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UNIVERSITY OF LONDON

NO. 956.

-8 JUL 1953

Court of King's Bench

INSTITUTE OF ADVANCED
LEGAL STUDIES

(APPEAL SIDE)

On appeal from a judgment of the Superior Court, for the
Province of Quebec, (District of Montreal), rendered
by the Honourable Mr. Justice Mercier,
November 23rd, 1934.

The People of the State of New York,

(Plaintiffs in the Court below)

APPELLANTS

—vs—

Heirs of the late John M. Phillips,

(Defendants in the Court below)

—&—

**The Crown Trust Company et al.,
es-qual., for the Heirs of the
late Francis Phillips,**

Defendants severing in their defence
and en reprise d'instance.

RESPONDENTS

—&—

The Montreal Safe Deposit Company,

TIERS-SAISIS

C A S E

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TIERS-SAISIS

C A S E

EXHIBIT C-230 (*continued*):

10 by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept the work or materials at any time thereafter.

Engineer to be final arbiter.

20 X. To prevent all disputes and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall, in all cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this contract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

30 Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted by the Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

Work and materials must agree with specifications.

40 XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written notice

EXHIBIT C-230 (*continued*):

to be served upon him, then the President may remove, or cause the same to be removed and satisfactorily replaced, by contract or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor; and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under this contract.

10 Examinations.

During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so disturbed. Should the openings disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

20 Use of patented articles.

XII. Wherever an article or any kind of material is specified by a trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circumstances that there can be a fair and reasonable opportunity for competition, the conditions to secure which shall be prescribed by the Board of Estimate and Apportionment."

30

Claims for infringement.

40

The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will have harmless and indemnify The City against all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

EXHIBIT C-230 (*continued*):

Commencement and completion.

10 XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor shall be deemed and taken to be a waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

Time of performance.

20 XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by the Engineer, and will execute all the work in every respect in a thorough and workmanlike manner; and he will fully and entirely perform this contract on his part before the expiration of Four hundred and fifty (450) CONSECUTIVE WORKING DAYS.

Time important.

30 It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

40 In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In

EXHIBIT C-230 (*continued*):

10 case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess of rock excavated and removed in accordance with the measurement of rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set
20 forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered in the prosecution of said work then the time which the Contractor is delayed on account thereof will be determined and allowed by the President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in writing and duly served upon the President prior to the filing in the office
of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

End of time period.

The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the Engineer.

Liquidated damages.

30 XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of ten Dollars (\$10.00) for each and every day the time consumed in said performance and completion exceeds the time hereinbefore allowed for that purpose; which said sum, in view of the difficulty of ascertaining the loss which The City will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the
40 liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due to the Contractor under this contract.

EXHIBIT C-230 (*continued*):

Work not provided for in contract.

10 XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

President's right to suspend work.

20 XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the roadways and pavements over the same satisfactorily restored, and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

No damages to be claimed for delay due to other contracts.

30 XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract: if, however, the Contractor shall be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of the work or any work or any part thereof being suspended as herein before provided, such allowance of time on account thereof
40 as the President shall deem reasonable will be made.

If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing work for The City, the President, or who-

EXHIBIT C-230 (*continued*):

ever is directed by this contract, to make the certificate in reference to time, shall make such allowance of time for the completion of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be made to the Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

10 Allowance of time for delays.

XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter provided.

Right to construct sewers, etc.

20 Permits for connections.

30 XX. Prior to the commencement of and during the progress of the work under this contract the President shall have the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof located on and adjoining the line of the work, and for any connections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any part of this contract, in accordance with Section XVII., and the Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstructions in the way of such persons as may be employed in building such
40 sewers and drains, or in making such connections, and the flow from such sewers, drains and connections will be permitted by the Contractor to discharge into the work built under this contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the

EXHIBIT C-230 (*continued*):

work. No new connections or drains will be allowed to be made or joined to the work built under this contract unless a permit therefor has been duly issued by the President, which permit shall be shown in all cases to the Inspector of the work.

Flow of sewer and drains, etc.

10 Drains, etc., interrupted.

Sewers, etc., to be kept clean.

XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and
20 expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When the permanent removal of any existing pipe sewers and appurtenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract,
30 or the trenches in which it is to be constructed, follow the line, and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to do, at his own cost and expense. All sewers, drains, culverts,
40 basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense, as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work. During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins,

EXHIBIT C-230 (*continued*):

culverts and connections built under this contract shall be kept thoroughly cleaned throughout, and shall be left clean.

Sale of sand or earth.

10 XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, backfill the trench with the same material thrown out, provided it be suitable, then the same shall be removed from the line of work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

20 The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or lessees thereof, will be removed by him and all damage to said property remedied by him at his own cost and expense. Unless such materials are removed and such damage remedied by the Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due
30 or to become due under this contract.

Contractor to give personal attention to work.

Not to assign or sublet.

40 XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right, title or interest therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, this

EXHIBIT C-230 (*continued*):

10 contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due hereunder, unless authorized as aforesaid by the written consent of the President.

When Contractor is absent.

Disorderly workmen.

20 Contractor to provide assistance.

30 XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions, orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be declared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ him on any part of the work. The Contractor will provide all necessary assistance for the Engineer when required, without charge or expense to The City or Engineer.

Contractor to plank and bridge for traffic.

40 XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.

EXHIBIT C-230 (*continued*):

Guards and lights.

Indemnification of City.

10 XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from negligence or carelessness in the performance of the work, or in guarding the same, or from any improper materials used in its prosecution, or by or on account of any act or omission of the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and 20 by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, as its option, be retained by The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

Contractor to make repairs.

30 XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted out of the moneys due or to become due to the Contractor under this contract.

40 Loss or damage to be assumed by Contractor.

XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements, or from incumbrances on or near the line of the

EXHIBIT C-230 (*continued*):

work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

Claims for labor, etc.

10 XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any materials toward the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of the State of New York, then, and in every such case, The City shall retain—anything herein contained to the contrary thereto notwithstanding—from the moneys under its control, and due or
20 to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or actions brought to enforce such claim or the lien created by the filing of such notice. The money so retained shall be retained by The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.

30 Contractor will prevent filing of liens, etc.

 XXX. The Contractor will not, at any time, suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to remain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and that any such lien,
40 attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever under or by virtue of this contract.

Evidence of satisfaction of liens, etc.

The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom

EXHIBIT C-230 (*continued*):

materials used in the construction of the work may have been purchased or procured are fully satisfied and that the materials furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final payment under this contract.

10 Notice to gas companies, etc.

Not to hinder other companies.

20 XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give notice, in writing, to all gas, railroad and other companies owning or controlling any pipe, tracks or other structures which during the progress of the work may be affected by the prosecution of the same so that said companies may protect or remove their structures, and he will not cause any hindrance to, or interference with, any such gas company or other company or companies in protecting their said pipes, tracks or other structures, nor in removing or otherwise protecting and replacing the main and service pipe, lampposts, lamps, tracks or other structures where necessary, but the Contractor will suffer the said company or companies to take all such measures as are requisite for the purpose aforesaid. But if said gas, railroad, or other companies, within five days after receipt of such notice, fail to support, remove or otherwise protect their structures, the Contractor will upon the approval of the
30 President protect or remove the same, it being expressly understood that the cost thereof shall not be a charge against The City, but shall be a matter for adjustment between the Contractor and the company or companies concerned.

Pipes, conduits, etc., of private companies.

40 XXXII. It is hereby agreed that The City is not responsible or liable for the support, protection or reconstruction of such gas pipes, conduits, water pipes, tracks or structures owned by private companies enjoying special franchises or occupying any portion of the street or way on or below the surface in its streets or ways, as the Contractor admits that he has carefully examined the location of work, has made special inquiry at the offices of the companies owning, controlling or operating said pipes, conduits, tracks and structures, and he has determined to his satisfaction the character, size, location and length of such

EXHIBIT C-230 (*continued*) :

10 pipes, conduits, tracks and structures; that he has inspected the public records of the various City Departments having cognizance and control of pipes, conduits, and other subsurface structures, and of The City's water pipes, conduits and sewers, and he has made such further personal inspection and investigation as he deemed proper to determine the correctness of the information so obtained; and he clearly understands that The City does not insure the accuracy of such reports or information, and agrees that he will not make any claim against The City for damages or extra work caused or occasioned by his relying upon such records, reports or information furnished by any City Department or any companies, either as a whole or in part.

Protection and restoration of pipes, etc., of private companies.

20 XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures; and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection, removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, or restoring the said pipes, conduits, tracks or other structures.

30 Contractor to notify department of water supply, Gas and Electricity.

XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

City's water pipes, etc.

40 XXXV. If upon excavating it shall be found that any existing water pipes or appurtenances owned or controlled or operated by The City follow the lines, or occupy the place, of the sewer or sewers and appurtenances to be laid or built as shown on the plan, such existing water pipes and appurtenances will be removed and relaid, or rebuilt, by and at the cost of the Department of Water Supply, Gas and Electricity of The City of New York; if, however, in order to facilitate the work to be done under

EXHIBIT C-230 (*continued*):

this contract, it be found desirable to temporarily remove any water pipes or appurtenances owned or controlled or operated by The City, the removal and replacing in their original positions of such water pipes and appurtenances will be done by the Department of Water Supply, Gas and Electricity for the Contractor at his cost and expense.

10 Protection of City's water pipes, etc.

XXXVI. The contractor agrees to protect all water mains and service water pipes owned, controlled or operated by The City which may be affected in any manner by the work done under this contract, except as hereinbefore provided, and to protect all such water and service pipes from freezing, and if he fails to do so, the Commissioner of Water Supply, Gas and Electricity is hereby authorized to protect such main and service pipes, or in the event of their having suffered injury to replace such pipes, and recalk and repair the same immediately, as the work progresses, and the cost thereof shall be charged to the Contractor; the cost so charged shall be deducted from any sum or sums due or to become due to the Contractor under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

Protection of gas and water mains and pipes, etc.

XXXVII. The Contractor agrees to sustain in their places and protect from injury all water or gas mains, conduits, subways or service pipes, steam pipes and pneumatic pipes, and all sidewalks, curbs, stoops, areas, and all other property in the vicinity of his work, from direct or indirect injury by caving or otherwise, and he hereby assumes all expenses for direct or indirect damage which may be occasioned by injury to any of them, and he agrees to have at all times a sufficient quantity of timber and other necessary materials and appliances on the ground, and will use the same, as required, for bracing and sheeting the sides and ends of excavations, and for sustaining and supporting any and all pipes, conduits, subways, lamp-posts and lamps or other structures that are undermined, weakened, endangered or threatened; and in case any damage or injury shall or may result to said pipes, conduits, subways, lamp-posts and lamps and other works or structures of any gas, electric, railroad or other company whatsoever, or to any private property, through or by reason of any negligence, wilfulness, carelessness or want of skill on the part of the Contractor, his agents or servants, the Contractor

EXHIBIT C-230 (*continued*):

10 hereby agrees to pay such amount as may be sufficient to cover the expense and damages occasioned by such negligence, wilfulness, carelessness or unskillfulness, and that such amount shall be charged against him; and the President is hereby authorized to deduct and retain from any moneys which may be due, or which shall become due, under this Contract, a sum sufficient, in his judgment, to cover the cost of making good any such damages, expense or loss, and to apply said sum so deducted and retained to the requisite repairs or renewals, or to reimburse the parties damaged or injured.

Old water and gas pipes.

20 XXXVIII. All iron, water and gas pipes which it becomes necessary to remove shall be considered the property of The City and will be piled by the Contractor in such part or parts of the streets as may be directed, unless notice to the contrary is given him in writing, in which case he will remove the same at his own expense.

Change of grade.

30 XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which here is no contract price, the provisions in relation to work not provided for in this contract shall apply.

Measurement of work and material.

40 XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such plan, lines and specifications. Should the dimensions of any part of the work, or of the materials, be less than those required by the plan, the actual quantities only will be allowed in measurement.

Payment on acceptance of work.

XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this

EXHIBIT C-230 (*continued*):

10 contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations hereinbefore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller. The City will pay to the Contractor on or before the expiration of
10 thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except such sum or sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of the State, or under any ordinance of The City passed prior to the date of this contract and now in force.

Moneys to be retained for repairs to unpaved streets.

20 It is hereby further agreed that The City shall be and is hereby authorized to retain out the moneys payable to the Contractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06 for each linear foot of sewer, basin connection, and house connection constructed under this contract within unpaved streets, and the sum of \$0.40 for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street surface as may become necessary by reason of the work done under
30 this contract within two days of the date of service of notice upon him so to do, then the President may expend such sum or any part thereof in making such repairs.

Payment of retained moneys to be made after six months.

40 It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party of the second part the whole or such part of the moneys retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

Termination of six months' period.

It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or

EXHIBIT C-230 (*continued*):

such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

10 XLII. The action of the Engineer in Charge of Sewers by which the Contractor is to be bound and concluded according to the terms of this Contract shall be that evidenced by said Engineer's final certificate, all prior certificates upon which eighty-five per centum (85%) payments may have been made being merely estimates, and subject to the corrections of such final certificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based.

85% payments.

20 XLIII. In case the amount of this contract, based on the Engineer's estimate and the contract prices, shall be five thousand dollars (\$5,000.00) or over, payment will be made to the Contractor by monthly installments of eighty-five Per Cent. (85%) of the estimated value of the work performed, provided the work is being prosecuted in conformity with the provisions of the contract, and in a manner satisfactory to the Engineer, in which case, however, the quantity returned shall be such that the amount paid will be fairly due and in accordance with the provisions and stipulations of this contract; provided, the amount of work done on each installment shall not be less than fifteen hundred dollars (\$1,500.00); and provided that The City may at all times reserve and retain out of said installments, or any of them, all such sum or sums as by the terms hereof or any act of the Legislature of the State of New York, or of any ordinance of The City of New York, now in force, it is or may be authorized to reserve or retain; and provided that where the Contractor, although the lowest bidder in the gross calculation, is to receive unusual or extraordinary prices for any of the different items of the work when considered separately, nothing herein contained shall be construed to affect the right of the President to determine the amount that may be due from time to time, not necessarily by the prices agreed upon
30
40 in this contract, but by causing an estimate to be made of the value of the work done, taking as a basis of the calculations the whole amount of money that will have become due, according to the terms of this contract, when the whole work shall be completed.

EXHIBIT C-230 (*continued*):

If abandoned, etc.

Contract may be declared abandoned.

Completion of work to be undertaken by President.

10 XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the Engineer shall be of the opinion, and shall so certify, in writing, to the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate of progress compared with the required progress (See Section XIV); or that the Contractor is wilfully violating any of the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed
20 within the time designated in this contract for its completion, the President may declare this contract or any part thereof abandoned and notify the Contractor to discontinue all work or any part thereof under this contract, by a written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV., or with any employee found on the work, and the Contractor agrees to thereupon discontinue said work or such part thereof, and he further
30 agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work declared abandoned, and to use such materials as he may find upon the line of the work, and to procure other plants and materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor: and it is further agreed that the expense so charged shall be deducted and also liquidated damages for delay in
40 the completion of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work. And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated damages shall be less than the sum

EXHIBIT C-230 (*continued*):

10 which would be payable to the Contractor, if the Contractor had completed the contract, he shall be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to discontinue all or any part of the work, he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the Contractor, for the purpose hereinbefore specified, and no such plant or materials shall be removed so long as the same may be wanted for the work. In the computation of liquidated damages for delay in completion of the work, the time taken by The City or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time taken in advertising and awarding such contract, shall be added to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this clause, and from such total there shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with the persons or workmen employed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

Notice to Contractor.

40 XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other communications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service

EXHIBIT C-230 (*continued*):

thereof upon the Contractor. It is also further agreed that the place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

10

Labor law.

XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency, caused by fire, flood or danger to life or property; that the wages to be paid for a legal day's work to all classes of such laborers, workmen or mechanics upon public work or upon any material to be used thereon shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such public work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provisions of section 14 of the Labor Law.

20

30 No estoppel.

XLVII. The City shall not, nor shall any Department or officer thereof be precluded or estopped by any return or certificate made or given by the President, any Engineer or other officer, agent or appointee of The City under any provision of this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do not in fact conform to the contract; and The City shall not be precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and

40

EXHIBIT C-230 (*continued*):

recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.

Understanding of plans and specifications.

10 XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this contract, he has carefully read the same, and the whole thereof, together with and in connection with the plan and specifications, and that he has made such examination of this contract and of said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as to enable him to thoroughly understand the intention of the same, and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and specifications; and distinctly agrees that he will not hereafter make
20 any claim or demand upon The City, based upon or arising out of any alleged misunderstanding or misconception on his part of the said requirements, covenants, stipulations and restrictions: and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect whatsoever, upon the total amount of work to be paid for, in the final settlement.

Substitution of sureties.

30 XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or shall be made until the new sureties shall qualify and be accepted by the Comptroller.

Chap. 478, Laws 1916.

40 L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of, and keep insured during the life of this contract, the employees engaged thereon, in compliance with the provisions of Chapter 41 of the laws of 1914, known as the Workmen's Compensation Law, and acts amendatory thereof.

EXHIBIT C-230 (*continued*):

10 IN WITNESS WHEREOF, The President of the Borough of Queens has hereunto set his hand for and on behalf of The City of New York, and the Contractor has also hereunto set his or its hand the day and year herein first above written; and the President and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with the Comptroller of The City of New York, and the third to be delivered to the Contractor.

THE CITY OF NEW YORK,

By FRANK X. SULLIVAN,
Acting President of the Borough of Queens.

CARMINE PETRACCA,
Contractor.

20

The City and State of New York, ss. :
County of Queens

30 On this 10th day of July, 1920, before me personally came FRANK X. SULLIVAN, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the same as said Acting President for the purposes therein mentioned.

JOSEPH SIEGELP,
Commissioner of Deeds, New York City.

40

EXHIBIT C-230 (*continued*):

The City and State of New York, ss. :
County of Queens

On this 9th day of July, 1920, before me personally came
CARMINE PETRACCA, to me known and known to me to be the
same person described in and who executed the foregoing instru-
ment, and he acknowledged to me that he executed the same for
10 the purpose therein mentioned.

JOSEPH SIEGELP,
Commissioner of Deeds, New York City.

KNOW ALL MEN BY THESE PRESENTS, That we
CARMINE PETRACCA, hereinafter called the "Contractor,"
20 and UNITED STATES FIDELITY & GUARANTY COMPANY,
ROYAL INDEMNITY Co. and NEW AMSTERDAM CASUAL-
TY CO., hereinafter called the "Surety", are held and firmly
bound unto The City of New York, in the sum of NINETY
THOUSAND DOLLARS, lawful money of the United States of
America, to be paid unto THE CITY OF NEW YORK, or to its
certain attorneys, successors or assigns; for which payment,
well and truly to be made, we and each of us do bind ourselves
and our several and respective heirs, executors, administrators
and assigns, jointly and severally, firmly by these presents.

30 Signed, sealed and dated this 9th day of July, 1920.

WHEREAS, The above bounden Contractor, by an instru-
ment in writing under hand, bearing even date with these
presents, one part whereof is hereto annexed, has contracted with
The City of New York, by the President of the Borough of
Queens, to furnish all the labor and materials, and to
excavate for, build, construct and in all respects complete sewer
in Ormond St. from Crocheron Ave. to the crown about 350 feet
north of Crocheron Ave. etc., Third Ward, together with all the
40 work incidental thereto, as is fully and at large set forth and
described in the contract aforesaid.

NOW, THEREFORE, The condition of the above obliga-
tion is such that if the said above bounden Contractor and its,
his or their heirs, executors, administrators and assigns, or any
or either of them, shall well and truly, and in a good, sufficient

EXHIBIT C-230 (*continued*):

and workmanlike manner, perform or cause to be performed the said contract, and each and every of the covenants, promises, agreements and provisions therein contained on his part to be performed, and complete the same within the period of therein stipulated, and in each and every respect comply with the conditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

10

CARMINE PETRACCA [L. S.]
Contractor.

SURETIES :

United States Fidelity and Guaranty Co.,
By C. P. MARSAC,
Attorney-in-fact.

20

Attest : WILLIAM H. ESTWICK,
Attorney-in-fact.

Royal Indemnity Company,
By J. P. HUNTING,
Res. Vice-President.

AUGUST WESTPHAL,
Ass't Secretary.

30

New Amsterdam Casualty Company,
By THOMAS L. PURDUM,
Vice-President.

Attest : WM. L. MCGINTY,
Ass't Secretary.

40

EXHIBIT C-230 (*continued*):

The City and State of New York, ss. :
County of Queens

On this 9th day of July, 1920, before me personally came
CARMINE PETRACCA to me personally known and known to
me to be the same person described in and executed the foregoing
bond or obligation, and severally acknowledged that he executed
10 the same.

JOSEPH SIEGELP,
Commissioner of Deeds, New York City.

FUNDS

20

PRESIDENT'S CERTIFICATE

It is hereby that the estimated cost of the work and mate-
rials required by the within contract is TWO HUNDRED and
SEVENTY-THREE THOUSAND and FOUR HUNDRED
NINETY-EIGHT 50/100 DOLLARS (\$273,498.50), and is
chargeable to the Street Improvement Fund of the City of New
York.

30

FRANK X. SULLIVAN,
Acting President of the Borough of Queens.

THE CITY OF NEW YORK, July 10th, 1920.

40

EXHIBIT C-230 (*continued*):

ASPHALTIC CONCRETE PAVEMENT

PREPARED SUB-GRADE

10 The sub-grade shall be properly prepared as hereinbefore set forth, at a depth of eight (8) inches below the grade of the finished pavement. When necessary, the sub-grade shall be protected by suitable runways or shall be compacted just before the concrete foundation is laid.

CONCRETE FOUNDATION.

20 On this sub-grade shall be laid a new concrete foundation of 1: 3: 6: mix; six (6) inches thick. The stone or gravel, sand and cement used in this concrete shall comply with the Division of Highways specifications appertaining thereto. The surface shall be parallel to the finished pavement and shall be left rough for a bond.

The pavement proper shall be prepared as elsewhere herein specified and laid upon the concrete foundation. It shall consist of an asphaltic concrete two (2) inches thick when compressed.

MATERIALS.

30 The materials used must comply with the requirements of these specifications and be suitable for use upon the street or streets to be paved. They shall be mixed in definite proportions by weight, depending upon their character, and the traffic upon the streets, and such materials and proportions must be satisfactory to the Engineer, within the limits of the specifications.

REQUIREMENTS.

40 The asphaltic cement shall satisfactorily comply with the following requirements of either specifications A or B:

All tests shall be made by uniform methods and must be satisfactory to the Engineer. All percentages are by weight unless otherwise specified.

EXHIBIT C-230 (continued):

SPECIFICATION A.

NATURAL LAKE ASPHALT.

10 ASPHALTIC CEMENT: The asphaltic cement shall consist essentially of a refined solid natural lake asphalt softened with a liquid petroleum flux.

COMPONENTS OF ASPHALTIC CEMENT: (a) Refined solid natural lake asphalt shall be construed to signify any natural mineral bitumen produced by refining crude natural lake asphalt which through natural causes, in progress of time has been reduced to a consistency harder than ten (10) mm. penetration, and which without the addition of any other material, has the following characteristics.

20 WaterNone
Penetration at 25 degrees C.
No. 2 needle under 100 grams
weight for five (5) seconds Not over 3.0 mm.
Total bitumen soluble in carbon
tetrachloride Not less than 99%
Fixed Carbon Not less than 15%

30 (b) Liquid petroleum flux shall be construed to signify any residuum consisting of the heavier and higher boiling portions of petroleum free from decompositions products and with the following characteristics.

40 WaterNone
Specific gravity at 25 degrees
C.Between 0.92 and 1.02
Penetration at 25 degrees C.
No. 2 needle under a 50 gram
weight for one (1) poundNot less than 35 mm.
Bitumen soluble in Carbon
DisulphideNot less than 99½%
Flash PointNot less than 177
Degrees C.

The word bitumen in this specification shall signify any natural hydro-carbon or hydro-carbons soluble in carbon bisulphide.

EXHIBIT C-230 (*continued*):

CHARACTERISTICS: The asphaltic cement used in cementing the mineral aggregate shall be prepared solely from the materials of the character hereinbefore described, so as to produce a cementitious material which must comply in all respects with the following practical and established test.

10 1. The asphaltic cement as used must have a ductility of not less than forty (40) c. m. at twenty-five (25) degrees C. when tested in a briquette having a minimum cross section of one square c. m. and must be elongated at the rate of five (5) c. m. per minute (District of Columbia Standard).

2. Its specific gravity shall not be less than 1.04 at 25 degrees C.

20 3. It must when tested for five (5) seconds at twenty-five (25) degrees C. with a number two (2) needle under a load of one hundred (100) grams have a penetration of at least five (5) mm. and not more than seven (7) mm. as determined by the Engineer.

4. When fifty (50) grams of the asphaltic cement are heated in a dish sixty-three and five tenth (63.5) mm. in diameter for five (5) hours at one hundred and sixty-three (163) degrees C. the loss shall not exceed three (3) per cent. and the penetration of the residue shall not be reduced more than fifty (50) per cent. from its original consistency.

30 5. Not less than ninety-nine (99) per cent. of the bitumen shall be soluble in cold Carbon Tetrachloride.

6. It shall not show less than ten (10) per cent. nor more than fourteen (14) per cent. of fixed carbon.

7. It shall contain not less than three (3) per cent of non-bituminous matter insoluble in carbon disulphide.

40 8. It shall not flash below 177 degrees C. when tested in a New York State Closed Oil Tester.

9. No change in the physical properties of the sample of material as delivered shall be made before the tests which shall be made by uniform methods and must be satisfactory to the Engineer.

EXHIBIT C-230 (continued) :

SPECIFICATION B.

OIL ASPHALT.

ASPHALTIC CEMENT:

10 PREPARATION: The asphaltic cement shall be prepared by the careful distillation, with steam agitation, of petroleum at a temperature not exceeding 375 degrees C. until its consistency is between five (5) and seven (7) mm. when tested for five (5) seconds at twenty-five (25) degrees C. with a number two (2) needle under a weight of one hundred (100) grams. It shall in addition thereto comply with the following practical and established tests.

20 CHARACTERISTICS: 1. Its specific gravity shall be greater than 0.99 at 25 degrees C.

2. It shall have a penetration between five (5) and seven (7) mm. at twenty-five (25) degrees C. with a number two (2) needle under one-hundred (100) grams weight for five (5) second, and must be not harder than one (1) mm. penetration at zero (0) degrees C. with a number two (2) needle under a weight of two hundred (200) grams for one (1) minute.

30 3. It must not flash below one hundred and seventy-seven (177) degrees C. when tested in a New York State Closed Oil Tester.

4. Fifty (50) grams of the cement upon being maintained at a uniform temperature of one-hundred and sixty-three (163) degrees C. for five (5) hours in a cylindrical vessel sixty-three and one-half (63½) mm. in diameter shall not lose more than three (3) per cent. in weight and the penetration of the residue shall not be reduced more than fifty (50) per cent. from its original consistency.

40 5. Not less than ninety-eight and one-half (98½) per cent. of the bitumen shall be soluble in cold carbon tetrachloride.

6. A briquette of the asphaltic cement having a minimum cross-section of one (1) square cm. must elongate to a distance of not less than thirty (30) cm. before breaking when elongated at a rate of five (5) cm. per minute.

EXHIBIT C-230 (continued):

7. The asphaltic cement shall be practically free from water, decomposition products, coke or inert free carbon, coal tar of any of its products or other injurious matters, and the various hydro-carbons composing it shall be present in homogeneous solution no granular constituents being present.

10 No change in the physical properties of the sample of material as delivered shall be made before the tests which shall be made by uniform methods and must be satisfactory to the Engineer.

TEMPERATURES.

	MAXIMUM TEMP. AT PLANT.	MINIMUM TEMP. ON THE STREET
SOURCE OF ASPHALT		
20 Trinidad	345° F.	290° F.
Bermudez	320° F.	265° F.
Asphaltic Petroleums	305° F.	250° F.

SAMPLES

30 Before the contractor may begin the pavement restoration, he must deposit with the Borough President for approval a one-half (1/2) pound sample of the asphalt cement binder proposed to be used, accompanied by a satisfactory affidavit from the producer, stating the source and character of the material used, the process of manufacture, and the proportions of the ingredients used, or any analysis of the material by an approved testing laboratory.

40 If the contractor proposes to use any accepted material already on file, he may state in a letter, or in his proposal that he proposes to use the aforesaid material and additional samples need not be submitted, but he must determine that the required sample and certificate are on file with the President of the Borough.

MINERAL AGGREGATE

The mineral aggregate used in making the asphaltic concrete shall consist of suitable screened, hard, durable crushed trap rock, granite or washed gravel, sand and filler of sizes and percentages called for in the specifications. (The variation in

EXHIBIT C-230 (*continued*):

percentages shall be used to the best advantage to obtain the densest pavement possible thereunder, and the resulting pavement when laid, shall not be so soft as to be unfit for travel on the hottest days of summer nor so hard as to disintegrate in the coldest weather.

