CITY OF PHILADELPHIA

DEPARTMENT OF PUBLIC WORKS

CITY HALL

June 25, 1931.

From; The Director's Office
To; Chief Corning, Highway Bureau
" Neeeson, E&S
" Hayes, Water
" Soby, Street Cleaning
" Neeld, City Property
" Robinson, Gas
" Carlin, Lighting.

Subject; Bureau activities.

Mayor Mackey desires a report of the activities of your Bureau from January 2, 1928 to July 1, 1931.

He requests this report to include any reorganization that was effected during his administration, and the outstanding achievements during the last three and one-half years.

This report is to be presented to the public as soon as possible after July 1st.

Please see that this report is sent to me before July 1st.

Alex Murdoch

ALEXANDER MURDOCH,
Director.

No. 2114				FILING SYMBOL
REC. 6-25-31				
BUREAU OF ENGINEERING & SURVEYS				
FOR YOUR ATTEN.	CPA			
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RESUME' OF ACTIVITIES OF BURRAU OF ENGINEERING & SURVEYS,

January 1, 1928, to July 1, 1931.

The activities of the Bureau of Engineering and Surveys in the design and construction field, together with points of major importance to the Bureau work and organization, during the interval between January 1, 1928, and July 1, 1931, are briefly outlined as follows:

In accordance with the provisions of an ordinance approved July 31, 1928, the Bureau of Engineering and the Bureau of Surveys were consolidated under the title of Bureau of Engineering and Surveys, and the combined bureaus were placed under the control of John H. Mecson as Chief Engineer and Surveyor. This consolidation was a move to facilitate operations on contract work and public relations by avoiding any reasons for delays and misunderstandings, which might arise from having construction activities under a separate direction from the surveying, measuring, assessing and City planning work. Since this consolidation, the combined bureaus now direct City Planning, with its relation to the various planning organizations and the public interests and the new construction work comprised in bridges, elimination of grade crossings and railroad improvements, sewers and drainage structures, sewage treatment and construction work required in the carrying out of the sewage treatment projects and such special projects as may be authorized by City Council. It also controls the issuing of permits for connections to the drainage system, the investigation and control of manufacturing and trade wastes, the checking of permits for utility structures within the City streets, the preparation of street improvement plans, and operates the testing laboratory, for which the materials entering into City construction work and the supplies purchased for the maintenance of City institutions are judged.

In December of 1928, the Bureau occupied its new quarters in the City Hall

Annex, and the advantage of grouping the various units and divisions in one location permitted a re-organization of the designing divisions by which all design work was placed under one head and the designers grouped in one large drafting room. This allowed a much greater degree of flexibility in the working force and enabled a larger volume of work to be accomplished with a smaller organization. The advantages of this move were so apparent that in 1930 the various constructions organizations were combined and placed under one directing head.

City development had rendered obsolete the distribution of the bureau district offices headed by the surveyors and regulators of the various districts, by overloading offices in the districts where building construction had turned and stagnating the offices where the sections were fully built up and growth had practically ceased. These conditions were changed under the terms of the ordinance of March 18th and December 31, 1929, which authorized the revision of the boundaries of survey districts. This revision provided a more equal distribution of work throughout the sixteen districts with a corresponding betterment in the services rendered to the public. Additional district offices were established in the Bustleton and Castor Highlands area, to provide these rapidly growing sections with the essential surveys and plans.

In addition to the routine work connected with the City Plan, the Board of Surveyors and assistants co-operated by means of surveys, studies and plans with the work of the Regional Planning Federation of the Philadelphia Tri-State District and the Philadelphia City Planning Commission.

Among the major features of this character of work has been the development of the main traffic arteries, including the Delaware River Bridge approaches, Pennsylvania Boulevard, Pennsylvania Avenue Extension, Frankford and Castor Avenues, University Avenue and the Henry Avenue Extensions to take full advantage of the new bridges now under construction across the Wissahickon Valley and the railroad tracks.

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Investigations and surveys are proceeding in connection with a plan for the rehabilitation of the old sections of the City with direct and immediate application to the area lying between Broad Street and the Delaware River and from Poplar Street on the north to Carpenter Street on the south.

There is also in progress an economic and social survey of the City of Philadelphia, aiming to determine its economic structure and productive vitality as a basis for the financing of City Planning projects.

The construction activities of the Bureau were increased to a large extent by the City work necessitated as an adjunct to the extensive improvements now in progress by the various railroad interests entering Philadelphia.

The Pennsylvania Terminal Improvement is affecting a revision of the City in the vicinity of Market Street over the entire area between Broad Street and 34th Street, including an entirely new development of the Schuylkill River banks and bridges. The necessary City revision of the drainage system has been completed and other City operations are keeping pace with the requirements of the railroad operations. The subway east of the Schuylkill River and the 15th Street Underground Station have been completed and placed in operation. The bulkheading of the Schuylkill River is proceeding as rapidly as the railroad operations and the development of the plan will permit. West of the River, the improvement of Chestnut and 30th Streets is nearing completion and a section of the Schuylkill West Side Intercepting Sewer has been completed.

The City expenditure in connection with this work since January 1, 1928, has been $5,949,463.82.

The Baltimore and Ohio Terminal Improvement, which centers about the proposed modern terminal station at 24th and Chestnut Streets, has not advanced to the construction stage at this time. Studies and plans have proceeded upon the necessary street revisions and river bank development and steps have been taken for the acquisi-

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tion of property included in the City portion of the development.

In the South Philadelphia section, the elevation of tracks along the line of 25th Street from Washington Avenue to Passyunk Avenue has been completed, the surface tracks removed, drainage and water services installed and paving is proceeding. The portion between Ellsworth and Mifflin Streets is completed. Work is proceeding on the elevation of the tracks of the joint railroad line between Passyunk Avenue and Delaware Avenue, of which line the section between Penrose Avenue and Broad Street has been completed.

The City expenditure in connection with these improvements during this Administration is $4,600,910.77.

The work of elevating the tracks of the Reading Company between Wissahickon Creek and Fountain Street has been completed and regular train service schedules were established over the elevated structure on March 7, 1930.

Under the agreement for the elimination of grade crossings, along the line of the Philadelphia and Germantown Railroad and the Chestnut Hill Railroad, between Wister Street and Bethlehem Pike, the work at Willow Grove Avenue and at Mermaid Lane has been completed. Work will shortly begin at the Gowen Avenue crossing and at Mt. Airy Avenue, and arrangements have been made permitting progress from Wister Street northward, including the removal of the grade crossings at Chelten Avenue and at Armat Street.

The City expenditure in connection with these grade crossings eliminations of the Reading Company has been $2,179,300.90.

The authorized elimination of grade crossings at Cottman Street and Pine Road, under the Philadelphia, Newtown and New York Railroad, have not yet reached the construction point. Revisions of the street system must be carried out as a preliminary action.

The construction of new bridges during the present Administration was carried on under contracts for thirty-seven structures, of which twenty-five are com-

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pleted and the expenditure to July 1, 1931, has been $5,959,438.15. Work is now proceeding under twelve contracts which have an estimated combined value of $2,806,696.30.

Drainage work was carried on to a total of finished construction which added one hundred and fourteen miles to the length of the sewer system. Main sewer contracts were completed to the number of forty-four, at an expenditure of $4,237,362.69. Work is proceeding under five contracts, which represent a combined total of $683,000.

Branch sewers and lateral installations were completed comprising four hundred and thirteen contracts, at a cost of $2,746,788.58.

The above figures for drainage structures do not represent the full value of the work performed as the amounts given are the cash payments from the City funds and the cost of this work was partly borne by bills of assessment against abutting property.

Under the sewage disposal project, this Administration saw the completion of the Wingohocking Creek drainage structures, the completion and placing in service of the Tacony Creek Intercepting System and will complete during the present year the intercepting system necessary to accomplish the cleaning up of Frankford Creek. The Upper Delaware Collecting Sewer between Pennypack Creek and the Northeast Works was completed for the length of six miles and placed in service, together with the new sewage pumping station, on July 16, 1930. This accomplished the removal of sewage pollution from the Delaware River between Poquessing Creek and Frankford Creek and was the first important accomplishment toward the safeguarding of the City water supply taken from the Delaware River at Torresdale.

On September 3, 1930, the Pennypack Sewage Treatment Works was abandoned after eighteen years of continuous service by the diverting of the sewage flow to the collecting sewer.

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The expenditure in carrying out the various steps of the sewage treatment project, during this Administration, has been $7,696,287.28, and work is now proceeding under contracts for a combined value of $760,000.

Under the improvement of main traffic arteries, the operations in Castor Avenue and Frankford Avenue were completed at a cost of $321,937.14, and have converted these main traffic streets to wide, well-paved boulevards with street car service located along the centers.

During this Administration, permits were issued for drainage connections for new buildings to the number of 17,845; and the testing laboratory carried out analyses of 34,388 samples submitted.

The construction activities of this Bureau from January 1, 1928, to July 1, 1931, have required the actual expenditure to a grand total of $34,020,331.25.

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BUREAU OF ENGINEERING AND SURVEYS

J. H. Neeson, Chief Engineer and Surveyor.

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For the year 1931, the Bureau of Engineering and Surveys had funds available for construction work to the total of $24,657,688.07; of which there was expended under contracts or commitments made to expenditures under contract to a total of $9,919,627.24. These expenditures and contracts were in connection with the items of new City bridges, the elimination of grade crossings, City participation in railroad improvements, sewers and drainage structures and the sewage treatment project.

In addition to the construction features above outlined, the duties of this Bureau comprised the operation of a laboratory for the physical and chemical testing of materials of construction and supplies purchased for the maintenance and operation of the various City institutions and operating plants; the issuing of permits for connections from buildings to the drainage system; and the investigation and control of trade wastes and discharges from manufacturing processes into the sewer system and the surrounding waterways.

The Bureau of Engineering and Surveys, also, comprises the Board of Surveyors who are the developers of the City Plan and the official measurers of real estate and of the quantities of work done and materials furnished under contracts for City construction work.

Two sources of income, by which funds are paid into the City Treasury from the Bureau of Engineering and Surveys, are for the sale of sewer laterals and drainage service charges from the Sewer Registrar, which during 1931 amounted to $12,612.63, and services rendered to the public and measurements on contract work by the Survey District Offices, which provided the sum of $117,102.07. The total return of funds from the Bureau of Engineering and Surveys to the City Treasury was $129,714.70.

A brief summary of the activities of the Bureau for the year 1931 follows.

BOARD OF SURVEYORS AND CITY PLANS DIVISION

The routine work under the Board of Surveyors of developing the City Plan was added to by the continuation of studies for the rehabilitation of the area bounded by Washington Avenue, Poplar Street, Broad Street and the Delaware River. The section was plotted on large scale maps and exhaustive studies were made on the number and distribution of population, dwellings, families, playgrounds, public squares, swimming pools, intensity of housing, development, dead-end streets, narrow streets, inner courts and the assessed valuation of property. Work is continuing on this problem of seeking a solution, which will restore the sections of the older City from their present deteriorated condition to the value and revenue producing status which they should occupy.

Studies also continued on determining the quality and extent of existing and productive economic resources that may be counted upon in developing major City Plan improvements. The various studies produced plans of the built-up area of Philadelphia and the trend of housing and population movement during the past ten years; the geographical distribution of the colored population and its movement. A comparison was charted of the population growth and vital statistics of Philadelphia and other comparable cities in the United States.

A large scale map was developed of the major traffic arteries and highways of the City and their connections with the highways surrounding Philadelphia.

A study of assessed valuations of real estate was also developed in chart form.

Among the more important traffic studies undertaken were the Parkway development; Delaware Avenue widening, from Laurel Street to Dyott Street; Spring Garden Street widening, from 6th Street to the Delaware River; the Delaware River Bridge Approach; and the West Philadelphia Improvements in connection with the work of the Pennsylvania Railroad.

BRIDGES

New City bridges to the number of six were completed during 1931 and construction work is continuing under five contracts. Contracts were entered into for two structures but physical work is not yet proceeding. Plans are proceeding on eight new structures, authorized by City Council.

The expenditures and contract commitments for the year for bridge construction amounted to $2,429,383.92.

The contracts completed during the year were the following:

WELSH AVENUE BRIDGE over Pennypack Creek: This structure is a reinforced concrete arch and carries the new roadway to its full width of 80 feet, and was designed to eliminate heavy grades, which previously existed on the old highway. The total cost of the structure was $166,661.30.

Work is proceeding on the grading of Welsh Avenue and the paving to a width of 22 feet.

OLNEY AVENUE BRIDGE over Philadelphia, Newtown and New York Railroad: This structure is of the through steel plate girder type, encased in concrete. The total cost was $159,114.10, of which the City paid $115,768.67, and the Railroad Company paid $43,345.43. The completion of this bridge has enabled the establishment of highway and trolley communication on the line of Olney Avenue from Rising Sun Avenue to the Broad Street Subway.

