0" vitrified pipe sewer in tunnel. This sewer is being constructed in tunnel and is about 75% completed.

63-1929

MAIN SEWERS

Loans	Appropriations	Authorization	Amount Available	Loan Item
December 15, 1919	December 23, 1919	April 12, 1920	13,955.84	230
October 1, 1920	February 17, 1921	December 30, 1927	2,746.86	261
October 10, 1923	January 24, 1924	February 7, 1924	1,997.85	303
September 22, 1924	December 12, 1924	February 17, 1925	69,079.51	320
June 22, 1925	October 2, 1925	December 3, 1925 December 30, 1927 July 5, 1928 February 16, 1929	105,613.89	360
June 22, 1925	October 2, 1925	February 15, 1926	80,668.18	362
April 10, 1926	June 12, 1926	July 21, 1926 May 17, 1927 October 31, 1927	701,072.67	383
May 23, 1927	June 13, 1927	July 6, 1927	17,290.85	420
March 21, 1928	May 17, 1928	June 12, 1928 July 5, 1928 February 15, 1929 February 18, 1929	1,986,74246	443

Available January 1, 1929		2,979,168.11
Placed under contract	1,091,000.00	
Expended for inspection, bills, etc	94,938.79	
Transferred to Highway Bureau	25,000.00	
Charged off	1,210,938.79	
Reduction by recredits	122,123.70	
	1,088,815.09	1,088,815.09
Assessment bills	120,633.12	
Total cost of main sewers	1,209,448.21	
Balance		1,890,353.02

BRANCH SEWERS

Loans	Appropriations	Authorization	Amount Available	Loan Item
April 10, 1926	June 12, 1926	Various	39.537.63	384
May 23, 1927	June 13, 1927	Various	23,937.72	421
March 21, 1928	May 17, 1928	Various	84,979.02	444

Available January 1, 1929		148,454.37	
Placed under contract	189,812.75		
Expended for inspection, bills, etc	77,355.32		
Charged off	267,168.07		
Reduction by contract recredits	170,068.95		
Cash cost	97,099.12	97,099.12	
Assessment bills	468,268.54		
Total cost of branch sewers	565,367.66		
Balance		51,355.25	
Reserved for inspection	37,355.25		
Reserved for work awarded	14,000.00	51,355.25	
Available balance		0.00	

RECAPITULATION

Classification	Funds Available	Expended
Main Sewers	2,979,168.11	1,088,815.09
Branch sewers	148,454.37	97,099.12
Cash	3,127,622.48	1,185,914.21
Assessment bills		588,901.66
Totals	3,127,622.48	1,774,815.87

Total length of sewers built during 1929

Branch sewers	90,538.05	=	17.15 miles
Main sewers	32,879.13	=	6.23 "
Sewers constructed at private cost	44,081.00	=	8.35 "
Miscellaneous sewers			
Grade crossing division	14,145.03	=	2.68 "
Sewage disposal division	16,489.23	=	3.12 "

total 37.53

MAIN SEWERS PLACED UNDER CONTRACT DURING 1929

Completion of main sewer in Bourier Street from Easton Street to Cheltenham Avenue and in Cheltenham Avenue between Bourier Street and Washington Lane	18,000.00
Fifty-sixth street at the Schuylkill River from present outlet 193 feet northwest of Bulkhead line to Bulkhead line	35,500.00
Hartel Avenue from Bradford Street to glendale Avenue and in Glendale Avenue from Hartel Avenue to Horrocks street	135,000.00
Hegerman Street from the present sewer southwest of Robbins street to Robbins street and in Robbins Street from Hegerman street to northwest of Torresdale Avenue	33,000.00
Hellerman Street from Battersby street to Bradford street	70,000.00
Hunting Park Avenue from Schuylkill River to 105 feet east of Ridge avenue	70,000.00
Little Tacony Creek sewer from southwest of Lewis street to Frankford Creek	70,000.00
Mansfield Avenue between Mt. Airy avenue and Gowen Avenue	16,000.00
Montour Street from Tyson Street to Princeton avenue in Princeton avenue from Montour Street to Tabor Avenue and in Tabor Avenue between Princeton avenue and St Vincent Street	45,000.00
Sixty-seventh Street between Eastwick avenue and the Schuylkill River	318,000.00
Wissahickon Low Level Collecting Sewer through Fairmount Park between the present terminus about 630 feet north of Township Line Road to Bell's Mill Road	145,000.00
Wissahickon High Level Cut-off Sewer in Stokley Street and in Fairmount Park from the present terminus northwest of Coulter Street to a point about 1060 feet northwest of School House Lane	190,000.00

PRIVATE SEWERS PLACED UNDER CONTRACT DURING 1929

Thirty-nine contracts for sewers at private cost were entered into, the estimated cost of which is $287,750.00

SUMMARY OF SEWER CONTRACTS ENTERED INTO DURING 1929

Main sewers	12 contracts
Branch sewers	35 contracts
Private sewers	39 contracts
Total	86 contracts

A N N U A L R E P O R T

1929

The several improvements carried on by the City under agreements with the Railroad Companies are as follows:

South Philadelphia Track Elevation
Pennsylvania Terminal Improvement
Manayunk Elevated
Germantown and Chestnut Hill Elevated
Baltimore and Ohio Improvement.

SOUTH PHILADELPHIA TRACK ELEVATION

The two track elevated of the Delaware Extension of the Pennsylvania Railroad along the line of 25th Street, between Washington Avenue and Passyunk Avenue was completed and put in service and the surface tracks were removed from 25th Street, and 25th Street is graded and is ready for the permanent paving. The Baltimore and Ohio tracks were raised on earthen embankments. Bridges were completed to carry their tracks over 28th Street and Passyunk Avenue and between Passyunk Avenue and League Island Park. Bridges have been completed for the running tracks of the Pennsylvania Railroad and the Baltimore and Ohio Railroad and the joint six-track line over -

Vare Avenue
26th Street
Hartranft Street
Penrose Avenue.

About 75% of the fill for raising the tracks of the joint line between Passyunk Avenue and League Island Park has been placed and work is now proceeding with the grade, between Broad Street and Delaware Avenue and Biglow Street.

67-1929

The Pennsylvania Railroad completed the construction and put in operation the coal handling pier at the Delaware River in front of their terminal yard, which replaces the present facilities at the Old Greenwich Point pier, which ~~ix~~ the City is to take over and abandon.

Expenditures on this work during the past year - $1,190,574.17.

PENNSYLVANIA TERMINAL IMPROVEMENT.

Substantial progress has been made on this project east of the Schuylkill River, both by the Pennsylvania Railroad and the City. The work is now being pushed forward actively on both sides of the Schuylkill River leading towards the completion of the suburban tracks, subway and station east of the river, and it is anticipated to put this station in service by July 1931.

Expenditures by the City - $2,719,323.23.

BALTIMORE AND OHIO IMPROVEMENT.

The first section of this work to be taken up is that portion between Walnut Street and Market Street. The City has taken steps to acquire the necessary real estate to carry out its part of the work and is awaiting the approval of the Baltimore and Ohio Railroad Company in order to proceed more actively with the work of construction.

MANAYUNK ELEVATED.

Substantial progress has been made on the work of the elimination of grades on crossing between Wissahickon Creek and Fountain Street. This is a double track line - and that portion

68-1929

of the elevated between Roxborough Street and Green Lane is carried on a two-track steel viaduct over the bed of Cresson Street. One-half the viaduct, sufficient to carry one track, has been completed and is ready to be put in service, then the work of the construction of the viaduct for the second track will proceed.