10 When directed by the Engineer, the contractor shall from time to time, make a series of samples mixtures of the asphalted cement and mineral aggregate in varying proportions within the limits of the specifications to determine the formula that will produce the best results with the materials used).

The trap rock shall be newly broken with the dust of fracture, shall be of uniform quality throughout, free from slate and flat pieces, soft or disintegrated stone, dirt and other objectionable material, and shall be satisfactory to the Engineer.

20 The sand shall be hard grained, moderately sharp and clean, not containing more than one (1) per cent. of clay or loam.

The inorganic dust, or filler, shall be finely powdered limestone, Portland cement, or other satisfactory inorganic dust, approved by the Engineer. The inorganic dust as used must be thoroughly dried, and of such a degree of fineness that the whole of it shall pass a 30 mesh sieve and not less than 66 per cent. shall pass a 200 mesh sieve. If Portland cement is used, or is specified for use as a filler, it shall comply with the requirements of these specifications for Portland cement.

30 The inorganic dust shall be free from loam, clay or earthy material, and no dust from weathered rock shall be used.

MIXTURE

The finished pavement mixture consisting of asphaltic cement filler, sand and rock of the character previously specified shall be mixed in such proportion as to conform to the following composition by weight.

- 40 Bitumen (carbon Bi-sulphide) 9 to 11 per cent.
Mineral aggregate passing 200 mesh sieve,
10 to 15 per cent.
Mineral aggregate passing 80 mesh sieve,
10 to 20 per cent.
Mineral aggregate passing 40 mesh sieve,
20 to 40 per cent.

EXHIBIT C-230 (*continued*):

Mineral aggregate passing 10 mesh sieve,
20 to 40 per cent.

Mineral aggregate passing 4 mesh sieve,
10 to 20 per cent.

Mineral aggregate passing 2 mesh sieve,
less than 10 per cent.

- 10 Sieves to be used in the order named.

The above limits as to mesh composition and per cent of bitumen are intended to provide for each permissible variations as may be rendered necessary by the raw materials used and the character of the work to be done. The composition of the wearing surface may be varied within the limits above specified at the discretion of the Engineer, depending upon the kinds of sand, filler and asphalt used and the traffic conditions upon the street or streets to be paved.

- 20 The trap rock, gravel, screenings and sand shall be heated in mechanical revolving dryers at a temperature ranging from not less than 225 degrees and not more than 325 degrees F. and mixed in proportions above given, after which the filler and asphaltic cement at the proper temperature and proper proportions shall be added, and the entire mixture then placed in revolving mixers and thoroughly agitated until all particles of the aggregate are thoroughly and completely coated with hot asphaltic cement. The mixing shall be continued until the combination is a uniform asphaltic concrete.

- 30 The tanks used for heating asphaltic cement shall be equipped with fixed or portable thermometers, metal covered or otherwise protected against breakage. A thermometer shall be placed so that the temperature of the material is constantly indicated and may be clearly and accurately observed at a distance of five (5) feet from the tank. Thermometers similar in appearance and equal in other respects to the one kept in the Office of the Engineer of Highways will be acceptable.

- 40 Proper weighing devices, for the determination of the quantities of materials used, a machine for determining the penetration of the asphalt cement, suitable inspector's thermometers and a set of sieves for testing the mineral aggregate must be installed and maintained by the contractor at the plant.

EXHIBIT C-230 (*continued*):

LAYING AND ROLLING.

The surface mixture prepared in the manner above described shall be carried to the street in trucks, properly protected, with suitable covers for radiation and delivered on the street at a temperature from 250 degrees F. to 325 degrees F.

10 After being unloaded on the street the mixture must be shoveled into place in such manner that the whole of it will be removed from the pile into which it was unloaded and uniformly spread with hot rakes to such a depth as will insure the required thickness after ultimate compression. The compression shall be obtained by first smoothing the surface with a hard roller or a light steam roller, after which hydraulic cement shall be swept over it and as soon as the material will bear it, it shall be rolled

20 with a roller weighing at least 250 pounds per inch, width of tread or run. The rolling shall first be done along the sides and gradually towards the crown. Improper material shall be removed and replaced and any irregularity or depression that may develop shall be immediately corrected with the proper material. The roller shall be provided with an ash-can. No fire or ashes shall be dumped upon the pavement. Care shall be taken not to leave the roller standing for any length of time on that part of the pavement that has been recently finished. If the roller tends to pick up the pavement, the wheels shall be thoroughly cleaned and frequently oiled or kept wet with water until such tendency ceases. Rolling shall be continued longitudinally and diagonally or at right angles until the surface is uniformly compacted and no impression is made upon the surface. Places not accessible with the roller shall be thoroughly tamped with hot rammers until compacted equally with the rolled portions. Special care in materials and workmanship shall be used to secure a smooth straight gutter and the finished pavement confronting to the crown and grades as shown on the contract plans or as directed by the Engineer. A space of twelve (12) inches next the curb shall be coated with asphalted cement and the same

30 40 ironed into the pavement with hot smoothing irons, but not so hot as to injure the pavement.

All the materials and workmanship, as well as the plans and methods of manufacture, must be in every respect satisfactory to the Engineer. After the approval of the Engineer the asphaltic cement used under this contract must not be changed

EXHIBIT C-230 (*continued*):

as to the brand kinds, proportions and qualities of the ingredients, during the progress of the work, except with the special permission of the Engineer. In case of repairs, it shall be required that such repairs be made with a pavement mixture, and method of laying the same equal to that above described.

- 10 No pavement shall be laid during wet weather, or unless the surface of the foundation is perfectly dry, except by special permission of the Engineer, when showers occur while the material is in transit from the plant to the job, the materials may be laid if the foundation has been dried by artificial means, approved by the Engineer. All materials as well as the plan and methods of manufacture, shall be subject at all times to the inspection and approval of the Engineer of the Bureau of Highways or of such Engineer or Inspectors, as may be in charge of the work. Contractors shall furnish the Engineer with such information and assistance as may be required to obtain the proper amount and distribution of the materials used.
- 20

The Contractor must erect suitable barricades and prevent all unnecessary traffic over the work, but he must provide suitable passageway for such traffic as may be deemed necessary. Surplus material must be removed, and the road opened to traffic as soon as possible. The Contractor shall be responsible for its condition until final acceptance.

- 30 The Contractor agrees to keep his plant in working order. In case it becomes disabled through fire or accident he shall arrange within not more than ten (10) days thereafter for a temporary plant or for the use of another plant from which material may be obtained to complete the contract.

**SPECIFICATIONS FOR THE RESTORATION OF WATER
BOUND MACADAM PAVEMENT.**

- 40 The trench shall be excavated to a depth of not less than four (4) inches or to the depth of the existing macadam pavement, or more if any improper material is disclosed, and all loose stones in the macadam pavement adjacent to the trench shall be removed. The improper material shall be replaced by good acceptable material and thoroughly compacted. The trench shall then be compacted and brought to an even surface, over

EXHIBIT C-230 (*continued*):

its entire length and width, by either tamping, rolling, or flushing.

10 Broken stone, consisting of an equal mixture of two and one-half ($2\frac{1}{2}$) inch, and one and one-half ($1\frac{1}{2}$) inch broken trap rock shall then be laid in the trench to a depth of at least four (4) inches, or to a sufficient depth to make the finished pavement flush with the pavement adjacent to the trench, and to give it a contour conforming to the surface of the street.

Such of the old stone found in the old pavement which complies with the specifications, and which shall have been thoroughly cleaned, may be used.

20 The stone shall then be thoroughly rolled with a roller weighing not less than ten (10) tons, and sand shall be spread upon it and sufficient water used to insure the filling of the voids to within one-half ($\frac{1}{2}$) inch of the surface. The rolling shall be continued until all motion ceases in the mass. Then, all excess of sand shall be removed with brooms from the surface.

Tray rock screenings, complying with the following specifications shall then be added to the depth of one (1) inch or more and sufficient water used to insure the filling of the voids and the rolling shall be continued until all motion ceases in the mass.

30 Sand shall be composed of grains not softer than hard limestone. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ($\frac{1}{4}$) inch producing a mass with low percentage of voids. It shall not contain, in all more than eight (8) per cent by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1) per cent of organic.

TWO AND ONE-HALF ($2\frac{1}{2}$) INCH BROKEN STONE
(GRADED)

40 Broken stone shall be roughly cubical or pyramidal fragments hard, sound, durable and with sharp edge. It shall be free from dust, dirt, loam, disintegrated stone or foreign matter of any kind. The kind of stone, whether trap rock, granite or limestone, shall be as called for in the schedule.

EXHIBIT C-230 (*continued*):

SIZE

10 Two and one-half ($2\frac{1}{2}$) inch broken stone shall be the product of the crusher that will pass through a screen having square or circular openings three and one-quarter ($3\frac{1}{4}$) inches in diameter and be retained on screens with square or circular openings two and one-quarter ($2\frac{1}{4}$) inches in diameter.

ONE AND ONE-HALF ($1\frac{1}{2}$) INCH BROKEN STONE
(GRADED)

SIZE

20 One and one-half ($1\frac{1}{2}$) inch broken stone shall be the product of the crusher that will pass through a screen having square or circular openings two and one-quarter ($2\frac{1}{4}$) inches in diameter and be retained on a screen with square or circular openings one and one-eighth ($1\frac{1}{8}$) inches in diameter.

BROKEN STONE SCREENINGS.

SIZE

30 All screenings shall be the product of the crusher that will pass through a screen having square or circular openings five-eighths ($\frac{5}{8}$) inch in diameter. Not less than twenty (20) nor more than thirty (30) per cent by weight shall pass a twenty mesh sieve. Not more than fifteen (15) per cent by weight of stone dust shall pass a one-hundred (100) mesh sieve.

40

EXHIBIT C-230 (continued):

SPECIFICATIONS

TRENCHES

Length of trench.

- 10 1. Unless otherwise directed or permitted not more than
200 feet of any trench in advance of the end of the built sewer
shall be open at any time, and unless written permission to the
contrary is given, the trench shall be excavated to its full depth
for a distance of at least 20 feet more than the minimum length
of sewer permitted to be laid in it. (See paragraphs 127 and
154.) Trenches for house connection drains shall not be open on
both sides of the street at the same time, unless permission has
previously been given to close the street. Unless otherwise
directed each trench for basin connections and house connection
20 drains shall be fully excavated for its entire length before any
pipes are laid therein.

Sheeting and bracing.

2. Where necessary the sides of the trenches and excava-
tions shall be supported by adequate sheeting and bracing.
Steel sheeting may be used only where directed. Sheeting and
bracing will be paid for only when left in place by written
order, in which event the amount left in place will be paid
for at the contract price for such material. Unless specially
30 permitted sheeting against which concrete is placed shall not be
removed and will not be paid for. The Contractor will be held
accountable and responsible for the sufficiency of all sheeting
and bracing used, and for all damage to persons or property re-
sulting from the improper quality, strength, placing, maintaining
or removing of the same.

Sheeting in soft material.

- 40 3. Where the material to be excavated is of such a charac-
ter as to render it necessary, the sheeting shall be closely driven
and to such depth below the bottom of the sewer as may be
directed.

Tunneling.

4. All work shall be done in open trenches or excavations;
no tunneling shall be done except with the consent of the En-
gineer.

EXHIBIT C-230 (*continued*):

Trees and stumps.

5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

- 10 6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.

Roadway, sidewalks, etc., to be kept clear.

- 20 7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary a roadway not less than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in satisfactory condition, and the work shall at all times be so conducted as to cause a minimum inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

30 Surplus material.

8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the sewer, so much of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

Fence.

- 40 9. Where necessary a suitable fence shall be placed along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not

EXHIBIT C-230 (*continued*):

less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

Disposal of water from trenches.

10 11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

Cost to be covered.

20 12. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

EARTH EXCAVATION.

13. Earth excavation shall include the removal of all material other than rock as hereinafter defined.

Width of trench for sewers, etc.

30 14. The minimum widths of trenches in earth, for pipe sewers, basin connections, house connection and other drains not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of larger diameters 10 inches on each side of the pipe, exclusive of spurs and hubs; and all such trenches shall have a clear width equal to the maximum width of the cradles of the sewers to be laid in them, when such cradles are wider than the minimum widths herein specified. The minimum widths
40 of trenches in earth, inside the sheeting, for other sewers shall be the greatest external width of the structures, including the necessary forms, to be built therein.

15. Where a riser, manhole or other appurtenance or the foundation therefor extends beyond the exterior lines of the sewer or its foundation, the minimum excavation in earth, required for the same shall be that contained in a prism with vertical sides

EXHIBIT C-230 (*continued*):

and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for Basin manholes, etc.

- 10 16. The minimum dimensions of the excavation in earth, for brick basin manholes and inlets, shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above the foundation, but in all such cases the excavation shall be large enough to include for foundations for such structures shown on the plan. The excavation for concrete basin manholes, inlets and chambers shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

Depth of trenches.

- 20 17. The trenches shall be excavated to the depths required for the foundations of the sewers and appurtenances shown on the plan, and where the conditions are such as to make it necessary, to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

Cost to be covered.

- 30 18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

ROCK EXCAVATION.

19. Rock excavation shall include the excavation and removal of the following materials:

- 40 (a) Rock which shall be determined to be of such a character as to warrant its removal by blasting, in order to insure the prompt and proper prosecution of the work.
- (b) Boulders and pieces of rock, masonry in mortar and concrete, each of which contains 1 cubic yard or more, except the masonry and concrete of old sewers and their appurtenances.

EXHIBIT C-230 (*continued*):

20. Pieces of rock, masonry, concrete or boulders, which fall or slide into the trench from beyond the lines thereof, as herein defined, will not be measured, and the cost of the removal of the same shall be covered by all the contract prices for all the items for which there are contract prices.

Width of trench.

- 10 Rock excavation for basin manholes, etc.

20 21. The required width of trench in rock for pipe sewers, basin connections, house connection and other pipe drains will be such as to give a clearance of 1 foot on each side of the pipe, exclusive of spurs and hubs; the required width of trench in rock, for other sewers and drains, will be such as to give a clearance of 1 foot on each side of the structure to be built therein at its greatest external width. Where a riser, manhole or other appurtenance, or the foundation therefor, extends beyond the exterior lines of the sewer or its foundation, the excavation in rock required for the same will be that contained in a prism with vertical sides and a horizontal section 1 foot wider on each side than the smallest rectangle which will enclose such appurtenance and its foundation. The required dimensions of the excavation in rock, for basin manholes, inlets and chambers will be such as to give a clearance of 1 foot on all sides above their foundation.

Depth of trench.

- 30 22. The rock shall be excavated to the depths required for the cradles and foundations of the structures as shown on the plan.

Measurement.

23. The volume of rock to be paid for will be that contained in prisms with vertical sides and of such dimensions as to give the widths and clearances hereinbefore specified from the bottoms of the trenches, as specified, to the surface of the rock.

- 40 Rock stripped.

24. Rock shall be stripped in sections, which, unless otherwise permitted, shall be not less than 50 feet in length, and the Engineer shall then be notified in order that he may measure the same. Rock excavated or blasted before such measurement is made will not be paid for.

EXHIBIT C-230 (*continued*) :

Excavation for branches.

25. Wherever a branch for a proposed sewer or extension of a sewer is built in rock, the required trench shall be excavated for a distance of not less than 5 feet beyond the end of such branch, in the direction of the proposed sewer or extension.

10 **Blasting.**

26. All blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives. Any rock excavation within 5 feet of water main less than 36 inches in diameter, and within 10 feet of a water main 36 inches or more in diameter, shall be done with very light charges of explosive, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main.

20 **Exposed structures to be protected.**

27. All exposed sewers, manholes receiving basins and other structures shall be carefully protected from the effects of blasts. Any damage done to such structures shall be promptly repaired by the Contractor at his own expense.

Price to cover.

30 28. The contract price for rock excavation shall cover the cost of all labor and materials required to excavate and remove all rock as specified, and without regard to its subsequent use.

BACKFILLING.

Backfilling around sewers, etc.

40 29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the sewer, basin connection, house connection or other drain, the material for backfilling trenches as excavated, shall be clean earth, sand or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

EXHIBIT C-230 (*continued*):

Backfilling for remainder of trench.

- 10 30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This backfilling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

Backfilling around basin manholes, etc.

- 20 31. Backfilling within 2 feet of manholes, house connection drains, basin manholes, inlets and other structures shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

Puddling.

32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

30 Deficiency of filling.

34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

- 40 35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

EXHIBIT C-230 (*continued*):

Curves, branches, etc., not to be covered.

36. Basin connections, house and sewer connections and intersections, ends of sewers and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.

10 Removal of surplus material.

20 37. As the trenches are backfilled, the Contractor shall remove all surplus material and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of and until the final acceptance of the work, he shall maintain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the service upon him of a written notice so to do, the President may furnish all materials and do all work required, and the cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

30 Cost covered.

38. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

CEMENT.

40 39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

EXHIBIT C-230 (continued):

Specific gravity; weight.

40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212° F. It shall weigh not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

10 Fineness.

41. The cement shall be dry, finely ground, of uniform color and free for lumps. It shall leave a residue of not more than 8 per cent. by weight, when passed through a No. 100 sieve, and not more than 25 per cent. when passed through a No. 200 sieve.

Tensile strength.

20 42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table.

Neat Cement:

24 hours	175 pounds per sq. in.
7 days (1 day in moist air, 6 days in water)	500 pounds per sq. in.
28 days (1 day in moist air, 27 days in water)	600 pounds per sq. in.

30 Mortar consisting of 1 part cement and 3 parts of Standard Ottawa Sand, by weight:

7 days (1 day in moist air, 6 days in water)	180 pounds per sq. in.
28 days (1 day in moist air, 27 days in water)	225 pounds per sq. in.

40 The average of the tensile strengths developed at each age by the briquettes in any set made from one sample will be considered the strength of the sample at that age, excluding any results that are manifestly faulty. The average strength of briquettes at 28 days shall be greater than the average strength at 7 days, and if tests are made after 28 days the strength shall be not less than that at 28 days.

EXHIBIT C-230 (*continued*):

Soundness.

43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

Setting.

- 10 44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

Testing.

- 20 45. The cement will be subjected to such tests as the Engineer may deem necessary, and such tests will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers, except that the time of setting will usually be determined by means of the Gillmore needles. In case of dispute as to the time of setting, this test will be made by means of the Vicat needle.

Retesting.

- 30 46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

40 Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for testing. Samples will be taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

EXHIBIT C-230 (*continued*):

Delivery and storing.

- 10 49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and the name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it has been tested and accepted, and any concrete or masonry which may have been made under such permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.

Cost to be covered.

- 20 50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing, shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.

MORTAR.

- 30 51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and $2\frac{1}{2}$ volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.

Sand.

- 40 52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestones. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ($\frac{1}{4}$) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5%) per cent, by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1%) per cent. of organic matter.

Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

EXHIBIT C-230 (continued):

Mixing.

53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require retempering shall not be used.

Freezing weather.

54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.

Cost covered.

55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

CONCRETE.

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

Class A concrete.

57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken into roughly cubical or pyramidal fragments. Broken stone which contains dust, loam, clay, organic matter or other improper substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings $1\frac{1}{4}$ inches in diameter and shall be retained on a screen with openings $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as

EXHIBIT C-230 (*continued*):

containing 9/10 cubic foot, and the other ingredients shall be measured by an approved method.

Water.

59. Only clean fresh water shall be used for concrete.

Mixing.

10

60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required consistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about
20 6 inches deep and shall be thoroughly wetted. The cement and sand shall be mixed dry on a suitable platform, until the mixture has a uniform color. This mixture shall be spread evenly on the bed of wet stone, water added, and the entire mass turned until each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

30 Placing concrete.

40

61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with
40 suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted the concrete in the work, shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material. When a comparatively dry concrete is used it shall be deposited in

EXHIBIT C-230 (*continued*):

horizontal layers not exceeding 6 inches in depth and solidly tamped.

Joining old and new concrete.

- 10 62. When fresh concrete is to be laid on or adjoining concrete already set, the surface of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

Forms and centres.

- 20 63. The Contractor shall provide all necessary forms and centres for shaping concrete wherever used. They shall be true to the required shapes and sizes, strong enough and so secured in place as to withstand all operations incidental to placing the concrete, and watertight, and the faces against which the concrete is to be placed shall be satisfactorily smooth and clean. Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approval lubricant; when no lubricant is required such surfaces shall be thoroughly wetted just before the concrete is placed.

Removal of forms and centres.

- 30 64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so has been given.

Exposed surfaces.

- 40 65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections or other imperfections be found, such defects shall at once be corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

EXHIBIT C-230 (*continued*):

Freezing weather.

67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed, one per cent. by weight of salt shall be added to the water for each degree Fahrenheit that the temperature of the air is below 32 degrees Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 24 degrees Fahrenheit.

Protection.

68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before filling, backfilling or other material is placed upon or against it. It shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering as well as the concrete shall be kept wet for such time as may be directed.

Prices to cover

69. The cost of all concrete and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

BRICK MASONRY.

Quality of bricks.

71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location of the work in which they are to be used.

How laid.

72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and

EXHIBIT C-230 (*continued*):

10 side joints in one operation. The joints shall be not wider than $\frac{3}{8}$ inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed $\frac{1}{4}$ inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be racked back in courses, unless otherwise permitted.

Protection.

73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if required, it shall be sprinkled with water at such intervals and for such a time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if
20 directed, be removed and rebuilt.

Freezing weather.

74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

Cost of Brick Masonry.

75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract
30 price for the structure in connection with which it is used.

STEEL REINFORCEMENT BARS.

Shape.

90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bond with the concrete at frequent intervals and to insure intimate contact between the steel and concrete.

40 Samples.

91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

EXHIBIT C-230 (continued) :

Size.

92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

10 **Variation in weight.**

93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

Quality.

20 94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised Standard Specifications for Steel Reinforcement Bars adopted by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows :

Properties Considered	Structural Steel Grade		Cold Twisted Bars
	Plain Bars	Deformed Bars	
Phosphorus, max.			
Bessemer	0.10	0.10	0.10
Open Hearth	0.05	0.05	0.05
Ultimate Tensile Strength, pounds per sq. in.	55,000-70,000	55,000-70,000	Recorded only
Yield Point, minimum pounds per sq. in.	33,000	33,000	55,000
Elongation, minimum per cent. in 8 inches	1,400,000	1,250,000	5 per cent.
	tens. str.	tens. str.	
Cold bend without fracture :			
Bars under ¾ in. in diam. or thickness	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of 2t.
Bars ¾ in. in diam. or thickness and over ...	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 3t.

†: Nominal thickness or diameter of bar.

40 95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar when

EXHIBIT C-230 (*continued*):

being bent will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

Delivery and protection.

- 10 97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from dirt, scale-rust, paint and oil. Bars which are not to be embedded in concrete within a short time after being placed in the work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

Cutting and bending.

- 20 98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templets. When bars are cut and bent on the work, the Contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing.

- 30 99. All bars shall be as long as can be conveniently used, accurately bent, placed, spaced and jointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.
100. The cost of all steel reinforcement bars and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

WROUGHT IRON.

Quality.

- 40 101. Wrought iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation of at least 20 per cent. in 8 inches, and a fracture wholly fibrous. Specimens shall bend cold, with the fiber, through 180 degrees around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

EXHIBIT C-230 (*continued*):

Galvanizing.

102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

IRON CASTINGS.

Quality.

104. Iron castings shall be of the best foundry pig iron, gray, touch and free form cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The castings shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

Cost covered.

105. The cost of all labor and materials required to furnish coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

TIMBER SHEETING.

30 Quality, placing, etc.

110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of sufficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a manner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.

When paid for.

40 111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

Measurement.

112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by

EXHIBIT C-230 (*continued*):

10 written order, and will not include sheeting, dangers and braces left in place without such order, not sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by all the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

Price to cover.

113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to place the same

20

CONCRETE SEWERS.

(Type "A" or Sewer Department Standard)

Inverts.

122. Inverts of concrete sewers shall be formed between transverse templets and shall be screeded. The templets shall be placed at such intervals as to divide the invert into sections of suitable size for convenient construction, and unless otherwise permitted, the concrete shall be deposited in alternate sections and allowed to set before the remaining sections are built. Un-
30 less otherwise shown on the plan, a layer of mortar not less than 1/2-inch thick shall be spread evenly and to a smoothly finished surface upon the concrete of the invert as soon as such concrete is in place. Where the radii of inverts are too short to permit screeding between templets, the inverts shall be shaped by means of suitable forms, which shall be removed as soon as the concrete has a sufficient set, and if required, the surfaces of inverts shall be floated or troweled to a smooth finish. The concrete for in-
40 verts shall be deposited continuously for their entire cross sections and for such longitudinal distances as may be convenient. Inverts shall be carefully protected from all injury during progress of the work.

Side walls.

123. Concrete in the side walls of sewers shall be deposited continuously to the height directed and for such longitudinal distances as may be convenient.

EXHIBIT C-230 (*continued*):

Roof.

10 124. Concrete in the roofs of sewers shall be deposited continuously for the full depths and widths of the roofs and for such longitudinal distances as may be convenient. The outer surfaces of roofs shall be finished with an excess of mortar and left true and smooth. They shall be covered and protected as specified in paragraph 68, and such covering shall remain thereon until the backfilling or embankment is placed.

Bulkheads.

20 125. While being deposited the concrete for sewers shall be confined by temporary, vertical bulkheads placed at such intervals longitudinally as may be required for convenient working. The bulkheads shall be so designed as to give an approved shape to the end of the section of concrete under construction, shall be satisfactorily secured in place before the concrete is deposited, and shall remain in place until the concrete has set sufficiently to hold its shape.

Reinforcement.

126. Where shown on the plan concrete sewers shall be reinforced with metal of the dimensions and shapes shown, and of the quality and in the manner hereinbefore specified.

Minimum length of invert.

30 127. Unless otherwise permitted or ordered, not less than 16 feet of foundation or invert for concrete sewer shall be built at one operation.

Connections.

40 128. Connections and branches for lateral sewers and receiving basins shall be built in where shown on the plan or where directed. Such connections and branches shall be closed with bulkheads of brick masonry 8 inches thick unless otherwise shown on the plan. All necessary openings and bulkheads for branch sewers shall be built in concrete sewers where shown on the plan or where directed.

Measurements.

129. The lengths of concrete sewers will be determined by horizontal measurements, along their centre lines. No deductions will be made on account of openings at branches and manholes. The measurement of a branch concrete sewer will be made from the inner surface of the wall of the main sewer through

EXHIBIT C-230 (continued):

which it enters. A reducer will be paid for at the contract price for the sewer at the larger end thereof.

Price to cover.

10 130. The contract prices for concrete sewers shall cover the cost of all necessary excavation (except rock); of furnishing, maintaining and removing all forms, centres, templets and temporary bulkheads; of all openings and bulkheads; of all back-filling; and of all labor and materials required to construct concrete sewers as shown by the normal sections on the plan and as specified.

TYPE "B"

CEMENT CONCRETE PIPE WITH REINFORCEMENT

131. Reinforced cement concrete pipe used shall be circular in section with or without that base and shall conform in dimensions as shown in table.

20 General dimensions of pipes and minimum test load per lin. ft. of pipe.

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe
	24"	3 "	4'	3 "	3350 Lbs.
	27"	3 1/2"	4'	3 "	3700 "
	30"	3 1/2"	4'	3 "	4400 "
	33"	4 "	4'	3 "	4600 "
30	36"	4 "	4'	4 "	4800 "
	39"	4 "	4'	4 "	5200 "
	42"	4 1/2"	4'	5 1/2"	5600 "
	45"	4 1/2"	4'	5 1/2"	6100 "
	48"	5 "	4'	5 1/2"	6600 "
	51"	5 "	4'	5 1/2"	7050 "
	54"	5 1/2"	4'	5 1/2"	7500 "
	57"	5 1/2"	4'	5 1/2"	7750 "
	60"	6 "	4'	5 1/2"	8000 "
	63"	6 "	4'	5 1/2"	8400 "
40	66"	6 1/2"	4'	5 1/2"	8800 "
	72"	7 "	4'	5 1/2"	9400 "
	78"	8 "	4'	5 1/2"	10400 "
	84"	8 "	4'	5 1/2"	11200 "
	90"	8 1/2"	4'	5 1/2"	12000 "
	96"	8 1/2"	4'	5 1/2"	12800 "
	102"	9 "	4'	5 1/2"	13600 "
	108"	9 "	4'	5 1/2"	14400 "

EXHIBIT C-230 (continued):

Testing pipe.

Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes, for each size of sewer (reinforced concrete) shall be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering-Construction.

20 Material of pipe, cement, sand, stone or gravel.

132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform to the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be an accurate 1—2—4 mix. Each pipe be stamped as made with date of manufacture.

Joints.

133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ($\frac{1}{2}$) per cent from the hereinbefore mentioned dimensions will be permitted.

40 Jointing.

134. All joints to be made of 1:2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line making a continuous invert. After this has been done, steel forms especially designed for the purpose shall be placed over and around the entire joint, and the mortar for sealing the arch portion grouted or poured

EXHIBIT C-230 (*continued*):

through an opening in the crown of the pipe. Joints must be water-tight.