MASCHER STREET BRIDGE over the Richmond Branch of the Reading Company: Mascher Street was formerly paved and in use up to the line of the railway, and the completion of this through steel plate girder, encased in concrete, type structure enabled through traffic to use Mascher Street. The total cost of the structure was

$88,448.46, of which the City paid $59,702.71, and the Railroad $28,745.75.

"B" STREET BRIDGES under the Connecting Railway and the Philadelphia and Bustleton Railroad: The necessity for providing a traffic highway on the line of "B" Street caused the opening of negotitations between the City and the Railroad Companies on the questions of work involved and the equitable sharing of costs. An agreement was entered into by which the Pennsylvania Railroad agreed to pay one-third of the cost of the Connecting Railway bridge and one-half of the cost of the Philadelphia and Bustleton Bridge and the entire cost of the bridge carrying the Fairhill Branch. Final distribution of costs and settlement has not yet been completed. The physical work has all been carried out, the street paved and traffic is passing beneath these bridges.

FIFTY-SIXTH STREET BRIDGE under the Chester Branch of the Reading Company: This structure is a through plate girder type, resting on concrete abutment walls. The Reading Company shared equally in the cost of the bridge structure, but, the street construction and other items were carried by the City. The total cost was $29,580.54, of which the City paid $15,541.95, and the Railroad $14,038.59.

THIRTY-FOURTH STREET BRIDGE over the Schuylkill River East Side Railroad: This structure forms a portion of the south approach to the University Bridge over the Schuylkill River. It is constructed of steel, encased in concrete, and its costs were shared equally between the City and the Baltimore and Ohio Railroad. Work on the approaches was entirely a City responsibility. The total cost was $65,100.20, of which the City paid $34,434.84, and the Railroad $30,666.36.

The appurtenant grading of 34th Street from the Bridge to Grays Ferry Avenue was completed at a total cost of $15,141.46.

RHAWN STREET drainage of bridge approaches: Improvements to the approaches of the recently constructed Rhawn Street Bridges over the Pennypack Creek required the expenditure of $21,996.26, - for the construction of gutters, drains, inlets, the construction of footways and the widening of the paving over the bridges.

The following structures are under contract and work is proceeding:

HENRY AVENUE BRIDGE over Wissahickon Creek;

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

EAST LOGAN STREET BRIDGE under the Germantown and Chestnut Hill Branch of the Reading Company;

UNIVERSITY AVENUE BRIDGE and approaches.

Contracts have been entered into but work is not proceeding on the following structures:

SUMMERDALE AVENUE BRIDGE under the Philadelphia and Frankford Branch of the Reading Company;

WALNUT LANE BRIDGE over Lincoln Drive.

Plans have been completed for the following three structures:

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SEVENTIETH STREET BRIDGE over the Philadelphia, Baltimore and Washington Railroad;

KINGSESSING AVENUE BRIDGE over the Octoraro Branch of the Philadelphia, Baltimore and Washington Railroad;

ASHBURNER STREET BRIDGE over the Philadelphia and Trenton Railroad.

Plans are proceeding for the following five bridges:

SEDGLEY AVENUE BRIDGE over the North Penn Railroad;

PENROSE AVENUE BRIDGE over the Schuylkill River;

CONVENT LANE FOOTBRIDGE over the Philadelphia and Newtown Railroad;

CITY LINE BRIDGE over the Pennsylvania Railroad;

WINGOHOCKING STREET BRIDGE under the Philadelphia, Newtown and New York Railroad.

ABOLITION OF GRADE CROSSINGS

Projects in connection with the railroads entering Philadelphia and comprised under the following classifications required the expenditure and the inclusion in contracts of the sum of $3,921,686.76.

SOUTH PHILADELPHIA TRACK ELEVATION: The work during 1931 was mostly grading and track work, with the exception of 25th Street between McKean Street and Passyunk Avenue where the reconstructing of sewers and laying of new water mains were necessary. The expenditure required, on the part of the City, was $362,801.84.

PENNSYLVANIA TERMINAL IMPROVEMENTS: This extensive project comprises work both east and west of the Schuylkill River. From the River eastward to Broad Street, the necessary street work required of the City has been completed, until such time as the Pennsylvania Railroad abandons the trackage into Broad Street Station and the railroad facilities have been removed. Work is continuing on the west side of the River.

On the viaduct to carry Arch Street between Schuylkill Avenue West and 30th Street over the tracks and platforms of the new station, the concrete deck paving and drainage were completed.

Work incident to the change of grade of Chestnut Street between 30th and 31st Streets and the upper and lower levels of 30th Street between Market and Walnut Streets were completed and opened to traffic.

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Work proceeded on the construction of the bulkhead wall and intercepting sewer from Spring Garden Street southward. This work was seriously hampered by the delay in removing the ash loading wharf situated in the line of the new work.

The grading of Schuylkill Avenue West from Spring Garden Street to Arch Street was advanced by the ability to obtain and place approximately 160,000 cubic yards of filling material at no cost to the City.

Contracts were entered into for constructing a retaining wall along the west side of Schuylkill Avenue West from Spring Garden Street southward and for the construction of a viaduct to carry 30th Street over the railroad tracks and platforms between Arch Street and Market Street, but work has not yet proceeded under these contracts.

The City expenditure necessary in connection with the Pennsylvania Terminal Improvements was $3,042,567.72.

MANAYUNK ELEVATED: Work has been completed on the elimination of grade crossings along the Norristown Branch of the Reading Company, between Wissahickon Creek and Fountain Street, with the exception of a small amount of permanent street work to be done at Main Street and Leverington Avenue.

GERMANTOWN AND CHESTNUT HILL ELEVATED: Work is proceeding on the elimination of grade crossings along the Philadelphia, Germantown and Norristown Railroad and the Chestnut Hill Railroad, between Wister Street and Bethlehem Pike.

In the Chestnut Hill section, all work has been completed with the exception of a bridge and change of grade necessary to carry Mt. Airy Avenue over the Railroad. The beginning of work on this street has been deferred.

Work is proceeding in the Germantown section on the elevation of the railroad tracks, new bridge crossings, the new passenger station at Chelten Avenue, and the reconstruction of the freight yard.

Expenditures by the City on the Manayunk, Germantown and Chestnut Hill Elevations were $515,553.50.

PENNSYLVANIA AVENUE IMPROVEMENT: The opening and improving of Pennsylvania Avenue between 26th Street and Girard Avenue was advanced by the construction of Pennsylvania Avenue over the tracks of the Baltimore and Ohio Railroad, and the Reading Company between 26th and 27th Streets. The street construction was a responsibility of the City, but it required the construction, by the Baltimore and Ohio Railroad, of an abutment wall along the westerly side of Pennsylvania Avenue bordering its trackage to support the City structure.

The work of the City at this location required the expenditure of $369,932.93.

BALTIMORE AND OHIO TERMINAL IMPROVEMENT: Progress on this project has been limited to studies of a preliminary character.

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ELIMINATION OF GRADE CROSSINGS ON THE NEWTOWN BRANCH: Plans and specifications have been prepared covering the elimination of grade crossings at Oxford Avenue and the Philadelphia, Newtown and New York Railroad, branch of the Reading Company, but no construction work has been placed under contract.

DRAINAGE

Contracts entered into for drainage structures included seven for main sewers, fifty-seven for branch sewers and two at private cost; which, together with drainage structures built in connection with the grade crossing work, the sewage treatment project, bridges and paving (under Highway Bureau contracts), made a total increase of 16.23 miles to the length of sewers included in the drainage system. There are now 1778.81 miles of completed sewer within the limits of the City of Philadelphia.

The expenditure and commitments under contracts for main sewers was $1,002,696.65 for a length of 2.08 miles; for branch sewers, the expenditure and contract commitments amounted to $315,082.90 for a length of 7.78 miles. The replacement of old sewers was carried out under twenty-four contracts to the value of $442,589.70 for a length of 4.07 miles.

The following main sewers were completed during the year 1931:

CASTOR AVENUE between Aramingo and Frankford Avenues: A reinforced concrete structure varying in size from 7' X 8' to 7' X 6'6".

GLENDALE AVENUE between Horrocks Street and Castor Avenue: A 12' X 12' reinforced concrete storm water sewer with two 24" vitrified pipe sewage sewers.

GORGAS LANE from east of Henry Avenue to Lawnton Avenue: A 6'6" diameter reinforced concrete storm water sewer, with a 15" vitrified pipe sanitary sewer reducing to a 3'6" diameter reinforced concrete storm water sewer, with a 15" vitrified pipe sanitary sewer.

HORROCKS STREET between Glendale Avenue and Bustleton Avenue: A reinforced concrete storm water sewer 6' X 4' reducing to 5' X 4' with a 15" vitrified pipe sanitary sewer.

MAIN RELIEF SEWER THROUGH FAIRMOUNT PARK from the Schuylkill River to Fairmount Avenue, and in Fairmount Avenue between Fairmount Park and 23rd Street: The work comprised three sizes of reinforced concrete sewer — 9' X 8', 7' X 7' and 13' 6" diameter in tunnel.

ROOSEVELT BOULEVARD from northeast of Tyson Avenue to Princeton Avenue, in Princeton Avenue from Roosevelt Boulevard to Calvert Street, in Calvert Street from Princeton Avenue to St. Vincent Street, and in St. Vincent Street from Calvert Street to Bustleton Avenue: A reinforced concrete sewer 8' X 7' in section.

WISSAHICKON HIGH LEVEL CUT-OFF SEWER in Stokley Street and Fairmount Park from northwest of School House Lane to the Wissahickon High Level Sewer: A 6' diameter brick sewer in tunnel, reducing to a 5' diameter brick sewer in open cut and a cast iron pipe syphon crossing the Monoshone Valley.

WISSAHICKON LOW LEVEL COLLECTING SEWER through Fairmount Park from north of Township Line Road to the Perkiomen Turnpike: A 27" diameter vitrified pipe laid in concrete.

BELLS MILL ROAD from Wissahickon Creek toward Perkiomen Turnpike: A brick storm water conduit, 4' diameter and 5' 6" diameter, with a 12" vitrified pipe sanitary sewer.

FRANKFORD BRANCH, PHILADELPHIA AND READING RAILWAY, RIGHT-OF-WAY between Bingham Street and Whitaker Avenue; A 4' 6" diameter brick sewer partly in tunnel and a 4' diameter brick sewer in open cut.

Contracts were entered into and work is continuing on the following sewers:

OAK LANE MAIN SEWER IN LAKESIDE AVENUE between 12th Street and Old York Road: A 9' 6" X 7' 6" reinforced concrete storm water conduit with 10" and 12" vitrified pipe sanitary sewers.

LARDNER STREET AND THROUGH PRIVATE PROPERTY from the Delaware River to northwest of Tacony Street: An 8' X 10' 6" twin section reinforced concrete storm water conduit on pile foundation, with 10" and 12" vitrified pipe sanitary sewers.

Contracts have been entered into but work is not proceeding on the following sewers:

CASTOR AVENUE from Frankford Avenue to Glenwood Avenue, and in Glenwood Avenue between Castor Avenue and "L" Street;

MAIN RELIEF SEWER IN FAIRMOUNT AVENUE between Pennsylvania Avenue and 23rd Street;

LINE OF TYSON AVENUE from Shelbourne Street to Hasbrook Street, and in Hasbrook Street from the line of Tyson Avenue to a connection with the sewer system of Cheltenham Township.

Following the occurrence of two storm water floods in the vicinity of 12th and Courtland Streets, it was decided to begin constructing the second tube of the Wingohocking Sewer on Wingohocking Street between Philip Street and Broad Street. Proposals were received for the work and the low bidder was ordered to proceed as an emergency operation to the extent of $375,000 available funds. The sewer is reinforced concrete, 15' X 17' in section, and 190' were completed during the year.

Rain storms of high intensity occurred on the evenings of July 14th and August 10th, and resulted in flooding at a number of locations within the City.

MINGO CREEK PUMPING STATION: This is a storm water pumping station and provides drainage for the lowland section of the 40th Ward. The pumpage for the

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year is estimated at 1,368,000,000 gallons, which is slightly less than half the average annual pumpage for the preceding years. This reduction is due to the exclusion of flood waters from the adjoining county by the dikes completed in 1929 along the County Line between Darby and Church Creek, and the sluice gates completed in 1931 through the Darby Creek bank at the County Line. The completion of the 67th Street Main Sewer to the Schuylkill River has likewise reduced the volume of storm water delivered to the Pumping Station.

The Mingo Creek Pumping Station is steam operated and uses oil fuel under the boilers. Fuel Oil consumption amounted to 116,248 gallons at a cost of $4,068.85. The total expenditure for operation, maintenance, repairs and equipment of the Station amounted to $12,380.42.

SEWAGE TREATMENT PROJECT

Continuing the practice of the City, in co-operating with adjoining counties to maintain the inland streams in a cleanly condition, an agreement was entered into between the City of Philadelphia and the Township of Cheltenham, for the receipt, conveyance and treatment, by the City of Philadelphia, of sewage from the Cheltenham Avenue section of the Township.