The City's share of the expense of this work during the year was - $706,531.42.

GERMANTOWN AND CHESTNUT HILL ELEVATED.

The agreement between the Reading Company and the City of Philadelphia for the abolishment of grade crossings along the line of the Philadelphia, Germantown Railroad; and the Chestnut Hill Railroad between Wistar Street and Bethlehem Pike was approved by the Public Service Commission, and preliminary work and the preparation of plans have been done and it is anticipated to place that portion of the work which is to be done by the Reading Company in the Chestnut Hill Section under contract in the Spring. Funds should be provided in the next electorial loan for the City's share in carrying out its obligation under the agreement.

COTTMAN STREET AND PINE ROAD.

There was appropriated in the September electorial loan $500,000 towards the City's share in the work towards the elimination of grade crossings on the Philadelphia, New York and Newtown Railroad in Cottman Street and Pine Road, with no enabling ordinance passed by Council, and no agreement has been negotiated by the Reading Company looking towards the accomplishment of this work.

 69-1929

A summary of the activities of the Board of Surveyors during the year is expressed in the following table:-

Number of stated and special meetings held ..... 24 .....

Number of Road Day meetings held ..... 3 .....

Number of plans advertised for public hearing ..... 111 .....

Number of ordinances reported on:

For Revision of City Plan ..... 36 .....

To Place streets on City Plan ..... 47 .....

To Strike streets from City Plan ..... 30 .....

To Change street names ..... 9 .....

122

Number of street railway plans acted on ..... 27 .....

Number of deeds of dedication and releases acted on ..... 171 ..

Number of City Plans finally confirmed 88

~~Number of plans of property subdivision involving new streets approved .....~~

Number of bridge plans approved ..... 7 .....

Number of main sewer plans approved ..... 18 .....

52

27

SURVEY DISTRICTS

The wide spread industrial and commercial depression during the year 1929 was reflected in the activities of the Survey Districts. Less work was done in all of the 125 classifications into which the work is divided excepting those pertaining to alley repaving, curbing and repaving of footways, and work done for the Department of Law.

Attached find a blueprint of the annual Statistical Report for the year ending December 31, 1929.

71-1929

GENERAL PLANS DIVISION

While this Division at the present time is employing a small number of Assistants, it has been engaged in the preparation of a number of important studies and plans during the past year. Of these the most important are:

1. A tabulation and plan covering the entire City, showing all City owned property within its limits.

2. The making of studies and plans for the rehabitulation of the area bounded by Broad Street, Delaware River, Poplar Street and Carpenter Street. This area covers 2 2/3 square miles of territory, and contains nearly 600 small streets, courts and alleys wherein reside many thousands of people in unsanitary and deplorable surroundings. The work to date has been mainly that of relocating and plotting the streets and the locations containing the worst housing conditions.

3. The making of studies and plans for the improvement of the approaches to the Delaware River Bridge. Considerable work has been done in making traffic studies, and analizing the various phases of ~~problems~~ the traffic problems presented in the Central City area.

To date plans have been made showing:-

a. The number, size, location and capacity of existing highways.

b. Distribution of highways with respect to direction of traffic movement.

c. Relative capacities of the East and West and North and South streets.

d. Relative volumes and destinies of East and West, and North and South travel.

e. Origin and destination of travel flowing to and from Bridge.

f. Compilation of the more important suggestions received by the Bureau for remedying the Bridge Approach Conditions.

72-1929

REGISTRY DIVISION

1 9 2 9

Detailed Summary

Transfers plotted	63651
Original lots plotted	8133
Certificates of registered owners issued to public	23
" " " " " Law Dep't.	2390 } 2413
Plan Books examined by the public	161449
" " " " City and County officials	19926 } 181375
Descriptins filed	72070
" " from 1865 to 1929 (inclusive)	2500248 *
Certificates of street openings and City Plan information issued to various Bureaus	2057
Miscellaneous plans drawn for various Bureaus and Dept's.	92
Affidavits of street openings filed	17
Streets opened by affidavits	15
Titles examined for plan book entries	5007
City Plans ordered to be prepared	110
Number of Jury Plans ordered	66
" " " " filed	74
" " approved street railway plans filed	26
" " confirmed City plans filed	100
" " ordinances for placing streets on City plan, &c.	74
" " street opening agreements filed	23
" " " " by ordinance filed	37
" " deeds of dedication filed	157
" " " " recorded	166
" " miles of streets dedicated 50 ft. in width	4.4
" " " " " " 60 ft. in width or over	8.8
" " " " " " 40 to 50 ft. in width	3.8
" " releases of abutting owners prepared in Reg. Div.	12
" " releases of abutting owners filed	13
" " releases of abutting owners recorded	23
" " new registry plan pages	48
Cost of recording deeds and releases	$674.50

73-1929

ANNUAL REPORT FOR THE YEAR 1929.

Bridge Division, Bureau of Engineering & Surveys

During the year the following contracts were completed:-

GIRARD AVENUE BRIDGE OVER SCHUYLKILL RIVER - During 1928 a contract was entered into with the Mundy Paving and Construction Company to construct a bridle path on the north side of the Lower Deck of Girard Avenue Bridge. This work was completed and final payment made on April 30, 1929. The total cost was $47,725.60. The approaches at either end of the bridge have since been completed by the Park Commission andthe bridle path is now in use.

GREEN LANE BRIDGE OVER SCHUYLKILL RIVER - The Green Lane Bridge was completed except for a portion of the grading of the East Approaches during 1928. This work was delayed on account of very unfavorable weather conditions. It was completed June 6, 1929,and the total cost of this East Approach Grading contract was $40,380.00.

RYAN AVENUE BRIDGE OVER SANDY RUN - The Ryan Avenue Bridge was completed on May 31, 1929, at a total cost of $37,352.84. This bridge is a stone faced reinforced concrete arch of 33 ft. span. It has a cartway of 58 feet, with two 8 foot sidewalks. Upon completion of the paving of Ryan Avenue a connection will be provided between the Boulevard and Cottman Street.

SIXTH STREET AND ALLEGHENY AVENUE OVER RICHMOND BRANCH OF THE READING COMPANY - Construction of the bridge at Sixth Street and Allegheny Avenue was completed on November 1, 1929, at a total cost of $112,343.43. This contract provided a new floor for the old bridge which had become unsafe. The old stone abutments and wing walls were used,only slight modifications being made necessary by the new construction.

ABBOTSFORD AVENUE BRIDGE OVER CHESTNUT HILL BRANCH OFTHE PENNSYLVANIA RAILROAD - The Abbotsford Avenue Bridge was nearly completed during 1928. Final payment was made on January 30, 1929. The total cost was $55,847.60, of which the City paid

74-1929

$41,247.99 and the Railroad paid $14,799.61. This bridge is a steel girder bridge encased in concrete, with concrete abutments. It will make possible the development of a large territory west of the railroad.

ASHDALE STREET BRIDGE UNDER P. N. & N. Y. RAILROAD - The Ashdale Street Bridge was 75% completed at the close of 1928. Final payment was made on June 1, 1929, and the total cost was $47,602.88. The construction of this bridge opens a considerable territory to development between the railroad and Rising Sun Avenue.

COTTMAN STREET BRIDGE UNDER P. N. & N. Y. RAILROAD -The Cottman Street Bridge was 84% completed at the close of 1928. Final payment was made on May 28, 1929, and the total cost was $37,439.63, of which the City paid $29,940.09, and the Reading Company paid $7,499.54. The completion of this project has eliminated a dangerous grade crossing by carrying Cottman Street under the Philadelphia, Newtown and New York Railroad.