Laying pipe.

10 135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has not been seasoned for twenty-one (21) days, unless otherwise specially ordered by the Engineer-in-Charge of Engineering-Construction.

Steel for reinforcement.

20 136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Company's, or Clinton Wire Cloth. For all sizes of reinforced concrete pipe, reinforcing shall be at distances not less than one (1) inch from the surface.

Spurs.

137. Reinforced concrete pipe shall have openings to receive spur and branch connection wherever required by the plans. The openings shall be made in a manner satisfactory to the Engineer-in-Charge of Engineering-Construction.

Disposal of water from trenches.

30 138. The provisions of paragraph No. 11 of the specifications shall be in full force and effect, even through reinforced concrete pipe shall be furnished on this contract.

Rejection of defective pipe.

139. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench, shall be replaced and removed from site of the work at the expense of the contractors.

VITRIFIED PIPE SEWERS.

40 Vitrified pipe.

140. Vitrified pipe sewers shall be built of shale or clay hub and spigot pipes with deep and wide sockets. They shall be thoroughly and perfectly burned, without warps, cracks or other imperfections, and shall be fully and smoothly salt-glazed over the entire inner and outer surfaces, except that the inside of the hub and the outside of the spigot may be unglazed for two-thirds

EXHIBIT C-230 (continued) :

10 the depth of the hub. On all other portions of the pipe the glazing shall completely cover and form an integral part of the pipe body. If not left unglazed the inside of the hub and the outside of the spigot shall be scored in 3 parallel lines extending completely around the circumference. When it is broken, vitrified pipe shall show dense and solid material, without serious cracks or laminations; it shall be of such toughness that it can be worked with a chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

Identification marks.

141. Each pipe shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

Shape and dimensions.

20 142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows :

	Size	Length	Thickness	Depth of Socket	Annular Space
	6.....	2 feet	5/8 inch	2 1/2 inches	5/8 inch
30	8.....	3 "	3/4 "	2 3/4 "	5/8 "
	10.....	3 "	7/8 "	2 3/4 "	5/8 "
	12.....	3 "	1 "	3 "	5/8 "
	15.....	3 "	1 1/4 "	3 "	5/8 "
	18.....	3 "	1 1/2 "	3 1/4 "	5/8 "
	20.....	3 "	1 2/3 "	3 1/2 "	5/8 "
	22.....	3 "	1 5/6 "	3 3/4 "	5/8 "
	24.....	3 "	2 inches	4 "	5/8 "

Curves, bends, etc.

40 143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective sizes. Curved pipe, bends, siphons, and special pipe of the sizes and forms shown on the plan shall be furnished and laid, and unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

EXHIBIT C-230 (*continued*):

Samples for testing.

144. Any or all of the following tests may be applied to samples selected from the pipe delivered on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

10 Crushing tests.

145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures:

	Diameter	Pressure
20	6 inches	900 lbs. per lin. ft.
	8 "	900 " " " "
	10 "	1,000 " " " "
	12 "	1,050 " " " "
	15 "	1,250 " " " "
	18 "	1,400 " " " "
	20 "	1,550 " " " "
	22 "	1,750 " " " "
	24 "	1,950 " " " "

30 Drop weight test.

146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2 blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

Hydrostatic test.

40 147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

Absorption test.

148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken

EXHIBIT C-230 (*continued*):

edges shall not absorb more than 4 per cent. of their weight of water.

Factory rejection.

10 149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

Cradles.

150. In earth trenches pipe sewers shall be laid in concrete cradles when required by the plan. In rock trenches pipe sewers shall be laid in cradles of concrete, gravel or broken stone as shown on the plan.

20 Without cradle.

151. When the sewer is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

Concrete cradle.

30 152. When the sewer is to be laid in a concrete cradle, the concrete for the full width of the cradle shall be deposited continuously to the height of the outside bottom of the pipe. Before the concrete has set the pipe shall be evenly bedded therein and the remainder of the concrete immediately deposited and carefully tamped in such a manner as to avoid disturbing the sewer.

How laid.

40 154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with a smooth and uniform invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.

EXHIBIT C-230 (*continued*):

Gasket and mortar joints.

156. Gasket and mortar joints shall be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than $\frac{3}{4}$ -inch, and in one piece of sufficient length to pass around the pipe and lap at the top, shall be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket shall, if desired, be saturated with neat cement grout. The remainder of the space shall then be completely filled with plastic mortar mixed 1 to $1\frac{1}{2}$, and the joint wiped inside and finished to a smooth bevel outside.

Inspection of joints.

157. Unless otherwise permitted, at least 4 finished joints shall be left exposed for inspection throughout the working day, and the necessary staging for the protection of the exposed sewers and for the handling of excavated material shall be provided. A suitable ladder affording easy access for such inspection shall be furnished at every trench open for the proposed sewer.

Subgrade to be tested.

158. No pipe shall be laid or placed until the subgrade of the trench shall have been tested and found correct.

Sewer to be kept clean.

159. The interior of the sewer shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description.

Backfilling.

160. Immediately after the sewer is laid the trench shall be backfilled as provided in paragraphs 29 to 37 inclusive and 157. No walking on or working upon the completed sewer (except as may be necessary in tamping the backfilling) will be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the sewer.

Temporary covers.

161. The exposed ends of pipe sewers shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

EXHIBIT C-230 (*continued*):

Branch pipes.

162. Branch pipes and connection pipes shall be of the same quality and dimensions, and laid in the same manner as specified for vitrified pipe sewers. Dead ends of pipes shall be closed with bulkheads of brick masonry 8 inches in thickness.

10 Connection with existing work.

163. Wherever the proposed sewer is to connect with an existing manhole in which there is a branch pipe which is damaged or of unsuitable size or in improper position, such pipe shall be removed and be replaced with a pipe of suitable size or be reset in the proper position. The pipe so substituted or reset will be paid for at the contract price, for the corresponding size of pipe-sewer.

20 Pipes cut to fit masonry.

164. The ends of pipes which enter masonry shall be neatly cut to fit the face of the masonry. When directed, such cutting shall be done before the pipes are built in.

Measurement.

165. The length of pipe sewers to be paid for will be determined by horizontal measurements along their center lines, and no deductions will be made on account of openings at manholes.

30 Prices to cover.

166. The contract prices for vitrified pipe sewers shall cover the cost of all necessary excavation (except rock); of all necessary trimmings, fittings and building into masonry; of all bulkheads; of all backfilling; of all samples furnished; and of all labor materials required to furnish and lay the sewers complete in place, as shown on the plan and as specified.

BASIN CONNECTIONS.

40

177. The connections between inlets and basin manholes and between basin manholes and sewers or sewer manholes shall be of vitrified pipe of the size shown on the standard details on file in the Engineer's Office, Bureau of Engineering-Construction, Division of Sewers. The pipes shall be of the same quality and dimensions, and laid in the same manner as hereinbefore specified for vitrified pipe sewers.

EXHIBIT C-230 (*continued*):

Measurement.

178. The lengths of basin connections to be paid for will be determined by measurements along their axes.

Prices to cover.

10 179. The contract price for basin connections shall cover the cost of all necessary excavation (except rock); of all necessary trimming, fitting and building into concrete, or masonry; of all backfilling; and of all labor and materials required to furnish and lay the basin connections complete in place as specified.

SPURS FOR HOUSE CONNECTIONS.

20 180. Spurs for house connections shall be of vitrified pipe 6 inches in diameter, equal in quality and dimensions to that specified for vitrified pipe sewers.

In concrete sewers.

181. In concrete sewers spurs shall be built in as shown on the plan or as directed. They shall be hub and spigot pipes with the spigot end molded or cut to fit flush with the inner surface of the sewer, and of sufficient length to reach the exterior of the sewer.

30 In pipe sewers.

182. Pipes having 6-inch spurs with hubs molded thereon shall be furnished and laid in pipe sewers where shown on the plan or directed. Such pipes will be paid for at the contract prices for vitrified pipe sewers, and the spurs will be paid for in addition at the contract price for spurs.

Covers.

40 183. The ends of all spurs not connected with drains shall be closed with approved covers. If required such covers shall be cemented in place, and when directed the covers shall be so cemented before the pipes are lowered into the trench.

Price to cover.

184. The contract price for spurs shall cover the cost of all labor and materials required to furnish and place the same

EXHIBIT C-230 (*continued*):

as specified, and the cost of furnishing and cementing the covers for the same.

DRAINS FOR HOUSE CONNECTIONS.

10 185. Where shown on the plan or where directed, drains for house connections shall be built from the spurs in such a manner and for such distance as may be shown or directed.

Depth at curb.

186. House connections drains shall be laid with a minimum gradient of $\frac{1}{4}$ inch to a foot, and wherever possible the depth from curb grade to the inner bottom of the drain at curb line shall be at least 8 feet.

Material.

20 187. Unless otherwise shown on the plan, drains for house connections shall be of vitrified pipe of the quality and dimensions specified for vitrified pipe sewers. The ends of the drains shall be closed with approved covers.

How laid.

30 188. All the requirements, as hereinbefore specified, relating to excavation, laying and backfilling of vitrified pipe sewers shall apply, as far as they are applicable, to drains for house connections.

Measurement.

189. The lengths of pipe drains for house connections to be paid for will be determined by measurement along their axes.

Price to cover.

40 190. The contract price for drains for house connections shall cover the cost of all necessary excavation (except rock); the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to furnish and lay the drains for house connections complete in place, as specified.

RISERS.

191. Where shown on the plan or where directed risers for house connections shall be built from the spurs in such a man-

EXHIBIT C-230 (*continued*):

ner and to such height as may be shown or directed. Unless otherwise shown on the plan they shall be of vitrified pipe of the quality and dimensions hereinbefore specified for vitrified pipe sewers. They shall be supported and surrounded by concrete as shown, and each shall be closed with an approved cover.

Measurement.

- 10 192. The lengths of risers to be paid for will be determined by measurements along their axes.

Price to cover.

- 20 193. The contract price for risers shall cover the cost of all necessary excavation (except rock); the cost of all concrete used in connection with the risers; the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to construct the risers complete in place, as specified.

MANHOLES.

- 30 194. The masonry or concrete for manholes shall be built to within such distances of the existing surface of the ground as directed. When not built up to within 13 inches of the established grade of the street, the masonry or concrete shall be covered with an approved reinforced concrete slab to support the head.

Brick manholes.

195. Brick manholes shall be formed by means of templets placed at top and bottom with not less than 8 lines drawn between them, and they shall be smoothly and evenly plastered on the outside with a layer of mortar $\frac{1}{2}$ inch thick.

Concrete manholes.

- 40 196. Concrete manholes shall be built of the materials, sizes and dimensions shown on the plan.

Steps.

197. Galvanized wrought iron steps of the size and shape shown on the plan shall be firmly built into the manholes at vertical intervals of about 16 inches.

EXHIBIT C-230 (*continued*):

Head and cover.

10 198. The manhole head and cover shall be of cast iron, and unless otherwise shown on the plan, each head, exclusive of cover, shall weigh not less than 500 pounds and each cover shall weigh not less than 160 pounds. The weight of each head and cover shall be conspicuously painted thereon by the manufacturer with white oil paint. The head shall be set on the masonry or concrete in a full bed of stiff mortar.

Price to cover.

199. The contract price for manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all plastering; of all bluestones; of all concrete slabs; of all steps; and of all labor and materials required to construct the same complete, in place, as shown on the plan and specified.

20

BASIN MANHOLES

Brick basin manholes.

200. Brick basin manholes shall be formed by means of templets placed at top and bottom with not less than 10 vertical lines drawn between them.

30 201. Where the walls of brick basin manholes are not built of two rings of brickwork with a mortar layer between, the inside of the brickwork shall be smoothly and even plastered with a layer of 1 — 2 Portland cement mortar $\frac{1}{2}$ inch thick.

202. Where the wall of the basin manhole consists of two rings of brickwork, with a mortar layer between, the outer ring shall be carried up not less than 1 foot in advance of the inner ring, and the inner surface of the former shall be plastered with two coats of mortar. The second coat of mortar shall be applied before the first is set, and the total thickness of the mortar layer shall be 1 inch.

40

Concrete basin manholes.

203. Concrete basin manholes shall, if required, be built in such a manner that the bottom and sidewalks shall be formed in one continuous operation. Concrete basins shall be coated with a grout of neat cement on the inside.

EXHIBIT C-230 (*continued*):

Concrete cover slabs.

204. Concrete cover slabs of basin manholes shall be built of Class "A" concrete, reinforced as shown on plan.

Head cover and trap.

10 205. The basin manhole head and cover shall be of cast iron, as shown on plan, and known as a Standard Sidewalk Manhole Head and Cover. Each head exclusive of cover shall weigh not less than 260 pounds and each cover shall weigh not less than 100 pounds. An iron hood or trap, of the size and dimensions shown on the plan, must be furnished by the Contractor for each basin manhole and is to be built into the basin manhole, as shown on plan.

Restoration of sidewalks, curbs, etc.

20 206. All sidewalk pavements and curbs, disturbed by the construction of basin manholes, shall be restored by the Contractor in accordance with the specifications for similar work of the Bureau of Highways.

Price to cover.

30 207. The contract price for basin manholes shall cover the cost of all necessary excavation (except rock); of all back-filling; of all sidewalk and curb restorations and of all labor and materials required to construct the basin manholes complete in place, as shown on the plan and specified.

INLETS.

208. Inlets and the heads therefor shall be of the materials, forms and dimensions shown on the plan. The specifications for brickwork and concrete shall be those hereinbefore specified for basin manholes.

40 Heads.

209. The head shall be of cast iron and shall conform in all respects to the specifications for iron castings. If required, the inlets shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

EXHIBIT C-230 (*continued*):

Restoration of roadway pavements, etc.

210. All roadway pavements, sidewalk pavements and curbs, disturbed by the construction of inlets, except those under guarantee for maintenance shall be restored by the Contractor in accordance with the specifications of the Bureau of Highways for similar work or specifications hereafter attached. In unpaved streets and macadamized streets where the inlets are approximately at the surface of the street a space of two and one-half ($2\frac{1}{2}$) feet adjoining such inlets shall, if required, be paved with approved paving blocks.

Price to cover.

211. The contract price for inlets shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlets, when required; of all roadway, sidewalk and curb restorations; of all labor and materials required to construct the inlets, complete in place, as shown on the plan and specified.

RESTORATION OF SURFACE AND CLEANING UP.

Restoration of unpaved roadways, sidewalks, etc.

219. At such time as may be directed, all unpaved roadways, gutters and sidewalks affected by the work done under this contract shall be restored by the Contractor to the same condition in which they were at the time of the opening of bids for this contract.

Pavements, etc., restored by Contractor.

220. If required by the plan, roadway and sidewalk pavements, crosswalks, curbs, etc., shall be satisfactorily restored and adjusted by the Contractor at such times as may be directed. Sidewalk pavements shall be restored in whole flags, squares or sections which shall correspond in quality and appearance with the original or adjoining flags, squares or sections. All work and materials used in such restoration and adjustment shall conform in all respects to the standard specifications now in use by the President for similar work and materials.

EXHIBIT C-230 (*continued*):

Temporary restoration.

222. At such times as may be directed roadway and sidewalk pavements, crosswalks, curbs, etc., which have been removed, whether under guarantee or not, shall be temporarily restored by the Contractor to the satisfaction of the Engineer.

10 When new pavement is laid.

223. If pavement, sidewalks, crosswalks, curbs, etc., are laid where none existed at the time the bids for this contract were opened, the Contractor shall excavate and remove such portions of the pavements, sidewalks, crosswalks, curbs, etc., and their foundations as may be necessary for the prosecution of the work, but he will not be required to make a permanent restoration of them.

20 Trenches flooded.

224. Before laying any pavements, sidewalks, crosswalks, curbs, etc., the trenches shall, if required, be flooded with water, as directed, and all resulting holes or depressions shall be filled and tamped solid.

Cleaning up.

30 225. At such times as may be directed the Contractor shall remove from the streets, all materials which were placed thereon by him as a consequence of performing this work and which are not required by the contract to be left as part of the finished work. The entire work and portions of the streets affected thereby shall be left in a satisfactory condition. The sidewalks and crosswalks shall be swept clean of all material which may have come thereon by reason of the work under this contract, and if required, they shall be sprinkled with water during the sweeping.

Cost to be covered.

40 226. The cost of all the labor required to be done and all the materials required to be furnished in the performance of all the work specified in paragraphs 219 to 225 inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

EXHIBIT C-231:

EXHIBIT C-231.

*(Contract between The City of New York and Carmine Petracca,
for the construction of a sewer and appurtenances in Ormond
(27th) St. Third Ward of the Borough of Queens,
This 3rd day of August, 1920).*

10

AGREEMENT made this 3rd day of August 1920, between
THE CITY OF NEW YORK, hereinafter called "THE CITY"
and CARMINE PETRACCA, of 218 Skillman St., Brooklyn,
N. Y., hereinafter called the "CONTRACTOR";

WHEREAS, under date of July 9, 1920, a contract was
entered into between the City, designated as #54,124:

20

For the construction of a sewer and appurtenances in
ORMOND (27th) St. from Crocheron Av. to the crown
about 350'0" N. of Crocheron Av.

NORWOOD (26th) St. from Crocheron Av. to State St.

MILLIARD (25th) ST. from Crocheron Av. to State St.

LAWSON (24th) ST. from Crocheron Av. to State St.

KENDALL (23rd) ST. from State St. to a property line
730'0" N. thereof

JOSLIN (22d) ST. from Jackson Av. to Mitchell Av.

30

INKERMAN (21st) ST. from State St. to Mitchell Av.

HOOGLAND (20th) ST. from Jackson Av. to Mitchell Av.

GRENELL (19th) ST. from Jackson Av. to Mitchell Av.

FORBES (18th) ST. from State St. to Mitchell Av.

EAGLES (17th) ST. from Jackson Av. to Mitchell Av.

DUNSING (16th) ST. from Mitchell Av. to a point about
370'0" S. of Mitchell Av.

CLARENCE (15th) ST. from Mitchell Av. to a point about
300'0" S. of Mitchell Av.

40

JACKSON AV. from Joslin (22d) St. to Forbes (18th) St.
STATE ST. from Norwood (26th) St. to Dunsing (16th)
St.

MITCHELL AV. from Inkerman (21st) St. to Beekman
(14th) St. and in

CROCHERON AV. from Joslin (22d) St. to Ormond
(27th) St., Third Ward; and

EXHIBIT C-231 (*continued*) :

WHEREAS, the Contractor has requested that the contract be modified so that the partial payments may be made for reinforced concrete pipe delivered on the line of the work, and that said modification will expedite the work by getting all of the precast pipe on the site of the work, so that the contractor may start in several sections at once.

10 WHEREAS, paragraph VIII of the Contract provides :

 “This contract may be modified and changed from time to time, as may be previously agreed to in writing, between the parties hereto in a manner not materially affecting the substance thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.”

20 1. NOW, THEREFORE, it is agreed that contract #54,124, dated July 9, 1920, be and the same is hereby modified to provide that 85% Progress Payments may be made to the Contractor for present pipe actually delivered on the site of the work and other work performed and accepted by the Engineer in accordance with the following schedule of prices.

30 2. No payment will be made by The City for any precast pipe so delivered but not incorporated in the sewer structure or for any other work performed until the contractor shall have furnished to the President of the Borough of Queens and The Comptroller of The City of New York satisfactory evidences that the contractor is the sole owner of such material free and clear from all liens or other encumbrances, said material upon being estimated for payment shall become the property of The City. The Contractor shall not be relieved from responsibility for said material and protection thereof by reason of said payments, and he shall make good loss or damage thereto and shall be responsible for the entire work until the same is finally accepted by The
40 City, as provided in the contract.

 3. This agreement shall take effect if, and only when, the written consents of the sureties upon said contract are obtained and attached hereto.

EXHIBIT C-231 (continued) :

SCHEDULE OF UNIT PRICES TO BE USED IN MAKING
UP 85% CERTIFICATES

	1,222 lineal feet 5'0" Reinforced Concrete		
	Pipe Sewer	@ \$61.00	-- 74,542.00
	Precast Pipe Delivered	27.00	
10	Excavation, laying, joints, backfill, etc.	34.00	61.00
			<hr/>
	251 lineal feet 2'9" Reinforced Concrete		
	Pipe Sewer	@ \$19.00	— 4,769.00
	Precast Pipe Delivered	10.50	
	Excavation, laying, joints, backfill, etc.	8.50	19.00
			<hr/>
	260 lineal feet 2'3" Reinforced Concrete		
	Pipe Sewer	@ \$18.00	— 4,680.00
20	Precast Pipe Delivered	9.50	
	Excavation, laying, joints, backfill, etc.	8.50	18.00
			<hr/>
	260 lineal feet 2'3" Reinforced Concrete		
	Pipe Sewer	@ \$15.00	— 3,900.00
	Precast Pipe Delivered	7.00	
	Excavation, laying, joints, backfill, etc.	8.00	15.00
			<hr/>
30	1,780 lineal feet 24" Reinforced Concrete		
	Pipe Sewer	@ \$11.00	— 19,580.00
	Precast Pipe Delivered	3.75	
	Excavation, laying, joints, backfill, etc.	7.25	11.00
			<hr/>

ALL OTHER ITEMS TO BE PAID FOR AT THE PRICES BID.

40 IN WHITNESS WHEREOF, the parties hereto have
executed this AGREEMENT, the day and year first above
written.

FRANK X. SULLIVAN,
President of the Borough of Queens,
For the City of New York.

CARMINE PETRACCA,
Carmine Petracca.

EXHIBIT C-231 (*continued*) :

Approved as to substance subject to approval as to form
by the Corporation Counsel.

H. PRIAL,
D. C.

10 The undersigned, United States Fidelity & Guaranty Com-
pany, Royal Indemnity Company and the New Amsterdam
Casualty Company, sureties upon the bond mentioned and des-
cribed in the foregoing agreement, do hereby consent to the
execution and delivery thereof by CARMINE PETRACCA and
hereby agree to be bound by the terms of our said original bond
executed and delivered therein.

Dated, August 2, 1920.

20 United States Fidelity and Guaranty Co.,
By ALONZO GORR BARCLAY,
Attorney-in-fact

Attest: WM. PIMBACHT,
Attorney-in-fact

30 Royal Indemnity Company,
J. P. HUNTING,
Resident Vice-President.

FRANK J. SAYLER,
Asst. Secretary.

New Amsterdam Casualty Company,
By THOMAS LINDMAN,
Vice-President.

40 Attest : WM. L. MCGINTY,
Assistant Secretary.

Approved and sworn, Aug. 26, 1920.

.....
Acting Corporation Counsel.

EXHIBIT C-72:

EXHIBIT C-72.

(Cheque to O'Rourke Eng. Construction Co. signed by City of New York, on October 11th, 1920).

10 Finance Document
Voucher No. 108295 No. 762615
Contract No. 52633 Department P. Q. Warrant No. 118285
Code No. C FM 25

THE CITY OF NEW YORK,
Department of Finance

20

Comptroller's Office, Oct. 11, 1920

The Chamberlain of the City of New York

Pay to the order of O'Rourke Engineering Constr Co. \$13,790.40
Thirteen Thousand Seven Hundred Ninety 40-100 Dollars
for acct contract

30 I hereby certify that this warrant is drawn in compliance
with sections 195 and 199 of the charter, and that there is an un-
expended balance in the account or fund against which this war-
rant is drawn sufficient to meet the amount thereof.

Countersigned

Chief Clerk for Mayor.

For Comptroller.

40 This warrant is to be paid only by check on the City Treasury.
Signed by the Chamberlain to the order of the payee.

EXHIBIT C-72 (*continued*):

EXHIBIT C-68:

Chapter 466, Laws of 1901 as am'd

The Chase National Bank of the City of New York

Pay out of

The City Treasury

10 *the amount of the above Warrant to the order of the payee named therein*

A. A. ROLNISON,

For the Chamberlain.

Bureau of audit O. C.

Auditor of disb. B. J. N.

PAY TO THE ORDER OF

20

United States Mortgage & Trust Co.

O'ROURKE ENGINEERING CONSTRUCTION CO.

RECEIVED PAYMENT

Through the New York Clearing House

Oct. 14 1920

endorsements guaranteed

30

UNITED STATES

MORTGAGE & TRUST COMPANY

EXHIBIT C-68.

(*Re Cheque \$3500.00.*)

No. A 1405.

40

Edward R. Rowand

Oct. 15, 1920.

3500.

William F. Matthews

1694

Taken out to Corporation Counsel's Office.

1/6/21

A. CARDOS.

EXHIBIT C-67:

EXHIBIT C-67.

(85% Certificate Paid to O'Rourke Engineering Construction Company, re Linden Street, Oct. 27, 1920, \$29,725.35.)

UNITED STATES MORTGAGE & TRUST COMPANY

10

Capital and Surplus \$6,000,000

Fifty Five Cedar Street

	John W. Platten	President
	Chauncey H. Murphey,	Vice President
	Calvert Brewer,	Vice President
	Frank J. Parsons,	Vice President
	Joseph Adams,	Vice President
	Henry L. Servoss,	Vice President
20	William T. Law	Vice President
	George C. Hoffman,	Treasurer
	John A. Hopper,	Secretary
	T. W. B. Middleton,	Asst. Secretary
	Harry W. Hadley,	Asst. Treasurer
	Arthur W. Keevil,	Asst. Secretary
	Thomas F. Bennett,	Asst. Treasurer
	Robert F. Brown,	Asst. Secretary

30

BRANCH OFFICES

Broadway at 73rd St.
Madison Ave. at 75th St.
125th Street at 8th Ave.

New York, Nov. 30, 1920.

Comptroller City of New York,
Municipal Building,
New York City.

Dear Sir:

40 Kindly deliver to bearer your check for \$29,725.35 drawn to the Order of the O'Rourke Engineering Construction Company and endorsed by them to our order.

Thanking you in advance, I am

Very truly yours,

JOSEPH ADAMS,
Vice President.

EXHIBIT C-67 (continued) :

After 5 days return to
United States Mortgage & Trust Co.,
55 Cedar Street,
New York, N. Y.

10 Comptroller City of New York,
Municipal Building,
New York City.
Room 636

SAFE DEPOSIT VAULTS

THE CITY OF NEW YORK

20 Office of
THE PRESIDENT OF THE BOROUGH OF QUEENS
Bureau of
Engineering—Construction

Long Island City, October 26, 1920.

Hon. Maurice E. Connolly
President of the Borough of Queens.

30 Sir:—

I have examined, approved and herewith transmit 85%
Certificate in the amount of \$29,725.35, on

“Contract No. 52633, for sewers &c., LINDEN
STREET from 32nd (Myrtle) Ave. to 35th Ave. (Statc
St.), Third Ward.”

40 This certificate is made out in the name of O'Rourke
Engineering Construction Co., 17 Battery Place, New York City,
who is the contractor.

This payment is made up in accordance with the schedule
of prices agreed upon March 5, 1920.

In so far as the requirements of the contract relate to the
present development of the work, its terms have been complied
with, and I hereby certify that the contractor is entitled to the
payment.

EXHIBIT C-67 (continued) :

I recommend that this certificate be forwarded for payment.

Yours very truly,

3669

JAMES RICE,

Engineer in Charge,

Engineering-Construction.

10

JR-PJH

encls

Telephone, 5400 Hunters Point

THE CITY OF NEW YORK

Office of the

20

President of the Borough of Queens

Bureau of Sewers

Maurice E. Connolly, President of the Borough

John R. Higgins, Superintendent

Queens Subway Building

HT/KAI Long Island City, N. Y., October 25, 1920.

30

The Honorable Maurice E. Connolly,
President of the Borough of Queens.

Sir:

Herewith please find 85% certificate, partial payment #11 on contract #52,366, O'Rourke Engineering Construction Company, 17 Battery Place, New York City, Contractor:

For constructing a sewer and appurtenances in

40

LINDEN ST. from 32d (Myrtle) Av. to 35th Av. (State St.);

35TH AV. from Linden St. to Prince St.;

PRINCE ST. from 35th Av. to 36th Av. (Warren St.) and trunk (low level) sewers, etc. in

PRINCE ST. from 36th Av. to 37th Av. (Washington St.), etc., etc., Second Ward.

This contract has not been modified in any way.

EXHIBIT C-67 (continued):

The quantities given in this estimate are the amounts as turned in by the engineer in charge of this work, who states:

“I have personally checked the measurements and computations for the above quantities and they are a true and correct statement of the quantities in the work.”

10 The contract time is 350 working-days. About 45% of the work has been performed and 39% of the contract time consumed.

This payment is made up in accordance with the schedule of prices agreed upon March 5, 1920.

The contractor is entitled to this payment.

Yours respectfully,

HAROLD TAIT,
Engineer of Sewers.

20

STATE OF NEW YORK
CITY OF NEW YORK s.s.:
COUNTY OF QUEENS

O'ROURKE ENGINEERING CONSTRUCTION CO.,
being duly sworn deposes and says that on January 19, 1920, they
30 entered into a contract with the City of New York, designated by
the number 52633.