An agreement was also entered into with the Township of Springfield, for the receipt, conveyance and treatment, by the City of Philadelphia, of sewage from the Wyndmoor section of the Township.

The year 1931 was marked by the following outstanding points in the sewage treatment project:

NORTHEAST SECTION:

The completion of the Lower Frankford Creek Low Level Intercepting Sewer in Lefevre Street from the Upper Delaware Collector to Frankford Creek, and along Frankford Creek between Adams Avenue and Bridge Street, together with the necessary interceptor chambers and connections to the main sewers in Bristol Street, Margaret Street and Northeast of Margaret Street.

Contracts were entered into for the interceptor chambers and connections to the main sewers in Casimir Street and in Lefevre Street.

The second section of the Upper Frankford Creek Low Level Intercepting Sewer was also completed from southeast of Frankford Avenue to Wyoming Avenue, and comprised an operation of dredging Frankford Creek from Church Street to Paul Street.

Contracts were entered into for the intercepting chambers and connections to the sewer in Torresdale Avenue.

The Upper Delaware Collecting Sewer was completed to Ashburner Street.

Work was begun on the Somerset Low Level Collecting Sewer between the Northeast Sewage Treatment Works and Somerset Street.

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Construction was begun on the intercepting connection between the Upper Delaware Collecting Sewer and the Lardner Street Main Sewer.

The discharge of sewage into the Delaware River had previously been discontinued between the Bucks County Line and Frankford Creek, and the completion of the work now under contract will extend the sewage removal southward from Frankford Creek to Lehigh Avenue. The accomplishment of this will be the compliance with the first requirement of sewage treatment project for the removal of sewage pollution within tidal influence of the intake of the water supply in the Delaware River.

Operations at the NORTHEAST SEWAGE TREATMENT WORKS were successfully carried on during the year and the character of effluent discharged to the Delaware River was maintained at the requisite standard within the capacity of the River to assimilate.

The total volume of sewage treated during the year amounted to 13,956,000,000 gallons and produced 15,503 cubic yards of wet digested sludge, or 1.1 cubic yard per million gallons of sewage treated.

The HIGH LEVEL GRIT CHAMBER, from a total sewage flow of 10,722,000,000 gallons, delivered 12,858 cubic feet of wet screenings and 30,236 cubic feet of wet grit.

The LOW LEVEL GRIT CHAMBER, from a flow of 3,184,000,000 gallons, delivered 7,017 cubic feet of wet screenings and 19,000 cubic feet of wet grit.

SOUTHWEST SECTION:

In the Southwest Section, the first section of the MAIN GRAVITY SEWER, delivering to the Southwest Works, was completed in Mingo Avenue from Penrose Avenue to Mingo Creek. It is of reinforced concrete construction with vitrified plate inner lining and is a triple conduit with a uniform inside height of 6'9" and the following widths - 5'3", 4'3" and 7'.

Work is proceeding on the first section of the OUTFALL from the Southwest Works, through the recently acquired Hog Island tract, between the Delaware River and the Chester Branch of the Philadelphia, Baltimore and Washington Railroad. This is a triple section of reinforced concrete construction with vitrified plate inner lining and pile foundation; each tube is 7' high and 10' wide.

No treatment structures have yet been constructed at the Southwest site, although the sewage lifting station has been in light operation since 1927.

The various operations carried on during 1931, in connection with the sewage treatment project, required the expenditure and commitment under contracts of $1,808,187.31.

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DRAINAGE PERMIT DIVISION

Permits for connections of buildings with the drainage system of the City were issued to the number of 2,201, and the number of sewer records was increased by the filing of 112 plans and diaries of work constructed during the year.

TESTING LABORATORY

During the year 1931, the Laboratory completed tests and made reports on 14,144 samples submitted from the various departments and bureaus of the City. These samples covered a wide range of materials and were derived not only from construction contracts but from supplies purchased for the various maintenance operations of the City Government. In most cases, this work required inspection and collection service, in addition to the testing.

It has been endeavored to maintain the Laboratory at a high plane, one comparable with laboratories of recognized standard. The Laboratory holds membership on several standing committees of the American Society for Testing Materials and is taking an active part in the forming of specifications and testing methods for materials of construction published by this organization.

It is also co-operating with the Philadelphia Department of Health in a research program to determine trade waste gases in the air of the City, claimed to be injurious to public health.

OFFICIAL PHOTOGRAPHER

The work of this Division required the making of photographic negatives to the number of 2,959, from which 9,830 prints were made. Blueprinting for the various departments and bureaus required the use of 306,623 square feet of blue print paper.

ZONING COMMISSION

AUTHORITY TO ZONE: On May 6, 1929, the Legislature of the State of Pennsylvania passed a new Zoning Enabling Act for Cities of the first class (Pamphlet Laws 1561). Pursuant to authority granted by said Act, the Mayor of Philadelphia, Honorable Harry A. Mackey, appointed a Zoning Commission on June 24, 1929, to prepare an Ordinance to zone Philadelphia.

The Commission met and organized on July 2, 1929. Mr. J. Willison Smith was elected Chairman, Mr. M. B. Medary was elected Vice-Chairman and Mr. George R. Mackenzie, Engineer-Secretary. On July 16, 1930, Mr. G. Coe Farrier, Assistant City Solicitor was assigned to Zoning and was appointed Counsel for the Commission. Mr. John H. Neeson was elected Vice-Chairman March 18, 1930.

17-1931

A Temporary Procedure Committee, of which Mr. Milton B. Medary was Chairman, was appointed to outline a prospective plan of activities and procedure, which was adopted and followed until the completion of the Ordinance.

The membership of the Commission, as of today (1931), consists of:

J. Willison Smith, Chairman
J. H. Neeson, Vice Chairman

Ralph B. Bencker	Albert H. Ladner, Jr.
W. Edwin Blair	Jerome H. Louchheim
Frank Burch	John H. McCarthy
Arthur G. Dickson	John N. McGarvey
Daniel C. Donoghue	John P. B. Sinkler
David N. Fell, Jr.	Frank G. Stewart
Philip H. Gadsden	Clement B. Webster
A. H. Geuting	John G. Williams
Clarence L. Harper	Dr. George Woodward

George R. Mackenzier, Eng. Secretary &
G. Coe Farrier, Counsel.

COMMITTEES: The Executive Committee consists of:

J. Willison Smith, Chairman
Daniel C. Donoghue
John N. McGarvey
John H. Neeson
John P. B. Sinkler

Following out the method suggested by the Procedure Committee, the studies of the Ordinance were made by Committees. In all, six other Committees were appointed to work out details as follows:

(1) An Ordinance Committee to study the Legal and Administrative phases of the Ordinance.

(2) A Use Committee to study the Use of buildings and land as authorized in the Enabling Act and later the making of the Maps.

(3) A Height Committee to study the building heights and Regulations.

(4) An Area Committee to study open area requirements.

(5) A Campaign Committee was appointed in 1931 to arrange for Public Hearing places and Speakers to describe the Ordinance and educate the public on the benfits of Zoning.

(6) A Publicity Committee was also appointed in 1931 to arrange for newspaper publicity and radio broadcasting.

18-1931

Since the organization of the Commission and its Committees, it has held 58 formal meetings, 10 meetings in 1929, 31 meetings in 1930, 17 meetings in 1931, and has held 17 Public Hearings and a number of informal discussions.

ORDINANCE: Philadelphia has been considering Zoning since 1916, or for a period of fifteen years. In 1916 there were only eight Municipalities in the United States zoned, according to reports from the Department of Commerce, Washington, D.C. There are to-day ten hundred and twenty (1020) Municipalities zoned, representing a population of 46,500,000 people or about thirty-eight (38) per cent of the entire population of the United States. Among the large Cities zoned may be mentioned New York, Chicago, Boston, Cleveland, Los Angeles, Washington, Pittsburgh, Patterson and there are many others. During the last two and one-half years, or since the present Commission commenced work, one hundred and sixty-nine (169) Municipalities have been zoned and the total number zoned is still growing.

In preparing the Ordinance, the Commission has given careful study to modern building methods and the evolutions made in transportation by buses and automobiles, and the necessity of Parking, and has endeavored to draft the Ordinance to meet these conditions.

The height of buildings was considered as one of the important points in Zoning and the subject has been dealt with in a liberal manner, including building with set-backs and towers, similar to New York's buildings of to-day, which have frequently received favorable comment from visitors.

It is realized by the Commission that Industry is the hub of success to any City. Industrial Areas have been discussed with the different Railroad officials and adjacent property holders, with the result that sufficient industrial space has been laid out for many years in advance of present needs.

REVIEW: The text of the Ordinance was completed by the Commission in the fall of 1930, but it was considered advisable to have it reviewed by a Legal expert before presenting it to the public and to the City Council, and Mr. Edward M. Bassett of New York, one of the best known Zoning Legal experts of the United States, and for years Counsel of the Zoning Committee of New York City, was employed to make such review.

At his suggestion a number of changes were made and the Ordinance completed and printed in time for the public hearings in April 1931. This Ordinance is what is called a comprehensive Ordinance, and will include every part of the City, so that the restrictions or regulations would not be discriminatory or confiscatory and appear to favor one place as against any other portion.

MAPS: Zoning Maps are controlled by what exists at the time of their making and it is obvious that in a City the size of Philadelphia, which is already so highly developed and where there has been no legal control or restriction of use, that buildings of all descriptions and uses have been erected promiscuously in every part of the City, and that some of them are injurious to neighboring property, if not blights to the adjacent community. Such were the things that had to be considered in Mapping. Present conditions and existing uses were the basis upon whichthe classification of districts had to be founded.

19-1931

Making these Maps entailed so much detail that they could only be completed by sections in time for the public hearing in each section.

The Maps for the entire City were completed by October, 1931.

HEARINGS: The Zoning Commission completed a Tentative Ordinance on April 4, 1931. Large scale Maps in colors were exhibited of the section where the meeting was held, and copies of the Maps lithographed for distribution at the Hearings were also available.

Between April 9th, 1931 and October 8th, 1931, the Commission held seventeen (17) Public Hearings as follows:

1.	Tacony Library, Torresdale Ave. & Knorr St.	April 9th, 1931
2.	Thomas Holme Free Library, Frankford Ave. & Knorr St.	" 15th, "
3.	Kennedy-Crossan Public School, Bleigh & Bingham Sts.	" 23rd, "
4.	Frankford Free Library, Frankford Ave. & Overington St.	" 28th, "
5.	Wyoming Library, Wyoming & "B" Sts.	May 14th, "
6.	Logan Library, York Road & Wagner Ave.	" 20th, "
7.	Germantown Library, Chelten & Germantown Aves.	" 26th, "
8.	Kendrick Recreation Center, Ridge & Roxborough Aves.	June 4th, "
9.	Falls of Schuylkill Library, Midvale Ave. & Warden Dr.	" 18th, "
10.	Wagner Institute, 17th & Montgomery Ave.	July 7th, "
11.	MacPherson Square Library, Indiana Ave. & "P" St.	" 15th, "
12.	South Phila. High School, Broad & Jackson Sts.	Aug. 20th, "
13.	Overbrook School, 62nd & Lebanon Ave.	" 27th, "
14.	Kingsessing Recreation Center, 50th & Chester Ave.	Sept. 3rd, "
15.	Room 402 City Hall	" 9th, "
16.	Chestnut Hill Free Library, 8711 Germantown Ave.	Oct. 6th, "
17.	Paschallville Library, 70th & Woodland Ave.	" 8th, "

Besides the Public Hearings, the Zoning Ordinance has been explained at a number of Civic Associations and the Real Estate Board.

ADMINISTRATION: A Bureau of Zoning will be responsible for the interpretation and the carrying out the regulation in a manner that will not create unnecessary hardships and still comply with the law. Its success will largely depend on how this is done. The interpretation must be within the limits authorized by the Ordinance, and must be fair to all parties interested.

WORK OF THE COMMISSION: The Zoning Commission, after a careful and detailed study of Zoning in general and its applicability of Philadelphia for the public health, safety and general welfare, in October 1931 completed the draft of a proposed final Zoning Ordinance in compliance with the Act of 1929.

The Ordinance of several of the larger Cities of the United States have been taken into consideration, and it is believed that this proposed final Ordinance is well adapted to the needs of the City and will be a bulwark of protection to the Philadelphia of the future.

The Ordinance together with the Zoning Maps, which form a part of the Ordinance, are now in the hands of the City Council awaiting their action.

JEA:E
1-28-32.

20-1931

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

CITY OF PHILADELPHIA

CITY HALL ANNEX

REPLY AND REFER TO: BES: TB-B

January 25, 1931.

From: Assistant Chief Engineer

To: P. S. Fisher, Chief Clerk

Subject: REPORT OF THE ACTIVITIES OF THE CITY PLANS DIVISION, BUREAU OF ENGINEERING AND SURVEYS, FOR THE YEAR 1931.