17TH STREET FOOTBRIDGE OVER GREENWICH BRANCH OF THE PENNSYLVANIA RAILROAD - The contract for the construction of a temporary wooden footbridge over Pennsylvania Railroad at 17th Street above Packer Avenue was awarded in 1928. The bridge was completed and final payment was made on April 3, 1929. The total cost was $3,824.53. This bridge was constructed to provide a safe crossing for school children until such time as the grade crossing elimination work would be completed.

LEVERINGTON AVENUE BRIDGE OVER MANAYUNK CANAL - The Leverington Avenue Bridge was 63% complete at the close of 1928. This bridge replaces an old wrought iron and cast iron structure with wooden floor which had become entirely unsafe for modern traffic. Final payment was made on May 22, 1929, and the total cost was $96,937.50, of which the City paid $42,846.38 and the Schuylkill Navigation Company paid $54,091.12.

UNIVERSITY BRIDGE OVER SCHUYLKILL RIVER - The University Bridge was 93% complete at the close of 1928. It was completed on August 20, 1929, at a total cost of $1,311,569.22. Plans are being prepared for the completion of the approaches to this structure, which will extend from 34th and Grays Ferry to 39th and Woodland Avenue. This bridge is at the southern terminus of the present plan to beautify the banks of the Schuylkill River. With its approaches it will provide a direct connection between south and west Philadelphia. It will also provide a detour for a portion of the heavy traffic coming into the City from the west. The bridge itself consists of five spans, the central span being an electrically operated double leaf bascule bridge. A clear channel, with a width of 100 feet between fenders, is provided. When closed, the bascule has a clearance at mean high water of 30 feet. The total length of the bridge, between abutment faces, is 536 feet. The width of cartway is 54 feet, and the width of the sidewalks is 9 feet.

LINDEN AVENUE BRIDGE OVER PHILADELPHIA & TRENTON RAILROAD - The Linden Avenue Bridge was 87% completed at the close of 1928. Final payment was made on September 19, 1929. The total cost was $128,966.61, of which the City paid $64,796.31, and the Pennsylvania Railroad paid $64,170.31. This bridge has eliminated a dangerous grade crossing over the Philadelphia & Trenton Railroad.

COBBS CREEK BRIDGE BETWEEN 65TH AND FLORENCE AVENUE - The contract for this bridge was awarded on December 21, 1928. The work was completed on November 19, 1929, at a total cost of $19,864.30. This bridge replaced an old iron truss with wooden floor which had become unsafe. It is a stone faced concrete arch having a clear span of 46 feet.

LYCOMING STREET BRIDGE OVER RICHMOND BRANCH OF THE READING COMPANY - The contract for the Lycoming Street Bridge was awarded on December 21, 1928. The work was completed on August 16, 1929, at a total cost of $40,413.46. This bridge opens Lycoming Street over the Reading Company west of Broad Street.

76-1929

The following bridges were under contract but not completed at the end of the year:-

RHAWN STREET BRIDGES OVER PENNYPACK CREEK - Work was begun on the Rhawn Street Bridges in 1928, and continued through 1929, being 99% complete at the end of the year. During July a contract was entered into for the construction of the approaches to these bridges. This contract included the grading and paving of nearly one mile of road, the entire length across Pennypack Park between Lexington Avenue and Rowland Avenue. The contract limit was set for this road work at $65,000.00, and at the end of the year the work was 82% completed.

RISING SUN AVENUE BRIDGE OVER TACONY CREEK - Work on the Rising Sun Avenue Bridge began in 1928, and continued on through 1929. At the end of the year it was 99% complete. A contract for the grading and paving of the approaches from Olney Avenue to Adams Avenue, a distance of nearly one-half mile, was begun in May, 1929. The limit of contract set for the grading and paving was $100,000.00. At the end of the year the car track area was paved with granite blocks and the east shoulder of the road was paved with bituminous macadam. Winter weather made it impossible to complete the west shoulder until later. On December 31, the paving contract was 89% complete and traffic was using the car track area and the east shoulder.

HUNTING PARK AVENUE BRIDGE OVER PHILADELPHIA ANDBUSTLETON RAILROAD - The Hunting Park Avenue Bridge makes possible the extension of Hunting Park Avenue across the Philadelphia & Bustleton Railroad and to the east as far as Tacony Creek. This bridge is of steel encased in concrete. It spans two tracks of the railroad and has a width to accomodate a 100 foot street. The limit of contract is set at $70,000.00, of which the City pays 1/2 and the Pennsylvania Railroad pays 1/2. At the end of the year the work was 96% complete.

HENRY AVENUE BRIDGE OVER READING COMPANY BETWEEN HUNTING PARK AVENUE AND ROBERTS AVENUE - The work began on the Henry Avenue Bridge over the Reading Company's tracks in Nov. 1929. This bridge is of steel encased in concrete. It has

77-1929

a total length of approximately 650 feet and carries a street 100 feet wide. It is one step toward the construction of Henry Avenue to the north of Hunting Park Avenue and will later provide accomodation for the proposed high speed transit line to the northwest section of the City. The limit of contract is set at $550,000.00, of which the City will pay 94.12% and the Reading Company will pay 5.88%.

WYOMING AVENUE AND ROOSEVELT BOULEVARD OVER NORTH PENN RAILROAD - The Wyoming Avenue Bridge is an extension of the present bridge which carries the Roosevelt Boulevard over the North Penn Railroad. The structure is being widened in order that Wyoming Avenue may be extended through at this point to provide for a proposed cross-town car line. The improvement will also bring the Boulevard at this point to its full width thus doing away with a rather dangerous bottle neck for traffi c. Work was begun on the Wyoming Avenue Bridge in December, 1929, and at the close of the year work was progressing well on the foundations for the structure. The limit of contract is set at $100,000.00.

PENROSE AVENUE TUNNEL - The contract for borings to determine the nature of material to be encountered in the construction of the tunnel at Penrose Avenue over Schuylkill River was entered into in November, 1929. At the end of the year the borings were about 35% completed. The limit set for this contract is $25,000.00. Investigations and preliminary drawings have proceeded and a profile for a tunnel with a 40 foot waterway will be submitted to the U. S. Army Engineers for approval sometime early in 1930.

During the year 1929 bids were received on the following contracts but work was not begun:-

WELSH AVENUE BRIDGE OVER PENNYPACK CREEK - Welsh Avenue Bridge is a reinforced concrete arch structure consisting of one 90 foot arch and two 40 foot arches. The total length of the bridge is nearly 300 feet and a width of street of 70 feet is provided for. This bridge replaces an old existing stone bridge and when completed will

provide a much improved roadway between Rowland Avenue and Winchester Avenue. Work will be begun as soon as the Rhawn Street Bridges are opened, as it would cause a great inconvenience to traffic to close both Rhawn Street and Welsh Avenue at the same time. The limit of contract for the Welsh Avenue Bridge is $190,000.00.

HENRY AVENUE BRIDGE OVER WISSAHICKON CREEK - The Henry Avenue Bridge over Wissahickon Creek is a stone faced concrete arch bridge. The span of the arch is approximately 288 feet. The height over the creek to the roadway is about 185 feet. The total length of the bridge is nearly 900 feet. The width of roadway is 60 feet and two 12 foot sidewalks are provided for. This bridge, like the bridge over the Reading tracks forms a part of the proposed extension of Henry Avenue to the northwest. The limit of contract has been set at $1,770,000.00.