40 For the construction of a sewer and appurtenances
in LINDEN ST. from 32nd (Myrtle) Ave. to 35th Ave.,
(State St.) in 35th Ave., from Linden St., to Prince St.,
in PRINCE ST. from 35th Ave., to 36th Ave., (Warren
St.) and trunk (low level) sewers etc. in PRINCE ST.
from 36th Ave., to 37th Ave. (Washington St.) in 37th
Ave., from Prince St., to Lawrence St., in LAWRENCE
ST. from 37th Ave., to 40th Ave. (Amity St.) and lateral
(high level) sewers &c. in PRINCE ST., from 36th Ave., to
a point 35' South therefrom in 37th Ave., from Prince St.,
to a point about 20' westerly therefrom and from the sum-
mit about 380' easterly from Lawrence St., to Lawrence
St., and in LAWRENCE ST. from 37th Ave., to 40th Ave.,
Third Ward.

EXHIBIT C-67 (continued):

That on or about Oct. 23, 1920, they have placed on the work 328 Lin. Ft. of 7'3" Concrete Tunnel Precast Block Delivered making a total up to date of 470 Lin. Ft.

That they are the sole owners of the above amount of Concrete Block Tunnel and that to the best of their knowledge and belief no liens or other incumbrances have been entered against this Concrete Block Tunnel or other material in this contract.

O'Rourke Engineering Construction Co.

HENRY R. ALKER,
Vice-President.

Sworn to before me this
25th day of October, 1920.

P. W. TURNER,
Notary Public, Westchester County
Certificate filed in N. Y. Co. No. 29
Register's No. 1161
Commission expires March 30, 1921.

PAYMENT VOUCHER

CONTRACT

85 PER CENT. CERTIFICATE

By the President of the Borough of Queens,

BUREAU OF SEWERS

Dated Oct. 25th, 1920.

Contract No. 52633

The City of New York, Dr. Lgr. 5 p. 60 Certificate No. 11

To O'Rourke Engineering Constr. Co. #17 Battery Pl., N. Y.
City, Contractor.

For work done in the matter of Contract for sewers &c. LINDEN ST. from 32nd (Myrtle) Ave. to 35th Ave. (State St.) in 35th Ave. fr. Linden St. to Prince St.; in PRINCE ST. fr. 35th Ave. to 36th Ave. (Warren St.) & trunk (low level) sewers &c. in PRINCE ST. fr. 36th Ave. to 37th Ave. (Washington St.) in 37th Ave. fr. Prince St. to Lawrence St.; in LAWRENCE ST.

EXHIBIT C-67 (continued):

from 37th Ave. to 40th Ave. (Amity St.) & lateral (high level) sewers &c. in PRINCE ST. fr. 36th Ave. to a point about 35' south therefrom, in 37th Ave. fr. Prince St. to a point about 20' westerly therefrom &c., Third Ward. Executed Jan'y 19th, 1920.

Charge to account of STREET IMPROVEMENT FUND.

10 Registered Jan'y 29th, 1920.

Under the Greater New York Charter, Code No. C. F. M. 25. Estimated Contract Cost, \$876,061.80.

	Total Quantity Previously Certified	Final Total Quantity	Item of Work	Price \$ Cts.	Amount Dollars Cts.
	2115	2115	Lin. Ft. 8'0" Precast Pipe deliv'd. for Double Bbl. Sewer	\$ 80.00	\$169,200.00
20	860	860	Lin. Ft. 8'0" Dbl. Bbl. Cir- cular Precast Pipe Sewer- Excavation, laying &c. . .	102.50	88,150.00
	136	136	Lin. Ft. 7'3" Precast Pipe delivered	35.00	4,760.00
	142	470	Lin. Ft. Concrete Blks. deliv'd. for 7'3" Tun. S. .	72.00	33,840.00
		15	Lin. Ft. Excavation, laying &c. on 7'3" Tun. S.	83.00	1,245.00
30	560	1450	Cub. Yds. Excavation on Tunnel Shaft #2	9.00	13,050.00
	500	500	Cub. Yds. Excavation on Tunnel Shaft #3	14.00	7,000.00
	1500	1650	Cub. Yds. Excavation on Tunnel Shaft #4	14.00	23,100.00
	1708	1708	Cub. Yds. Concrete, Class "A"	20.00	34,160.00
	96	96	Cub. Yds. Concrete on Tun- nel Shaft #3	16.00	1,536.00
40	264	264	Cub. Yds. Concrete on Tun- nel Shaft #4	16.00	4,224.00
	66000	66000	Lbs. Reinf. Steel for retain- ing Walls &c. ....	.10	6,600.00
	4700	4700	Lbs. Reinf. Steel deliv'd. for Tunnel Shaft #1 ....	.05	235.00
	53000	53000	Lbs. Reinf. Steel deliv'd. for Tunnel Shaft #2 ....	.05	2,650.00

EXHIBIT C-67 (continued):

11700	11700	Lbs. Reinf. Steel deliv'd. for Tunnel Shaft #3 . . . .	.05	585.00
42700	42700	Lbs. Reinf. Steel deliv'd. for Tunnel Shaft #4 . . . .	.05	2,135.00

I have examined this claim and certify that it is correct as to calculations, extensions, prices, proper certification, and is
10 ON ACCOUNT of Contract No. 52633.

GEORGE W. MARTIN,
Examiner.

	Total Amount of Contract to date		\$392,470.00
	Deduct Fifteen (15) per cent. Retained \$	58,870.50	
	Deduct Total Amount Heretofore Certi- fied	303,874.15	
	Total Deduction	362,744.65	362,744.65
20	Balance due, Twenty nine thousand, seven hundred twenty five 35/100 Dollars		\$ 29,725.35

I Hereby Certify that I have carefully made the above estimate in the manner required by the Contract, and that the work done and the materials delivered and estimated are in conformity with the Contract and Specifications therefor.

Approved Oct. 25, 1920. Date Oct. 25, 1920.

30	HAROLD TAIT, Engineer of Sewers, Borough of Queens.	THOMAS J. CLARKE, Assistant Engineer, Borough of Queens.
----	---	--

I Hereby Certified that I have examined the above account and believe it to be correct; that the prices charged are in accordance with the terms of the above-mentioned Contract; and that such services as are therein specified have been properly performed according to the certificates of the officers of this Department duly appointed to supervise the same.

40 Correct: Oct. 26, 1920.

.....
Chief Clerk, General Administration.

Date Oct. 27th, 1920.

FRANK X. SULLIVAN,
Acting President of the Borough of Queens.

EXHIBIT C-67 (continued):

DEPARTMENT OF FINANCE

I certify that the work is sufficiently advanced to warrant this payment.

10/29/20. Inspector, Department of Finance.

10 No liens, assignments or other incumbrances filed.
J. N. C. 11/1/20.

No liens, assignments or other incumbrances filed.
J. N. C. 11/30/20.

CERTIFICATE OF AUDITOR OF ACCOUNTS

Auditing Bureau

20

Nov. 4, 1920.

I hereby certify to the Comptroller that I have examined, audited, revised and settled this account for the sum of \$29,725 35/100.

30 I find that the expenditure was duly authorized by an executed contract registered in this office as No. 52633 the terms of which are properly certified to have been fully complied with. The prices charged are as fixed therein. The warrant is correctly drawn and payment should properly be made from the fund shown thereon.

P. J. O'CONNELL,
Auditor of Accounts.

New York, Nov. 30, 1920.

40 RECEIVED from the Comptroller of The City of New York, Warrant No. for the sum of Dollars, in payment. of above account.

O'Rourke Engineering Construction Co.,

by John F. O'Rourke, President.
Contractor.

U. S. M. & T. Co.,
Per F. W. DOBLER.

To be signed in triplicate.

EXHIBIT C-67 (*continued*):

EXHIBIT C-233:

11th. Payment.

1920 C Warrant No. 132210
Dept. File No. Voucher No. 378
10 Date Oct. 27, 1920. Amount, \$29,725.35

Charge to account of
STREET IMPROVEMENT FUND

Code No. C. F. M.-25.

85 PER CENT. CERTIFICATE

O'Rourke Eng. Constr. Co., Contractor, for sewer and appur-
tenances in LINDEN STREET, from Myrtle Avenue to State
Street &c., Third Wd.

20. PRESIDENT OF THE BOROUGH OF QUEENS
Bureau of Sewers.

EXHIBIT C-233.

30 (*Deposit Slip of John M. Phillips, Dec. 13, 1920, \$5,000.00, in the
handwriting of Andrew Zorn, in Italian Discount and
Trust Company.*)

Deposited to the Account of

JOHN M. PHILLIPS

in the

ITALIAN DISCOUNT AND TRUST COMPANY

Broadway and Walker Street

40 New York, Dec. 13, 1920.

	Dollars	Cents
Specie		
Bills		
Coupons		
Checks Expense Tr.	5,000	00

EXHIBIT C-215:

EXHIBIT C-69:

EXHIBIT C-215.

(Statement Myrtle Avenue Sewer, John M. Phillips to Angelo Paino & Co., Dec. 6, 1920.)

10

STATEMENT—Myrtle Avenue Sewer

December 6, 1920.

John M. Phillips, Dr.

to

Angelo Paino & Company, Cr.

20	4500'	— 8'0"	Precast Concrete Pipe at \$35.	\$157,500.00
	824'	— 7'0"	“ “ “ “ 32.	26,368.00
	3600'	— 15"	Pressure Pipe “ 3.50	12,600.00
	2796'	— 12"	“ “ “ 2.75	7,689.05
				<u>\$204,157.05</u>
			Previous Payments	159,532.00
			Balance	<u>\$ 44,625.05</u>

30

RECEIVED PAYMENT

JOHN M. PHILLIPS.

EXHIBIT C-69.

(Re Cheque \$5000.00.)

40

No. 938

Dec. 8, 1920.

William F. Matthews \$5,000.00

\$5,209.33

Taken to corporation counsels office.

A. CARDOS.

1/6/21

EXHIBIT C-218:

EXHIBIT C-218

10 (Contract between The City of New York and Angelo Paino,
for the construction of a sewer and appurtenances in 76th St Lott
Ave from 88th Ave (Syosset St.) to Jamaica Ave 77th (Rector)
St. from 90th Ave (Clinton Pl) to Jamaica Ave 87th Road (2d
St.) from 78th St. (Snediker Ave) to 80th St. (Shaw Ave 88th
Ave (3d St.) from 76th St. (Lott Ave) to 80th St. (Shaw Ave)
88th Road 4th St.) from 78th St. (Snediker Ave) to 85th (Yar-
mouth) St. 89th Ave (5th St. from 78th St. (Snediker Ave to a
point 100 ft east of 86th (Ferry) St.; 90th Ave., (6th St., from
77th (Rector) St. to 84th (Digby St. 90th Road (7th St.) from
78th St (Snedick Ave to 84th (Digby) St 91st Ave., (8th St. Ful-
ton St.) from 78th St. (Snediker Ave. to 89 Street) Ocean View
20 Ave. etc 4th Ward ,together with all work incidental thereto.
Part 2 Item D." On August 18, 1921).

ANNEXES TO CONTRACT

30 THE CITY OF NEW YORK — DEPARTMENT OF FINANCE
Office of the Comptroller

CONTRACT SUMMARY

Contractor ANGELO PAINO No. 58251
Names of Sureties The U. S. Fidelity & Guaranty Co.
40 Amount of Bond \$29,000.00

Date of award: Aug. 18, 1921; Department Pres. Boro of Queens;
Date of contract Aug. 31, 1921; Borough; Date of expiration;
Date of Filing Aug. 26, 1921; Damages; Per day; Date paid in
full, 8/12/22.

EXHIBIT C-218 (continued):

DESCRIPTION OF WORK

76th St. Lott Ave from 88th Ave (Syosset St.) to Jamaica Ave 77th (Rector) St. from 90th Ave (Clinton Pd.) to Jamaica Ave 87th Road (2d St.) from 78 St. (Snediker Ave) to 80th St. (Shaw Ave 88th Ave (3d St.) from 76th St. (Lott Ave) to 80th St. (Shaw Ave) 88th Road 4th St.) from 78th St. (Snediker Ave) to 85th (Yarmouth) St. 89th Ave (5th St. from 78th St. (Snediker Ave to a point 100 ft east of 86th (Ferry St.; 90th Ave., (6th St., from 77th (Rector) St. to 84th (Digby St. 90th Road (7th St.) from 78th St. (Snediker Ave to 84th (Digby) St. 91st Ave., (8th St. Fulton St.) from 78th St. (Snediker Ave. to 89 Street) Ocean View Ave. etc 4th Ward, together with all work incidental thereto. Part 2 Item D.”

	Original estimate)	\$37,829.00
	R. E.	234.60
20		<hr/>
		\$37,594.40

ACCOUNTS TO BE CHARGED

C. F. M. 25

The obligation on this surety bond ceases as to anything occurring after Sept. 8, 1922.

If the conditions of the contract have been complied with, the retained percentage (if any) is due on or after Sept. 8, 1922.

GEORGE W. MORTAR,

Examiner.

PAYMENTS, AMOUNTS RETAINED AND EARNED

	Date ...%	Payments	Amount paid to date	Amount retained to date	Amount earned to date
40	10-26-21	8,396.30	8,396.30	1,481.70	9,878.00
	12-15-21	22,960.20	31,356.50	5,533.50	36,890.00
	5-17-22	4,298.44	35,654.94	1,939.46	37,594.40
	12-20-22	1,939.46	37,594.40		
		<hr/>			
		37,594.40			

IN FULL

EXHIBIT C-218 (*continued*):

TYPE B

No. 2.

THE CITY OF NEW YORK

10

Office of the

THE PRESIDENT OF THE BOROUGH OF QUEENS

BUREAU OF SEWERS

20 Sealed Bids or Proposals for the herein named work will be received at the office of the President of the Borough of Queens on the 4th Floor of the Queens Subway Building, 68 Hunterspoint Avenue, Long Island City, Borough of Queens, in The City of New York, until 11 o'clock a. m. On Aug. 12, 1921.

The time allowed for the completion of the work and the full performance of the contract is 110 CONSECUTIVE WORK-
ING DAYS.

30

The liquidated damages for each day in excess of the allowed time, as stipulated in the contract, is ten dollars per day:

The amount of SECURITY or surety bond required will be (\$29,000.00).

40 NOTE. — All bids must be submitted upon the proper blank form of bid and in the sealed envelope prepared and furnished by the Borough President, and must be made out as required. Any bid which fails to name a price, both in writing and in figures per unit of measurement for each and every item of the proposed work where quantities are given, or is incomplete; conditional, obscure, or irregular, may be held to be informal and may be rejected, and in case of any discrepancy between the price written in the bid and given in figures, the price in writing will be considered as the bid. The writing must be in ink.

EXHIBIT C-218 (*continued*):

BID OR ESTIMATE

10 For Constructing Sewer and Appurtenances in
For constructing sewers and appertenances in 76th STREET
(Lott Ave.) from 88th Ave. (Syoseet Et.) to Jamaica Ave.; 77th
(Rector) STREET from 90th Ave. (Clinton Pd.) to Jamaica
Ave., Etc. Etc., Fourth Ward, together with all work incidental
thereto.

PART 2.

Made by the firm or corporation of ANGELO PAINO

Address 2016 East 14th Brooklin Dep.

20 NAME AND ADDRESS OF EACH AND EVERY MEMBER
OF THE FIRM OR PRINCIPAL OFFICERS
OF THE CORPORATION.

NOTE. — The bidder's name and residence or adress must
be inserted herebelow, and in case of a firm, the name and ad-
dress of each and every member of the firm must be inserted.

30 In case a bid shall be submitted by or in behalf of any
corporation, the complete legal name and address of such cor-
poration must be written herebelow, together with the name,
address and title of the principal officers of the corporation.

Name ANGELO PAINO

40 The party named above (of lawful age), as Bidder, decla-
res: That the only person or persons interested in this bid or
proposal as principal or principals is or are named above, and
that no other person than herein above named has any interest
in this bid or in the contract proposed to be taken; that this bid
is made without any connection with any other person or persons
making a bid for the same work or purpose; that the bid is in
all respects fair and without collusion or fraud, and that no
member of the Board of Aldermen, no head of a department, no
chief of a bureau, deputy thereof, or clerk therein, nor any other
officer or employee of The City of New York, is shall be or be-
come, directly or indirectly, interested as contracting party,

EXHIBIT C-218 (continued):

10 partner, stockholder, surety or otherwise in the performance of the contract, or in the supplies, work or business to which it relates, or in any portion of the profits thereof, that he has examined the form of contract and specifications approved by the Corporation Counsel and any plans therein referred to, and that he has visited the site of the proposed work and has made himself familiar with all the existing conditions; and he proposes and agrees, if this bid be accepted, that he will contract, in the form so approved, to provide, furnish and deliver all necessary work, labor, services, materials or supplies, machinery, tools, plant, and appliances, and to perform and complete all the work mentioned in said approved form of contract and specifications, and in strict accordance with the terms and conditions thereof, and that he will accept in full payment therefor the following named sums or prices:

20 The Engineer's estimate of the quantities as advertised and the nature and extent of the work and materials or supplies required, though stated with as much accuracy as is practicable in advance, are APPROXIMATE only and are given to form a basis of comparison for testing bids and are not guaranteed to be accurate and are not considered as a binding feature of the contract. Before bidding, Contractors must satisfy themselves by personal examination of the Plans, Specifications, Contract, and location of the proposed work, and by such other means as they may prefer, as to the accuracy of the foregoing statement, and they must determine for themselves, and allow for all difficulties which may be encountered in the prosecution of the work.

PART 2

T Y P E "B"

- 40
1. 234 Linear Feet 2'-6" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Ten Dollars (\$10.00)
 2. 251 Linear Feet 2'-3" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Ten Dollars (\$10.00)
 3. 319 Linear Feet 24 inch Reinforced Concrete Pipe Sewer, (Precast Type "B"), Per Linear Foot, Seven Dollars (\$7.00)

EXHIBIT C-218 (continued):

4. 503 Linear Feet 22 inch Vitrified Pipe Sewer, Per Linear Foot, Six Dollars (\$6.00)
5. 628 Linear Feet 18 inch Vitrified Pipe Sewer, Per Linear Foot, Five Dollars (\$5.00)
- 10 6. 3,826 Linear Feet 12 inch Vitrified Pipe Sewer, Per Linear Foot, Three Dollars (\$3.00)
7. 46 Manholes, Complete, Each Sixty Dollars (\$60.00)
8. 20 Basin Manholes, Complete, Each, One Hundred (\$100.00)
9. 27 Inlets, Complets, Each, Forty Dollars (\$40.00)
10. 600 Linear Feet 12 inch Vitrified Pipe, Basin Connections, Per Linear Foot One Dollar (\$1.00)
- 20 11. 400 Linear Feet 10 inch Vitrified Pipe, Basin Connections, Per Linear Foot, Oone Dollar (\$1.00)
12. 60 Six inch Spurs, 24 inches long on Reinforced Concrete Pipe Eewer (Precast Type "B"), Each One Dollar (\$1.00)
13. 33 Six inch Spurs on 22 inch Vitrified Pipe Sewer, Each, One Dollar (\$1.00)
- 30 14. 40 Six inch Spurs on 18 inch Vitrified Pipe Sewer, Each, One Dollar (\$1.00)
15. 311 Six inhc Spurs on 12 inch Vitrified Pipe Sewer, Each, One Dollar (\$1.00)
16. 5,826 Linear Feet 6 inch Vitrified Pipe House Connection Drains, Per Linear Foot, One Dollar (\$1.)

NOTICE TO BIDDERS.

- 40 Bidders are invited to tender bids on 2'-6", 2'-3" Plain Concrete Sewer and 24 inch Vitrified Pipe Sewer, these being the Standards of the Sewer Department, and hereafter designated as Type "A", or on 2'-6", 2'-3" and 24 inch Reinforced Concrete Pipe Sewer (Precast Type "B") or on both type if they so desire, but it is to be distinctly understood that no bids will be accepted on combinations of Types "A" and "B".

EXHIBIT C-218 (*continued*):

No bid will be allowed to be withdrawn, for any reason whatever, after it has been received and deposited with the President. The President expressly reserves the right to reject all bids if he shall deem it for the public interest so to do. No bid will be accepted from, nor contract awarded to, any person who is in arrears to The City of New York upon debt or contract, or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

No bid or proposal will be received, considered and deposited unless, as a condition precedent to the reception or consideration of any proposal it be accompanied by either a certified check upon one of the State The City of New York, or money to the amount of five per centum (5%) of the amount of the security or surety bond required for the faithful performance of the contract. Such check or money must not be inclosed in the sealed envelope containing the proposal. but must be either inclosed in a separate envelope addressed to the Borough President, or submitted personally upon the presentation of the bid or proposal and handed to the officer or clerk of the Department who has charge of the proposal box, and who will give a proper voucher for the deposit, and no bid can be deposited in said box until such check or money has been examined by said officer or clerk and found to be correct. All such deposits, except that made by the bidder to whom the contract shall be awarded, will be returned to the person or persons making the same within three (3) days after the decision as to who, shall receive the contract. If the bidder to whom the contract shall have been awarded shall refuse or neglect to execute the same within five days after due notice that the contract has been awarded to him, and that the adequacy and sufficiency of the surety offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York as liquidated damages for such neglect or refusal; but if he shall execute the contract and furnish the said security within the time aforesaid, the amount of the deposit shall be returned to him.

Each and every person bidding
must sign here.

NOTE.—Each and every person bidding and named above

ANGELO JAINO [L. S.]

EXHIBIT C-218 (continued):

must sign here. In the case of a firm, give the name of each and every partner in full.

.....[L. S.]

10 In case a bid shall be submitted by or in behalf of a corporation, it must be signed in the full legal name of such corporation by some authorized officer or agent thereof, who shall subscribe his name and office. If practicable, the seal of the corporation must be affixed.

.....[L. S.]

.....[L. S.]

The following affidavit must be similarly signed and sworn to:

20 The City and State of New York, County of Queens:

The above-named bidder (s), being severally duly sworn, say, each for himself, that the several matters stated in the above bid are in all respects true.

ANGELO PAINO

Subscribed and sworn to before me, this 12th day of Aug. 1921.

30

CETER J. HANCK,

Notary Public, Queens County.

40

EXHIBIT C-218 (*continued*):

Audit

August 30, 1921.

HON. MAURICE E. CONNOLLY,

President of the Borough of Queens.

10

Sir :—

Bids were opened on August 12, 1921 for construction of sewers and appurtenances in 76th Street (Lott Avenue) from 88th Avenue (Syosset Street) to Jamaica Avenue; (Rector). 77th Street from 90th Avenue (Clinton Place) to Jamaica Avenue etc., and other streets, 4th Ward, Queens County and on August 18, 1921, you transmitted the bid and advise of award of contract to Angelo Paino.

20

The successful bidder requested the United States Fidelity and Guaranty Company to furnish the surety bond in the sum of \$29,000.00 and the adequacy and sufficiency thereof is herein approved.

The executed contract when received will be registered as No. 58251 on the books of the Department of Finance.

30

Yours truly,

Deputy Comptroller.

40

EXHIBIT C-218 (*continued*):

City of New York

Office of the

PRESIDENT OF THE BOROUGH OF QUEENS.

10 Maurice E. Connolly
President

Joseph Flanagan
Borough Secretary

Hugh Hall
Secretary to President

20 Charles L. Craig, Comptroller,
Municipal Building,
New York City.

Sir:—

Transmitted herewith for registration in the Department of Finance are the following contracts:—

30 For the constructing of sewers and appurtenances in Ferguson Street from 51st Street to Tiemann Avenue; Roosevelt Ave. from 51st St. to DePeyster St.; Gunther St. from 51st St. to a point 700 ft. east of Tiemann Ave.; Havemeyer St. from 51st St. to 720 ft. east of Tiemann Ave.; Kingsland Ave. from 51st St. to 520 ft. east of Tiemann Ave.; North Railroad Ave. from 51st St. to Tiemann Ave.; South Railroad Ave. from 51st St. to Tiemann Ave.; Lurting St. from 51st St. to Tiemann Ave.; Nicolls St. from 51st to Tiemann Ave.; Opdyke St. from 51st St. to Tiemann Ave.; Provoost St. from 51st St. to Tiemann Ave.;
40 Radcliff St. from 51st St. to Tiemann Ave. from Ferguson St. to Radcliff St. 2nd Ward, Borough of Queens.

For constructing sewers and appurtenances in 76th St. from 88th Ave. to Jamaica Ave.; 77th St. from 90th Ave. to Jamaica Ave.; 87th Rd. from 78th St. to 80th St.; 88th Ave. from 76th St. to 80th St.; 88th Rd. from 78th St. to 85th St.; 89th Ave. from 78th St. to a point 100 ft. east of 86th St.; 90th Ave. from 77th St. to 84th St.; 90th

EXHIBIT C-218 (*continued*):

10 Rd. from 78th St. to 84th St.; 91st Ave. from 78th St. to 89th St.; Rockaway Blvd. from Atlantic Ave. N. side to 79th St.; 79th St., from Rockaway Blvd. to 91st Ave.; 80th St. from Atlantic Ave. N. side to 88th Ave.; 81st St. from Atlantic Ave. N. side to 91st Ave.; 82nd St. from Atlantic Ave. N. side to 91st Ave.; 84th St. from Atlantic Ave. N. side to 89th Ave., excluding sewer on the westerly side between 91st Ave. and 90th Rd.; 86th St. from Atlantic Ave. N. side to 89th Ave.; 87th St. from Atlantic Ave. N. side to 89th Ave.; 88th St. from Atlantic Ave. N. side to 89th Ave.; 89th St. from Atlantic Ave. N. side to 91st Ave.; 90th St. from Atlantic Ave. N. side to 91st Ave.; 91st St. from Atlantic Ave. N. side to 91st Ave., 4th Ward, Borough of Queens.

20 For regulating, grading, curbing and laying sidewalks, where necessary, together with all work incidental thereto, in Edson Street, from 51st St. to Tiemann Ave.; 2nd Ward, Borough of Queens.

Yours very truly,

MAURICE E. CONNOLLY,
President of the Borough of Queens.

30 JJR-ES
Encls.

40

EXHIBIT C-218 (*continued*):

City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

10 Maurice E. Connolly
President

Joseph Flanagan
Borough Secretary

Hugh Hall
Secretary to President

20

Long Island City, Sept. 7th 1921.

Charles L. Craig, Comptroller,
Municipal Building,
New York City.

Dear Sir:—

Referring to contract No. 58251:

30

“For constructing sewers and appurtenances in 76th St. from 88th Ave. to Jamaica Ave.; 77th St. from 90th Ave. to Jamaica Ave.; 87th Rd. from 78th St. to 80th St.; 88th Ave. from 76th St. to 80th St.; 88th Rd. from 78th St. to 85th St.; 89th Ave. from 78th St. to a point 100 ft. east of 86th St.; 90th Ave. from 77th St. to 84th St.; 90th Rd. from 78th St. to 84th St.; 91st Ave from 78th St. to 89th St.; Rockaway Boulevard from Atlantic Ave. n. side to 79th St.; 79th St. from Rockaway Blvd. to 91st Ave.; 80th St. from Atlantic Ave. n. side to 88th Ave.; 81st St. from Atlantic Ave. n. side to 91st Ave.; 82nd St. from Atlantic Ave. n. side to 91st Ave.; 84th St. from Atlantic Ave. n. side to 89th Ave.; excluding sewer on the westerly side between 91st Ave. and 90th Rd.; 86th St. from Atlantic Ave. n. side to 89th Ave.; 87th St. from Atlantic Ave. n. side to 91st Ave.; 90th St. from Atlantic

40

EXHIBIT C-218 (*continued*):

Ave. n. side to 91st Ave.; 91st St. from Atlantic Ave. n. side to 91st Ave., 4th Ward, Borough of Queens.”

I beg to inform you that the contractor, Angelo Paino, #2016 East 14th Street, Brooklyn, N. Y., has been ordered to commence the work embraced in said contract on September 12th, 1921, or before five days from the receipt of his notice.

Very truly yours,

MAURICE E. CONNOLLY,
President of the Borough of Queens.

JJR-ES

20

ENGINEERING.

October 31, 1921.

Mr. Chandler Withington,
Chief Engineer.

Sir :—

In relation to Certificate No. 1 in the sum of \$8,396.30, for the construction of Sewer in 76th Street (Lott Ave.) from 88th Ave. (Syossett St.) to Jamaica Ave. in 77th (Rector St.) from 90th Ave. (Clinton Place) to Jamaica Ave., in 87th Road (2nd St.) from 78th St. (Snediker Ave.) to 80th St. (Shaw Ave.) in 88th Ave. (3rd St.) from 76th St. to 80th St. in 88th Road (4th St.) from 78th St. to 85th (Yarmouth St.) in 89th Ave. (5th St.) from 78th St. to a point 100 ft. East of 86th (Ferry) St. 90th Ave. (6th St.) from 77th St. to 84th (Digby St.) etc., Part 2, in the Borough of Queens, Angelo Paino Contractor, Contract No. 58251, I report.

The quantities of work returned in this certificate are correct and the work herein returned has been performed in practical conformity with the contract.