The following is a summary of the activities of the City Plans Division for the year 1931. In addition to the regular routine work of the City Plans Division, considerable progress was made on the plan for the rehabilitation of the area bounded by Washington Avenue, Poplar Street, Broad Street, and the Delaware River. A number of large scale plans and exhaustive studies of the various factors in this problem were made, including the compilation of such statistics as number and distribution of population, dwellings, families, playgrounds, public squares, swimming pools, assessed valuation of property, typical examples of intensity of housing development,dead end streets, narrow streets, inner courts, and such other information showing the general physical aspects of the area.

The above information required the making of three large spot maps, compilations of 33 large scale atlas plates, and six plan studies of schemes for rehabilitating local sections.

For a period of two years this Division has been carrying on research work in channels leading to fundamental knowledge as to the elements that control the social and economic conditions of the City. The goal of these investigations is the determination of absolute knowledge as to the quality and extent of existing and productive economic resources that may be counted upon towards the acquisition of major City Planning Improvements.

This work involved the preparation of 14 large scale maps showing the number of industries and their geographical locations in 1931 as compared to 1919. The following industries were studied - textiles, paper and printing, food, lumber, chemicals, metals, tobacco and their respective products.

Also the preparation of the following plans and studies -

Large scale map showing built-up area of Philadelphia.
" " " " geographical distribution of colored population.
" " " " " " " park system.
" " " " major traffic arteries and highways.

21-1931

4 Maps showing the population and housing densities and trends 1920 to 1930.
5 Small statistical charts of population growth in comparison to other cities in the United States and other vital statistics information.
3 Small statistical charts showing Philadelphia progress and condition of finances 1920 - 1930.
Large chart showing assessed valuations-sub-central and suburban wards - Philadelphia 1920 - 1930.
Numerous other charts, plans and studies were prepared comprising major Central City Improvements such as the Parkway development, Delaware Avenue widening from Laurel Street to Dyott Street, Spring Garden Street widening from 6th Street to Delaware River, P.R.R. - City of Philadelphia, West Philadelphia Improvements, and Delaware River Bridge Approach Improvements.

This work is considered to be the most important ever contributed by the City Plans Division, and should prove to be of considerable value to the plans now under consideration for the establishment of a period of economy in Municipal Affairs.

Thomas Buckley

THOMAS BUCKLEY
Assistant Chief Engineer.

22-1931

ANNUAL REPORT FOR THE YEAR 1931.

Bridge Division, Bureau of Engineering & Surveys

During the year the following contracts were completed:-

WELSH AVENUE BRIDGE OVER PENNYPACK CREEK - The Welsh Road bridge was 96% completed at the beginning of the year. Final payment was made to the contractor in May, at which time the contract was begun for the grading and paving of the bridge approaches from Holmes Circle to Rowland Avenue. The new roadway eliminates the heavy grades which existed on the old country road. The street has been widened to its full width of 80 feet and paved for a width of 22 feet, partly concrete pavement and partly with bituminous concrete. The bridge is a reinforced concrete arch and its total cost was $166,661.30. At the end of the year $63,360.00 had been spent on the grading and paving of the roadway, which work was 99% completed.

OLNEY AVENUE BRIDGE OVER THE P. N. & N. Y. RAILROAD - The Olney Avenue Bridge is of the thru steel plate girder type encased in concrete. At the beginning of the year its construction was 90% completed. The total cost of the bridge was $159,114.10, of which the City paid $115,768.67, and the Railroad paid $43,345.43. Since the completion of the bridge the Highway Bureau has constructed the road from Front Street to Rising Sun Avenue, making possible the construction of the cross-town feeder line on Olney Avenue to the Broad Street Subway.

MASCHER STREET BRIDGE OVER THE RICHMOND BRANCH OF THE READING COMPANY - The Mascher Street Bridge was begun late in 1930, being 12% done at the end of the year. It was completed in October of this year. The bridge is of the thru steel plate girder type encased in concrete. Before its construction Mascher Street was paved and in use on both sides of the Railroad right-of-way and the bridge makes possible the carrying of the street over the railroad tracks. The structure was built at a total cost of $88,448.46, of which the City paid $59,702.71 and the Railroad paid $28,745.75.

"B" STREET BRIDGES UNDER THE CONNECTING RAILROAD AND THE PHILADELPHIA AND BUSTLETON RAILROAD. The contract for the construction of the "B" Street Bridges was begun in 1930. Under the terms of an agreement between the City of Philadelphia and the Pennsylvania Railroad, the Railroad agreed to pay one-third of the cost of the Connecting Railway Bridge and one-half of the cost of the Philadelphia and Bustleton Railroad Bridge. The City agreed to pay the balance. This contract, and also another contract entered into during the year, included grading of the street at the expense of the City. The total cost of this work was $141,198.99, of which the City's share was $88,101.56. These figures do not, however, represent the total cost of the work as the agreement provided that the Railroad would support traffic on its tracks during construction and do other work in the interest of safety to traffic for which the City and Railroad would share the expense in the proportions named above. The limit set for the City's portion of the cost of this work to be done by the Railroad was fixed at $92,635.50, of which $70,385.53 has been paid to the Railroad. Final settlement for this work was pending at the close of 1931.

In addition to the above work the Railroad, during 1931, completed the construction of a bridge to carry the Fairhill Branch over "B" Street. The paving of the street has also been completed by the Highway Bureau.

FIFTY-SIXTH STREET UNDER THE CHESTER BRANCH OF THE READING COMPANY - The construction of the Fifty-sixth Street Bridge, which was 94% finished at the first of the year, was completed in February. The bridge is a thru plate girder type with concrete abutments. Its construction makes possible the opening of Seventieth Street from Lindbergh Avenue south to the Schuylkill River. The Reading Company shared equally in the cost of the bridge. The contract, however, included some work on the construction of the road, and the total cost was $ 29,580.54, of which the City paid $15,541.95, and the Railroad paid $14,038.59.

THIRTY-FOURTH STREET BRIDGE OVER THE SCHUYLKILL RIVER EAST SIDE RAILROAD - The contract for this bridge was entered into late in 1930. Under the terms of an agreement entered into between the City and the Baltimore and Ohio Railroad, the City and Railroad shared equally in the cost of the bridge and the City paid the entire cost of the approaches. It is constructed of steel encased in concrete with concrete abutments. The total cost was $65,100.20, of which the City paid $34,434.84 and the Railroad paid $30,665.36.

At the beginning of the year the contract for grading from the above bridge to Grays Ferry Avenue was 99% completed. This contract was finished during the year at a total cost of $15,141.46.

The Thirty-fourth Street Bridge and the Grading contract between it and Grays Ferry Avenue constitutes a portion of the South Philadelphia Approach to the University Avenue Bridge over the Schuylkill River.

RHAWN STREET - DRAINAGE OF BRIDGE APPROACHES - During the year a contract was entered into for the improvement of the approaches to the Rhawn Street Bridges over Pennypack Creek. The work consisted mostly of the construction of gutters, drains, and inlets. It included also the widening of the paving over the bridges and the construction of footways. The total cost of the work was $21,996.26.

At the close of 1931 construction was in progress on the following contracts:-

HENRY AVENUE BRIDGE OVER WISSAHICKON CREEK - This bridge was begun in 1930 and at the end of that year was approximately 44% completed, the foundations, abutments, and the arches in the approach spans having been constructed. At the end of 1931 the structure was 91% completed, all of the arches having been constructed with the spandrel walls, and the bridge being practically completed, except for the construction of the sidewalks and a portion of the floor. This bridge is a part of the project to open Henry Avenue from Hunting Park Avenue to Walnut Lane. The construction of a bridge

over the tracks of the Reading Company north of Hunting Park Avenue was completed in 1930. During 1931 a retaining wall was constructed between this latter bridge and extending south toward Hunting Park Avenue at a cost of $30,136.00. This made possible the grading of the road north of Hunting Park Avenue, which grading has since been completed to Roberts Avenue. This grading was done without expense to the City as it was possible to secure earth from private contractors who used the roadway for disposal of fill. The contract has also been awarded for the clearing of the bed of the roadway and grading between School House Lane and Wissahickon Creek.

RISING SUN AVENUE AND BRISTOL STREET BRIDGE OVER THE PHILADELPHIA, NEWTOWN AND NEW YORK RAILROAD - This project was begun in December, 1930, under a joint contract entered into by the City and the Reading Company under which the Railroad pays 2/7 of the cost and the City pays 5/7. The project replaces an old obsolete bridge with a timber floor and in general improves conditions at the site. Rising Sun Avenue is widened to its full width of 70 feet and conditions on Second Street are improved. The project includes also the lowering of the railroad tracks in order to avoid steep grades on the roadway. The work was 99½% completed at the end of the year.

RISING SUN AVENUE BRIDGE OVER TACONY CREEK - At the time of the completion of the Rising Sun Avenue Bridge over Tacony Creek in 1930, the bridge approaches were paved from Olney Avenue to Adams Avenue. Due to the heavy depth of fill, a temporary paving was placed, consisting of granite blocks on a slag base in the car track area and of bituminous macadam on the shoulders of the road. During 1931 this granite block paving became rough under use and it was decided that, since the fill had taken its settlement, it would be advisable to repave with redressed blocks on a concrete base. This paving was completed and further improvements were made on the macadam shoulders by the Highway Bureau. Final settlement for the contract was carried over into the new year pending settlement on a claim of the contractor.

EAST LOGAN STREET BRIDGE UNDER THE GERMANTOWN AND CHESTNUT HILL BRANCH OF THE READING COMPANY - The East Logan Street Bridge is being constructed by the Reading Company under an agreement with the City, whereby the City shares to the extent of

29.31%. The new bridge is being constructed to provide for a 60 foot roadway which will be the width of East Logan Street when later improvements are made. The bridge is a steel plate girder type encased in concrete. At the end of the year it was approximately 40% completed.

UNIVERSITY AVENUE BRIDGE AND APPROACHES - The construction of University Avenue Bridge presents unusual difficulties due to the necessity for supporting very heavy railroad traffic during construction. The bridge carries 9 tracks:- the two tracks of the Octoraro Branch, the two tracks of the Grays Ferry Branch, the West Philadelphia Elevated Freight Line, two branch yard tracks and the Arsenal track. A program of construction was arranged whereby the tracks would be supported on cylinder piers sunk to rock before removing the embankment under the tracks. The program consisted of the following steps:- first, the sinking of cylinder piers to firm rock and the construction of cross girders and braces between these piers; second, the erection of the girders and the bridge floor upon these piers and the replacement of the track upon the new bridge floor; third, the completion of the bridge including the removal of the embankment underneath the tracks and the final construction of the foundations and abutments which will encase the cylinder piers. During the year the first two steps were completed. The Railroad Company had also raised the tracks of the Octoraro Branch and the Grays Ferry Branch, as required, in order to provide sufficient clearance for the roadway under the bridge. A contract for the third step had been awarded, including the completion of the bridge and the grading and paving of the bridge approaches from Thirty-fourth Street by way of Vintage Avenue, and thence by way of University Avenue under the Railroad and extending to the University Bridge over the Schuylkill River.

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SUMMERDALE AVENUE BRIDGE UNDER THE PHILADELPHIA AND FRANKFORD BRANCH OF THE READING COMPANY - A contract was awarded for the construction of the Summerdale Avenue Bridge but work was not begun. This contract includes the construction of the bridge under the Railroad and the grading of Summerdale Avenue from near Foulkrod Street to Pratt Street.

WALNUT LANE BRIDGE OVER LINCOLN DRIVE - A contract for the construction of the Walnut Lane Bridge was also awarded but work was not begun. The existing iron trestle bridge on the site is inadequate for present day loads and the Highway Bureau for some years past has found it necessary to maintain a watchman at the site to assure that the bridge will not be overtaxed by heavy trucks. The proposed new bridge will be a stone faced arch of 150 foot span.

Plans have been completed for the following bridges:-

70th Street over the Philadelphia, Baltimore and Washington Railroad.

Kingsessing Avenue over the Octoraro Branch of the Philadelphia, Baltimore and Washington Railroad.

Ashburner Street over the Philadelphia and Trenton Railroad.

Studies or designs are in progress for the following structures:-

Sedgley Avenue over the North Penn Railroad.

Penrose Avenue over the Schuylkill River.

Convent Lane Footbridge over the Philadelphia and Trenton Railroad.

City Line over the Pennsylvania Railroad.

Wingohocking Street under the Philadelphia, Newtown and New York Railroad.

ANNUAL REPORT
1931

During the year the several improvements carried on under agreements with the Railroad Companies are as follows:

1 - South Philadelphia Track Elevation
2 - Manayunk Elevated
3 - Germantown and Chestnut Hill Elevated
4 - Pennsylvania Terminal Improvement
5 - Pennsylvania Avenue Improvement
6 - Baltimore & Ohio Improvement
7 - Fox Chase

and beg to report progress as follows:

SOUTH PHILADELPHIA TRACK ELEVATION

1

The work of construction was confined to grading, filling to grade and trackwork, except the laying of water mains, constructing and reconstructing sewers in Twenty-fifth street between McKean street and Passyunk avenue and filling to grade Delaware avenue between Bigler and Hoyt streets.