Plans were completed and ready to advertise for the following bridges at the end of 1929:-

CAYUGA STREET BRIDGE OVER NORTH PENN RAILROAD - The Cayuga Street Bridge will be steel encased in concrete. The appropriation available is $100,000.00. The bridge will be built at the joint expense of the City and the Reading Company, the respective shares being 58% and 42%.

OLNEY AVENUE BRIDGE OVER P. N. & N. Y RAILROAD - The Olney Avenue Bridge will carry Olney Avenue 60 feet wide over the railroad and will open the street from Front Street to Rising SunAvenue. This will make possible the construction of a street car feeder line from the northeast down Rising Sun Avenue and west on Olney Avenue to the subway terminal at Broad and Olney Avenue. The bridge itself presents an unusual feature in the unusual size of the steel plate girders. The main girders are 132 feet long, 13 feet high and will each weigh approximately 160 tons being among the very largest girders which have ever been made. The bridge will be built at the joint expense of the City and Reading Company. The City has $150,000.00 available for the project.

Plans were completed and awaiting approval by Railroads for the following bridges:-

Rising Sun Avenue and Bristol Street over Philadelphia,
Newtown and New York Railroad.

56th Street under Chester Branch of the Reading Company.

Plans are now being completed for the following bridges:-

70th Street over Philadelphia, Baltimore & Washington Railroad.
University Avenue under Philadelphia, Baltimore & Washington Railroad.
Walnut Lane over Wissahickon Creek.
Mascher Street over Richmond Branch of the Reading Company.

80-1929

LOCATION	DATE OF ORDINANCE	BIDS RECEIVED	DATE OF CONTRACT	CONTRACTOR	% COMPLETED LAST EST.	DATE OF LAST ESTIMATE
ABBOTSFORD AVE. OVER CHEST. HILL BRANCH, P. R. R.	5-27-25	5-16-28	6-7-28	Jafolla & Mark	100%	1-30-29
ASHDALE ST. UNDER P. N. & N. Y. RAILROAD	12-3-25	7-25-28	8-15-28	Horridge, Elcock & Hall	100%	6-1-29
COTTMAN ST. UNDER P. N. & N. Y. RAILROAD	5-22-25	5-16-28	6-6-28	Horridge, Elcock & Hall	100%	5-28-29
GIRARD AVE. OVER SCHUYLKILL RIVER, LOWER DECK	10-2-25	7-25-28	8-16-28	Mundy Paving & Constr.Co.	100%	4-30-29
EAST APPROACH - GREEN LANE BRIDGE	2-15-26	12-28-27	1-16-28	Union Paving Company	100%	6-6-29
LEVERINGTON AVE. OVER MANAYUNK CANAL	6-28-28	7-25-28	8-2-28	Seeds & Derham	100%	5-22-29
LINDEN AVE. OVER P. & T. RAILROAD	12-3-25	8-24-27	10-21-27	Robbins Contr.Co.	100%	9-19-29
RHAWN ST. OVER PENNYPACK CREEK	8-6-28 & 4-5-28	12-28-27	1-3-28	Vare Constr. Co.	99%	8-28-29
RISING SUN AVE. OVER TACONY CREEK	6-17-25	5-23-28	6-9-28	J. & R. Lombardi	99%	3-6-29
RYAN AVE. OVER SANDY RUN	7-8-27	7-25-28	8-14-28	Walsh Bros. & O'Vary	100%	5-31-29
6TH & ALLEGHENY AVENUE OVER RICHMOND BRANCH	6-28-28	7-25-28	9-10-28	Horridge, Elcock & Hall	100%	11-1-29
17TH ST. OVER GREENWICH BRANCH, P. R. R.	2-8-28 & 3-24-28	11-21-28	11-28-28	Kaufman Constr.Co.	100%	4-3-29
UNIVERSITY BRIDGE OVER SCHUYLKILL RIVER	12-12-24 & 11-24-25	5-25-27	6-9-27	Dravo Contr. Co.Pittsburgh	100%	8-20-29
LYCOMING ST. OVER RICHMOND BRANCH	12-3-25	12-19-29	1-7-29	George F. Dobbin	100%	8-16-29
COBBS CREEK BETWEEN 65TH & FLORENCE AVE.	5-5-25 & 6-28-28	12-19-28	1-28-29	Kaufman Constr.Co.	100%	11-19-29
HUNTING PARK AVE. OVER PHILA. AND BUSTLETON RAILROAD	12-3-25	5-8-29	5-29-29	Mundy Paving & Constr.Co.	95%	12-18-29

81-1929

LOCATION	DATE OF ORDINANCE	BIDS RECEIVED	DATE OF CONTRACT	CONTRACTOR	% COMPLETED LAST EST.	DATE OF LAST EST.
APPROACHES TO RHAWN ST. BRIDGE	8-6-26	5-22-29	6-13-29	Francis A. Canuso & Son	74%	11-1-29
APPROACHES TO RISING SUN AVE. BRIDGE	6-17-25 4-5-28 12-3-25	4-3-29	4-4-29	M. & J. B. McHugh	72%	12-24-29
WYOMING AVE. OVER N. PENN RAILROAD	6-28-28	10-9-29	11-1-29	Hoch Contr. Co.	-	- -
HENRY AVE. OVER READING COMPANY	7-6-27	8-21-29	9-20-29	F. A. Canuso & Son	-	- -
CHURN BORINGS - PENROSE AVENUE	5-17-28	10-9-29	11-6-29	Sprague & Henwood Inc.	35%	

82-1929

LOCATION	SOURCE OF FUNDS	AMOUNT OF APPROPRIATION FOR CITY'S SHARE	LIMIT OF PAYMENT BY CITY	JOINT CONTRACTORS		AMOUNT PAID BY CITY TO 12-31-29
				LIMIT OF PAYMENT BY JOINT CONTRACTOR	AMOUNT PAID BY JOINT CONTR. TO 12-31-29	
ABBOTSFORD AVE. OVER CHEST.HILL RANCH, P.R.R.	Item 322-F	$ 80,000.	$ 50,000.	P. R. R.Co. 26.5% total cost	$ 14,799.61	$ 41,047.99
ASHDALE ST. UNDER P. N. & N.Y. RR	Item 363-B	70,000.	55,000.	- -	- -	47,602.88
COTTMAN ST.UNDER P. N. & N.Y. RR	Item 322-D	40,000.	40,000.	Reading Co. 28.6% of work within r/w	7,499.54	29,940.09
GIRARD AVE. OVER SCHUYLKILL RIVER, LOWER DECK	Item 370-L	250,000.	55,000.	- -	- -	47,725.60
EAST APPROACH GREEN LANE BRIDGE	Item 322-J	300,000.	35,000.	- -	- -	30,403.82
LEVERINGTON AVE. OVER MANAYUNK CANAL	Item 385-K	60,000.	49,946.	Schuylkill Nav. Co. 55.8% Total Cost	54,091.12	42,846.38
LINDEN AVE. OVER P. & T. RAILROAD	Item 363-G	85,000.	70,000.	Penna. R. R. Co. 50% Total Cost	64,170.31	64,796.31
RHAWN ST. OVER PENNYPACK CREEK	Item 385-B	535,000.	370,000.	- -	- -	298,982.95
RISING SUN OVER TACONY CREEK	Item 322-G	100,000.	95,000.	- -	- -	80,078.77
RYAN AVE. OVER SANDY RUN	Item 322-K	40,000.	40,000.	- -	- -	37,352.84
6TH & ALLEGHENY OVER RICH.BCH.	Item 385-M	130,000.	125,000.	- -	- -	112,343.43
17TH ST. OVER GREENWICH BCH. P. R. R.	Item 98 Budget	10,000.	5,000.	- -	- -	3,824.53
UNIVERSITY BRIDGE OVER SCHUYL.RIVER	Items 323 & 363-A	1,330,000.	1,330,000.	- -	- -	1,311,569.22
LYCOMING ST.OVER RICHMOND BRANCH	Item 363-E	75,000.	55,000.	- -	- -	40,413.46
COBBS CREEK BET. 65TH & FLORENCE	Item 385-G	25,000.	25,000.	- -	- -	19,864.30
NTING PARK AVE. OVER PHILA. & BUSTLETON R. R.	Item 363-D	50,000.	35,000.	Penna. R. R. Co. 50% Total Cost	24,090.69	24,090.69