As to work not as yet included in this certificate but partially completed, I would direct your attention to the following:

EXHIBIT C-218 (*continued*):

Certain stretches of precast pipe have been laid and other pipe (precast) distributed along the line of the work, to be laid.

Sec. 132 P. 64 of the Specifications states—

10 “Reinforced concrete pipe shall be constructed at the site of the work, in a shed of the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe.”

The pipes (precast Type B) in question were not cast at the site of the work as required above; I am informed that such pipes were made in New Jersey.

20 While theoretically the payment as submitted has been earned, but as the work is progressing contrary to the wording of the specifications I advise non-payment of this voucher until the question of the location of the Manufacture of the pipe is settled.

Respectfully,

Assistant Engineer.

30 ENGINEERING.

December 22, 1921.

Mr. Chandler Withington,
Chief Engineer.

Sir:—

40 In relation to Certificates Nos. 1 and 2 in the sum of \$8396.30 and \$22,960.20, for the construction of sewers in 76th Street (Lott Avenue) from 88th Avenue (Syossett St.) to Jamaica Avenue, etc., (Part 2), Angelo Paino, Contractor, Contract #58251, I report.

On October 31st, 1921 it was reported that the precast pipe distributed along the work was manufactured in New Jersey

EXHIBIT C-218 (*continued*):

instead of at the site of the work, pursuant to Section 132 Page 64 of the specifications. It was then recommended that payment No. 1 be withheld until the Borough authorities advise this Department the reason for accepting the pipe.

10 On November 15th, 1921, the Acting President of the Borough of Queens transmitted an affidavit executed by Angelo Paino, to wit:

“that in view of the urgency of the work involved in this contract the pipe was purchased for the reason that it could be obtained more quickly than its manufacture on the work as provided in the contract, with no sacrifices of quality.”

20 I am informed that the pipe in question met the necessary loading test prescribed in the contract. I have also examined the report of the analysis made in the Testing Laboratories of Columbia University to the effect that the pipe substantially contained the necessary 1-2-4 mix. (the actual mix being 1-3-3.)

In my opinion, the provision of the specifications requiring the contractor to manufacture the pipe at the site of the work is a means to an end, viz — that the pipe conform to the specifications as to the requisite ingredients and that the finished product be able to withstand the prescribed loading test.

30 As stated, the end has been realized. The quantities enumerated in these vouchers being in my opinion correct and if there is no legal objections to the acceptance of said pipe, I recommend that these vouchers amounting to \$8396.30 and \$22,960.20 respectively, be forwarded for payment.

Respectfully,

Assistant Engineer.

EXHIBIT C-218 (*continued*):

City of New York

Office of the

PRESIDENT OF THE BOROUGH OF QUEENS

10 Maurice E. Connolly
President

Joseph Flanagan
Borough Secretary

Hugh Hall
Secretary to President

20 Long Island City, April 26th, 1922.

Hon. Charles L. Craig, Comptroller,
Department of Finance,
Municipal Building,
New York City.

Sir :—

30 In accordance with the recommendation of the Engineer
of Sewers, this Department, I have granted an extension of time,
Thirty-one (31) working days to Angelo Paino, 32 Court Street,
Brooklyn, N. Y., in which to complete the work in connection
with contract No. 58251:—

“For the construction of a sewer and appurtenances in
76th St. (Lott Ave) from 88th Ave (Syosset St) to Jamaica Ave.

77th St (Rector St) from 90th Ave (Clinton Place) to
Jamaica Avenue.

40 87th Road (2nd St.) from 78th St. (Snediker Ave.) to
80th St. (Shaw Ave.) etc., Fourth Ward, “Part #2).”

On account of the urgency of the sewers in this section of
Union Course, the contractor on this work was ordered to com-
mence work just prior to the winter weather, i. e. on September
12, 1921. He started on that day and prosecuted this work all
winter. During the mid-winter season the ground became frozen
and difficult to excavate. The contractor requested that he be

EXHIBIT C-218 (*continued*):

10 allowed to shut down at that time, as he was not able to make satisfactory progress and an endeavor to do work during that weather was a financial loss to him. We insisted, however, that this work be pushed forward regardless of the weather, as the sanitary conditions in this section had become very acute and we were being constantly requested and petitioned by the people in this section to give them sewer relief. The contractor, therefore, at our persistent urging continued this work from the time he started until the contract was finished, but was naturally slowed up during the severe winter weather before mentioned, and it was for this reason that the above extension of time was granted.

Very truly yours,

BENJAMIN MARIUN,

20

Acting President of the Borough of Queens.

ENGINEERING.

June 2, 1922.

30 Mr. Chandler Withington,
Chief Engineer.

Sir:—

40 In relation to final payment in the sum of \$4288.44, for the construction of sewer, etc. in 76th St. (Lott Ave.) from 88th Ave. (Syosset St.) to Jamaica Ave. in 77th (Rector) St. from 90th Ave. (Clinton Pl.) to Jamaica Ave. in 87th Road (2nd St.) (Snediker Ave.) to 80th St. (Shaw Ave.) in 88th Ave. (3rd St.) fr. 76th St. to 80th St. in 88th Road (4th St.) fr. 78th St. to 85th (Yarmouth) St. in 89th Ave. (5th St.) fr. 78th St. to a point 100' east of 86th St. (Ferry), in 90th Ave. (6th St.) from 77th St. 84th (Digby) St., etc., Fourth Ward Part 2, in the Borough of Queens, Angelo Paino, Contractor, Contract No. 58251, I report.

EXHIBIT C-218 (*continued*):

At least one-third of the Tarvia Macadam and the macadam pavements designated in the plans, have not been restored in accordance with the Specifications; depressions, ruts and disintegration show on the surface. I therefore recommend that this payment be withheld pending the satisfactory repairs to the pavement.

10

Respectfully,

Assistant Engineer.

ENGINEERING.

20

July 29, 1922.

Mr. Chandler Withington,
Chief Engineer.

Sir :—

30 In answer to communication of Angelo Paino, Contractor, for the construction of sewers and appurtenances in 76th St. (Lott Ave.) from 88th Ave. (Syosset St.) to Jamaica Ave., etc., etc., Part II, under Contract #58251. requesting reinspection of the roadway covered under this contract, I report.

The defective roadway surface has been repaired by the contractor and the work may now be said to substantially conform with contract requirements.

40 I therefore recommend that the final payment amounting to \$4298.44 withheld pending the satisfactory completion of the surface restoration be released.

Respectfully,

Assistant Engineer.

EXHIBIT C-218 (*continued*):

BY ATTORNEY

General release

To all to whom these presents shall come or may concern,

GREETING:

10 KNOW ye that, I MARINO PAINO as Attorney in fact
of and for ANGELO PAINO for and in consideration of the
sum of Four thousand two hundred ninety-eight and 44/100 Dol-
lars, lawful money of the United States of America, to me in
hand paid by The City of New York, the receipt of which is here-
by acknowledged, have remised, released and forever discharged,
and by these presents do, for said ANGELO PAINO his heirs,
executors, administrators and assigns, remise, release and for-
ever discharge the said The City of New York of and from all
20 and all manner of action and actions, cause and causes of ac-
tion, suits, debts, dues, sums of money, accounts, reckonings,
bonds, bill, specialties, covenants, contracts, controversies,
agreements, promises, variances, trespasses, damages, judgments
extents, executions, claims, and demands whatsoever in law or
in equity, which against said City of New York he ever had, now
has or which his successors, heirs, executors, administrators or
assigns, hereafter can, shall or may have, for, upon or by reason
of a certain contract or agreement made the 12th day of May
A. D., 1922, by and between ANGELO PAINO and The City of
30 New York, for the construction of sewers and appurtenances in
76th Street (Lott Avenue) from 88th Avenue (Syosset Street)
to Jamaica Ave. etc.

Contract 58251 or by reason or any matter, cause or thing
whatsoever resulting or arising therefrom, from the beginning
of the world to the day and date of these Presents.

40 In witness whereof, I as Attorney in fact of and for AN-
GELO PAINO have hereunto set my hand and seal this 12th day
of August in the year one thousand nine hundred and Twenty-
two.

Sealed and delivered in the presence of

WILLIAM J. BATHE

ANGELO PAINO,

By Marino Paino,
Atty in Fact.

EXHIBIT C-218 (*continued*):

STATE OF NEW YORK,
COUNTY OF NEW YORK, ss. :

10 On this 12th day of Aug. 1922, before me personally came Marino Paino the attorney of Angelo Paino known to me to be the individual described in, and who, as such attorney, executed the within instrument and acknowledged that he executed the same as the act and deed of Angelo Paino therein described, and for the purposes there mentioned, by virtue of a Power of Attorney.

WILLIAM J. BATHE,

Notary Public, New York Co. No. 115
New York County Register's No. 3131
Term Expires March 30, 1923

20

NOTICE.—Bidders are particularly requested to carefully examine the Proposal for Bids, Form of Agreement, Specifications, Plan and the location of the work and the surroundings thereof before bidding.

No. 5 Part 2.

30

THE CITY OF NEW YORK
OFFICE OF THE PRESIDENT OF THE BOROUGH
OF QUEENS

BUREAU OF SEWERS

40

1921

ASSESSMENT WORK

Proposal for Bids, Bid, Bond, Agreement and Specifications

For constructing sewers and appurtenances in: 76th St. (Lott Av.) from 88th Av. (Syosset St.) to Jamaica Av.; 77th

EXHIBIT C-218 (*continued*):

(Rector) ST. from 90th Ave. (Clinton Pl.) to Jamaica Av.; 87th ROAD (2nd St.) from 78th St. (Snediker Av.) to 80th St. (Shaw Ave.) 88th AVE. (3rd St.) from 76th St. (Lott Av.) to 80th St. (Shaw Ave.); 88th ROAD (4th St.) from 78th (Snedeker Av.) St. to 85th (Yarmouth) St.; 89th AVE. (5th St.) from 78th St. (Snediker Av.) to a point 100 ft. east of 86th (Ferry) St.; 90th AVE. (6th St.) from 77th (Rector) St. to 84th (Digby) St.; 90th ROAD (7th St.) from 78th St. (Snedeker Av.) to 84th (Digby) St.; 91st AVE. (8th St.-Fulton St.) from 78th St. Snedeker Av.) to 89th St. (Ocean View Ave); ROCKAWAY BOULEVARD from Atlantic Ave. N. Side to 79th St. (Dakota Ave.); 79th ST. (Dakota Ave.) from Rockaway Boulevard to 91st Ave. (8th St.); 80TH ST. (Shaw Ave.) from Atlantic Ave., N. Side to 88th Ave. (3rd St.); 81st ST. (Nevada Ave.) from Atlantic Ave., N. Side to 91st Ave. (8th St.); 82ND ST. (Montena Ave.) from Atlantic Ave., N. Side to 91st Ave. (8th St.); 84th (Digby) ST. from Atlantic Ave. N. Side to 89th Ave. (5th St.), excluding sewer on the westerly side between 91st Ave. and 90th Road; 86TH (Ferry) ST., from Atlantic Ave.. N. Side to 89th Ave. (5th St.); 87th St. (Benedict Ave.) from Atlantic Ave., N. Side to 89th Ave. (5th St.); 88th St. (Boyd Ave.) from Atlantic Ave., N. Side to 89th Ave. (5th St.); 89th St. (Ocean View Ave.) from Atlantic Ave. N. Side to 91st Ave. (Fulton St.); 90th St. (Woodland Ave.) from Atlantic Ave., N. Side to 91st Ave. (Fulton St.); 91st ST. (Thrall Ave.) from Atlantic Ave., N. Side to 91st Ave. (Fulton St.) Fourth Ward, together with all the works incidental thereto.

PART 2.

NOTICE TO BIDDERS.

Bidders are invited to tender bids on 2'-6", 2'-3" Plain Concrete Sewer and 24 inch Vitrified Pipe Sewer, these being the Standards of the Sewer Dept. and hereafter designated as Type "A", or on 2'-6" 2'-3" and 24 inch Reinforced Concrete Pipe Sewer (Precast Type "B") or on both types if they so desire, but it is to be distinctly understood that no bids will be accepted on combinations of Types "A" and "B".

NOTICE TO BIDDERS.

Prices to be paid by The City of New York for indeterminate quantities, such as

EXHIBIT C-218 (continued):

	ROCK EXCAVATION	8.00	Per Cu. Yd.
	CLASS "A" CONCRETE	15.00	" " "
	REINFORCING STEEL .....	.06	Per Lb.
	STRUCTURAL STEEL .....	.08	" "
	FOUNDATION TIMBER	70.00	Per 1000 Ft. B. M.
	SHEETING & BRACING	20.00	" " " " "
10	PILING (TIMBER)	1.00	Per Ft. driven and cut-off

Indeterminate quantities shall be those whose amount and necessity will be determined by the conditions encountered during the work of construction.

Time for presenting bids.

- 20 1. Sealed bids for the above-entitled work will be received at the office of the President of the Borough of Queens, Queens Subway Building, Long Island City, in the City of New York, until 11 o'clock A. M., on FRIDAY Aug. 12th 1921.

Time allowed for completion.

2. The time allowed for the full completion of the work herein described will be one hundred and ten (110)

30 CONSECUTIVE WORKING DAYS.

Security required.

3. The amount of security required will be Twenty-nine thousand 00-100 Dollars (\$29,000.00).

Bidders referred to, form or agreement, etc.

- 40 4. Bidders are referred to the form of agreement, to the specifications and to the plan and drawings of Standard Details on file at the office of the President, and to the following Engineer's estimate of the quantity and kind of work required, the items whereof in all cases include all materials and labor necessary to fully complete said work. Prices for each item shall be named, upon the sum total of which the comparison and tests of bids will be made.

EXHIBIT C-218 (continued):

Engineer's estimate.

TYPE "A" (OR SEWER DEPT. STANDARD)

P A R T — 2

	234	Linear Feet 2'-6" Plain Concrete Sewer
10	251	Linear Feet 2'-3" Plain Concrete Sewer
	319	Linear Feet 24" Vitrified Pipe Sewer
	503	Linear Feet 22" Vitrified Pipe Sewer
	628	Linear Feet 18" Vitrified Pipe Sewer
	3,826	Linear Feet 12" Vitrified Pipe Sewer
	46	Manholes, Complete
	20	Basin Manholes, Complete
	27	Inlets, Complete
	600	Linear Feet 12-inch Vitrified Pipe, Basin Connections
20	400	Linear Feet 10-inch Vitrified Pipe, Basin Connections
	39	Six-inch Spurs 24-inches long on Concrete Sewers
	21	Six-inch Spurs on 24-inch Vitrified Pipe Sewer
	33	Six-inch Spurs on 22-inch Vitrified Pipe Sewer
	40	Six-inch Spurs on 18-inch Vitrified Pipe Sewer
	311	Six-inch Spurs on 12-inch Vitrified Pipe Sewer
	5,826	Linear Feet 6-inch Vitrified Pipe House Connection Drains

30 T Y P E "B"

	234	Linear Feet 2'-6" Plain Concrete Sewer (Precast Type "B")
	251	Linear Feet 2'-3" Plain Concrete Sewer (Precast Type "B")
	319	Linear Feet 24" Vitrified Pipe Sewer (Precast Type "B")
	503	Linear Feet 22-inch Vitrified Pipe Sewer
	628	Linear Feet 18-inch Vitrified Pipe Sewer
40	3,826	Linear Feet 12-inch Vitrified Pipe Sewer
	46	Manholes, Complete
	20	Basin Manholes, Complete
	27	Inlets, Complete
	600	Linear Feet 12-inch Vitrified Pipe, Basin Connections
	400	Linear Feet 10-inch Vitrified Pipe, Basin Connections

EXHIBIT C-218 (*continued*):

60 Six-inch Spurs 24-inches long on Reinforced Concrete
Pipe Sewer (Precast Type "B")
33 Six-inch Spurs on 22-inch Vitrified Pipe Sewer
40 Six-inch Spurs on 18-inch Vitrified Pipe Sewer
311 Six-inch Spurs on 12-inch Vitrified Pipe Sewer
5,826 Linear Feet 6-inch Vitrified Pipe House Connection
Drains

10

Personal examination of work.

5. The foregoing Engineer's Estimate is approximate only and is not to be considered as a binding feature of the contract. Bidders are required to submit their bids upon the following express conditions which apply to and become a part of every bid received. Bidders must satisfy themselves by personal examination of the location of the proposed work and surroundings thereof, and by such other means as they may prefer as to the accuracy of the foregoing estimate, and shall not at any time after submission of their bids, dispute or complain of such estimate of the Engineer, nor assert that there was any misunderstanding in regard to the quantity or kind of materials to be furnished or work to be done.

20

Prices to be stated in writing and in words and in figures.

6. Any bid which fails to name a price, written both in words and in figures, per unit of measurement for each of the items for which quantities are given, will be held to be informal and will be rejected. In case of any discrepancy between the price in words and that in figures, the price in words will be considered as the bid.

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Prices bid to cover.

7. The prices bid must cover the cost of furnishing all necessary materials and labor for and the complete performance of all the work set forth in this proposal, described in the form of agreement and specifications annexed hereto, and indicated by the plan of the work on file in the office of the President, to all of which information the bidders are referred.

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Rock excavation.

8. The attention of the bidders is particularly directed to the specifications relating to rock excavation.

EXHIBIT C-218 (*continued*):

Bids may be rejected.

9. Permission will not be given for the withdrawal of any bid within forty-five (45) days after receipt of bids, and the right is expressly reserved by the President to reject all bids if he shall deem it to be in the public interest so to do. No bid will be accepted from, or contract awarded to, any person who is in arrears to The City of New York upon debt or contract or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

Times and places for commencing and prosecuting work to be determined by the President.

10. Bidders are especially notified that the President reserves the right to determine the times and places for commencing and prosecuting the work, and that postponement or delay on the whole, or any part thereof, occasioned by the precedence of other contracts, which may be either let or executed before the opening of the bids for this work, can constitute no claim for damages nor for a reduction of the damages fixed for delay in completing the work beyond the time allowed.

No extra compensation.

11. The Contractor will be required to complete the entire work to the satisfaction of the President and in accordance with the agreement, the specifications and the plan of the work. No extra compensation beyond the amount payable for the several classes of work hereinbefore enumerated, which shall be actually furnished and performed at the prices bid therefor by the bidder to whom the contract is awarded, shall be due or payable for the entire materials and work.

Deposit to accompany bid.

12. No bid will be received or considered unless accompanied by either a certified check upon one of the National or State Banks or Trust Companies of The City of New York, or a check of such bank or trust company signed by a duly authorized officer thereof, drawn to the order of the Comptroller, or money or corporate stock or certificate of indebtedness of any nature issued by the City of New York, which the Comptroller shall approve as of equal value with the security required, to an amount of five per centum of the amount of the bond required for the faithful performance of the contract (as provided by sec-

EXHIBIT C-218 (*continued*):

tion 420 of The Greater New York Charter as amended). Such check or money or other form of security must not be inclosed in the sealed envelope containing the bid, but must be handed to the officer or clerk who has charge of the bidding, and no bid shall be deposited in the box provided for that purpose until such check or money or other form of security has been examined by said officer or clerk and found to be correct. All such deposits, except those of the lowest three bidders, will be returned to the persons making the same within 10 days after the opening of the bids; within three days after the awarding of the contract, the remaining deposits, except that made by the bidder whose bid has been accepted, will be returned to the persons making the same. If the successful bidder shall refuse or neglect to execute the contract within five days after notice that it has been awarded to him, and that the adequacy and sufficiency of the security offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York, but if he shall execute the contract and furnish the required security within the time aforesaid, the amount of his deposit will be returned to him.

Names of persons interested.

13. Bidders are required to state in their bids, under oath, their names and places of residence or business, the names of all persons interested with them therein, and if no other person be so interested, they shall distinctly state that fact; also, that it is made without any connection with any other person making any bid for the same purpose, and that it is in all respects fair and without collusion or fraud; and that no member of the Board of Aldermen, head of a department, chief of a bureau, deputy thereof or clerk therein or officer or employee of The City of New York, is, shall be or become interested, directly or indirectly, as contracting party, partner, stockholder, surety or otherwise, in or in the performance of the contract or in the material, work or business to which it relates, or in any portion of the profits thereof. Bidders must verify by oath, in writing, the several matters stated in their bids.

Sealed bids to be submitted.

14. Each bid must be delivered in a sealed envelope, endorsed with the title of the work for which the bid is made, with the name of the bidder, and the date of presentation to the President at his office, on or before the date and hour hereinbefore

EXHIBIT C-218 (*continued*):

10 named, at which time and place the bids received will be publicly opened by the President and read and the award of the contract made according to law as soon thereafter as practicable. The person or persons to whom the contract may be awarded will be required to attend at said office with the sureties offered by him or them and execute the contract within five days from the date of the service of a notice to the effect that the contract has been so awarded and the surety accepted; and in case of failure or neglect so to do he or they will be considered as having abandoned the contract and as being in default to the City.

Bidders shall use blank forms to be furnished by the President.

15. Bidders shall make their bids upon the forms prepared by the President, a copy of which with the proper envelope in which to enclose the same can be obtained upon application therefor at the office of the President, Queens Subway Building, 20 Long Island City, where the plan can be seen, as also the form of contract, including the specifications in the form approved by the Corporation Counsel.

MAURICE E. CONNOLLY,

President of the Borough of Queens.

The City of New York, 192...

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EXHIBIT C-218 (*continued*):

THE CITY OF NEW YORK
OFFICE OF THE PRESIDENT OF THE BOROUGH
OF QUEENS.

10

BUREAU OF SEWERS.

CONTRACT FOR the construction of a sewer and appurtenances in 76th St. (Lott Av.) from 88th Av. (Syosset St.) to Jamaica Ave.; 77th (Rector) ST. from 90th Ave. (Clinton Pl.) to Jamaica Ave.; 87th RD. (2nd St.) from 78th St. (Snediker Av.) to 80th St. (Shaw Av.); 88th Ave. (3rd St.) from 76th St. (Lott Av.) to 80th St. (Shaw Ave.); 88th RD. (4th St.) from 78th St. (Snedeker Av.) to 85th (Yarmouth) St.; 89th AVE. (5th St.) from 78th St. (Snedeker Av.) to a point 100 ft. east of 86th (Ferry) St.; 90th AVE. (6th St.) from 77th (Rector) St. to 84th (Digby) St.; 90th RD. (7th St.) from 78th St. (Snedeker Av.) to 84th (Digby) St.; 91st AVE. (8th St.-Fulton St.) from 78th St. (Snedeker Ave.) to 89th St. (Ocean view Ave); ROCKAWAY BOULEVARD from Atlantic Ave. N. Side to 79th St. (Dakota Av.); 79th ST. (Dakota Ave.) from Rockaway Boulevard to 91st Ave. (8th St.); 80th St. (Shaw Ave.) from Atlantic Ave., N. Side to 88th Ave. (3rd St.); 81st St. (Nevada Ave.) from Atlantic Ave., N. Side to 91st Ave. (8th St.); 82nd St. (Montana Ave.) from Atlantic Ave., N. Side to 91st Ave. (8th St.); 84th (Digby) St. from Atlantic Ave., N. Side to 89th Ave. (5th St.), excluding sewer on the westerly side between 91st Ave. and 90th Road; 86th (Ferry) St., from Atlantic Ave., N. Side to 89th Ave. (5th St.); 87th St. (Benedict Ave.) from Atlantic Ave., N. Side to 89th Ave. (5th St.); 88th St. (Boyd Ave.) from Atlantic Ave., N. Side to 89th Ave. (5th St.); 89th St. (Ocean View Ave.) from Atlantic Ave., N. Side to 91st Ave. (Fulton St.); 90th St. (Woodland Ave.) from Atlantic Ave., N. Side to 91st Ave. (Fulton St.); 91st St. (Thrall Ave.) from Atlantic Ave., N. Side to 91st Ave. (Fulton St.); Fourth Ward; PART 2 together with all the work incidental thereto.

Parties.

THIS AGREEMENT, made and entered into this 31st day of August, in the year one thousand nine hundred and 21

EXHIBIT C-218 (*continued*):

by and between The City of New York, party of the first part, by the President of the Borough of Queens, and ANGELO PAINO of 2016 East 14th Street, Brooklyn Contractor, party of the second part, pursuant to the provisions of The Greater New York Charter, and the resolution of The Board of Estimate and Apportionment adopted on the 25th day of June 1920, of which resolution the following is a copy:

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT.

City of New York

(Cal. No. 165)

A copy of a resolution of the Local Board of the Jamaica & Newton District, duly adopted by said Board on the 18th day of September, 1919, and approved by the President of the Borough of Queens on the 30th day of March, 1920, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

“RESOLVED, That this Board does hereby initiate proceedings for the said local improvement, to wit :

“For the construction of a sewer and appurtenances in 76th Street (Lott Avenue) from 88th Avenue (Syosset Street) to Jamaica Avenue; 77th (Rector) Street from 90th Avenue (Clinton Place) to Jamaica Avenue; 87th Road (2d Street) from 78th Street (Snedeker Avenue) to 80th Street (Shaw Avenue); 88th Avenue (3d Street) from 76th Street (Lott Avenue) to 80th Street (Shaw Avenue); 88th Road (4th Street) from 78th Street (Snedeker Avenue) to 85th (Yarmouth) Street; 89th Avenue (5th Street) from 78th Street (Snedeker Avenue) to a point 100 feet east of 86th (Ferry) Street; 90th Avenue (6th Street) from 77th (Rector) Street to 84th (Digby) Street; 90th Road (7th Street) from 78th Street (Snedeker Avenue) to 84th (Digby) Street; 91st Avenue (8th Street Fulton Street) from 78th Street (Snedeker Avenue) to 89th Street (Ocean View Avenue); Rockaway Boulevard from Atlantic Avenue, north side, to 79th Street (Dakota Avenue); 79th Street (Dakota Avenue) from Rockaway Boulevard to 91st Avenue (8th Street); 80th Street (Shaw Avenue) from Atlantic Avenue, north side, to 88th Avenue (3d Street); 81st Street (Nevada Avenue) from Atlantic Avenue,

EXHIBIT C-218 (*continued*):

10 north side, to 91st Avenue (8th Street); 82nd Street (Montana Avenue) from Atlantic Avenue, north side, to 91st Avenue (8th Street) 84th (Digby) Street from Atlantic Avenue, north side, to 89th Avenue (5th Street), excluding the sewer on the westerly side between 91st Avenue and 90th Road; 86th (Ferry) Street from Atlantic Avenue, north side, to 89th Avenue (5th Street);
10 87th Street (Benedict Avenue) from Atlantic Avenue, north side, to 89th Avenue (5th Street); 88th Street (Boyd Avenue) from Atlantic Avenue, north side, to 89th Avenue (5th Street); 89th Street (Ocean View Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); 90th Street (Woodland Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); and in 91st Street (Thrall Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); Fourth Ward", and thereupon, on the 25th day of June, 1920,
20 resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the
30 Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed, that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$199,000.; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$3,451,000. having also been presented, it is

40 **RESOLVED**, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the afore-said preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

EXHIBIT C-218 (*continued*):

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on

Dated, New York,

(Signed) JAMES MATTHEWS,

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Assistant Secretary,
Board of Estimate and Apportionment.

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT

CITY OF NEW YORK

20

Cal. No. 49

WHEREAS, The President of the Borough of Queens has transmitted to the Board of Estimate and Apportionment a copy of a resolution of the Local Board of the Jamaica & Newtown District, duly adopted by said Board of the 18th day of Sept., 1919 and approved by the President of the Borough of Queens on the 30th day of March, 1920 as follows, to wit:

30 "RESOLVED, That this Board does hereby initiate proceedings for the said local improvement to wit:

40 "For the construction of a sewer and appurtenances in 76th Street (Lott Avenue) from 88th Avenue (Syosset Street) to Jamaica Avenue; 77th (Rector) Street from 90th Avenue (Clinton Place) to Jamaica Avenue; 87th Road (2d Street) from 78th Street (Snedeker Avenue) to 80th Street (Shaw Avenue); 88th Avenue (3d Street) from 76th Street (Lott Avenue) to 80th Street (Shaw Avenue); 88th Road (4th Street) from 78th Street (Snedeker Avenue) to 85th (Yarmouth) Street; 89th Avenue (5th Street) from 78th Street (Snedeker Avenue) to a point 100 feet east of 86th (Ferry) Street; 90th Avenue (6th Street) from 77th (Rector) Street to 84th (Digby) Street; 90th Road (7th Street) from 78th Street (Snedeker Avenue) to 84th (Digby) Street; 91st Avenue (8th Street Fulton Street) from 78th Street (Snedeker Avenue) to 89th Street (Ocean View Avenue); Rockaway Boulevard from Atlantic Avenue, north side, to 79th Street (Dakota Avenue); 79th Street (Dakota Avenue) from Rock-

EXHIBIT C-218 (*continued*):

10 away Boulevard to 91st Avenue (8th Street); 80th Street (Shaw Avenue) from Atlantic Avenue, north side, to 88th Avenue (3d Street); 81st Street (Nevada Avenue) from Atlantic Avenue, north side, to 91st Avenue (8th Street); 82nd Street (Montana Avenue) from Atlantic Avenue, north side, to 91st Avenue (8th Street) 84th (Digby) Street from Atlantic Avenue, north side, to 89th Avenue (5th Street), excluding the sewer on the westerly side between 91st Avenue and 90th Road; 86th (Ferry) Street from Atlantic Avenue, north side, to 89th Avenue (5th Street); 87th Street (Benedict Avenue) from Atlantic Avenue, north side, to 89th Avenue (5th Street); 88th Street (Boyd Avenue) from Atlantic Avenue, north side, to 89th Avenue (5th Street); 89th Street (Ocean View Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); 90th Street (Woodland Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); and in 91st Street (Thrall Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); Fourth Ward",
20 and which resolution is accompanied with an approximate estimate of the cost of work and the assessed value of the property benefited.