MANAYUNK ELEVATED

3

The work of construction necessary to eliminate all grade crossings along the Norristown Branch of the Reading Company between Wissahickon creek and Fountain street was completed. Cresson street between Rector street and Green lane and other streets affected were completed and opened to public travel. The regular schedule of train movements over the elevated tracks having been established on December 28, 1930.

There remains a small amount of permanent street work to be done at Main street and Leverington avenue to complete. Part of the damages for change of street grades have been awarded and paid and others are still pending.

GERMANTOWN AND CHESTNUT HILL ELEVATED

4

The elimination of grade crossings along the Philadelphia, Germantown and Norristown and the Chestnut Hill Railroad between Wister street and Bethlehem pike divides itself into two sections, one the Chestnut Hill section between Sedgwick station and Gravers lane, and the other Germantown section between Wister street and Haines street.

On the Chestnut Hill section all work relating to railroad facilities has been completed, while all street openings and improvements have been completed, except the construction of a bridge and change of grade necessary to carry Mt. Airy avenue over

the railroad. This has been deferred on account of lack of funds. Some damages have been paid and others are pending.

On the Germantown section there was placed under contract all the work necessary to elevate the railroad tracks and railroad facilities, except the construction of the new passenger station and reconstruction of the freight yard at Chelten avenue, and considerable progress has been made.

No street work has been done owing to the progress of the railroad construction and the lack of funds to place it under contract.

PENNSYLVANIA TERMINAL IMPROVEMENT

2

Insofar as can be done all street work has been completed between Broad street and the Schuylkill river, until such time as the Pennsylvania Railroad Company abandon their tracks and facilities into Broad street station and the railroad facilities have been removed.

On the west side of the Schuylkill river considerable progress was made during the year.

The construction of the concrete deck, paving and drainage of the viaduct to carry Arch street between Schuylkill avenue west and Thirtieth street over the tracks and platforms of the new station was completed early in the year.

The change of grade of Chestnut street between Thirty-first street and Thirtieth street, the upper and low levels of Thirtieth street between Market and Walnut streets completed and opened to public travel, while the work of construction of a bulkhead wall and intercepting sewer from Spring Garden street southward is about 90% completed. This work was seriously delayed on account of the none removable of the ash loading wharf compelling the suspension of the work from December 15, 1930 to May 18, 1931.

There were placed about 160,000 cubic yards as fill, at no cost to the City, for bringing to grade Schuylkill Avenue West between Spring Garden street and Arch street. Damages are pending growing out of the change of grade of Chestnut street.

On October 20th last bids were received for the work of constructing a retaining wall on piles along the westerly side of Schuylkill Avenue West from Spring Garden street southward, also for the construction of a viaduct to carry Thirtieth street over the railroad tracks and platforms of the new station between Arch and Market streets. The contracts were executed on November 4th and 12th and are now in the hands of the City Controller for certification.

The construction of the viaduct on the line of Thirtieth street between Arch and Market streets, also the westerly portion of the viaduct to carry Schuylkill Avenue West between Market and Arch streets is necessary to give access to the street level to the new passenger station and the work on this contract should be completed before the passenger station is opened.

5

PENNSYLVANIA AVENUE IMPROVEMENT

Under the authority of an ordinance of July 16, 1930 plans were prepared and the work placed under contract and completed and opened to travel for that portion of Pennsylvania avenue (140 feet wide) between Twenty-sixth street and Twenty-seventh street. There are still available funds to extend this improvement.

In order to carry out this improvement it was necessary for the Baltimore and Ohio Railroad Company to construct a wall, at its expense, along the westerly side of the avenue to support the westerly side of the structure, constructed by the City, to carry Pennsylvania avenue over the tracks of the Baltimore & Ohio Railroad and The Reading Company.

6

BALTIMORE & OHIO TERMINAL IMPROVEMENT

No work has been done on this project, except of a preliminary character.

FOX CHASE

7

Plans and specifications were prepared for the work of eliminating the grade crossing at Oxford avenue and the Philadelphia, Newtown and New York Branch of the Reading Company.

Oxford pike, now Oxford avenue, was laid out as a public highway in 1819 and the Philadelphia, Newtown and New York Railroad was constructed in 1873, thus creating a railroad crossing a public highway at grade.

Before the elimination work proceeds The Reading Company should enter into an agreement agreeing to pay its share of the cost. This will require action of Council.

There was appropriated out of loan funds $200,000. towards the work.

Bailey
Lore

BUREAU OF ENGINEERING AND SURVEYS

ANNUAL REPORT for 1931

DRAINAGE

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For the year 1931, there was available for the construction of main sewers $1,221,168.56 and for branch sewers $505,582.95. From these funds contracts were entered into which resulted in the completion of 2.08 miles of main sewers and 7.78 miles of branch sewers. Contracts entered into comprised seven (7) for main sewers, fifty-seven (57) for branch sewers and two (2) at private cost which together with drainage structures built under the Grade Crossing work, the sewage treatment project, bridges and the Highway Bureau, made a total increase of 16.23 miles to the drainage system of the City. At the end of 1931, there was a total of 1,778.81 miles of sewers completed within the limits of the City of Philadelphia. $712,181.18 was available for new sewers in place of old sewers from which twenty-four (24) contracts were entered into and 4.07 miles of sewers replaced.

Main Sewer Contracts entered into prior to 1931 and completed during that year were as follows:

CASTOR AVENUE between Aramingo and Frankford Avenues: This is a reinforced concrete sewer, 7'0" x 8'0" becoming a 7'0" x 6'6" reinforced concrete sewer, two (2) feet remaining unfinished were completed.

GLENDALE AVENUE between Horrocks Street and Castor Avenue: A 12' x 12' reinforced concrete stormwater sewer with two 24" vitrified pipe sewage conduits of which a length of ninety-six (96) feet was constructed.

GORGAS LANE from east of Henry Avenue to Lawnton Avenue: This is a 6'6" diameter reinforced concrete sewer with a 15" vitrified pipe becoming a 3'6" diameter reinforced concrete sewer with a 15" vitrified pipe, the length constructed being 240 feet.

HORROCKS STREET between Glendale Avenue and Bustleton Avenue: A reinforced concrete stormwater sewer 6'0" x 4'0" with a 15" vitrified pipe sewage conduit becoming a 5'0" x 4'0" reinforced concrete stormwater sewer with a 15" vitrified pipe sewage conduit and was constructed to a length of 170 feet.

MAIN RELIEF SEWER THROUGH FAIRMOUNT PARK from Schuylkill River to Fairmount Avenue and in Fairmount Avenue between Fairmount Park and 23rd Street. The three (3) following sizes, 9'0" x 8'0" reinforced concrete sewer, 7'0" x 7'0" reinforced concrete sewer and 13'6" concrete sewer in tunnel, were completed to a length of 1288 feet.

ROOSEVELT BOULEVARD from northeast of Tyson Avenue to Princeton Avenue, in Princeton Avenue from Roosevelt Boulevard to Calvert Street, in Calvert Street

from Princeton Avenue to St. Vincent Street and in St. Vincent Street from Calvert Street to Bustleton Avenue. An 8'0" x 7'0" reinforced concrete sewer 2,160 feet being completed.

WISSAHICKON HIGH LEVEL CUT-OFF SEWER in Stokley Street and in Fairmount Park from the present terminus, northwest of School House Lane to the Wissahickon High Level Sewer. A 6'0" diameter brick sewer in tunnel becoming a 5'0" diameter brick sewer in open cut and including syphon pipes under Lincoln Drive and Monoshone Creek was completed to a length of 1,055 feet.

WISSAHICKON LOW LEVEL COLLECTING SEWER through Fairmount Park between the present terminus north of Township Line Road and Perkiomen Turnpike. This is a 27" vitrified pipe and was constructed to a length of 992 feet.

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The following main sewers were placed under contract and completed in 1931.

BELL'S MILL ROAD between Wissahickon Creek and Perkiomen Turnpike. A 4'0" diameter brick stormwater conduit with a 12" vitrified pipe sewage sewer becoming a 3'6" diameter brick stormwater conduit with a 12" vitrified pipe sewage sewer of which a length of 1,221 feet was constructed.

FRANKFORD BRANCH, PHILADELPHIA AND READING RAILWAY RIGHT-OF-WAY between Bingham Street and Whitaker Avenue. This is a 4'6" diameter brick sewer in open cut and in tunnel becoming a 4'0" diameter brick sewer in open cut, a length of 1,824 feet being completed.

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

OAK LANE MAIN SEWER IN LAKESIDE AVENUE between 12th Street and Old York Road: A 9'6" x 7'6" reinforced concrete stormwater conduit with 10" and 12" vitrified pipe sewage sewers, a length of 663 feet was constructed.

LARDNER STREET and through private property from the Delaware River to present sewer northwest of Tacony Street: This is an 8'0" x 10'6" twin reinforced concrete stormwater conduit on piles with 10" and 12" vitrified pipe sewage sewers, 1091 feet being completed.

WINGOHOCKING MAIN SEWER ON LINE OF WINGOHOCKING STREET from Philip Street westward: To remove flooding conditions during heavy storms in Courtland Street work was commenced on this sewer under the head of Emergency Work, no contract being entered into. At a later date City Council appropriated to this project $377,915.28. 190 feet of 15'0" x 17'0" reinforced concrete sewer being completed this year.

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Contracts were entered into for the following sewers but construction work was not started in 1931.

CASTOR AVENUE from Frankford Avenue to Glenwood Avenue and in Glenwood Avenue between Castor Avenue and "L" Street. Limit of Contract $65,000.00.

MAIN RELIEF SEWER IN FAIRMOUNT PARK AND FAIRMOUNT AVENUE between the present terminus near Pennsylvania Avenue and 23rd Street. Limit of Contract, $175,000.00.

On the line of TYSON AVENUE from Shelborne Street to Hasbrook Street and in Hasbrook Street from the line of Tyson Avenue to a connection with the sewer system of Cheltenham Township. Limit of contract, $18,000.00.

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ANNUAL REPORT - 1931.

DRAINAGE DIVISION

The annual rainfall for 1931, amounting to 39.28 inches is slightly below normal for this vicinity.

Rainstorms of high intensity occurred on the evenings of July 14 and August 10, and resulted in flooding certain areas in the northeast section.

Gaugings of the storm of July 14 at the Frankford Creek Grit Chamber indicated a rate of 3.20" per hour for 20 minutes, while that of August 10 indicated rates per hour of 2.56" for 30 minutes, 2.00" for 45 minutes, and 1.70" for 55 minutes.

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.

The treatment of boiler feed water, inaugurated 1929, has been continued, and the results are entirely satisfactory. The cost for chemicals during the year amounted to $332.50.

To provide improved drainage for a portion of the 40th Ward situate between the dike along Darby Creek and the dike abutting the property of the Government rifle range, a contract, entered into during 1930, for the construction of

sluice gates in the bank of Darby Creek at the County Line, was completed at a total cost of $3,873.

The pumpage for the year 1931 is estimated as 1368 million gallons, which is slightly less than half the average annual pumpage for the preceding nine years. This reduction in pumpage may be attributed to the exclusion of flood waters from the adjoining County by the dikes completed in 1929 along the County Line between Darby Creek and Church Creek, and the sluice gates, completed in 1931, in the dike along Darby Creek at the County Line.

The completion of the 67th Street Main Sewer Outlet to the Schuylkill River in 1930 has likewise contributed to the reduction in volume pumped by diverting to the River drainage formerly flowing to this Station.

The pumping hours for one unit during the year totalled 912 hours, and the fuel oil consumption amounted to 116,248 gallons at a cost of $4068.85 for fuel oil. The total expenditure for operation, maintenance, repairs and equipment amounted to $12,380.42.

SEWAGE DISPOSAL DIVISION

General

A permit issued by the Pennsylvania State Department of Health under date of February 17, 1931, extended the time for completion of the Sewage Disposal Project until December 31, 1932, and required that certain parts of the comprehensive plan for the collection, treatment and disposal of the sewage of the City as set forth therein be placed under construction prior to December 31, 1932.

An agreement was executed by the City and the Township of Cheltenham for receipt, conveyance and treatment by the City of sewage from the Cheltenham Avenue Section.

An agreement was executed by the City and the Township of Springfield for receipt, conveyance and treatment by the City of sewage from the Wyndmoor Section.

At the Northeast Sewage Treatment Works, labor furnished by the "Committee for Unemployed Relief" during January and February, scraped, cleaned and painted 14,736 lin. ft. of picket fence and 1135 lin. ft. of chain link fence without cost to the City except for tools and material.