83-1929

LOCATION	SOURCE OF FUNDS	AMOUNT OF APPROPRIATION FOR CITY'S SHARE	LIMIT OF PAYMENT BY CITY	JOINT CONTRACTORS: LIMIT OF PAYMENT BY JOINT CONTRACTOR	JOINT CONTRACTORS: AMOUNT PAID BY JOINT CONTR. TO 12-31-29	AMOUNT PAID BY CITY TO 12-31-29
APPROACHES TO RHAWN ST. BRIDGES	Item 385-B	$165,000.	$ 65,000.	- -	- -	$23,107.50
APPROACHES TO RISING SUN AVE. BRIDGE	Items 363-J 385-D	100,000.	100,000.	- -	- -	64,620.00
WYOMING AVE. OVER N. PENN R. R.	Items 440-L	100,000.	100,000.	- -	- -	- -
HENRY AVE. OVER READING CO.	Item 210-B	550,000.	517,660.	Reading Co. 5.88% Total Cost	- -	- -
CHURN BORINGS PENROSE AVE.	Item 446-L	25,000.	25,000.	- -	- -	- -

84-1929

-1920-

Ward	Branch Sewers		Main Sewers		Sewage Disposal		Bridges		Grade Crossing	
	No. of Contracts	Total Amt.	No. of Contracts	Total Amt	No of Contracts	Total Amt.	No.	Total Amt.	No.	Total Amt.
1	4	16,996.16								
5	1	4899.17								
7	1	3685,13								
8	2	12538.52								
11	1	1546,50								
12	1	2026.68								
14	2	5223.30								
15	1	2980.-								
16	-	-	1	17,449.30						
21	3	42766.96								
22	4	22570.95								
23	1	7,12304	1	11,135 24						
25	4	9999.30								
30	2	6157.30								
31	—	—	1	41,142.60						
32	1	10296.89								
33	6	10,263348			11	203,350.00				
34	11	153882.90	1	18,993.42			1	193,692.00		
35 36	2	6209.41	1	44773.06						
38	3	18638.81								
39	5	40848.30							1	109,140.75
40	14	1495 1535	1	9067.12			1	76,288.00		
41	2	45,496 75	1	10344.80						
42	28	34 087659	1	29176.-			1	114,211.00		
43	2	1106945								
44	1	384744								
45	4	31715.75	1	29,763.76	1	2000.00				
46	3	48,353 15								
48	2	98178								
Totals	111	1,111,719.06	9	211,845 30	12	205,350.00	3	384,191.00	1	109,140.75

85-1929

1921

Ward	Branch Sewers		Main Sewers		Sewage Disposal		Bridges		Grade Crossing
	No. of Contracts	Total Amt	No. of Contracts	Total Amt.	No. of Contracts	Total Amt.	No.	Total Amt.	No. Total Amt.
1	4	7027.42	1	311 8682					
2	1	4146.22							
18	1	590.35							
19	2	10 38 88.09							
21	3	1367157	1	57691.70					
22	13	18496239					1	47,020,00	
23	3	1690310	1	64840.65					
25	1	538648					1	72,312,00	
30	1	1489 -							
31	1	1288.85							
33	12	1147 53.74	1	98385.30	4	6100.-			
34	9	230839.54							
35	—	——	3	231,409.74					
36	4	219134							
38	6	732 51.04							
39	8	2954019	2	28 95 81.67					1 97,776.65
40	18	12156640			1	1500.-			
41	4	21015.17	1	75000.00	1	9500.-			
42	40	607270.06	4	425729.10					
43	4	20688.75							
44	1	3391.45							
45	1	321973			2	244,000.-			
46	2	941996							
48	6	347 18.50	2	282150.93					
	145	1631019.34	16	1,555,975.91	8	261,100,00	2	119,332.00	1 97,776.65

86-1929

1923

Ward	Branch Sewers		Main Sewers		Sewage Disposal		Bridges		Grade Crossing	
	No of Contracts	Total Amt	No of Contracts	Total Amt	No of Contracts	Total Amt	No	Total Amt.	No	Total Amt.
1	1	698.20								
4	1	1718.63								
15	—	—	1	110 77.92						
16	1	4800.-								
20	1	30942.58								
21	2	4784.45	1	94456.68						
22	11	160593.38								
23	2	9870.51								
26	11	133022.65								
27							1	680,200.00		
33	6	27829.68			4	10375 -	1	91,976.00		
34	6	49390.87					1	278,797.00		
35	—	——	4	24 2055.53						
38	5	44301.43								
39	3	47595.86	2	91331.52					7	750,041.72
40	4	35806.39			1	10 3896.-	1	95,501.00		
41	1	4810.83	1	42971 39	3	4050.-				
42	18	287475.02	4	164720.87	1	165,000.-				
43	1	30 7248								
44	1	2169.25								
45	3	155 26.26			7	432800.-				
46	2	3900.10								
48	1	19377.03	1	99315.37						
Totals	81	887685.60	14	745929.28	16	716121.00		1,145,474.00	7	750,041.72

88-1929

1923

Ward	Branch Sewers		Main Sewers		Sewage Disposal		Bridges		Grade Crossing	
	No of Contracts	Total Amt	No of Contracts	Total Amt	No of Contracts	Total Amt	No	Total Amt.	No	Total Amt.
1	1	698.20								
4	1	1718.63								
13	—	—	1	110 77.92						
16	1	4800.—								
20	1	30942.58								
21	2	4784.45	1	94456.68						
22	11	160593.38								
23	2	9870.51								
26	11	133022.65								
27							1	680,200.00		
33	6	27829.68			4	10375 —	1	91,976.00		
34	6	49390.87					1	278,797.00		
35	—	—	4	24 2055.53						
38	5	44301.43								
39	3	47595.86	2	91331.52					7	750,041.72
40	4	35806.39			1	10 3896.—	1	95,501.00		
41	1	4810.83	1	42971 39	3	4050.—				
42	18	287475.02	4	164720.87	1	165000.—				
43	1	3072.48								
44	1	2169.25								
45	3	155226.26			7	432800.—				
46	2	3900.10								
48	1	19377.03	1	9931537						
Totals	81	88,685.60	14	745,929.28	16	716,121.00		1,145,474.00	7	750,041.72

88-1929

BRIDGES BUILT AND UNDER CONTRACT IN YEARS 1920 - 21 - 22- 23.

October 19, 1927.