30 **RESOLVED**, That the Board of Estimate and Apportionment hereby authorizes the President of the Borough of Queens to prepare plans, specifications and an estimate of cost based on actual survey, and also to secure a determination of the boundary of the district of assessment; the entire expense of the work done subsequent to the date of this authorization to be charged against the Street Improvement fund and later included in the assessment.

40 **RESOLVED**, That the Board of Estimate and Apportionment will consider the authorization of the construction of the said proposed improvement after the President of the Borough of Queens has submitted a statement showing that all of the above described work has been done, that he has secured the approval of the form of contract by the Corporation Counsel, that he is prepared to place the improvement under contract as soon as he receives the consent of the Board, and that the assessment may will be completed on or before the date of payment on acceptance; this report being accompanied by a further statement showing the quantity of work to be performed under each item and the unit price thereof, the expense incurred for preliminary work, the allowance to be made for additional engineering and

EXHIBIT C-218 (*continued*):

contingencies, the total probable cost, and the number of working days to be allowed the contractor for carrying out the work.

A true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on June 25, 1920.

10 Dated, New York.

(signed) JAMES MATTHEWS

Assistant Secretary,
Board of Estimate and Apportionment.

20 Covenant.

WITNESSETH, That the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the party of the first part for itself and its successors, and the party of the second part for itself, himself, or themselves, and its, his or their executors, administrators, successors and assigns, as follows:

30 Contract.

I. The contract for the hereinbefore entitled work shall include the following, which are hereby agreed upon as forming part and parcel thereof: the Proposal for Bids, the Bid, the Bond, this Agreement and the Specifications hereto annexed; also the Plan of the Work dated May 6th 1921, filed in the office of the President of the Borough, entitled: Plan, Profile and Details for the construction of a sewer and appurtenances in 76th Street (Lott Avenue) from 88th Avenue (Syosset Street) to Jamaica Avenue; 77th (Rector) Street from 90th Avenue (Clinton Place) to Jamaica Avenue; 87th Road (2d Street) from 78th Street (Snedeker Avenue) to 80th Street (Shaw Avenue); 88th Avenue (3d Street) from 76th Street (Lott Avenue) to 80th Street (Shaw Avenue); 88th Road (4th Street) from 78th Street (Snedeker Avenue) to 85th (Yarmouth) Street; 89th Avenue (5th Street) from 78th Street (Snedeker Avenue) to a point 100 feet east of 86th (Ferry) Street; 90th Avenue (6th Street) from

EXHIBIT C-218 (*continued*):

10 77th (Rector) Street to 84th (Digby) Street; 90th Road (7th Street) from 78th Street (Snedeker Avenue) to 84th (Digby) Street; 91st Avenue (8th Street Fulton Street) from 78th Street (Snedeker Avenue) to 89th Street (Ocean View Avenue); Rockaway Boulevard from Atlantic Avenue, north side, to 79th Street (Dakota Avenue); 79th Street (Dakota Avenue) from Rockaway Boulevard to 91st Avenue (8th Street); 80th Street (Shaw Avenue) from Atlantic Avenue, north side, to 88th Avenue (3d Street); 81st Street (Nevada Avenue) from Atlantic Avenue, north side, to 91st Avenue (8th Street); 82nd Street (Montana Avenue) from Atlantic Avenue, north side, to 91st Avenue (8th Street) 84th (Digby) Street from Atlantic Avenue, north side, to 89th Avenue (5th Street), excluding the sewer on the westerly side between 91st Avenue and 90th Road; 86th (Ferry) Street from Atlantic Avenue, north side, to 89th Avenue (5th Street); 20 87th Street (Benedict Avenue) from Atlantic Avenue, north side, to 89th Avenue (5th Street); 88th Street (Boyd Avenue) from Atlantic Avenue, north side, to 89th Avenue (5th Street); 89th Street (Ocean View Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); 90th Street (Woodland Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); and in 91st Street (Thrall Avenue) from Atlantic Avenue, north side, to 91st Avenue (Fulton Street); Fourth Ward". Part 2 and also Drawings of Standard Details pertinent thereto on file in the office of the Engineer.

30 Party of the first part.

II. Whenever the term "The City" or a word "President," or a pronoun in place of either, is used, it refers to and means The City of New York, the party of the first part hereto, or the President of the Borough of Queens, or his authorized representative.

Party of the second part.

40 Whenever the word "Contractor," or a pronoun in place thereof, is used, it refers to and means the party of the second part hereto.

Engineer described.

III. Whenever the word "Engineer," or a pronoun in place thereof, is used, it refers to and means the Engineer in Charge of Sewers, Borough of Queens, acting either directly or through assistants designated by him to act in the premises,

EXHIBIT C-218 (*continued*):

limited to the particular duties entrusted to them. In case said Engineer may not be able to act, then such Engineer as may be designated by the President shall act in his place.

Terms defined.

10 IV. Whenever the word "plan" is used it refers to and means the plan of this work and the standard drawings pertinent thereto. Whenever it is provided that anything is "to be" or "to be done," "if" or "as," or "when" or "where approved," "required," "directed," "permitted," "ordered," "designated" or "deemed necessary" it shall be taken to mean approved, required, permitted, ordered, designated or deemed necessary as the case may be by the Engineer. Whenever the words "desirable," "suitable," "sufficient," "satisfactory" or others of a similar purport are used it is hereby agreed that the desirability, suitability, sufficiency, satisfactoriness or other denominated condition shall be
20 as determined by the Engineer.

Contractor to furnish tools, proper appliances, etc.

V. The Contractor hereby agrees to furnish and provide all materials, labor, and appliances necessary and proper for the purpose, to excavate for, build, complete and connect in a good substantial manner, to the satisfaction of the President, and in conformity with the contract, the hereinbefore entitled work and all the work incidental thereto, and the Contractor hereby agrees
30 to receive and accept as and for his full compensation the following prices, which are the amounts or rates at which this contract was awarded to the Contractor at the public letting thereof:

Prices.

T Y P E "B"

Linear Feet 2'-6" Reinforced Concrete Pipe Sewer (Pre-cast Type "B") Per Linear Foot, Ten Dollars (\$10.00).

40 Linear Feet 2'-3" Reinforced Concrete Pipe Sewer (Pre-cast Type "B") Per Linear Foot, Ten Dollars (\$10.00).

Linear Feet 24-inch Reinforced Concrete Pipe Sewer (Pre-cast Type "B") Per Linear Foot, Seven Dollars (\$7.00).

Linear Feet 22-inch Vitrified Pipe Sewer, Per Linear Foot Six Dollars (\$6.00).

EXHIBIT C-218 (*continued*):

Linear Feet 18-inch Vitrified Pipe Sewer, Per Linear Foot, Five Dollars (\$5.00).

Linear Feet 12-inch Vitrified Pipe Sewer, Per Linear Foot Three Dollars (\$3.00).

Manholes, Complete, Each, Sixty Dollars (\$60.00).

10 Basin Manholes, Complete, Each One hundred Dollars (\$100.00).

Inlets, Complete, Each Forty Dollars (\$40.00).

Linear Feet 12-inch Vitrified Pipe, Basin Connection, Per Linear Foot One Dollars (\$1.00).

Linear Feet 10-inch Vitrified Pipe, Basin Connection, Per Linear Foot, One Dollars (\$1.00).

20 Six-inch Spurs, 24-inches long on Reinforced Concrete Pipe Sewer, (Precast Type "B"), Each One Dollar (\$1.00).

Six-inch Spurs on 22-inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).

Six-inch Spurs on 18-inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).

30 Six-inch Spurs on 12-inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).

Linear Feet 6-inch Vitrified Pipe House Connection Drains, Per Linear Foot, One Dollar (\$1.00).

Quantities are approximate only.

No extra compensation.

40 VI. The Contractor admits that the quantities of materials to be furnished and the amount of work to be done, as stated in the proposal for bids for the work, are approximate only. The Contractor agrees that The City is not to be held responsible that any of said quantities and amounts shall obtain in the construction of the work, as he has judged for himself as to such quantities and amounts and each of them, and as to the other circumstances affecting the cost of the performance of this contract; and that he will not at any time dispute or complain of such statement nor assert that there was any misunderstanding in regard to the character, size or depth of the excavations to

EXHIBIT C-218 (*continued*):

be made or the kind or amount of the materials to be furnished or work to be done. The Contractor hereby agrees that he will not ask, demand, sue for, nor seek to recover for the entire work any extra compensation beyond the amount payable for the several classes of work and kinds of materials in this contract enumerated, which shall be actually performed and furnished, at the prices therefor herein agreed upon and fixed.

10

Sewers, etc., to be built as shown on the plan.

VII. The sewer and appurtenances will be built on the lines, at the depths and at the grades and in the manner shown on the plan of the work as the same will be designated on the ground by the Engineer.

Line may be changed.

20 The President may change the line of the sewer or the location of the receiving basins, or other sewer appurtenances provided such changes do not materially affect either the character or the amount of the work to be done, or the conditions under which it is to be performed, and the Contractor hereby agrees to make no claim for damages or extra compensation on account thereof.

Preservation of points, stakes, etc.

30 The Contractor will safeguard all points, stakes, grade marks, monuments and bench marks made or established on or near the line of work, and he agrees to accept responsibility for and to remedy at his cost any mistakes that may be caused by the unauthorized disturbance or removal of such points, stakes, grade marks, monuments and bench marks.

Written order for extra work.

40 VIII. No claim for additional work or materials shall be made by or allowed to the Contractor, unless before the performance of such additional work the President shall have first authorized the same, in writing, and the same shall have been done or furnished under a written order from the President, given before the performance of such additional work or the furnishing of such additional materials. The aggregate price to be paid for additional work or materials so authorized or ordered shall not exceed five per cent. (5%) of the contract price or the total cost of the work and materials.

EXHIBIT C-218 (*continued*):

Contract may be modified.

This contract may be modified and changed from time to time as may previously be agreed to, in writing, between the parties hereto, in a manner not materially affecting the substance thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein
10 agreed to be done and performed.

Limit to extras.

All claims for additional work or materials in any month shall be made to the Engineer, in writing, before the 15th day of the following month, and failing to make such claim within the time required, the rights of the Contractor to additional pay for such additional work or materials shall be deemed to have been waived and forfeited.

20 Inspection.

Work or materials may be condemned at any time.

IX. The Engineer shall inspect the materials furnished and the work done and see that the same correspond with the specifications. The Engineer is hereby authorized and empowered to reject and refuse all labor and material or method of application, or any part thereof, offered under or in fulfillment of this contract, that do not comply in kind, quality or quantity with the terms thereof. Any material delivered or offered to be delivered under this contract, which shall be rejected by the Engineer as not conforming to the terms thereof, will be forthwith removed by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept the work or materials at any time thereafter.
30
40

Engineer to be final arbiter.

X. To prevent all disputes and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall, in all

EXHIBIT C-218 (*continued*):

10 cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this contract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted by the Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

20 Work and materials must agree with specifications.

XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written notice to be served upon him, then the President may remove, or cause the same to be removed and satisfactorily replaced, by contract or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor; and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under this contract.

Examinations.

40 During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so disturbed. Should the openings disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

EXHIBIT C-218 (*continued*):

Use of patented articles.

10 XII. Wherever an article or any kind of material is specified by a trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circumstances that there can be a fair and reasonable opportunity for competition, the conditions to secure which shall be prescribed by the Board of Estimate and Apportionment."

20 Claims for infringement.

The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will have harmless and indemnify The City against all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

30 Commencement and completion.

40 XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor shall be deemed and taken to be a waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

Time of performance.

XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by

EXHIBIT C-218 (*continued*):

the Engineer, and will execute all the work in every respect in a thorough and workmanlike manner; and he will fully and entirely perform this contract on his part before the expiration of One hundred and ten (100) CONSECUTIVE WORKING DAYS.

Time important.

10 It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

20 In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In
30 case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess of rock excavated and removed in accordance with the measurement of rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered in the prosecution of said
40 work then the time which the Contractor is delayed on account thereof will be determined and allowed by the President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in writing and duly served upon the President prior to the filing in the office

EXHIBIT C-218 (*continued*):

of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

End of time period.

10 The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the Engineer.

Liquidated damages.

20 XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of ten Dollars (\$10.00) for each and every day the time consumed in said performance and completion exceeds the time hereinbefore allowed for that purpose; which said sum, in view of the difficulty of ascertaining the loss which The City will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due to the Contractor under this contract.

Work not provided for in contract.

30 XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

40 President's right to suspend work.

XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the roadways and pavements over the same satisfactorily restored.

EXHIBIT C-218 (*continued*):

and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

No damages to be claimed for delay due to other contracts.

10 XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract; if, however, the Contractor shall be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of the work or any work or any part thereof being suspended as
20 herein before provided, such allowance of time on account thereof as the President shall deem reasonable will be made.

If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing work for The City, the President, or whoever is directed by this contract, to make the certificate in refer-
30 ence to time, shall make such allowance of time for the completion of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be made to the Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

Allowance of time for delays.

40 XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter provided.

Right to construct sewers, etc.

Permits for connections.

XX. Prior to the commencement of and during the progress of the work under this contract the President shall have

EXHIBIT C-218 (*continued*):

10 the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof located on and adjoining the line of the work, and for any connections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any part of this contract, in accordance with Section XVII., and the Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstructions in the way of such persons as may be employed in building such sewers and drains, or in making such connections, and the flow from such sewers, drains and connections will be permitted by the Contractor to discharge into the work built under this contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the work. No new connections or drains will be allowed to be made or joined to the work built under this contract unless a permit therefor has been duly issued by the President, which permit shall be shown in all cases to the Inspector of the work.

Flow of sewers and drains, etc.

Drains, etc., interrupted.

Sewers, etc., to be kept clean.

40 XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When the permanent removal of any existing pipe sewers and appur-

EXHIBIT C-218 (*continued*):

tenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract, or the trenches in which it is to be constructed, follow the line and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to do, at his own cost and expense. All sewers, drains, culverts, basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense, as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work. During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins, culverts and connections built under this contract shall be kept thoroughly cleaned throughout, and shall be left clean.

30 Sale of sand or earth.

XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, backfill the trench with the same material thrown out, provided it be suitable, then the same shall be removed from the line of work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or lessees thereof, will be removed by him and all damage to said

EXHIBIT C-218 (*continued*):

property remedied by him at his own cost and expense. Unless such materials are removed and such damage remedied by the Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due or to become due under this contract.

10

Contractor to give personal attention to work.

Not to assign or sublet.

XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by
20 power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right, title or interest therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, this contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out
30 of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due hereunder, unless authorized as aforesaid by the
40 written consent of the President.

When Contractor is absent.

Disorderly workmen.

Contractor to provide assistance.

XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions,

EXHIBIT C-218 (*continued*):

10 orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be declared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ him on any part of the work. The Contractor will provide all necessary assistance for the Engineer when required, without charge or expense to The City or Engineer.

Contractor to plank and bridge for traffic.

20 XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.

Guards and lights.

Indemnification of City.

30 XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from negligence or carelessness in the performance of the work, or in guarding the same, or from any improper materials used in its prosecution, or by or on account of any act or omission of
40 the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, as its option, be retained by The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

EXHIBIT C-218 (*continued*):

Contractor to make repairs.

10 XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted out of the moneys due or to become due to the Contractor under this contract.

Loss or damage to be assumed by Contractor.

20 XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements, or from incumbrances on or near the line of the work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

Claims for labor, etc.

30 XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any materials toward the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of the State of New York, then, and in every such case, The City shall retain—anything herein contained to the contrary thereto
40 notwithstanding—from the moneys under its control, and due or to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or actions brought to enforce such claim or the lien created by the filing of such notice. The money so retained shall be retained by

EXHIBIT C-218 (*continued*):

The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.

Contractor will prevent filing of liens, etc.

10 XXX. The Contractor will not, at any time, suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to remain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and that any such lien, attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever

20 Evidence of satisfaction of liens, etc.

The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom materials used in the construction of the work may have been purchased or procured are fully satisfied and that the materials furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final

30

Notice to gas companies, etc.

Not to hinder other companies.

40 XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give notice, in writing, to all gas, railroad and other companies owning or controlling any pipe, tracks or other structures which during the progress of the work may be affected by the prosecution of the same so that said companies may protect or remove their structures, and he will not cause any hindrance to, or interference with, any such gas company or other company or companies in protecting their said pipes, tracks or other structures, nor in removing or otherwise protecting and replacing the main and service pipe, lampposts,

EXHIBIT C-218 (*continued*):

lamps, tracks or other structures where necessary, but the Contractor will suffer the said company or companies to take all such measures as are requisite for the purpose aforesaid. But if said gas, railroad, or other companies, within five days after receipt of such notice, fail to support, remove or otherwise protect their structures, the Contractor will upon the approval of the President protect or remove the same, it being expressly understood that the cost thereof shall not be a charge against The City, but shall be a matter for adjustment between the Contractor and the company or companies concerned.

Pipes, conduits, etc., of private companies.

XXXII. It is hereby agreed that The City is not responsible or liable for the support, protection or reconstruction of such gas pipes, conduits, water pipes, tracks or structures owned by private companies enjoying special franchises or occupying any portion of the street or way on or below the surface in its streets or ways, as the Contractor admits that he has carefully examined the location of work, has made special inquiry at the offices of the companies owning, controlling or operating said pipes, conduits, tracks and structures, and he has determined to his satisfaction the character, size, location and length of such pipes, conduits, tracks and structures; that he has inspected the public records of the various City Departments having cognizance and control of pipes, conduits, and other subsurface structures, and of The City's water pipes, conduits and sewers, and he has made such further personal inspection and investigation as he deemed proper to determine the correctness of the information so obtained; and he clearly understands that The City does not insure the accuracy of such reports or information, and agrees that he will not make any claim against The City for damages or extra work caused or occasioned by his relying upon such records, reports or information furnished by any City Department or any companies, either as a whole or in part.

Protection and restoration of pipes, etc., of private companies.

XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures; and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection,

EXHIBIT C-218 (*continued*):

removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, or restoring the said pipes, conduits, tracks or other structures.

- 10 Contractor to notify Department of Water Supply,
Gas and Electricity.

XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

City's water pipes, etc.

- 20 XXXV. If upon excavating it shall be found that any
existing water pipes or appurtenances owned or controlled or
operated by The City follow the lines, or occupy the place, of the
sewer or sewers and appurtenances to be laid or built as shown
on the plan, such existing water pipes and appurtenances will be
removed and relaid, or rebuilt, by and at the cost of the Depart-
ment of Water Supply, Gas and Electricity of The City of New
York; if, however, in order to facilitate the work to be done under
this contract, it be found desirable to temporarily remove any
water pipes or appurtenances owned or controlled or operated by
30 The City, the removal and replacing in their original positions of
such water pipes and appurtenances will be done by the Depart-
ment of Water Supply, Gas and Electricity for the Contractor at
his cost and expense.

Protection of City's water pipes, etc.

- 40 XXXVI. The contractor agrees to protect all water
mains and service water pipes owned, controlled or operated by
The City which may be affected in any manner by the work done
under this contract, except as hereinbefore provided, and to pro-
tect all such water and service pipes from freezing, and if he fails
to do so, the Commissioner of Water Supply, Gas and Electricity
is hereby authorized to protect such main and service pipes, or
in the event of their having suffered injury to replace such pipes,
and recalk and repair the same immediately, as the work pro-
gresses, and the cost thereof shall be charged to the Contractor;
the cost so charged shall be deducted from any sum or sums due

EXHIBIT C-218 (*continued*):

or to become due to the Contractor under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

Protection of gas and water mains and pipes, etc.

10 XXXVII. The Contractor agrees to sustain in their places and protect from injury all water or gas mains, conduits, subways or service pipes, steam pipes and pneumatic pipes, and all sidewalks, curbs, stoops, areas, and all other property in the vicinity of his work, from direct or indirect injury by caving or otherwise, and he hereby assumes all expenses for direct or indirect damage which may be occasioned by injury to any of them, and he agrees to have at all times a sufficient quantity of timber and other necessary materials and appliances on the ground, and will use the same, as required, for bracing and sheeting the sides and ends of excavations, and for sustaining and supporting any
20 and all pipes, conduits, subways, lamp-posts and lamps or other structures that are undermined, weakened, endangered or threatened; and in case any damage or injury shall or may result to said pipes, conduits, subways, lamp-posts and lamps and other works or structures of any gas, electric, railroad or other company whatsoever, or to any private property, through or by reason of any negligence, wilfulness, carelessness or want of skill on the part of the Contractor, his agents or servants, the Contractor hereby agrees to pay such amount as may be sufficient to cover the expense and damages occasioned by such negligence, wilfulness, carelessness or unskillfulness, and that such amount shall
30 be charged against him; and the President is hereby authorized to deduct and retain from any moneys which may be due, or which shall become due, under this Contract, a sum sufficient, in his judgment, to cover the cost of making good any such damages, expense or loss, and to apply said sum so deducted and retained to the requisite repairs or renewals, or to reimburse the parties damaged or injured.

Old water and gas pipes.

40 XXXVIII. All iron, water and gas pipes which it becomes necessary to remove shall be considered the property of The City and will be piled by the Contractor in such part or parts of the streets as may be directed, unless notice to the contrary is given him in writing, in which case he will remove the same at his own expense.

EXHIBIT C-218 (*continued*):

Change of grade.

XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which here is no contract price, the provisions in relation to work not provided for in this contract shall
10 apply.

Measurement of work and material.

XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such
20 plan, lines and specifications. Should the dimensions of any part of the work, or of the materials, be less than those required by the plan, the actual quantities only will be allowed in measurement.

Payment on acceptance of work.

XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations
30 hereinbefore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller. The City will pay to the Contractor on or before the expiration of thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except
40 such sum or sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of the State, or under any ordinance of The City passed prior to the date of this contract and now in force.

Moneys to be retained for repairs to unpaved streets.

It is hereby further agreed that The City shall be and is hereby authorized to retain out the moneys payable to the Con-

EXHIBIT C-218 (*continued*):

10 tractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06 for each linear foot of sewer, basin connection, and house connection constructed under this contract within unpaved streets, and the sum of \$0.25 for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street surface as may become necessary by reason of the work done under this contract within two days of the date of service of notice upon him so to do, then the President may expend such sum or any part thereof in making such repairs.

Payment of retained moneys to be made after six months.

20 It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party of the second part the whole or such part of the moneys retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

Termination of six months' period.

30 It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

40 XLII. The action of the Engineer in Charge of Sewers by which the Contractor is to be bound and concluded according to the terms of this Contract shall be that evidenced by said Engineer's final certificate, all prior certificates upon which eighty-five per centum (85%) payments may have been made being merely estimates, and subject to the corrections of such final certificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based.

85% payments.

XLIII. In case the amount of this contract, based on the Engineer's estimate and the contract prices, shall be five thousand dollars (\$5,000.00) or over, payment will be made to the Con-

EXHIBIT C-218 (*continued*):

tractor by monthly installments of eighty-five Per Cent. (85%) of the estimated value of the work performed, provided the work is being prosecuted in conformity with the provisions of the contract, and in a manner satisfactory to the Engineer, in which case, however, the quantity returned shall be such that the amount paid will be fairly due and in accordance with the provisions and stipulations of this contract; provided, the amount of work done
10 on each installment shall not be less than fifteen hundred dollars (\$1,500.00); and provided that The City may at all times reserve and retain out of said installments, or any of them, all such sum or sums as by the terms hereof or any act of the Legislature of the State of New York, or of any ordinance of The City of New York, now in force, it is or may be authorized to reserve or retain; and provided that where the Contractor, although the lowest bidder in the gross calculation, is to receive unusual or extraordinary prices for any of the different items of the work when considered
20 separately, nothing herein contained shall be construed to affect the right of the President to determine the amount that may be due from time to time, not necessarily by the prices agreed upon in this contract, but by causing an estimate to be made of the value of the work done, taking as a basis of the calculations the whole amount of money that will have become due, according to the terms of this contract, when the whole work shall be completed.

If abandoned, etc.

30 Contract may be declared abandoned.

Completion of work to be undertaken by President.

XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the Engineer shall be of the opinion, and shall so certify, in writing, to the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate
40 of progress compared with the required progress (See Section XIV); or that the Contractor is wilfully violating any of the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed within the time designated in this contract for its completion,

EXHIBIT C-218 (*continued*):

the President may declare this contract or any part thereof abandoned and notify the Contractor to discontinue all work or any part thereof under this contract, by a written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV., or with any employee found on the work, and the Contractor agrees to thereupon discontinue said work or such part thereof, and he further agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work declared abandoned, and to use such materials as he may find upon the line of the work, and to procure other plants and materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor; and it is further agreed that the expense so charged shall be deducted and also liquidated damages for delay in the completion of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work. And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated damages shall be less than the sum which would be payable to the Contractor, if the Contractor had completed the contract, he shall be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to discontinue all or any part of the work, he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the Contractor, for the purpose hereinbefore specified, and no such plant or materials shall be removed so long as the same may be wanted for the work. In the computation of liquidated damages for delay in completion of the work, the time taken by The City or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time taken in advertising and awarding such contract, shall be added to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this clause, and from such total there

EXHIBIT C-218 (*continued*):

10 shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with the persons or workmen employed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

20 Notice to Contractor.

30 XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other communications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service thereof upon the Contractor. It is also further agreed that the place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

Labor law.

40 XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency,

EXHIBIT C-218 (*continued*):

caused by fire, flood or danger to life or property; that the wages to be paid for a legal day's work to all classes of such laborers, workmen or mechanics upon public work or upon any material to be used thereon shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such public work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This
10 contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provisions of section 222 of the Labor Law.

No estoppel.

XLVII. The City shall not, nor shall any Department or officer thereof be precluded or estopped by any return or certificate made or given by the President, any Engineer or other officer, agent or appointee of The City under any provision of
20 this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do not in fact conform to the contract; and The City shall not be
30 precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.

Understanding of plans and specifications.

XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this contract, he has carefully read the same, and the whole thereof, together with and in connection with the plan and specifications, and that he has made such examination of this contract and of
40 said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as to enable him to thoroughly understand the intention of the same; and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and speci-

EXHIBIT C-218 (*continued*):

10 fications; and distinctly agrees that he will not hereafter make any claim or demand upon The City, based upon or arising out of any alleged misunderstanding or misconception on his part of the said requirements, covenants, stipulations and restrictions: and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect whatsoever, upon the total amount of work to be paid for, in the final settlement.

Substitution of sureties.

20 XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or shall be made until the new sureties shall qualify and be accepted by the Comptroller.

Chap. 478, Laws 1916.

30 L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of, and keep insured during the life of this contract, the employees engaged thereon, in compliance with the provisions of Chapter 41 of the laws of 1914, known as the Workmen's Compensation Law, and acts amendatory thereof.

40 IN WITNESS WHEREOF, The President of the Borough of Queens has hereunto set his hand for and on behalf of The City of New York, and the Contractor has also hereunto set his or its hand the day and year herein first above written; and the President and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with the Comptroller of The City of New York, and the third to be delivered to the Contractor.

THE CITY OF NEW YORK,
MAURICE E. CONNOLLY,
President of the Borough of Queens.

ANGELO PAINO,
Contractor.

EXHIBIT C-218 (*continued*):

The City and State of New York,
County of Queens

ss. :

10 On this 1st day of Sept. 1921, before me personally came Maurice E. CONNOLLY, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the same as said Acting President for the purposes therein mentioned.

JEFFERSON J. REILLY,
Commissioner of Deeds, New York City.

20

The City and State of New York, ss. :
County of Queens

30 On this 31st day of August 1921, before me personally came ANGELO PAINO to me known and known to me to be the same person described in and who executed the foregoing instrument, and he acknowledged to me that he executed the same for the purpose therein mentioned.

JEFFERSON J. REILLY,
Commissioner of Deeds, New York City.

40

EXHIBIT C-218 (*continued*):

The City and State of New York, ss. :
County of Queens

10 KNOW ALL MEN BY THESE PRESENTS, that we Angelo Paino, hereinafter after called the "Contractor", and U. S. Fidelity and Guaranty Co., hereinafter caller the "Surety," are held and firmly bound unto The City of New York, in the sum of Twenty nine thousand Dollars, lawful money of the United States of America. to be paid unto THE CITY OF NEW YORK, or to its certain attorneys, successors or assigns; for which payment, well and truly to be made, we and each of us do bind ourselves and our several and respective heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

20 Signed, sealed and dated this 31st day of August 1921.

30 WHEREAS, The above bounden Contractor, by an instrument in writing under his hand, and bearing even date with these presents, one part whereof is hereto annexed, has contracted with The City of New York, by the President of the Borough of Queens, to furnish all the labor and materials, and to excavate for, build, construct and in all respects complete sewer, etc. in 76th Street, from 88th Ave to Jamaica Ave. etc. 4th Ward, together with all the work incidental thereto, as is fully and at large set forth and described in the contract aforesaid.