The year 1931 witnessed the following outstanding events in carrying out the Sewage Disposal project in the northeast section of the City:

Completion of the Lower Frankford Creek Low Level Intercepting Sewer in Lefevre Street from a connection to the Upper Delaware Collector to Frankford Creek and along Frankford Creek between Adams Avenue and Bridge Street, together with intercepter chambers and connections to existing main sewers in Bristol Street, in Margaret Street, and in private property northeast of Margaret Street. Also the awarding of contracts for Intercepter Chambers and connections between the Lower Frankford Creek Low Level Intercepting Sewer and existing main sewers in Casimir Street and in Lefevre Street.

Completion of the second section of the Upper Frankford Creek Low Level Intercepting Sewer from the terminus of the first section southeast of Frankford Avenue to an intercepter connection with the main sewer in Wyoming Avenue, together with the dredging of Frankford Creek from Church Street to Paul Street. Also the award of contract for Intercepting Chamber and connection between the Upper Frankford Creek Low Level Intercepting Sewer and the existing main sewer in Torresdale Avenue.

Completion of Upper Delaware Collecting Sewer in City property and State Road from Holmesburg Avenue to Ashburner Street.

Beginning construction of the Somerset Low Level Collecting Sewer east of Richmond Street between the Northeast Sewage Works Grit Chamber and Pumping Station and Somerset Street.

Beginning construction of the Lardner Street Main Sewer from west of State Road to the Delaware River, together with an intercepting connection to the Upper Delaware Collector at Milnor Street.

37-1931

In the southwest section, the following progress was made in carrying out the Sewage Disposal Project:

Completion of a portion of the Southwest Main Gravity Sewer in Mingo Avenue from Penrose Avenue to a point 785 feet north thereof.

This sewer is of reinforced concrete construction with vitrified plate lining. It is of triple section design of a uniform inside height of 6'9", and of the following widths: 5'3", 4'3" and 7'0".

Beginning of construction of the Southwest Sewage Works Main Effluent Conduit in proposed Island Road from the Delaware River to the Chester Branch of the P. B. & W. R.R. This conduit is of reinforced concrete construction with vitrified plate lining, and is constructed on piles. It is of triple section design, each 10'0" wide x 7'0" high.

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 in 75th Street 30 ft. SE of Wheeler Street, with a branch from 80th Street near Erwig Avenue to 82nd Street and Bartram Avenue.

The small quantity of sewage now collected requires about 6 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 1931 amounted to $17,275.05, of which $10,993.18 was for salary and wages; $5112.00 for power and light; and $1169.87 for maintenance and supplies.

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Frankford Creek High Level 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, 1930, from a total sewage flow of 10,722 million gallons, 12,838 cubic feet of wet screenings were intercepted, which equalled 1.2 cubic feet per million gallons of sewage.

30,236 cubic feet of wet grit, equal to 2.8 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 5.4%.

2816 cubic feet of grease were intercepted and disposed of with the screenings.

The total expenditure for maintenance, operation, repairs and equipment during 1931 amounted to $11,070.83, or $1.03 per million gallons of sewage treated.

Northeast Low Level Sewage Pumping Station and Grit Chamber.

These Stations, together with the Northeast Sewage Treatment Works, are located on the 160 acre tract along Wheatsheaf Lane between Richmond Street and the Delaware River.

The Low Level Grit Chamber is designed to provide coarse screening and preliminary sedimentation for sewage collected by the Upper Delaware Collecting Sewer, the Pennypack Creek Intercepting Sewer, the recently completed Upper and Lower Frankford Creek Low Level Intercepting Sewers, and the Somerset Low Level Collecting Sewer now under construction, so as to remove coarse material and sand from the sewage before it enters the pumping station, at which point the sewage is pumped to the Imhoff Tanks for further sedimentation before discharge into the Delaware River.

Purpose - To separate from the sewage before pumping, sand, rags, paper, sticks, etc., not readily responsive to bacterial digestion.

Sub-structure - 113' x 120' in plan, of reinforced concrete design to withstand floatation against 35 ft. hydrostatic pressure.

Super-structure - 113' x 52' in plan, of reinforced concrete.

Operation - Sewage enters the grit chamber from the collecting sewers through three influent channels in which have been placed mechanically cleaned stationary bar screens of $1\frac{1}{2}$" clear openings. Revolving arms lift the solid particles intercepted by the screens to a steel belt conveyor which in turn deposits the screenings in a pneumatic ejector from whence they are conveyed to an incinerator installed for the purpose in the Heating Plant Building. Hydraulically operated sluice gates are placed at the sewer end of the influent channels. In case of power failure in the station, these gates will automatically close. Seven flow channels have been provided for intercepting the grit present in the sewage. These channels are uncovered, V-shape in cross-section, and 55 ft. in length, and are designed to maintain a velocity of approximately 1 ft. per second.

For the removal of the sand which has settled out, a screw conveyor has been installed in the bottom of each flow channel, which conveys the sand to a bucket elevator at the inlet end of the channel. The sand is lifted by this elevator to a cross screw conveyor which in turn conveys it to a pneumatic ejector from whence it is discharged to the lowlands on the site of the Treatment Works.

Electrically operated sluice gates have been placed at the inlet and outlet ends of each flow channel for placing the channel out of service in times of repairs.

Low Level Sewage Pumping Station.

Purpose - to raise sewage from low level collecting sewers to settling tanks.

Size - 140 ft. long x 65 ft. wide; pump floor elevation -33.5; force main floor elevation -15.25; motor floor elevation +5.0; ceiling at ridge elevation +45.0.

Sub-structure - reinforced concrete designed to withstand floatation against 35 ft. hydrostatic pressure.

Super-structure - structural steel framing; exterior of tapestry brick with limestone trimmings; interior of light buff brick with white enamel brick wainscoating; motor floor of quarry tile.

Pumps - vertical volute type (present installation):

1 - 36"	- 327	RPM,	head	35';	capacity	31.7	million	gallons	daily.
1 - 36"	277	"	"	26';	"	31.7	"	"	"
1 - 24"	514	"	"	36';	"	17.3	"	"	"
1 - 24"	450	"	"	27';	"	17.3	"	"	"
1 - 24"	400-450	"	"	36';	"(max)	17.3	"	"	"
1 - 24"	335-435	"	"	27';	" "	17.3	"	"	"

(Future installation): 6 - 36" pumps, 36' head, cap. each 31.7 million gallons daily. Direct connected synchronous motors are employed to drive the constant speed pumps as follows:

For the 36" pumps, 250 HP motors
" " 24" " against a 36' head, a 150 HP motor
" " 24" " " " 27' " " 125 " "

Direct connected variable speed induction motors drive the 24" variable speed pumps as follows:

For the pump operating against a 36' head, a 150 HP motor
" " " working against a 27' head, a 125 HP motor

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Operation - Electricity service supplied by Philadelphia Electric Company at 2300 volts pressure. A two-phase, 3 wire system is employed. Pump motors are started and stopped manually by control levers located on the switchboard, and in addition, a special stop has been located at each motor for emergency use. A motor-operated gate valve has been placed on the discharge end of each pump, and a hand-operated gate valve on the suction end. Electrical connections are so arranged that upon the stopping of any pump motor the discharge gate valve is automatically closed and the necessity for check valves on the pump discharge is thereby eliminated. Lubrication of pump and line shaft bearings is accomplished in an automatic gravity feed. Lubrication of motor bearings is independent of this system. All bearings are protected against overheating by temperature relays designed to function when the temperature of the bearings exceeds a pre-determined safe limit. The functioning of a relay on any unit arrests the power supply to that motor, and operates a Klaxon horn mounted on the switchboard. At the same time the location of the overheated bearing is indicated on the annunciator also mounted on the switchboard.

Meters - 2 - 48" and 2 - 54" Simplex indicating and recording flow meters have been installed for indicating the rate of flow and for measuring the volume of sewage pumped. To better control velocities in the flow channels of the grit chamber, 2 - 24" variable speed pumps beforementioned have been installed in conjunction with the constant speed pumps. By means of large handwheels mounted on the switchboard, the speed of these pumps may be stepped up in intervals of one revolution per minute within the range of variation for which the pumps are designed. This should afford the Operator better opportunity to control the rate of pumpage to equal that of the inflowing sewage and to maintain at all times the desired velocity of the sewage through the flow channels of the grit chamber.

These Stations were placed in operation July 16, 1930.

For the period January 1, 1931 to December 31, 1931, from a total sewage flow

of 3184 million gallons, 7017 cu.ft. of screenings were intercepted, which equals 2.2 cu. ft. per million gallons of sewage.

19,000 cu.ft. of wet grit were intercepted and conveyed by the pneumatic conveyors to the lowland at the site of the work. Analysis of the grit intercepted indicated a volatile content of 11.6%. The total expenditure for maintenance, operation and equipment, chargeable against the Grit Chamber and Pumping Station, amounted to $35,740.

Northeast Sewage Treatment Works.

The first section of the Northeast Sewage Treatment Works was placed in operation October 29, 1923, and comprises 32 reverse flow Imhoff Tanks and 80 sludge drying beds, and is designed for a sewage flow of 60 million gallons per day at a detention period of 3 hours.

The total volume of sewage treated during the year amounted to 13,956 million gallons, 10,772 million gallons of which reached the Works by gravity from the Frankford Creek High Level Collecting Sewer, and 3184 million gallons pumped from the Upper Delaware Low Level Collecting Sewer and Upper Frankford Creek Low Level Intercepting Sewer.

The character of the sewage varies from a rather heavy concentrated day flow containing trade waste 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.

Sewage reaching these Works from the low level sewers appears to be more concentrated than that from the high level system. Analysis of the sewage from the low level sewers is reported as having an average suspended solid content of 174 PPM, while that from the high level sewer is reported as 122 PPM. The sewage from the high level system appears to be less concentrated than the average for the preceding seven years as determined by the suspended solid content. This may

result from the industrial depression.

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	138 PPM
Works effluent	20 PPM

or a reduction of 85% 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	267 PPM
Works effluent	150 PPM

The total sewage flow for the period January 1 to December 31 amounted to 13,956 million gallons and produced 15,503 cubic yards of wet digested sludge, or 1.1 cubic yards per million gallons of sewage treated.

The total quantity of sludge withdrawn from the Imhoff tanks during the year amounted to 19,200 cu.yds. 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 discharged.

Laboratory analysis of the sludge withdrawn is reported as follows:

Specific gravity	1.014
Moisture	92.6%
Dry residue, volatile	54.3%
" " fats	18.7%
Alkalinity (methol orange)	1267 PPM

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 October 15th.

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Intercepter Patrol

For diverting all dry weather flow of sewage and the proper amount of rainwater contaminated with sewage, intercepting devices have been provided at the point of connection between existing main sewers and the collecting or intercepting sewers.

For those connections beyond the range of tidal influence of the rivers or creeks, interception has been accomplished by means of a slotted opening built into the invert of the main sewer and provided with an adjustable sliding plate cover. In the larger sewers, adjustment of the flow to the intercepting sewer is accomplished by hand operated sluice gates located in the connection between the main sewer and the intercepting sewer, and behind a dam constructed across the main sewer between this connection and the receiving body of water.

For those connections within the tidal influence of the rivers or creeks, intercepting chambers of concrete construction and with two hydraulically operated sluice gates have been provided; one gate of the vertical type for the interception of the sewage flow and first flush of street wash, and the other of the horizontal type located in and transversely to the main sewer, and between the vertical intercepting gate and the water course. This horizontal gate serves the dual function of passing stormwater to the river or creek when in an open position, and of excluding tidewater from the dry weather intercepter when in a closed position.

The two sluice gates are actuated through a common hydraulic cylinder, direct connected to the horizontal sluice gate and to the vertical sluice gate by means of flexible cable over sheaves. The cycle of operation is described as follows:

During time of dry weather flow, the vertical intercepting sluice gate is held in an open position by means of a flexible cable over sheaves connected to the vertical sluice gate stem on one end and to the piston rod of the horizontal hydraulic cylinder on the other end while the horizontal storm gate is in a closed position.

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The entrance of storm flow and the resulting rise in elevation of the sewage level in the main sewer at the intercepter will cause the float located in the main sewer to rise. The rise of the float to a predetermined level actuates the trip mechanism of a 4-way valve, releasing spring operated valve lever, which spring had been placed in tension by a preceding operation of the opening of the vertical gate. This operation of the 4-way valve admits City water under pressure to the front end of the horizontal hydraulic cylinder and releases the water under pressure from the rear end of the hydraulic cylinder to the sewer, causing the horizontal storm gate to open and the vertical intercepter gate to close by gravity.

The piston rod of the hydraulic cylinder is designed with a hollow end into which a tail rod telescopes. The maximum travel of the tail rod is equal to the vertical opening of the vertical sluice gate. This results in the intercepting gate closing during the early part of the opening stroke of the stormwater gate and the opening of the intercepter gate during the latter part of the closing stroke of the stormwater gate.