1920	Bensalem Avenue over Pennypack Creek.....	$ 193,692.	35
1920	Island Avenue under Phila. Baltimore & Washington R. R.....	76,288.	40
1921	Morris St. over Germantown & Chestnut Hill Branch P. R. R...	47,020.	22
1921	Oxford St. over Connecting Railway.....	72,312.	29
1920	Godfrey Ave. under N. P. Railroad.....	114,211.	42
1923	South St. over Schuylkill River.....	680,200.	27
1922	Poplar St. over Pennsylvania Avenue.....	27,795.	29
1923	5th St. over Connecting Railway.....	91,976.	33
1923	49th St. over P. B. & W. Railroad.....	95,501.	40
1924	Front St. over Richmond Branch Reading Company.....	84,792.	33
1922	South St. over P. B. & W. Railroad.....	118,712.	27
19	40th St. over P. R. R. Main Line.....	278,797.	34
1924	Erie Avenue under Phila. & Bustleton Branch P. R. R.....	110,991.	33
1925?	Girard Ave. over Penna. Avenue.....	94,854.	29
		$2087,141.	

Correct

F. G. Schworm.

F. G. Schworm,
Division Engineer (Bridges)

89-1929

Contract Work under Grade Crossing Division, 1920-21-22-23.

Improvement of Delaware Avenue from Snyder to Bigler.

J. Joseph McHugh	1920		$109,140.75
William H. Garson	1921		97,776.65
A. A. Pastore,	1922	92,455.35	
J. Joseph McHugh	1922	26,500.17	118,955.52
William H. Garson	1923	12,671.40	
Acchione & Canuso	1923	239,004.23	251,675.63
			$577,548.55

South Philadelphia Track Elevation

B. & O. Detour Track from 23rd and Shunk Streets to Delaware Avenue	1923	215,296.42	
Accione & Canuso, Paving intersections along Delaware Ave. from Snyder to Bigler,	1923	55.211.63	$270,508.05

City also paid a portion of the following contracts by Penna. R. R. Co.

Kelley-Colgan Co., Ties, Delaware Ave.from Snyder Ave. to Bigler St.	1922		22,300.10
Bethlehem Steel Co., Rails. same location,	1923	99,123.49	
John Meehan & Son, Laying Rails, same loca.	1923.	118.873.27	
J. Jos. McHugh, Conduits, same location,	1923	9,861.28	227,858.04
			$250,158.14

90-1929

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

CITY OF PHILADELPHIA

B.E.S. - JEA

January 28, 1929.

REPLY AND REFER TO:

From: Principal Assistant Engineer

To: Mr. Alexander Murdoch, Director of Public Works

Subject: RADIO TALK ON WORK OF BUREAU OF ENGINEERING AND SURVEYS

The Bureau of Engineering and Surveys is charged with the design and construction of new City improvements comprised in bridges, the elimination of grade crossings, sewerage and drainage, and sewage treatment. It, also, operates the Testing Laboratory for the testing of all materials used on City contract work, and the supplies purchased for City institutions. It is one agent for the checking and approval of permits for structures to be located within the highways of the City, and issues all permits for drainage connections to the sewer system.

The Board of Surveyors is a unit of this Bureau, and exercises control of the City Plan, with the placing on and striking off of streets thereon, revisions in lines and grades, and is the official measuring agency of the City of Philadelphia for quantities and work performed on improvement contracts, in addition to which it prepares plans for grading and paving, to be carried out by other Bureaus of the Department of Public Works.

BRIDGES

Taking up the duties of this Bureau in sequence, and considering, first, bridge improvements, it may be stated that the extension and development of the City is the prime factor in the determining of a program of bridge construction which must be followed. The growth of the City requires the opening of new highways and arteries of transportation, and there must be provided the necessary bridge crossings of streams, railroads, and viaducts, where economy dictates this, in preference to filling operations. To this source of demand must be added the renewal or reconstruction of existing old bridges which have become unable to carry the loads resulting from modern traffic conditions.

At the present time, work is proceeding on the following eight contracts entered into in 1928:

Linden avenue over the Philadelphia & Trenton Railroad
Rising Sun avenue over Tacony Creek
Cottman street under the Philadelphia, Newtown & New York Railroad
Abbottsford avenue over the Germantown & Chestnut Hill Branch of the Connecting Railway
Ryan avenue over Sandy Run Creek
Ashdale street under the Philadelphia, Newtown & New York Railroad
Leverington avenue over the canal of the Schuylkill Navigation Co.
Seventeenth street over the tracks of the Pennsylvania and Baltimore & Ohio Railroad.

91-1929

These various contracts will represent an expenditure of approximately $2,700,000.

Among the major projects entered into previous to 1928, and on which work is still proceeding, is a new connection between West Philadelphia and the central section of the city, by a new structure over the Schuylkill River, known as the University bridge. This is a bascule type of quick-opening draw, and is now almost completed; the cost will be approximately $1,300,000.

In the Northeastern section of the city, two concrete arch bridges are being constructed on the line of Rhawn street over the Pennypack Creek, at a cost of $370,000. This work is, also, nearing completion.

There was completed in 1928, a bridge on the line of Green Lane over the Schuylkill River, connecting Philadelphia and Montgomery Counties. It required the expenditure of $398,000, which was borne jointly by Philadelphia and Montgomery Counties. There was also completed a bridge on the line of Hunting Park avenue over the North Pennsylvania Railroad, at a cost of $88,000.

The Girard avenue bridge over the Schuylkill River, which was built for the Centennial Exposition of 1876, was provided with a new floor system capable of carrying modern traffic, at a cost of $165,000, and this replacement was carried out while traffic was maintained during the entire period of operation.

At 6th street and Allegheny avenue the bridge which carried these two important thoroughfares over the Richmond Branch of the Reading Railroad had deteriorated to such an extent that highway conditions were dangerous. The work of replacement is now proceeding and will cost approximately $125,000.

Of the work proposed for the coming year the following nine projects have been planned, and contracts are anticipated prior to May 1:

Lycoming street over the Philadelphia & Reading Railroad
"B" street under the Pennsylvania Railroad
Hunting Park avenue over the Philadelphia & Bustleton Railroad
Mascher street over the Philadelphia & Reading Railroad
Cayuga street over the North Pennsylvania Railroad
Seventieth street over the Philadelphia, Baltimore & Washington Railroad
Welsh avenue over Pennypack Creek
Henry avenue over Wissahickon Creek
Henry avenue over Philadelphia & Reading Railroad.

These projects will require an expenditure on the part of the City of approximately $3,400,000.

Of major importance in the above list are the two projects on the line of Henry avenue, which will provide a new outlet from Roxborough into the heart of Philadelphia, and relieve Ridge avenue of a large portion of the traffic which now congests it.

92-1929

Planning work is proceeding on five structures which are estimated to require an expenditure exceeding $1,000,000. These projects are:

Olney avenue over Philadelphia, Newtown & New York Railroad
Rising Sun avenue and Bristol street over the Philadelphia, Newtown & New York Railroad
Walnut Lane over Lincoln Drive and Fairmount Park
Wyoming avenue over the North Pennsylvania Railroad
West approach of the University bridge.

This entire bridge program represents expenditures of $7,500,000, and will result in the providing of new, or the replacement of aged structures, of a type adapted to modern needs, with strength ample for existing and future traffic conditions, and of an architectural design and finish in keeping with the locations.

GRADE CROSSING ELIMINATION

Under the classification of Grade Crossing Elimination the following improvements are being carried out:

South Philadelphia Improvement
Pennsylvania Terminal Improvement
Baltimore & Ohio Terminal Improvement
Manayunk Elevated
Delaware Avenue Improvement
Chester Branch Elevated
Philadelphia, Germantown & Norristown Branch Elevation.