40 NOW, THEREFORE, The condition of the above obligation is such that if the said above bounden Contractor and its, his or their heirs, executors, administrators and assigns, or any or either of them, shall well and truly, and in a good, sufficient and workmanlike manner, perform or cause to be performed the said contract, and each and every of the covenants, promises, agreements and provisions therein contained on his part to be performed, and complete the same within the period of therein stipulated, and in each and every respect comply with the con-

EXHIBIT C-218 (*continued*):

ditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

ANGELO PAINO [L. S.]

Contractor.

10 United States Fidelity and Guaranty Co.,

By St. LANK HEDGES

Attorney-in-fact.

Attest : WILLIAM H. ESTWICK,

Attorney-in-fact.

#276830-21

20

Tee City and State of New York,

County of Queens

30

On this 31st day of August 1921, before me personally came ANGELO PAINO to me personally known and known to me to be the same person described in and executed the foregoing bond or obligation, and severally acknowledged that he executed the same.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

40

EXHIBIT C-218 (*continued*):

FUNDS

PRESIDENT'S CERTIFICATE

10 It is hereby certified that the estimated cost of the work and materials required by the within contract is Thirty seven thousand eight hundred twenty nine Dollars (\$37829.00), and is chargeable to the Street Improvement Fund of the City of New York.

MAURICE E. CONNOLLY,

President of the Borough of Queens.

20 The City of New York, September 1st, 1921.

30

40

EXHIBIT C-218 (*continued*):

SPECIFICATIONS

10

TRENCHES

Length of trench.

1. Unless otherwise directed or permitted not more than 200 feet of any trench in advance of the end of the built sewer shall be open at any time, and unless written permission to the contrary is given, the trench shall be excavated to its full depth for a distance of at least 20 feet more than the minimum length of sewer permitted to be laid in it. (See paragraphs 127 and 154.) Trenches for house connection drains shall not be open on both sides of the street at the same time, unless permission has previously been given to close the street. Unless otherwise directed each trench for basin connections and house connection drains shall be fully excavated for its entire length before any pipes are laid therein.

Sheeting and bracing.

2. Where necessary the sides of the trenches and excavations shall be supported by adequate sheeting and bracing. Steel sheeting may be used only where directed. Sheetting and bracing will be paid for only when left in place by written order, in which event the amount left in place will be paid for at the contract price for such material. Unless specially permitted sheeting against which concrete is placed shall not be removed and will not be paid for. The Contractor will be held accountable and responsible for the sufficiency of all sheetting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.

Sheetting in soft material.

3. Where the material to be excavated is of such a character as to render it necessary, the sheetting shall be closely driven and to such depth below the bottom of the sewer as may be directed.

EXHIBIT C-218 (*continued*):

Tunneling.

4. All work shall be done in open trenches or excavations; no tunneling shall be done except with the consent of the Engineer.

Trees and stumps.

10 5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.

20 Roadway, sidewalks, etc., to be kept clear.

7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary a roadway not less than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in satisfactory condition, and the work shall at all times be so conducted as to cause a minimum inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

30

Surplus material.

8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the sewer, so much of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

40

Fence.

9. Where necessary a suitable fence shall be placed

EXHIBIT C-218 (*continued*):

along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

- 10 10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

Disposal of water from trenches.

- 20 11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

Cost to be covered.

- 30 12. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

30

EARTH EXCAVATION.

13. Earth excavation shall include the removal of all material other than rock as hereinafter defined.

Width of trench for sewers, etc.

- 40 14. The minimum widths of trenches in earth, for pipe sewers, basin connections, house connection and other drains not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of larger diameters 10 inches on each side of the pipe, exclusive of spurs and hubs. The minimum width of

EXHIBIT C-218 (*continued*):

trenches in earth, inside the sheeting, for other sewers shall be the greatest external width of the structures, including the necessary forms, to be built therein.

- 10 15. Where a manhole or other appurtenance of the foundation therefor extends beyond the exterior lines of the sewer or its foundation, the minimum excavation in earth, required for the same shall be that contained in a prism with vertical sides and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for basin manholes, etc.

- 20 16. The minimum dimensions of the excavation in earth, for brick basin manholes and inlets, shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above the foundation, but in all such cases the excavation shall be large enough to include the foundations for such structures shown on the plan. The excavation for concrete basin manholes and inlets, shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

Depth of trenches.

- 30 17. The trenches shall be excavated to the depths required for the foundations of the sewers and appurtenances shown on the plan, and where the conditions are such as to make it necessary, to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

Cost to be covered.

- 40 18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

EXHIBIT C-218 (*continued*):

ROCK EXCAVATION.

10 19. Rock excavation shall include the excavation and re-
moval of the following materials:

(a) Rock which shall be determined to be of such a character as to warrant its removal by blasting, in order to insure the prompt and proper prosecution of the work.

(b) Boulders and pieces of rock, masonry in mortar and concrete, each of which contains 1 cubic yard or more, except the masonry and concrete of old sewers and their appurtenances.

20 20. Pieces of rock, masonry, concrete or boulders, which fall or slide into the trench from beyond the lines thereof, as herein defined, will not be measured, and the cost of the removal of the same shall be covered by all the contract prices for all the items for which there are contract prices.

Width of trench.

Rock excavation for basin manholes, etc.

30 21. The required width of trench in rock for pipe sewers, basin connections and house connections will be such as to give a clearance of 1 foot on each side of the pipe, exclusive of spurs and hubs; the required width of trench in rock, for other sewers and drains, will be such as to give a clearance of 1 foot on each side of the structure to be built therein at its greatest external width. Where a manhole or other appurtenance, or the foundation therefor, extends beyond the exterior lines of the sewer or its foundation, the excavation in rock required for the same will be that contained in a prism with vertical sides and a horizontal section 1 foot wider on each side
40 than the smallest rectangle which will enclose such appurtenance and its foundation. The required dimensions of the excavation in rock, for basin manholes and inlets will be such as to give a clearance of 1 foot on all sides above their foundation.

Depth of trench.

22. The rock shall be excavated to the depths required for the foundations of the structures as shown on the plan.

EXHIBIT C-218 (*continued*):

Measurement.

23. The volume of rock to be paid for will be that contained in prisms with vertical sides and of such dimensions as to give the widths and clearances hereinbefore specified from the bottoms of the trenches, as specified, to the surface of the rock.

10 Rock stripped.

24. Rock shall be stripped in sections, which, unless otherwise permitted, shall be not less than 50 feet in length, and the Engineer shall then be notified in order that he may measure the same. Rock excavated or blasted before such measurement is made will not be paid for.

Excavation for branches.

20 25. Wherever a branch for a proposed sewer or extension of a sewer is built in rock, the required trench shall be excavated for a distance of not less than 5 feet beyond the end of such branch, in the direction of the proposed sewer or extension.

Blasting.

30 26. All blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives. Any rock excavation within 5 feet of water main less than 36 inches in diameter, and within 10 feet of a water main 36 inches or more in diameter, shall be done with very light charges of explosive, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main.

Exposed structures to be protected.

27. All exposed sewers, manholes receiving basins and other structures shall be carefully protected from the effects of blasts. Any damage done to such structures shall be promptly repaired by the Contractor at his own expense.

40 Price to cover.

28. The contract price for rock excavation shall cover the cost of all labor and materials required to excavate and remove all rock as specified, and without regard to its subsequent use.

EXHIBIT C-218 (*continued*):

BACKFILLING.

Backfilling around sewers, etc.

- 10 29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the sewer, basin connection or house connection, the material for backfilling trenches as excavated shall be clean earth, sand or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

- 20 Backfilling for remainder of trench.

30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This backfilling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

- 30 Backfilling around basin manholes, etc.

31. Backfilling within 2 feet of manholes, house connection drains, basin manholes, inlets and other structures shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

Puddling.

- 40 32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

EXHIBIT C-218 (*continued*):

Deficiency of filling.

10 34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

20 Curves, branches, etc., not to be covered.

36. Basin connections, house and sewer connections and intersections, ends of sewers and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.

Removal of surplus material.

30 37. As the trenches are backfilled, the Contractor shall remove all surplus material and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of and until the final acceptance of the work, he shall maintain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the service upon him of a written notice so to do, the President may furnish all materials and do all work required, and the cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

40

EXHIBIT C-218 (continued):

Cost covered.

38. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

10

CEMENT.

39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

20

Specific gravity; weight.

40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212° F. It shall weigh not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

30

Fineness.

41. The cement shall be dry, finely ground, of uniform color and free for lumps. It shall leave a residue of not more than 8 per cent. by weight, when passed through a No. 100 sieve, and not more than 25 per cent. when passed through a No. 200 sieve.

Tensile strength.

42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table.

40

Neat Cement:

24 hours 175 pounds per sq. in.

EXHIBIT C-218 (*continued*):

7 days (1 day in moist air, 6 days in water) 500 pounds per sq. in.

28 days (1 day in moist air, 27 days in water) 600 pounds per sq. in.

10 Mortar consisting of 1 part cement and 3 parts of Standard Ottawa Sand, by weight:

7 days (1 day in moist air, 6 days in water) 180 pounds per sq. in.

28 days (1 day in moist air, 27 days in water) 225 pounds per sq. in.

20 The average of the tensile strengths developed at each age by the briquettes in any set made from one sample will be considered the strength of the sample at that age, excluding any results that are manifestly faulty. The average strength of briquettes at 28 days shall be greater than the average strength at 7 days, and if tests are made after 28 days the strength shall be not less than that at 28 days.

Soundness.

43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

30 Setting.

44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

Testing.

40 45. The cement will be subjected to such tests as the Engineer may deem necessary, and such tests will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers, except that the time of setting will usually be determined by means of the Gillmore needles. In case of dispute as to the

EXHIBIT C-218 (*continued*):

time of setting, this test will be made by means of the Vicat needle.

Retesting.

46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for testing. Samples will be taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

Delivery and storing.

49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and the name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it has been tested and accepted, and any concrete or masonry which may have been made under such permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.

Cost to be covered.

50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing, shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.

EXHIBIT C-218 (*continued*):

MORTAR.

10 51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and $2\frac{1}{2}$ volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.

Sand.

20 52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestones. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ($\frac{1}{4}$) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5%) per cent, by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1%) per cent. of organic matter.

Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

30 Mixing.

40 53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require retempering shall not be used.

Freezing weather.

54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.

EXHIBIT C-218 (*continued*):

Cost covered.

55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

10

CONCRETE.

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

Class A concrete.

57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken into roughly cubical or pyramidal fragments. Broken stone which contains dust, loam, clay, organic matter or other improper substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings $1\frac{1}{4}$ inches in diameter and shall be retained on a screen with openings $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

30 Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as containing $\frac{9}{10}$ cubic foot, and the other ingredients shall be measured by an approved method.

Water.

59. Only clean fresh water shall be used for concrete.

40 Mixing.

60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required con-

EXHIBIT C-218 (*continued*):

10 sistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about 5 inches deep and shall be thoroughly wetted. The cement and sand shall be mixed dry on a suitable platform, until the mixture has a uniform color. This mixture shall be spread evenly on the bed of wet stone, water added, and the entire mass turned until each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

Placing concrete.

20 61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted the concrete in the work, shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material. When a comparatively dry concrete is used it shall be deposited in horizontal layers not exceeding 6 inches in depth and solidly tamped.

Joining old and new concrete.

40 62. When fresh concrete is to be laid on or adjoining concrete already set, the surface of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

Forms and centres.

63. The Contractor shall provide all necessary forms and centres for shaping concrete wherever used. They shall be true to the required shapes and sizes, strong enough and so secured

EXHIBIT C-218 (*continued*):

10 in place as to withstand all operations incidental to placing the concrete, and watertight, and the faces against which the concrete is to be placed shall be satisfactorily smooth and clean. Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approval lubricant; when no
10 lubricant is required such surfaces shall be thoroughly wetted just before the concrete is placed.

Removal of forms and centres.

64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so
20 has been given.

Exposed surfaces.

65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections or other imperfections be found, such defects shall at once be
30 corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

Freezing weather.

67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed, one per cent. by weight of salt shall be added to the water for each degree Fahrenheit that the temperature of the air is below 32 degrees
40 Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 20 degrees Fahrenheit.

Protection.

68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before filling,

EXHIBIT C-218 (*continued*):

10 backfilling or other material is placed upon or against it. It shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering as well as the concrete shall be kept wet for such time as may be directed.

69. The cost of all concrete and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

BRICK MASONRY.

20

Quality of bricks.

71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location of the work in which they are to be used.

30

How laid.

40 72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall be not wider than $\frac{3}{8}$ inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed $\frac{1}{4}$ inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be racked back in courses, unless otherwise permitted.

Protection.

73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if

EXHIBIT C-218 (*continued*):

required, it shall be sprinkled with water at such intervals and for such a time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, be removed and rebuilt.

Freezing weather.

- 10 74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

Cost of Brick Masonry.

75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

20 STEEL REINFORCEMENT BARS.

Shape.

90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bond with the concrete at frequent intervals and to insure intimate contact between the steel and concrete.

- 30 Samples.

91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

Size.

- 40 92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

Variation in weight.

93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

EXHIBIT C-218 (continued):

Quality.

94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised Standard Specifications for Steel Reinforcement Bars adopted by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

Properties Considered	Structural Steel Grade		Cold Twisted Bars
	Plain Bars	Deformed Bars	
Phosphorus, max.			
Bessemer	0.10	0.10	0.10
Open Hearth	0.05	0.05	0.05
Ultimate Tensile Strength, pounds per sq. in.	55,000-70,000	55,000-70,000	Recorded only
Yield Point, minimum pounds per sq. in.	33,000	33,000	55,000
Elongation, minimum per cent. in 8 inches	1,400,000	1,250,000	5 per cent.
	tens. str.	tens. str.	
Cold bend without fracture:			
Bars under ¾ in. in diam. or thickness	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of 2t.
Bars ¾ in. in diam. or thickness and over ...	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 3t.

t · Nominal thickness or diameter of bar.

95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar when being bent will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

Delivery and protection.

97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from

EXHIBIT C-218 (*continued*):

dirt, scale-rust, paint and oil. Bars which are not to be embedded in concrete within a short time after being placed in the work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

Cutting and bending.

- 10 98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templets. When bars are cut and bent on the work, the Contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing.

- 20 99. All bars shall be as long as can be conveniently used, accurately bent, placed, spaced and jointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.

100. The cost of all steel reinforcement bars and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

WROUGHT IRON.

30

Quality.

- 40 101. Wrought iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation of at least 20 per cent. in 8 inches, and a fracture wholly fibrous. Specimens shall bend cold, with the fiber, through 180 degrees around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

Galvanizing.

102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

EXHIBIT C-218 (*continued*):

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

IRON CASTINGS.

10

Quality.

104. Iron castings shall be of the best foundry pig iron, gray, tough and free from cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The castings shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

20 Cost covered.

105. The cost of all labor and materials required to furnish coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

TIMBER SHEETING.

30

Quality, placing, etc.

110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of sufficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a manner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.

When paid for.

40

111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

EXHIBIT C-218 (*continued*):

Measurement.

112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by written order, and will not include sheeting, dangers and braces left in place without such order, not sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by all the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

Price to cover.

113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to place the same

CONCRETE SEWERS.

(Type "A" or Sewer Department Standard)

30 Inverts.

122. Inverts of concrete sewers shall be formed between transverse templets and shall be screeded. The templets shall be placed at such intervals as to divide the invert into sections of suitable size for convenient construction, and unless otherwise permitted, the concrete shall be deposited in alternate sections and allowed to set before the remaining sections are built. Unless otherwise shown on the plan, a layer of mortar not less than 1/2-inch thick shall be spread evenly and to a smoothly finished surface upon the concrete of the invert as soon as such concrete is in place. Where the radii of inverts are too short to permit screeding between templets, the inverts shall be shaped by means of suitable forms, which shall be removed as soon as the concrete has a sufficient set, and if required, the surfaces of inverts shall be floated or troweled to a smooth finish. The concrete for inverts shall be deposited continuously for their entire cross sec-

EXHIBIT C-218 (*continued*):

tions and for such longitudinal distances as may be convenient. Inverts shall be carefully protected from all injury during progress of the work.

Side walls.

- 10 123. Concrete in the side walls of sewers shall be deposited continuously to the height directed and for such longitudinal distances as may be convenient.

Roof.

- 20 124. Concrete in the roofs of sewers shall be deposited continuously for the full depths and widths of the roofs and for such longitudinal distances as may be convenient. The outer surfaces of roofs shall be finished with an excess of mortar and left true and smooth. They shall be covered and protected as specified in paragraph 68, and such covering shall remain thereon until the backfilling or embankment is placed.

Bulkheads.

- 30 125. While being deposited the concrete for sewers shall be confined by temporary, vertical bulkheads placed at such intervals longitudinally as may be required for convenient working. The bulkheads shall be so designed as to give an approved shape to the end of the section of concrete under construction, shall be satisfactorily secured in place before the concrete is deposited, and shall remain in place until the concrete has set sufficiently to hold its shape.

Reinforcement.

- 40 126. Where shown on the plan concrete sewers shall be reinforced with metal of the dimensions and shapes shown, and of the quality and in the manner hereinbefore specified.

Minimum length of invert.

127. Unless otherwise permitted or ordered, not less than 16 feet of foundation or invert for concrete sewer shall be built at one operation.

EXHIBIT C-218 (*continued*):

Connections.

128. Connections and branches for lateral sewers and receiving basins shall be built in where shown on the plan or where directed. Such connections and branches shall be closed with bulkheads of brick masonry 8 inches thick unless otherwise shown on the plan. All necessary openings and bulkheads for branch sewers shall be built in concrete sewers where shown on the plan or where directed.

Measurements.

129. The lengths of concrete sewers will be determined by horizontal measurements, along their centre lines. No deductions will be made on account of openings at branches and man-holes. The measurement of a branch concrete sewer will be made from the inner surface of the wall of the main sewer through which it enters. A reducer will be paid for at the contract price for the sewer at the larger end thereof.

Price to cover.

130. The contract prices for concrete sewers shall cover the cost of all necessary excavation (except rock); of furnishing, maintaining and removing all forms, centres, templates and temporary bulkheads; of all openings and bulkheads; of all back-filling; and of all labor and materials required to construct concrete sewers as shown by the normal sections on the plan and as specified.

TYPE "B"

CEMENT CONCRETE PIPE WITH REINFORCEMENT

131. Reinforced cement concrete pipe used shall be circular in section with or without that base and shall conform in dimensions as shown in table.

EXHIBIT C-218 (continued):

General dimensions of pipes and minimum test load per lin. ft. of pipe.

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe
10	24"	3 "	4'	3 "	3350 Lbs.
	27"	3½"	4'	3 "	3700 "
	30"	3½"	4'	3 "	4400 "
	33"	4 "	4'	3 "	4600 "
	36"	4 "	4'	4 "	4800 "
	39"	4 "	4'	4 "	5200 "
	42"	4½"	4'	5½"	5600 "
	45"	4½"	4'	5½"	6100 "
	48"	5 "	4'	5½"	6600 "
	51"	5 "	4'	5½"	7050 "
20	54"	5½"	4'	5½"	7500 "
	57"	5½"	4'	5½"	7750 "
	60"	6 "	4'	5½"	8000 "
	63"	6 "	4'	5½"	8400 "
	66"	6½"	4'	5½"	8800 "
	72"	7 "	4'	5½"	9400 "
	78"	8 "	4'	5½"	10400 "
	84"	8 "	4'	5½"	11200 "
	90"	8½"	4'	5½"	12000 "
	96"	8½"	4'	5½"	12800 "
30	102"	9 "	4'	5½"	13600 "
	108"	9 "	4'	5½"	14400 "

Testing pipe.

Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes, for each size of sewer (reinforced concrete) shall be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall

EXHIBIT C-218 (*continued*):

be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering-Construction.

Material of pipe, cement, sand, stone or gravel.

10 132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform to the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be an accurate 1—2—4 mix. Each pipe be stamped as made with date of manufacture.

20 Joints.

133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ($\frac{1}{2}$) per cent from the hereinbefore mentioned dimensions will be permitted.

Jointing.

30 134. All joints to be made of 1 : 2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line making a continuous invert. After this has been done, steel forms especially designed for the purpose shall be placed over and around the entire joint, and the mortar for sealing the arch portion grouted or poured through an opening in the crown of the pipe. Joints must be water-tight.

Laying pipe.

40 135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has not been seasoned for twenty-one (21) days, unless otherwise specially ordered by the Engineer-in-Charge of Engineering-Construction.

Steel for reinforcement.

136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Com-

EXHIBIT C-218 (*continued*):

chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

Identification marks.

10 141. Each pipe shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

Shape and dimensions.

142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows:

	Size	Length	Thickness	Depth of Socket	Annular Space
20	6.....	2 feet	$\frac{5}{8}$ inch	$2\frac{1}{2}$ inches	$\frac{5}{8}$ inch
	8.....	3 "	$\frac{3}{4}$ "	$2\frac{3}{4}$ "	$\frac{5}{8}$ "
	10.....	3 "	$\frac{7}{8}$ "	$2\frac{3}{4}$ "	$\frac{5}{8}$ "
	12.....	3 "	1 "	3 "	$\frac{5}{8}$ "
	15.....	3 "	$1\frac{1}{4}$ "	3 "	$\frac{5}{8}$ "
	18.....	3 "	$1\frac{1}{2}$ "	$3\frac{1}{4}$ "	$\frac{5}{8}$ "
	20.....	3 "	$1\frac{2}{3}$ "	$3\frac{1}{2}$ "	$\frac{5}{8}$ "
	22.....	3 "	$1\frac{5}{6}$ "	$3\frac{3}{4}$ "	$\frac{5}{8}$ "
30	24.....	3 "	2 inches	4 "	$\frac{5}{8}$ "

Curves, bends, etc.

143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective sizes. Curved pipe, bends, siphons, and special pipe of the sizes and forms shown on the plan shall be furnished and laid, and unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

40 Samples for testing.

144. Any or all of the following tests may be applied to samples selected from the pipe delivered on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

EXHIBIT C-218 (*continued*):

Crushing tests.

145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures:

10		Diameter		Pressure			
	6 inches	.....		900	lbs.	per	lin. ft.
	8 "	.....		900	"	"	"
	10 "	.....		1,000	"	"	"
	12 "	.....		1,050	"	"	"
	15 "	.....		1,250	"	"	"
	18 "	.....		1,400	"	"	"
	20 "	.....		1,550	"	"	"
	22 "	.....		1,750	"	"	"
20	24 "	.....		1,950	"	"	"

Drop weight test.

146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2 blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

30 Hydrostatic test.

147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

Absorption test.

40 148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken edges shall not absorb more than 4 per cent. of their weight of water.

Factory rejection.

149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the

EXHIBIT C-218 (*continued*):

materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

Without cradle.

10 151. When the sewer is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

How laid.

20 154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with a smooth and uniform invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.

Gasket and mortar joints.

30 156. Gasket and mortar joints shall be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than $\frac{3}{4}$ -inch, and in one piece of sufficient length to pass around the pipe and lap at the top, shall be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket shall, if desired, be saturated with neat cement grout. The remainder of the space shall then be completely filled with plastic mortar mixed 1 to $1\frac{1}{2}$, and the joint wiped inside and finished to a smooth bevel outside.

40 Inspection of joints.

157. Unless otherwise permitted, at least 4 finished joints shall be left exposed for inspection throughout the working day, and the necessary staging for the protection of the exposed sewers and for the handling of excavated material shall be provided. A suitable ladder affording easy access for such inspection shall be furnished at every trench open for the proposed sewer.

EXHIBIT C-218 (*continued*):

Subgrade to be tested.

158. No pipe shall be laid or placed until the subgrade of the trench shall have been tested and found correct.

Sewer to be kept clean.

10 159. The interior of the sewer shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description.

Backfilling.

20 160. Immediately after the sewer is laid the trench shall be backfilled as provided in paragraphs 29 to 37 inclusive and 157. No walking on or working upon the completed sewer (except as may be necessary in tamping the backfilling) will be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the sewer.

Temporary covers.

161. The exposed ends of pipe sewers shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

Branch pipes.

30 162. Branch pipes and connection pipes shall be of the same quality and dimensions, and laid in the same manner as specified for vitrified pipe sewers. Dead ends of pipes shall be closed with bulkheads of brick masonry 8 inches in thickness.

Connection with existing work.

40 163. Wherever the proposed sewer is to connect with an existing manhole in which there is a branch pipe which is damaged or of unsuitable size or in improper position, such pipe shall be removed and be replaced with a pipe of suitable size or be reset in the proper position. The pipe so substituted or reset will be paid for at the contract price, for the corresponding size of pipe sewer.

Pipes cut to fit masonry.

164. The ends of pipes which enter masonry shall be neatly cut to fit the face of the masonry. When directed, such cutting shall be done before the pipes are built in.

EXHIBIT C-218 (*continued*):

Measurement.

165. The length of pipe sewers to be paid for will be determined by horizontal measurements along their center lines, and no deductions will be made on account of openings at manholes.

10 Prices to cover.

166. The contract prices for vitrified pipe sewers shall cover the cost of all necessary excavation (except rock); of all necessary trimmings, fittings and building into masonry; of all bulkheads; of all backfilling; of all samples furnished; and of all labor and materials required to furnish and lay the sewers complete in place, as shown on the plan and as specified.

20

BASIN CONNECTIONS.

177. The connections between inlets and basin manholes and between basin manholes and sewers or sewer manholes shall be of vitrified pipe of the size shown on the standard details on file in the Engineer's Office, Bureau of Engineering-Construction, Division of Sewers. The pipes shall be of the same quality and dimensions, and laid in the same manner as hereinbefore specified for vitrified pipe sewers.

30

Measurement.

178. The lengths of basin connections to be paid for will be determined by measurements along their axes.

Prices to cover.

179. The contract price for basin connections shall cover the cost of all necessary excavation (except rock); of all necessary trimming, fitting and building into concrete, or masonry; of all backfilling; and of all labor and materials required to furnish and lay the basin connections complete in place as specified.

40

EXHIBIT C-218 (*continued*):

SPURS FOR HOUSE CONNECTIONS.

10 180. Spurs for house connections shall be of vitrified pipe 6 inches in diameter, equal in quality and dimensions to that specified for vitrified pipe sewers.

In concrete sewers.

181. In concrete sewers spurs shall be built in as shown on the plan or as directed. They shall be hub and spigot pipes with the spigot end molded or cut to fit flush with the inner surface of the sewer, and of sufficient length to reach the exterior of the sewer.

In pipe sewers.

20 182. Pipes having 6-inch spurs with hubs molded thereon shall be furnished and laid in pipe sewers where shown on the plan or directed. Such pipes will be paid for at the contract prices for vitrified pipe sewers, and the spurs will be paid for in addition at the contract price for spurs.

Covers.

30 183. The ends of all spurs not connected with drains shall be closed with approved covers. If required such covers shall be cemented in place, and when directed the covers shall be so cemented before the pipes are lowered into the trench.

Price to cover.

184. The contract price for spurs shall cover the cost of all labor and materials required to furnish and place the same as specified, and the cost of furnishing and cementing the covers for the same.

40 DRAINS FOR HOUSE CONNECTIONS.

185. Where shown on the plan or where directed, drains for house connections shall be built from the spurs in such a manner and for such distance as may be shown or directed.

EXHIBIT C-218 (*continued*):

Depth at curb.

186. House connections drains shall be laid with a minimum gradient of $\frac{1}{4}$ inch to a foot, and wherever possible the depth from curb grade to the inner bottom of the drain at curb line shall be at least 8 feet.

10 Material.

187. Unless otherwise shown on the plan, drains for house connections shall be of vitrified pipe of the quality and dimensions specified for vitrified pipe sewers. The ends of the drains shall be closed with approved covers.

How laid.

20 188. All the requirements, as hereinbefore specified, relating to excavation, laying and backfilling of vitrified pipe sewers shall apply, as far as they are applicable, to drains for house connections.

Measurement.

189. The lengths of pipe drains for house connections to be paid for will be determined by measurement along their axes.

Price to cover.

30 190. The contract price for drains for house connections shall cover the cost of all necessary excavation (except rock); the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to furnish and lay the drains for house connections complete in place, as specified.

MANHOLES.

40 194. The masonry or concrete for manholes shall be built to within such distances of the existing surface of the ground as directed.

Brick manholes.

195. Brick manholes shall be formed by means of templets placed at top and bottom with not less than 8 lines drawn be-

EXHIBIT C-218 (*continued*):

tween them, and they shall be smoothly and evenly plastered on the outside with a layer of mortar $\frac{1}{2}$ inch thick.

Steps.