The closing of the intercepting gate extends a spring fastened to the valve lever of a 4-way valve, and a trigger prevents the valve from reversing its action.

The opening of the stormwater gate and the closing of the intercepting gate permits the sewage and stormwater in the sewer to discharge into the creek.

The passing of the storm and the ebbing of the tide, and consequent lowering of the water level in the main sewer to normal, causes the float to fall. The fall of the float to a predetermined level actuates the trip mechanism of the 4-way valve, releasing the spring operated valve lever which spring had been placed in tension by a preceding operation of closing of the vertical gate. This operation of the 4-way valve admits City water under pressure to the rear end of the hydraulic cylinder and releases water under pressure in the front end of the hydraulic cylinder to the sewer, causing the horizontal stormwater gate to close and the vertical intercepter gate to open. The opening of the intercepting

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gate extends a spring fastened to this valve lever of the 4-way valve, and the trigger prevents the valve from reversing its action until the rise of the float again releases the trigger.

All intercepting gates and slots are examined immediately after each storm and during dry weather periods at least once a week.

Little difficulty is encountered in maintaining the intercepting slots in service except from falling leaves in the autumn season, and occasionally from grit and sticks reaching the sewers during times of heavy rains from undeveloped areas with unpaved streets.

The operation of the hydraulically controlled intercepting sluice gates is likewise satisfactory, but greater expenditure of time for maintenance is required. The discharge from the sewers into tidal streams during times of storm carries considerable sand and grit which tends to shoal in front of the sewer outlet. The sand backs up into the sewer in some instances to the vicinity of the gates, and until removed interferes with the satisfactory operation of the gates. Along the river in the vicinity of a lumber yard and a rubbish dump, on several occasions while the storm gate was open and before the storm flow had entirely passed, the rising tide has carried floating lumber and boxes into the sewer, where they became trapped upon the closing of the tide gate. Some of this material was caught by the intercepter gate frame, while on one occasion the intercepter pipe connection was choked with a floating pile head.

Field Corps.

During 1931, the Field Corps furnished lines and grades and prepared monthly estimates for payment of construction work on the following contracts:

Lower Frankford Creek Low Level Collecting Sewer.
Main Relief Sewer in Fairmount Park near Fairmount Dam.
Southwest Sewage Treatment Works Main Effluent Conduits in line of Island Avenue.
Grading, Paving and Planting at the Northeast Sewage Treatment Works.

The contracts amounted to $1,306,000, and the work done included 11,458 feet

of sewer construction,746 square yards of paving and 4.5 acres of grading.

Northeast Laboratory.

The total number of samples on which chemical, bacteriological and physical determinations were made totalled 3277. Of this total 2294 samples were in connection with the operation of the Northeast Sewage Treatment Works; 629 samples from the Experimental Station; 123 trade waste samples; 78 samples from the Frankford Grit Chamber, and 153 samples from the Byberry Sewage Treatment Works.

Contracts Carried Forward from 1930 and Completed 1931:

Upper Delaware Collecting Sewer in City Property and State Road from Holmesburg Avenue to Ashburner Street - $205,141.64

Lower Frankford Creek Low Level Collecting Sewer in Lefevre Street from Upper Delaware Collector to Frankford Creek and along Frankford Creek from Adams Avenue to Bridge Street - $624,079.73

Grading, Planting & Improvement of Grounds, Northeast Works - $18,406.87

Hire of Motor Boat for River Investigations - $2,500.00

Restoration of Paving, Wissinoming Street from Unruh Street to Cottman Street - $13,063.02

Upper Frankford Creek Low Level Collecting Sewer along Frankford Creek SE of Frankford Avenue to Wyoming Avenue - $116,378.47

Pump parts for Northeast Sewage Pumping Station - $395.00

Contracts Awarded 1931 and Completed 1931:

Dredging Frankford Creek from Church Street to Paul Street - $23,410.70

Sluice Gates along Darby Creek at County Line - $3,873.00

Intercepting chamber at Bristol Street and connection to Lower Frankford Creek Low Level Intercepting Sewer - $3,591.64

Southwest Main Gravity Sewer (three sections 5'3", 4'3" and 7'0" wide each 6'9" high) in Mingo Avenue from Penrose Avenue to a point 785 feet north thereof - $58,146.93

Contracts Awarded 1931 and Completed 1931 (continued):

Intercepting Chambers (one in Margaret Street and one in private property northeast of Margaret Street) with connections to Lower Frankford Creek Low Level Intercepting Sewer - $23,779.24

Engine Lathe for Northeast Sewage Works - $448.50

Contracts Awarded 1931 but not Completed:

Southwest Sewage Works Main Effluent Conduit (triple sections 10' wide x 7' high) in proposed Island Road from the Delaware River to Chester Branch P.B.& W.RR - Amount of Contract $390,000. 92% completed.

Somerset Low Level Collecting Sewer across City property, in Castor Avenue from Balfour Street to Casper Street, in Casper Street from Castor Avenue to Delaware Avenue, in Delaware Avenue from Casper Street to Allegheny Avenue and Bath Street; in Bath Street from Allegheny Avenue to Lippincott Street; across private property to Clearfield Street; in Allen Street from Clearfield Street to Ann Street; in Ann Street from Allen Street to Melvale Street; in Melvale Street from Ann Street to Cambria Street; across private property to Somerset Street - Amount of Contract $600,000. 35% completed.

Intercepting Chamber in Casimir Street with connections to Lower Frankford Creek Low Level Intercepting Sewer - Amount of Contract $7,000. No work done.

Intercepting Chamber in Lefevre Street with connection to Lower Frankford Creek Low Level Intercepting Sewer - Amount of Contract $10,000. No work done.

Intercepting Chamber in Torresdale Avenue with connection to Upper Frankford Creek Low Level Intercepting Sewer - Amount of Contract $5,000. No work done.

Lardner Street Main Sewer and Intercepter Connections to Upper Delaware Collector at Milnor Street - Amount of Contract $165,000. 95% completed.

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BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

CITY OF PHILADELPHIA

CITY HALL ANNEX

REPLY AND REFER TO: BES-PV:C

January 19, 1932.

From : Sewer Registrar

To : P. S. Fisher, Chief Clerk

Subject : Activities for 1931

The following is the annual report for the year 1931, from the Permit Division - Room 203.

Connections made to Sewers - Single System -	1450
Connections made to Intercepting System -	632
Connections made to Sewers - Special Inspections -	119
Total -	2201

Receipts - Sewer Assessment Bills -	$5,996.63
Receipts - Sewer Permits	6,616.00
	$12,612.63

Total Number of Plans filed - 112
Total Number of Inspectors Diaries - 112

F. W. Vaughan,
Sewer Registrar.

Frank K. W. Vaughan

50-1931

ANNUAL REPORT

FOR 1931

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TESTING LABORATORY

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

***

JANUARY 21, 1932.

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

CITY OF PHILADELPHIA

CITY HALL ANNEX

REPLY AND REFER TO: AFB:E

January 21, 1932.

FROM: Assistant Engineer, Testing Laboratory Division.

TO: J. H. Neeson, Chief Engineer and Surveyor.

SUBJECT: ANNUAL REPORT FOR 1931.

Report of the Testing Laboratory, Bureau of Engineering and Surveys, activities for the calendar year 1931 is respectfully submitted.

Work consisted of physical and chemical testing of materials, in accordance with their respective specifications, as submitted by the various departments and bureaus; inspection and collection service was performed where required or when required; investigations, covering a variety of materials proposed for use on City contracts, were made so that those of the best quality could be so selected .

At the request of the Philadelphia Department of Health, late in the year, the Laboratory instituted a research program to determine trade waste gases in the air claimed to be injurious to public health. As little is known on this subject, considerable effort is being made to develop suitable apparatus and analytical methods to solve the problem and, it is expected, to have a satisfactory control developed in the near future.

Additional activity was with the American Society for Testing Materials. The Laboratory holds membership on several of the Society's standing committees deemed important to the City's construction work, and is assisting in forming specifications and test methods for materials of construction published by this organization.

Attempt has been made to maintain high quality of testing procedure by cooperative tests with laboratories of recognized standing and by addition of standard apparatus as permitted by available funds.

The cost of testing, per specimen, has been reduced by approximately twenty (20%) per cent. as compared with the preceding year. This is due to the increased number of specimens tested and the various economies practiced.

The appended tables show the total, variety, distribution and percentage of distribution of the specimens submitted for test.

A. F. Burbidge, 52-1931

Assistant Engineer.

encls.

TOTAL NUMBER OF SPECIMENS FOR 1931

Brick	34
Cast Iron (arbitration bars)	40
Cement (hydraulic)	2463
Concrete Aggregate	30
Concrete Building Block	11
Concrete Cores	358
Concrete Cylinders	6229
Conduits	16
Fabrics	13
Fertilizers	6
Fire Hose	3
Fuels	2289
Granite	72
Metals (ferrous)	101
Metals (non-ferrous)	29
Miscellaneous Materials	54
Oil (Mineral)	69
Paint and Paint Materials	312
Road Materials	1904
Rope	13
Soap and Soap Materials	15
Tile	62
Water	21
TOTAL.....	14,144

DISTRIBUTION OF SPECIMENS FOR 1931

	No. of Specimens	Per Cent.	No. of Specimens	Per Cent.
DEP'T. OF CITY TRANSIT			1915	13.5
DEP'T. OF PUBLIC HEALTH			2	0.0
DEP'T. OF PUBLIC SAFETY			210	1.5
Bureau of Boiler Inspection	16	0.1		
" " Building Inspection	132	0.9		
" " Traffic	53	0.4		
Electrical Bureau	9	0.1		
	210	1.5		
DEP'T. OF PUBLIC WORKS			10,779	76.2
Bureau of City Property	6	0.1		
" " Engineering and Surveys	5916	41.8		
" " Highways	3494	24.7		
" " Water	1363	9.6		
	10779	76.2		
DEP'T. OF SUPPLIES AND PURCHASES			1,173	8.3
DEP'T. OF WHARVES, DOCKS & FERRIES			65	0.5
TOTALS.....			14,144	100.0

HYDRAULIC CEMENT SPECIMENS FOR 1931

Domestic Portland Cement	2354
Foreign Portland Cement	66
Research Investigations	36
TOTAL.	2456

DISTRIBUTION OF HYDRAULIC CEMENT FOR 1931

DEP'T. OF CITY TRANSIT		872
DEP'T. OF PUBLIC SAFETY		9
Bureau of Building Inspection	9	
DEP'T. OF PUBLIC WORKS		1575
Bureau of Engineering and Surveys	1475	
" " Highways	100	
TOTAL.		2456

CHEMICAL SPECIMENS FOR 1931

CEMENT (Chemical Analysis)		7
COAL		2188
Anthracite	1549	
Bituminous	639	
CONDUITS (Electrical)		10
FABRICS		13
FERTILIZERS		6
FIRE HOSE		3
METALS		52
Ferrous	23	
Non-Ferrous	29	
MISCELLANEOUS MATERIALS		37
OIL		170
Fuel	75	
Gasoline and Headlight	26	
Lubricating and Lubricants	69	
PAINT MATERIALS		312
Mixed Paints	106	
Pigments	92	
Pastes	19	
Driers	25	
Linseed Oil	47	
Turpentine and Thinners	16	
Shellac	1	
Varnish	6	
ROAD MATERIALS		1904
Asphalt (Waterproofing)	25	
" Compounds (Miscell.)	50	
" Cement (Penet.)	978	
" (wearing surface)	841	
Tar	10	
ROPE		6
SAND (Concrete)		1
SOAP AND SOAP MATERIALS		15
WATER		21
TOTAL.....		4745

DISTRIBUTION OF CHEMICAL SPECIMENS FOR 1931

DEP'T. OF CITY TRANSIT		195
DEP'T. OF PUBLIC HEALTH		2
DEP'T. OF PUBLIC SAFETY		81
Bureau of Boiler Inspection	16	
" " Building Inspection	3	
" " Traffic	53	
Electrical Bureau	9	
DEP'T. OF PUBLIC WORKS		3244
Bureau of City Property	6	
" " Engineering and Surveys	74	
" " Highways	1802	
" " Water	1362	
DEP'T. OF SUPPLIES AND PURCHASES		1158
DEP'T. OF WHARVES, DOCKS AND FERRIES		65
TOTAL.....		4745

SPECIMENS FOR PHYSICAL TEST 1931

BRICK		34
Building	1	
Paving	14	
Sewer	19	
CAST IRON (Arbitration bars)		40
CONCRETE		6627
Aggregate, Fine	17	
" Coarse	12	
Building Block	11	
Cores	358	
Cylinders	6079	
" (Investigation)	150	
CONDUITS		6
GRANITE		72
MISCELLANEOUS MATERIALS		17
ROPE		7
STEEL		78
TILE		62
Liner	51	
Building	11	
TOTAL.....		6943

DISTRIBUTION OF PHYSICAL SPECIMENS FOR 1931

DEP'T. OF CITY TRANSIT		848
DEP'T. OF PUBLIC SAFETY		120
Bureau of Building Inspection	120	
DEP'T. OF PUBLIC WORKS		5960
Bureau of Engineering and Surveys	4367	
" " Highways	1592	
" " Water	1	
DEP'T. OF SUPPLIES AND PURCHASES		15
TOTAL.....		6943

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

CITY OF PHILADELPHIA

CITY HALL ANNEX

REPLY AND REFER TO: BES:DAB:C

January 20, 1932.