SOUTH PHILADELPHIA IMPROVEMENT

In connection with the South Philadelphia Improvement, the elevation of railroad tracks on Twenty-fifth street was continued and the concrete viaduct was completed to Ritner street. The new tracks are now in use from the Arsenal bridge to south of Passyunk avenue, and the change resulted in the abolition of eleven grade crossings. One temporary surface track remains for switching purposes, but will be removed during the coming year. Considerable filling work has been done on the joint elevated line between Passyunk avenue and Broad street. Dredging work is proceeding on the Delaware River front for the new Terminal Yard of the Pennsylvania Railroad, and a new coal handling pier is under construction at this point. Work is proceeding on the widening and improvement of Twenty-eighth street from Jackson street to Passyunk avenue.

Expenditures under the South Philadelphia Improvement project during 1928 were $1,658,000, and there remains an available balance to continue work of $3,250,000.

PENNSYLVANIA TERMINAL IMPROVEMENT

Construction work proceeded during 1928 on the construction and reconstruction of the sewer system between Fifteenth street and the Schuylkill River, and between Market and Arch streets, necessary to provide a clear right of way for the Pennsylvania subway to the Fifteenth street station. Plans and specifications have

93-1929

been prepared for the bulkhead walls along the Schuylkill River between Spring Garden street and south of Walnut street, and the revised bulkhead lines have been approved by the Secretary of War. This bulkhead is estimated to cost $500,000, and sewers to be constructed therewith will require $400,000 additional. Property is being acquired for the carrying out of this work. Plans are being developed for the necessary street work, including the bridge on the line of the Pennsylvania Boulevard, over the Schuylkill River, and the Pennsylvania Railroad Company is proceeding with the construction of the subway between 16th and 22nd streets.

The expenditures under this improvement during 1928 were $276,600, and there remains available $6,356,000.

BALTIMORE & OHIO TERMINAL IMPROVEMENT

The Baltimore & Ohio Terminal Improvement comprises the erection of a new station in the vicinity of 24th and Chestnut streets, and the revision of the street system, including a river boulevard in connection therewith. Plans are being prepared by the Railroad Company and the City, with the intention of beginning construction at an early date. An appropriation of $1,000,000 has been provided for the City's share of the work, between Market street and Walnut street.

MANAYUNK ELEVATED

Work is proceeding under the agreement between the City and the Reading Company, for eliminating the grade crossings on the Philadelphia, Germantown & Norristown Railroad, between Wissahickon Creek and Fountain street. The work of carrying Ridge avenue over the tracks, and the construction of the Wissahickon Station was completed in 1928.

Bids have been received for the work between Haines street and Fountain street, and actual construction will start shortly. This will eliminate all grade crossings between Wissahickon Creek and Fountain street, and will open Cresson street as a public highway. The expenditures during the year on this project were $249,000, and the balance remaining for continuing work is $1,940,000.

Under the heading of "Improvement of Delaware Avenue", no progress was made in construction work during the year 1928.

CHESTER BRANCH ELEVATED

On this project with the Reading Company a bridge at 61st street has been almost completed. The total cost of this bridge will be $200,000, of which one-half will be paid by the Reading Company.

ELEVATION OF THE PHILADELPHIA, GERMANTOWN, NORRISTOWN & CHESTNUT HILL RAILROADS

Negotiations have been completed and preliminary plans prepared for the elimination of grade crossings along the line of the Philadelphia, Germantown, Norristown and Chestnut Hill Railroads, from south of Wister Station to Bethlehem Pike. The estimated cost of this project is $5,500,000.

94-1929

DRAINAGE

For the year 1928, City Council appropriated $2,500,000 for main sewers and $900,000 for branch sewers. From these appropriations, and balances remaining from former years, work proceeded on 151 branch sewers. One hundred and eleven contracts were completed during the year 1928, and forty are still proceeding. Sixteen new main sewers were placed under contract in 1928, and about seven miles of main sewers were completed. Ten main sewers which were placed under contract in 1927 were completed, and five begun in 1928 were completed in that year. Work is still proceeding under eleven main sewer contracts.

The expenditure during 1928 for main and branch sewers was $1,833,000.

SEWAGE TREATMENT PROJECT

The Sewage Treatment Project is being carried forward in accordance with the program approved by the State of Pennsylvania in 1915, and under an agreement that at least $3,000,000 per annum shall be expended towards completion of this program. During the year 1928, there were completed the following contracts carried forward from 1927: The Wingohocking Main Sewer, the Tacony Creek Intercepting Sewer, and four sections of the Upper Delaware Collecting Sewer, at a total expenditure of $3,900,000.

Work is still proceeding upon the following contracts carried forward from 1927: One section of the Upper Delaware Collecting Sewer, and five contracts covering the Northeast Sewage Pumping Station. These will require a total expenditure of $2,300,000.

Contracts were entered into in 1928 for the Northeast Grit Chamber and the Pennypack Intercepting Sewer between State Road and Frankford Avenue, which will require an expenditure of $743,000. A contract was also entered into for open storm water channels along the Philadelphia County Line between Darby Creek and Church Creek, at a cost of approximately $180,000.

During the coming year it is proposed to carry out the work necessary to place in service the Upper Delaware Collecting Sewer and the Northeast Grit Chamber and Pumping Stations, to construct the Upper and Lower Frankford Creek Intercepting Sewers, extend the Upper Delaware Collecting Sewer to Ashburner street, and provide additional capacity at the Northeast Treatment Works. This work in the Northeastern section will remove all sewage pollution entering the Delaware River within tidal influence of the Torresdale Intake of the water supply, and the estimated cost thereof is $4,000,000.

In the Southwest district it is proposed to begin construction of the Outfall from the Southwest Sewage Treatment Works, the main collecting sewer, the Island avenue collecting sewer, the 60th street cut-off sewer, and the first unit of treatment structures at the Southwest Works. These steps will require for completion an estimated expenditure of $7,640,000. There is available the sum of $2,700,000 for proceeding with contracts under the Sewage Treatment Project.

It will, also, be necessary to construct the intercepting sewers along the Schuylkill River, between Fairmount Dam and Grays Ferry, on both banks of the river, the estimated cost of which will be in excess of $3,000,000. This is

made necessary by the Pennsylvania Railroad Terminal Improvement and the Baltimore and Ohio Terminal Improvement.

TESTING LABORATORY

The work of the Testing Laboratory consisted of physical and chemical testing of materials submitted by the various City Departments and Bureaus, under their respective specifications. Inspection and collection service was performed where required or requested. Research was made into a number of new types of construction and materials of construction. The number of tests made during the year reached a grand total of 11,394, which is an increase of about 7% over the year 1927.

PERMIT DIVISION

In the Drainage Permit Division there were issued a total of 1,210 permits approving 8,035 connections to the City sewer system.

DISTRICT SURVEY OFFICES

The work of the District Survey offices included the following major items:

Lots staked out	5,728
Conveyance surveys	4,938
Plans of property	1,560
Preliminary drainage plans	381
Highway improvement plans	1,188
Water main plans	308

In addition to this was the large amount of lines and grades on contract work, measurements for estimates and payment, plans of work as completed, for all branches of the City organization, as well as legal matters for the City Solicitor's office.

The operation of the Bureau of Engineering and Surveys for the year 1928 required a total expenditure of $10,520,000.

Very truly yours,

J. E. Allen,
Principal Assistant Engineer.

JEA:T

96-1929

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

CITY OF PHILADELPHIA

CITY HALL ANNEX

REPLY AND REFER TO:

April 30, 1929

MEMORANDUM:

South Philadelphia Track Elevation.

Work under way. Completion of concrete viaduct to carry the tracks of the Pennsylvania Railroad Company over 25th Street between Washington Avenue and the south side of Passyunk Avenue and the construction of bridges over Vare Avenue, Hartranft Street, 26th Street and Penrose Avenue. The filling to grade for the joint four track line of the Pennsylvania Railroad Company and the Baltimore and Ohio between Passyunk Avenue and League Island Park. The filling to grade by dredging the new terminal yard of the Pennsylvania Railroad and laying tracks for the sustaining yard to the new piers which the Pennsylvania Railroad have about completed and which will be put into operation in a few months.

The construction and reconstruction of sewers and laying of water mains in 25th Street between Ellsworth Street and Mifflin Street. The work of opening 28th Street eighty feet wide between 28th Street and Passyunk Ave. and Jackson Street.

Work Contemplated. Completion of fill for the four running tracks and sustaining yards of the Baltimore and Ohio Railroad and the Pennsylvania Railroad between Passyunk Avenue and League Island Park and the final construction of the four running tracks and sustaining yards together with the construction of the six track joint line between League Island Park and Delaware Avenue and on Delaware Avenue to Bigler Street.

~~The present terminus of the permanent work.~~ The abandonment by the Pennsylvania Railroad Company of its facility in the Greenwich Terminal and the ultimate removal of Delaware extension of the Pennsylvania Railroad between 24th Street and Bigler Street and Delaware Avenue.

This work will be followed up by the final elevation of the Philadelphia, Baltimore and Washington Railroad tracks along Grays Ferry Avenue from 30th St. to 25th Street; Washington Avenue and along Washington Avenue by elevation to Fifth Street.

Pennsylvania Terminal Improvement. Work now in progress. The construction and reconstruction of sewers lying between Fifteenth Street and the Schuylkill River, between Market and Arch Streets. The revision of the City plan between Spring Garden Street and South Street, Schuylkill River and 32nd Street.

Work contemplated. The construction of bulkhead along the west bank of the Schuylkill River between Spring Garden Street and Market Street. The raising of the necessary fill for the West River Drive and its connection between Spring Garden Street and Market Street. The construction of foundations to carry Arch Street from the West River Drive westward to 30th Street and the foundations to carry 30th Street from Arch Street to Market Street together with that portion

97-1929

of the West River Drive from Arch Street to Market Street. The raising to grade of Chestnut Street from 30th Street to 31st Street to meet the new conditions between 30th Street and the Schuylkill River. The construction of bridges to carry the Pennsylvania Boulevard over 21st Street, 22nd Street, 23rd Street and the Schuylkill River together with the necessary superstructures to carry the high River Drive between Arch Street and Market St. and the final extension of the double track drive between Market Street and South Street.

Manayunk Elevated. Work in progress. The acquisition of properties necessary for the opening of new streets and the widening of the present streets together with the properties required for the relocation and elevation of the railroad tracks between Haines Street and Fountain Street. The construction of the necessary retaining walls, bridge abutments, bridge foundations for street viaduct and the erection and completion of street viaduct together with new station buildings at Manayunk and the new freight yard between Green Lane and Leverington Avenue.

Work Contemplated. The construction and reconstruction of sewers, water mains and other underground structures after the completion of the elevation of the railroad tracks and the opening of new streets and finally grading, curbing and paving of Cresson Street between Rector Street and Green Lane, changing the grade and widening of Green Lane, retaining the grade and widening and paving Green Lane, changing the grade and widening of Leverington Avenue.

Chestnut Hill Grade Elimination. In accordance with ordinance of Councils, an agreement approved April 11, authorizing an agreement between the Reading Company for the elimination of grade crossings along the line of the Philadelphia, Germantown, Norristown Railroad and the Chestnut Hill Railroad between Wister Street and Bethlehem Pike is now in the process of execution and immediately upon approval of same to be submitted to the Public Service Commission for its approval. Upon its approval by the Commission, work will be commenced.

98-1929

NOTES ON BRIDGE WORK

April 30, 1929

The following bridges will be completed during the present year:-

	APPROXIMATE COST
University Bridge over Schuylkill River	$1,330,000.
Linden Avenue Bridge over Philadelphia & Trenton Railroad	140,000.
Rhawn Street over Pennypack Creek (2 bridges)	370,000.
Rising Sun Avenue over Tacony Creek	95,000.
Cottman Street under P. N. & N. Y. Railroad	50,000.
Ryan Avenue over Sandy Run	40,000.
Ashdale Street under P. N. & N. Y. Railroad	55,000.
6th & Allegheny Avenue over Richmond Branch, Reading Company	130,000.
Leverington Avenue over Schuylkill Navigation Company Canal	113,000.
Lycoming Street over Richmond Branch, Reading Company	55,000.
Cobbs Creek between 65th & Florence Avenue	25,000.

The following contract has been awarded:-

Approaches to Rising Sun Avenue over Tacony Creek	$ 100,000.

The following contract has been advertised for bids:-

Hunting Park Avenue over Philadelphia & Bustleton Railroad	$ 100,000.

Plans have been completed for the following bridges and are now awaiting approvals:-

Welsh Avenue over Pennypack Creek	$ 220,000.
Approaches to Rhawn Street Bridges over Pennypack Creek	100,000.
Bridges on line of "B" Street over Connecting Railway and Philadelphia & Bustleton Railway	300,000.
Wyoming Avenue over North Penn Railroad	100,000.
Cayuga Street over North Penn Railroad	100,000.
Mascher Street over Richmond Branch, Reading Company	65,000.

Plans are now being prepared for the following bridges:-

Olney Avenue over P. N. & N. Y. Railroad	$ 160,000.
70th Street over P. B. & W. Railroad	100,000.
University Avenue under P. B. & W. Railroad	525,000.
Walnut Lane over Lincoln Drive	275,000.
Rising Sun Avenue and Bristol Street over P. N. & N. Y. Railroad	90,000.

F. G. SCHWORM,
Bridge Engineer.

99-1929

Subject Survey of roads going on & contemplated

Replying to your letter of April 23. 1929 I would report that, under the supervision of this Bureau, there is now under construction -

29 Branch Sewers - a total of 31578 feet - which, when completed will entail an expenditure of $ 465900.

13 Main sewers - a total of 38679 feet - which, when completed will entail an expenditure of $ 1.474.000.

13 Intercepting sewers, - appurtenant to the Sewage Disposal project - a total of 24514 feet - which when completed, will entail an expenditure of $ 2.460.000.=

8 Sewage Disposal contracts - buildings, equipment, force mains, etc which, when completed, will entail an expenditure of $ 993.500.

14 Bridges, which when completed will entail an expenditure of $ 2.554.000.=

5 Grade Crossing Contracts, which when completed will entail an expenditure of $ 625.000.

3 Improvement Contracts - grading, paving, etc which when completed will entail an expenditure of $ 456.000.

100-1929

Replying to your letter of April 23rd, I would report that under the supervision of this Bureau, there is now under construction -

29 Branch Sewers, a total of 31,578 feet, which when completed will entail an expenditure of $485,900.00.

13 Main Sewers, a total of 38,629 feet, which when completed will entail an expenditure of $1,424,000.00.

13 Intercepting Sewers, appurtenant to Sewage Disposal Project, a total of 24,514 feet, which when completed will entail an expenditure of $2,460,000.00.

8 Sewage Disposal Contracts, buildings, force mains, equipment, etc., which when completed will entail an expenditure of $993,500.00.

14 Bridges, which when completed will entail an expenditure of $2,554,000.00.

5 Grade Corssing Contracts, which when completed will entail an expenditure of $625,000.00.

3 Improvement Contracts, grading, paving, etc., which when completed will entail an expenditure of $496,000.00.

485 900
1424
2460
993 5
2554
625
496
9,038,400

101-1929