From : Official Photographer

To : P. S. Fisher, Chief Clerk

Subject : Activities of 1931

I herewith present for your consideration a summary report covering the activities of this Division for the year 1931.

This Division produces on written order, Blueprinting of Plans for contract work. Jury Plans and statistical reference sheet; photographic record of all construction work done by the city through its various departments, bureaus and divisions. These records are made on Photographic negatives and are a part of the 33,000 negatives on file in this division. The many operations sub-divided are given below.

Bureau of Engineering and Surveys

Sewer Construction

Frankford Creek Interceptor
Sommerset Street Low Level and Tunnel
Lefevre Street Tunnel
Wissahickon High Level
Wingohocking Street
Fairmount Avenue Relief
Berks Street
Norris Street
Lakeside Avenue
Seventh Street
Lardner Street
Marshall Street
Bridge Street
State Road
Franklin Street
Twentieth Street
Emerald Street
Hog Island

Bridges

Henry Avenue
Olney Avenue
University Avenue
Mascher Street, etc.

60-1931

BES-DAB:C
Activities of 1931

Grade Crossings

Manayunk Elevated
Penna. R.R. Terminal Improvements
Oxford Ave. and N. Penn. Branch at Fox Chase
Schuylkill Bank Improvements

Zoning Commission

Reproduction of plans, photographic reproductions of Charts and lantern slides.

Director of Public Works

Photographs of Public improvements for check up on contracts

City Solicitor

Photographs of properties taken through condemnation proceedings

Mayor's Office

Photographs covering the industrial advantages of Philadelphia

Highway Bureau

Widening and paving of Oxford Avenue from Oxford Circle to Cottman Street. Resurfacing of Walnut Street Bridge. Resurfacing of Passayunk Bridge and numerous paving and grading operations thourghout the city.

Water Bureau

High pressure fire main in Park Avenue
High pressure fire main in Manayunk
Electrification of Pumping Stations

Electrical Bureau

Blueprinting of plans and charts of the police signal and fire alarm systems

Traffic Engineer

Blueprinting of Traffic Maps and stufies of the new Traffic Signal system

Various other work of this nature was executed by this division and is detailed in the appendix accompanying this report.

D. Alonzo Biggard

61-1931 D. ALONZO BIGGARD,
Official Photographer

DEPARTMENT of PUBLIC WORKS
ANNUAL REPORT OF THE OFFICIAL PHOTOGRAPHER
Photographic ° 1931 °

Division	8×10 Negs	14×17 Negs	Lant. Slides	Kodak Prints	5×7 Prints	8×10 Prints	8½×11 Prints	14×17 Prints	Enlargements	Blueprinting Sq.ft. Blue Prints	Van Dyke Prints	Linen Prints
Dept. of Mayor	68								17			
Dept. of Pub. W'ks.	2					106						
Dept. of Pub. Health	16		4			42				1628	240	
Dept. of Pub. Welfare	7					54				120		
Dept. of Law	38					820						
City Architect	7					140				15791	150	
Bur. Eng. & Sur'ys	1798	17	157	180		5784		16	2	149101	4813	4894
Grade Crossing	156						624					
Bur. Highways	461					627				48672	448	465
Bur. City Prop'ty	49					422				2408	260	10
Bur. of Water	266		1			680				44149	358	354
Bur. St. Cleaning						24				5114	125	255
Zoning Comm	11	46	114	164		77				5513	520	
Electrical Bur.										6436	88	
Traffic Eng.	4					34				13966	630	115
Civil Serv. Com	7					8						
Art. Jury	6					9						
Total.	2896	63	276	344		8827	624	16	19	242898	7682	6093

D. Alonzo Biggard.
Official Photographer

F. Siegrist '32

DEPARTMENT of PUBLIC WORKS
ANNUAL REPORT OF THE OFFICIAL PHOTOGRAPHER
Photographic ° 1931 °

Division	8×10, Negs	14×17, Negs	Lant. Slides	Kodak Prints	5×7 Prints	8×10 Prints	8½×11 Prints	14×17 Prints	Enlargments	Blueprinting Sq.ft. Blue Prints	Van Dyke Prints	Linen Prints
Dept. of Mayor	68								17			
Dept. of Pub. W'ks.	2					106						
Dept. of Pub. Health	16		4			42				1628	240	
Dept. of Pub. Welfare	7					54				120		
Dept. of Law	38					820						
City Architect	7					140				15741	150	
Bur. Eng & Sur'ys	1798	17	157	180		5784		16	2	149101	4813	4894
Grade Crossing	156						624					
Bur. Highways	461					627				48672	448	465
Bur. City Prop'ty	44					422				2408	260	10
Bur. of Water	266		1			680				44149	358	354
Bur. St. Cleaning						24				5114	125	255
Zoning Comm	11	46	114	164		77				5513	520	
Electrical Bur.										6436	88	
Traffic Eng.	4					34				13966	630	115
Civil Serv. Com	7					8						
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D. Alonzo Biggard.
Official Photographer

F. Siegrist '32

BUREAU OF ENGINEERING AND SURVEYS

DEPARTMENT OF PUBLIC WORKS

CITY OF PHILADELPHIA

CITY HALL ANNEX

REPLY AND REFER TO: BES: - WWH - CHM.

January 19, 1932.

From: W. W. Hill, Registrar,

To: Thomas Buckley, Ass't. Chief Engineer.

Subject: ANNUAL REPORT

Herewith the Annual Report covering the activities of the Registry Division for the year 1931.

W. W. Hill,
Registrar.

63-1931

REGISTRY DIVISION

1 9 3 1

Detailed Summary

Transfers plotted		58124
Original lots plotted		3992
Certificates of registered owners issued to public		72
" " " " " " Law Dep't.		1933
Plan Books examined by the public		158018
" " " " City and County officials		39409
Descriptions filed		67226
" " from 1865 to 1931 (inclusive)		2632235
Certificates of street openings and City Plan information issued to various Bureaus		529
Miscellaneous plans drawn for various Bureaus and Dept's.		94
Affidavits of street openings filed		19
Streets opened by affidavits		16
Titles examined for plan book entries		6150
City Plans ordered to be prepared		61
Number of Jury Plans ordered		40
" " " " filed		34
" " approved street railway plans filed		26
" " confirmed City plans filed		45
" " ordinances for placing streets on City Plan, &c		47
" " street opening agreements filed		13
" " " " by ordinance filed		15
" " deeds of dedication filed		39
" " " " " recorded		37
" " miles of streets dedicated 50 ft. in width		.03
" " " " " " 60 ft. in width or over		1.8
" " " " " " 40 to 50 ft. in width		.3
" " releases of abutting owners prepared in Reg. Div.		0
" " " " " " filed		2
" " " " " " recorded		3
" " new registry plan pages		53
Cost of recording deeds and releases		$182.75

64-1931

MAIN SEWERS

Loans	Appropriations	Authorization	Amount Available	Loan Item
December 15, 1919	December 23, 1919	April 12, 1920	16,932.41	230
October 1, 1920	February 17, 1921	December 30, 1927	2746.86	261
October 10, 1923	January 24, 1924	February 7, 1924	1997.85	303
September 22, 1924	December 12, 1924	February 17, 1925 October 20, 1931	68,795.46	320
June 22, 1925	October 2, 1925	December 3, 1925 July 5, 1928 February 16, 1929 March 1, 1930	23,337.13	360
April 10, 1926	June 12, 1926	July 21, 1926 May 17, 1927 December 30, 1927 March 1, 1930 October 20, 1931	338,638.92	383
May 23, 1927	June 13, 1927	July 6, 1927	12,381.90	420
March 21, 1928	May 17, 1928	June 12, 1928 July 5, 1928 February 15, 1929 February 18, 1929 March 1, 1930 May 13, 1931 October 20, 1931	367,426.55	443
July 8, 1929	October 26, 1929	January 16, 1930 July 14, 1930 February 14, 1931 May 13, 1931 October 20, 1931	388,911.48	466

Available January 1, 1931		1,221,168.56
Placed under contract	537,200.00	
Expended for inspection, bills, etc.	154,254.56	
Charged off	691,454.56	
Reduction by recredits	95,363.22	
Cash cost	596,091.34	596,091.34
Assessment bills	47,186.98	
Total cost of main sewers	643,278.32	
		625,077.22

BRANCH SEWERS

Loans	Appropriations	Authorization	Amount Available	Loan Item
March 21, 1928	May 17, 1928	Various	258.22	444
July 8, 1929	October 26, 1929	Various	505,324.73	467
Available January 1, 1931			505,582.95	
Placed under contract		254,200.00		
Expended for inspection, bills etc.		44,614.85		
Charged off		298,814.85		
Reduction by contract recredits		88,755.71		
Cash cost		210,059.14	210,059.14	
Assessment bills		208,262.78		
Total cost of branch sewers		418,321.92		
Balance			295,523.81	

SEWAGE DISPOSAL

Loans	Appropriations	Authorized	Amount Available	Loan Item
October 5, 1923	January 24, 1924	June 15, 1925	50,670.80	300
April 10, 1926	June 12, 1926	February 21, 1927	3,822.76	386
March 21, 1928	May 17, 1928	July 5, 1928	73,068.15	442
July 8, 1929	October 26, 1929	December 30, 1929	2,875,000.00	462

Available January 1, 1931		3,002,561,71
Placed under contract	1,207,000.00	
Expenditures, bills etc	111,512.44	
	1,318,512.44	
Reduction by contract recredits	137,214.75	
Cash cost	1,181,297.69	1,181,297.69
Balance		1,821,264.02

NEW SEWERS IN PLACE OF OLD SEWERS

Loans	Appropriations	Authorized	Amount Available	Loan Item
June 22, 1925	October 2, 1925	February 15, 1926	55,668.18	362
July 8, 1929	October 26, 1929	Various	656,513.00	469
Available January 1, 1931			712,181.18	
Placed under contract		469,300.00		
Expenditures, bills, etc		14,950.10		
		484,250.10		
Reduction by contract recredits		77,565.40		
Cash cost		406,684.70	406,684.70	
Balance			305,496.48	

RECAPITULATION

Classification	Funds Available	Expended
Main Sewers	2,634,684,84	1,413,516.68
Branch Sewers	1,551,355.25	1,045,772.30
New sewers in place of old sewers	755,668.18	5287.00
Cash	4,941,708.27	2,464,575.58
Assessment bills		644,911.98
Totals	4,941,708.27	3,109,487.56

Total length of sewers built during 1930

Branch sewers	117,665.52	feet	=	22.28 miles
Main sewers	25,772.60	"	=	4.88 "
Sewers constructed at private cost	3,890.00	"	=	0.74 "
Grade Crossing division	10,046.55	"	=	1.90 "
Sewage disposal division	25,255.30	"	=	4.78 "
				34.58 "

BRANCH SEWERS PLACED UNDER CONTRACT DURING 1930

Under Item 444 Loan	1 Contract
Under Item 467 "	180 Contracts
Total	181 Contracts

PRIVATE SEWERS PLACED UNDER CONTRACT DURING 1930

Five contracts for sewers at private cost were entered into, the estimated cost of which is $28,270.-

SUMMARY OF SEWER CONTRACTS ENTERED INTO DURING 1930

Main sewers	15 contracts
Branch sewers	181 "
Private sewers	5 "
Total	201 "

RECAPITULATION

Classification	Funds Available	Expended
Main sewers	1,221,168.56	596,091.[illegible]7
Branch sewers	505,582.95	210,059.14
New sewers in place of old sewers	712,181.18	406,684.70
Cash	2,438,932.69	1,212,835.18
Assessment bills		255,449.76
Totals	2,438,932.69	1,468,284.94

Total length of sewers built during 1931

Branch sewers	41,103.06	feet	= 7.78	Miles
Main sewers	10,992.63	"	= 2.08	"
Sewers constructed at private cost	2,962.00	"	= 0.56	"
Sewage disposal division	19,177.62	"	= 3.63	"
Grade crossing division	7,890.41	"	= 1.50	"
Bridge division	962.10	"	= 0.18	"
Highway Bureau	2,653.12	"	= 0.50	"
			16.23	"
New sewers in place of old sewers	21,492.87	"	4.07	"

SEWER CONTRACTS ENTERED INTO DURING 1931

Main sewers	7	Contracts
Branch sewers Item 467 Loan	57	"
Sewers at private cost Estimated cost $9200.-	2	"
New sewers in place of old sewers	24	"
Total	90	"