197. Galvanized wrought iron steps of the size and shape shown on the plan shall be firmly built into the manholes at vertical intervals of about 16 inches.

10

Head and cover.

198. The manhole head and cover shall be of cast iron, and unless otherwise shown on the plan, each head, exclusive of cover, shall weigh not less than 500 pounds and each cover shall weigh not less than 160 pounds. The weight of each head and cover shall be conspicuously painted thereon by the manufacturer with white oil paint. The head shall be set on the masonry or concrete in a full bed of stiff mortar.

20

Price to cover.

199. The contract price for manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all plastering; of all bluestones; of all concrete slabs; of all steps; and of all labor and materials required to construct the same complete, in place, as shown on the plan and specified.

30

BASIN MANHOLES

Brick basin manholes.

200. Brick basin manholes shall be formed by means of templets placed at top and bottom with not less than 10 vertical lines drawn between them.

201. Where the walls of brick basin manholes are not built of two rings of brickwork with a mortar layer between, the inside of the brickwork shall be smoothly and even plastered with a layer of 1 — 2 Portland cement mortar $\frac{1}{2}$ inch thick.

40

202. Where the wall of the basin manhole consists of two rings of brickwork, with a mortar layer between, the outer ring shall be carried up not less than 1 foot in advance of the inner ring, and the inner surface of the former shall be plastered with

EXHIBIT C-218 (*continued*):

two coats of mortar. The second coat of mortar shall be applied before the first is set, and the total thickness of the mortar layer shall be 1 inch.

Concrete basin manholes.

- 10 203. Concrete basin manholes shall, if required, be built in such a manner that the bottom and sidewalks shall be formed in one continuous operation. Concrete basins shall be coated with a grout of neat cement on the inside.

Concrete cover slabs.

204. Concrete cover slabs of basin manholes shall be built of Class "A" concrete, reinforced as shown on plan.

Head cover and trap.

- 20 205. The basin manhole head and cover shall be of cast iron, as shown on plan, and known as a Standard Sidewalk Manhole Head and Cover. Each head exclusive of cover shall weigh not less than 260 pounds and each cover shall weigh not less than 100 pounds. An iron hood or trap, of the size and dimensions shown on the plan, must be furnished by the Contractor for each basin manhole and is to be built into the basin manhole, as shown on plan.

Restoration of sidewalks, curbs, etc.

- 30 206. All sidewalk pavements and curbs, disturbed by the construction of basin manholes, shall be restored by the Contractor in accordance with the specifications for similar work of the Bureau of Highways.

Price to cover.

- 40 207. The contract price for basin manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all sidewalk and curb restorations and of all labor and materials required to construct the basin manholes complete in place, as shown on the plan and specified.

INLETS.

208. Inlets and the heads therefor shall be of the materials, forms and dimensions shown on the plan. The specifica-

EXHIBIT C-218 (*continued*):

tions for brickwork and concrete shall be those hereinbefore specified for basin manholes.

Heads.

10 209. The head shall be of cast iron and shall conform in all respects to the specifications for iron castings. If required, the inlets shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

Restoration of roadway pavements, etc.

20 210. All roadway pavements, sidewalk pavements and curbs, disturbed by the construction of inlets, shall be restored by the Contractor in accordance with the specifications of the Bureau of Highways for similar work or specifications hereafter attached. In unpaved streets and macadamized streets where the inlets are approximately at the surface of the street a space of two and one-half ($2\frac{1}{2}$) feet adjoining such inlets shall, if required, be paved with approved paving blocks.

Price to cover.

30 211. The contract price for inlets shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlets, when required; of all roadway, sidewalk and curb restorations; of all labor and materials required to construct the inlets, complete in place, as shown on the plan and specified.

RESTORATION OF SURFACE AND CLEANING UP.

Restoration of unpaved roadways, sidewalks, etc.

40 219. At such time as may be directed, all unpaved roadways, gutters and sidewalks affected by the work done under this contract shall be restored by the Contractor to the same condition in which they were at the time of the opening of bids for this contract.

Pavements, etc., restored by Contractor.

220. If required by the plan, roadway and sidewalk pavements, crosswalks, curbs, etc., shall be satisfactorily restored

EXHIBIT C-218 (*continued*):

and adjusted by the Contractor at such times as may be directed. Sidewalk pavements shall be restored in whole flags, squares or sections which shall correspond in quality and appearance with the original or adjoining flags, squares or sections. All work and materials used in such restoration and adjustment shall conform in all respects to the standard specifications now in use by the President for similar work and materials.

10

Temporary restoration.

222. At such times as may be directed roadway and sidewalk pavements, crosswalks, curbs, etc., which have been removed, whether under guarantee or not, shall be temporarily restored by the Contractor to the satisfaction of the Engineer.

When new pavement is laid.

20

223. If pavement, sidewalks, crosswalks, curbs, etc., are laid where none existed at the time the bids for this contract were opened, the Contractor shall excavate and remove such portions of the pavements, sidewalks, crosswalks, curbs, etc., and their foundations as may be necessary for the prosecution of the work, but he will not be required to make a permanent restoration of them.

Trenches flooded.

30

224. Before laying any pavements, sidewalks, crosswalks, curbs, etc., the trenches shall, if required, be flooded with water, as directed, and all resulting holes or depressions shall be filled and tamped solid.

Cleaning up.

40

225. At such times as may be directed the Contractor shall remove from the streets, all materials which were placed thereon by him as a consequence of performing this work and which are not required by the contract to be left as part of the finished work. The entire work and portions of the streets affected thereby shall be left in a satisfactory condition. The sidewalks and crosswalks shall be swept clean of all material which may have come thereon by reason of the work under this contract, and if required, they shall be sprinkled with water during the sweeping.

EXHIBIT C-218 (*continued*):

Cost to be covered.

226. The cost of all the labor required to be done and all the materials required to be furnished in the performance of all the work specified in paragraphs 219 to 225 inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

10

20

30

40

EXHIBIT C-217:

EXHIBIT C-217.

10 (Contract between The City of New York and Angelo Paine,
for the construction of a sewer and appurtenances in 76th St.
(Lott Ave from 88th Ave (Syosset St) to Jamaica Ave (77th
(Rector) Street from 90th Ave (Clinton Pl) to Jamaica Ave 87th
Road (2d St. from 78th St. Snediker Ave to 80th (Shaw Ave.);
20 88th Ave (3d St. from 76th St. (Lott Ave to 80th St. (Shaw Ave.
(88 Road (4th St.) from 78th (Snediker Ave) Street to 85th
(Yarmouth St. 80th Ave (5th St. from 78th St. (Snediker Ave
to a point 100 ft each of 86th (Ferry) Street.; 90th Ave., (6th
St.) from 77th (Rector) St. to 84th (Digby St.); (90th Road
(7th St. from 78th St. (Snediker Ave.) to 84th (Digby) St.;
91st Ave 8th St. Fulton St. from 78th St. (Snediker Ave) to 89th
St. (Ocean View Ave) etc., together with all work incidental
thereto, fourth ward. Borough of Queens, on August 22, 1921).

ANNEXES TO CONTRACT

30 THE CITY OF NEW YORK — DEPARTMENT OF FINANCE
OFFICE OF THE COMPTROLLER

CONTRACT SUMMARY

Contractor: ANGELO PAINO No. 58232
40 Names of sureties: The U. S. Fidelity & Guaranty Co.
Amount of bond \$28,000.00
Date of award: Aug. 22, 1921; Department Pres. Boro of Queens
Date of contract: Aug. 29, 1921
Date of filing: Aug. 25, 1921. Date paid in ful 6/16/23.

EXHIBIT C-217 (continued):

DESCRIPTION OF WORK

For constructing sewers and appurtenances in 76th St.
10 (Lott Ave from 88th Ave (Syosset St.) to Jamaica Ave (77th;
(Rector) Street from 90th Ave (Clinton Pl) to Jamaica Ave 87th
Road (2d St. from 78th St. Snediker Ave to 80th (Shaw Ave;
88th Ave (3d St. from 76th St. (Lott Ave to 80th St. (Shaw Ave
20 (88 Road (4th St.) from 78th (Snediker Ave) Street to 85th
(Yarmouth St. 80th Ave (5th St. from 78th St. (Snediker Ave
to a point 100 ft each of 86th (Ferry) Street; 90th Ave., (6th
St.) from 77th (Rector) St. to 84th (Digby St.); (90th Road
(7th St. from 78th St. (Snediker Ave) to 84th (Digby) St.;
91st Ave 8th St. Fulton St. from 78th St. (Snediker Ave). to
89th St. (Ocean View Ave) etc., together with all work inciden-
tal thereto, fourth Ward.

30

Original estimate: 34,084.00

R. E. 593.00

\$33,491.00

40

EXHIBIT C-217 (continued):

ACCOUNTS TO BE CHARGED

C. F. M. 25.

10 The obligation on this surety bond ceases as to anything occurring after Sept. 8, 1922.

If the conditions of the contract have been complied with, the retained percentage (if any) is due on or after Sept. 8, 1922.

GEORGE W. MORTAR,

Examiner.

20

PAYMENTS, AMOUNTS RETAINED AND EARNED.

	Date	... % Payments	Amount paid to date	Amount retained to date	Amount earned to date
	10-27-21	6,670.80	6,670.80	1,177.20	7,848.00
	12-22-21	8,701.45	15,372.25	2,712.75	18,085.00
30	4-18-22	11,288.00	26,660.25	4,704.75	31,365.00
	5-17-22	3,240.86	29,901.11	3,589.89	33,491.00
	12-20-22	3,589.89	33,491.00		
		<hr/>			
		\$33,491.00			

IN FULL

40

EXHIBIT C-217 (*continued*):

BOARD OF ESTIMATE AND APPORTIONMENT

CITY OF NEW YORK

10

(Cal. No. 165)

A copy of a resolution of the Local Boards of the Jamaica and Newtown Districts, duly adopted by said Boards on the 18th day of September, 1919, and approved by the President of the Borough of Queens on the 30th day of March, 1920, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

20 "Resolved, That these Boards do hereby initiate proceedings for the said local improvement, to wit:

"For the construction of a sewer and appurtenances in 76th street (Lott avenue) from 88th avenue (Syosset street) to Jamaica avenue; 77th (Rector) street from 90th avenue (Clinton place) to Jamaica avenue; 87th road (2d street) from 78th street (Snedeker avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th road (4th street) 30 from 78th street (Snedeker avenue) to 85th (Yarmouth) street; 89th avenue (5th street) from 78th street (Snedeker avenue) to a point 100 feet east of 86th (Ferry) street; 90th avenue (6th street) from 77th (Rector) street to 84th (Digby street; 90th road (7th street) from 78th street (Snedeker avenue) to 84th (Digby) street; 91st avenue (8th street Fulton street) from 78th street (Snedeker avenue) to 89th street (Ocean View avenue); Rockaway boulevard from Atlantic avenue, north side, to 79th street (Dakota avenue); 79th street (Dakota avenue) from Rockaway boulevard to 91st avenue (8th street); 80th street (Shaw 40 avenue) from Atlantic avenue, north side, to 88th avenue (3d street); 81st street (Nevada avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 82d street (Montana avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 84th (Digby) street from Atlantic avenue, north side, to 89th avenue (5th street), excluding the sewer on the westerly side between 91st avenue and 90th road; 86th (Ferry) street from

EXHIBIT C-217 (*continued*):

Atlantic avenue, north side, to 89th avenue (5th street); 87th street (Benedict avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 88th street (Boyd avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 89th street (Ocean View avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); 90th street (Woodland avenue) from Atlantic avenue north side, to 91st avenue (Fulton street); and
10 in 91st street (Thrall avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); Fourth Ward.”

—and thereupon, on the 25th day of June, 1920, resolution having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment
20 will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolutions, and the said resolution having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed that the cost of the proposed work or improvement, together with the preliminary expenses
30 will be the sum of \$199,000; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$3,451,000, having also been presented, it is:

RESOLVED, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the
40 aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

A true copy of resolution adopted by the Board of Estimate and Apportionment, July 15, 1921.

(Signed) JAMES MATTHEWS,
Assistant Secretary,

EXHIBIT C-217 (*continued*):

CONTRACT NO. 58232

The City of New York

ADVICE OF AWARD OF CONTRACT

10

(This copy to be returned to issuing Department)

*Date Aug. 22, 1921

Dept of PRESIDENT OF THE BOROUGH OF QUEENS.

20

Please take notice that the following contract has been registered in the Department of Finance under the above number, which must appear on all vouchers drawn against such contract.

Contractor: ANGELO PAINO

Adress 2016 East 14th Street, Brooglyn, N. Y.

30

SURETITES

Amt. of Bond \$28,000.00

DETAILS OF PURPOSE OF CONTRACT

40

For constructing sewers and appurtenances in 76th street (Lott Ave.) from 88th Av. (Syosset St.) to Jamaica Ave.; 77th (Rector) Street from 90th Ave. (Clinton Pl.) to Jamaica Ave.; 87th Road (2nd St.) from 78th St. (Snediker Ave.) to 80th St. (Shaw Ave.); 88th Avenue (3rd St.) from 76th St. (Lott Ave.) to 80th St. (Shaw Ave.); 88th Road (4th St.) from 78th (Snediker Ave.) St. to 85th (Yarmouth) St.; 89th Avenue (5th St.)

EXHIBIT C-217 (continued):

from 78th St. (Snediker Ave.) to a point 100 ft. east of 86th (Ferry) St.; 90th Avenue (6th St.) from 77th (Rector) St. to 84th (Digby) St.; 90th Road (7th St.) from 78th St. (Snediker Ave.) to 84th (Digby) St.; 91st Avenue (8th St. Fulton St.) from 78th St. (Snediker Ave.) to 89th St. (Ocean View Ave.), etc., etc., together with all work incidental thereto, Fourth Ward. TYPE "B" PART I.

10

Contract	Chargeable to	Estimated	Contracts	Open Market	Misc. Vouchers, Payrolls, and Other Charges
			Previously Awarded	Orders Issued To Date	
Code No.	Amount		(Including Adjustments)	(Including Adjustments)	
CFM 25	\$34,084.00	\$5,624,623.14	\$5,612.01	\$193,414.87	

20

Enter full titles of accounts and refer to code numbers by means of line numbers in margin.

Street Improvement Fund.

Yours respectfully,

30

CHARLES L. CRAIG, Comptroller.

40

* This will be the date of the entry by which the fund is charged with the estimated amount of the contract both in the department making the award and by the Department of Finance. There must therefore be no delay in forwarding this advice.

EXHIBIT C-217 (*continued*):

T Y P E "B"

CITY OF NEW YORK

10

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

BUREAU OF SEWERS

20

Sealed Bids or Proposals for the herein named work will be received at the office of the President of the Borough of Queens, on the 4th Floor of the Queens, on the 4th Floor of the Queens Subway Building, 68 Hunterspoint Avenue, Long Island City, Borough of Queens, in the City of New York, until 11 o'clock a. m. on Aug. 12, 1921.

30

The time allowed for the completion of the whok and the full performance of the contract is 100 CONSECUTIVE WORKING DAYS.

The liquidated damages for each day in excess of the allowed time, as stipulated in the contract is ten dollars per day.

The amount of SECURITY or surety bond required will be (\$28,000.00).

40

NOTE.—All bids must be submitted upon the proper blank form of bid and in the sealed envelope prepared and furnished by the Borough President, and must be made out as required. Any bid which fails to name the price, both in writing and in figures per unit of measurement for each and every item of the proposed work where quantities are given, or is incomplete, con-

EXHIBIT C-217 (*continued*):

ditional, obscure, or irregular, may be held to be informal and may be rejected, and in case of any discrepancy between the price written in and the bid and that given in figures, the price in writing will be considered as the bid. The writing must be in ink.

10

BID OR ESTIMATE

For constructing sewers and appurtenances in 76th Street (Lott Ave.) from 88th Ave. (Syosset St.) to Jamaica Ave.; 77th (Rector) Street from 90th Ave. (Clinton Pl.) to Jamaica Ave., etc. etc., Fourth Ward, together with all work incidental thereto.

20

P A R T 1

Made by the firm or corporation of ANGELO PAINO

Address 2016 East 14th Brooklyn N. Y.

NAME AND ADDRESS OF EACH AND EVERY MEMBER

OF THE FIRM OR PRINCIPAL OFFICERS OF

30

THE CORPORATION

NOTE.—The bidder's name and residence or address must be inserted herebelow, and in case of a firm, the name and address of each and every member of the firm must be inserted.

In case a bid shall be submitted by or in behalf of any corporation, the complete legal name and address of such corporation must be written herebelow, together with the name, address and title of the principal officers of the corporation.

40

Name ANGELO PAINO

The party named above (of lawful age), as Bidder, declares: That the only person or persons interested in this bid or proposal as principal or principals is or are named above, and

EXHIBIT C-217 (*continued*):

10 that no other person than herein above named has any interest in this bid or in the contract proposed to be taken; that this bid is made without any connection with any other person or persons making a bid for the same work or purpose; that the bid is in all respects fair and without collusion or fraud, and that no member of the Board of Aldermen, no head of a department, no chief of a bureau, deputy thereof, or clerk therein, nor any other officer or employee of The City of New York, is, shall be or become, directly or indirectly, interested as contracting party, partner, stockholder, surety or otherwise in the performance of the contract, or in the supplies, work or business to which it relates, or in any portion of the profits thereof, that he has examined the form of contract and specifications approved by the Corporation Counsel and any plans therein referred to, and that he has visited the site of the proposed work and has made himself familiar with all the existing conditions; and he proposes and agrees, if this bid be accepted, that he will contract in the form so approved, to provide, furnish and deliver all necessary work, labor, services, materials or supplies, machinery tools, plant, and appliances, and to perform and complete all the work mentioned in said approved form of contract and specifications, and in strict accordance with the terms and conditions thereof, and that he will accept in full payment therefor the following named sums or prices:

30 The Engineer's estimate of the quantities as advertised and the nature and extent of the work and materials or supplies required, though stated with as much accuracy as is practicable in advance are approximate only and are given to form a basis of comparison for testing bids and are not guaranteed to be accurate and are not considered as a binding feature of the contract. Before bidding, Contractors must satisfy themselves by personal examination of the Plans, Specifications, Contract, and location of the proposed work, and by such other means as they may prefer, as to the accuracy of the foregoing statement, and they must determine for themselves, and allow for all difficulties which may be encountered in the prosecution of the work.

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EXHIBIT C-217 (continued):

P A R T I

T Y P E "B"

- 10 1. 268 Linear Feet 24 inch Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Seven Dollars (\$7.00).
2. 250 Linear Feet 20 inch Vitrified Pipe Sewer, Per Linear Foot, Six Dollars (\$6.00).
3. 482 Linear Feet 18 inch Vitrified Pipe Sewer, Per Linear Foot, Five Dollars (\$5.00).
- 20 4. 250 Linear Feet 15 inch Vitrified Pipe Sewer, Per Linear Foot, Four Dollars (\$4.00).
5. 4,944 Linear Feet 12 inch Vitrified Pipe Sewer, Per Linear Foot, Three Dollars (\$3.00).
6. 50 Manholes, Complete, Each, Sixty Dollars (\$60.00).
7. 12 Basin Manholes, Complete, Each One hundred Dollars (\$100.00).
- 30 8. 16 Inlets, Complete, Each Fifty Dollars (\$50.00).
9. 360 Linear Feet 12 inch Vitrified Pipe, Basin Connection, Per Lin Ft. One Dollar (\$1.00).
10. 240 Linear Feet 10 inch Vitrified Pipe, Basin Connection, Per Linear Ft., One Dollar (\$1.00).
- 40 11. 10 Six-inch Spurs on 24 inch Reinforced Concrete Pipe Sewer, (Precast Type "B"), Each One Dollar (\$1.00).
12. 14 Six-inch Spurs on 20 inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).
13. 23 Six-inch Spurs on 18 inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).

EXHIBIT C-217 (*continued*):

14. 17 Six-inch Spurs on 15 inch Vitrified Pipe Sewer,
Each One Dollar (\$1.00).
15. 346 Six-inch Spurs on 12 inch Vitrified Pipe Sewer,
Each One Dollar (\$1.00).
- 10 16. 4,304 Linear Feet 6 inch Vitrified Pipe House Con-
nection Drains, Per Linear Foot One Dollar fifty cents (\$1.50).

NOTICE TO BIDDERS.

20 Bidders are invited to tender bids on 24-inch Vitrified
Pipe Sewer, this being the standard of the Sewer Department
and hereafter designated as Type "A" or on 24-inch Reinforced
Concrete Pipe Sewer (Precast Type "B") or on both types if
they so desire, but it is to be distinctly understood that no bids
will be accepted on combinations of Types "A" and "B".

30 No bid will be allowed to be withdrawn, for any reason
whatever, after it has been received and deposited with the Pre-
sident. The President expressly reserves the right to reject all
bids if he shall deem it for the public interest so to do. No bid
will be accepted from, nor contract awarded to, any person who
is in arrears to The City of New York upon debt or contract, or
who is a defaulter, as surety or otherwise, upon any obligation
to The City of New York.

40 No bid or proposal will be received, considered and depo-
sited unless, as a condition precedent to the reception or consi-
deration of any proposal it be accompanied by either a certified
New York, drawn and made payable to the order of the Compt-
roller of the City of New York, or money to the amount of
five per centum (5%) of the amount of the security or surety
bond required for the faithful performance of the contract.
Such check or money must not be inclosed in the sealed envelope
containing the proposal, but must be either inclosed in a
separate envelope addressed to the Borough President, or
submitted personally upon the presentation of the bid or propo-
sal and handed to the officer or clerk of the Department who
has charge of the proposal box, and who will give a proper vou-
cher for the deposit, and no bid can be deposited in said box un-

EXHIBIT C-217 (continued):

10 til such check or money has been examined by said officer or clerk and found to be correct. All such deposits, except that made by the bidder to whom the contract shall be awarded, will be returned to the person or persons making the same within three (3) days after the decision as to who, shall receive the contract. If the bidder to whom the contract shall have been awarded shall refuse or neglect to execute the same within five days after due notice that the contract has been awarded to him, and that the adequacy and sufficiency of the surety offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York as liquidated damages for such neglect or refusal; but if he shall execute the contract and furnish the said security within the time aforesaid, the amount of the deposit shall be returned to him.

20 Each and every person bidding must sign here.

NOTE.—Each and every person bidding and named above must sign here. In the case of a firm, give the name of each and every partner in full.

ANGELO PAINO [L. S.]

.....[L. S.]

30 In case a bid shall be submitted by or in behalf of a corporation it must be signed in the full legal name of such corporation by some authorized officer or agent thereof, who shall subscribe his name and office. If practicable, the seal of the corporation must be affixed.

.....[L. S.]

.....[L. S.]

40 The following affidavit must be similarly signed and sworn to:

THE CITY AND STATE OF NEW YORK,
 COUNTY OF QUEENS.

EXHIBIT C-217 (*continued*):

The above-named bidder (s), being severally duly sworn, say, each for himself, that the several matters stated in the above bid are in all respects true.

ANGELO PAINO

Subscribed and sworn to before me, this 12th day of Aug. 1921.

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CETER J. HANCK,

Notary Public, Queens County.

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EXHIBIT C-217 (*continued*):

ENGINEERING.

December 27, 1921.

Mr. Chandler Withington,

10 Chief Engineer.

Sir :

In relation to Certificate No. 2 in the sum of \$8701.45 for the construction of sewers in 76th Street (Lott Ave.) from 88th Avenue (Syosset St.) to Jamaica Ave., etc., (Part 1) Angelo Paino, Constructor, Contract #58232, I report.

20 The quantities of work returned in this certificate are correct and the work herein returned has been performed in practical conformity with the contract.

Sec. 132 P. 64 of the specification states:

30 Reinforced concrete pipe shall be constructed at the site of the work in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe.

The pipe (precast Type B) in question were not made at the site of the work as required above. I am informed that such pipes were made in New Jersey.

40 I have examined the report of the analysis made in the Testing Laborator of Columbia University of the effect that the pipe substantially contained the prescribed 1-2-4 mix; and I am informed that the pipe in question met the necessary loading test prescribed in the contract.

In my opinion the provision of the specifications requiring the contractor to manufacture the pipe at the site of the work is a means to an end, viz — that the pipe conform to the specifications as to the requisite ingredients and that the finished product be able to withstand the prescribed loading test.

EXHIBIT C-217 (continued):

As stated the end has been realized. If there be no legal objections to the acceptance of said pipe, I recommend that this voucher amounting to \$8701.45 be paid the contractor.

Respectfully,

10

Assistant Engineer.

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EXHIBIT C-217 (*continued*):

CITY OF NEW YORK

Office of

10 THE PRESIDENT OF THE BOROUGH OF QUEENS.

Maurice E. Connolly,
President.

Joseph Flanagan,
Borough Secretary.

20 Hugh Hall,
Secretary to President.

Long Island City, April 26th. 1922.

Hon. Charles L. Craig, Comptroller,
Municipal Building,
City of New York,

Dear Sir :—

30 In accordance with the recommendation of the Engineer of Sewers, this Department, I have granted an extension of time Forty-one (41) working days, to the contractor, Angelo Paino, 32 Court Street, Brooklyn, N. Y., in which to complete the work in connection with contract No. 58232:—

“For constructing a sewer and appurtenances in 76th St (Lott Ave) from 88th Ave. (Syosset St.) to Jamaica Ave.

40 77th (Rector) St. from 90th Ave. (Clinton Pl.) to Jamaica Ave.

87th Road (2nd St.) from 78th St. (Snediker Ave.) to 80th St. (Shaw Ave.) etc., Fourth Ward, (Part #1.)”

On account of the urgency of the sewers in this section of Union Course, the contractor on this work was ordered to commence work just prior to the winter weather, i. e. on September 12, 1921. He started on that day and prosecuted this work all

EXHIBIT C-217 (*continued*):

10 winter. During the mid-winter season the ground became frozen and difficult to excavate. The contractor requested that he be allowed to shut down at that time, as he was not able to make satisfactory progress and an endeavor to do work during that weather was a financial loss to him. We insisted, however, that this work be pushed forward regardless of the weather, as the sanitary conditions in this section had become very acute and we were being constantly requested and petitioned by the people in this section to give them sewer relief. The contractor, therefore, at our persistent urging continued this work from the time he started until the contract was finished, but was naturally slowed up during the severe winter weather before mentioned, and it is for this reason that the above mentioned extension of time was granted.

Very truly yours,

20

BENJAMIN MARIUN,

Acting President of the Borough of Queens,

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EXHIBIT C-217 (*continued*):

ENGINEERING.

May 31, 1922.

Mr. Chandler Withington,

10 Chief Engineer.

Sir:—

20 In relation to final payment in the sum of \$3240.86, for the construction of sewer in 76th St. (Lott Ave.) from 88th Ave. (Syosset St.) to Jamaica Ave. in 77th (Rector) St. fr. 90th Ave. (Clinton Pl.) to Jamaica Ave. in 87th Road (2nd St.) fr. 78th St. (Snediker Ave.) to 80th St. (Shaw Ave.) in 88th Ave. (3rd St.) fr. 76th St. to 80th St. in 88th Road (4th St.) fr. 78th St. to 85th St. (Yarmouth) in 89th Ave. (5th St.) fr. 78th St., to a point 100' east of 86th St. (Ferry), in 90th Ave. (6th St.) from 77th St. to 84th (Digby) St., etc., Fourth Ward ... Part 1, in the Borough of Queens, Angelo Paino, Contractor, Contract No. 5°232, I report.

The quantities of work enumerated in the voucher are correct but I would direct your attention to the following:

30 At least one third of the macadam roadways designated in the plans have not been restored properly in accordance with the specifications, depression, ruts and disintegration show on the surface. I therefore recommend that this payment be withheld pending the satisfactory resurfacing of the roadways.

Respectfully,

Assistant Engineer.

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EXHIBIT C-217 (*continued*):

ENGINEERING.

July 29, 1922.

10 Mr. Chandler Withington,
Chief Engineer.

Sir:—

In answer to communication of Angelo Paino, Contractor, for the construction of sewers and appurtenances in 76th St. (Lott Ave.) from 88th Ave. (Syosset St.) to Jamaica Ave., etc., etc., Part 1, under Contract #58232, requesting reinspection of the roadways covered under this contract, I report.

20 The defective roadway surface has been repaired by the contractor and the work may now be said to substantially conform with contract requirements.

I therefore recommend that the final payment amounting to \$3240.86 withheld pending the satisfactory completion of the surface restoration be released.

30 Respectfully,

Assistant Engineer.

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EXHIBIT C-217 (*continued*):

ENGINEERING.

January 10, 1923.

Mr. Chandler Withington,
Chief Engineer.

10

Sir:—

In relation to certificate in the sum of \$3589.89, retained for six months as security for repairs to the Street Surfaces on Contract No. 58232 for sewer in 76th Street (Lott Ave.) from 88th Ave. (Syossett) to Jamaica Ave., etc., Part 1, Angelo Paino Contractor, I report.

20 Owing to the icy condition of the street surfaces, a physical inspection of the streets disturbed by sewer construction being impracticable, I recommend the payment of this voucher \$3589.89, based on the certificates of the Borough authorities to the effect that the work was in good order on the day of their inspection.

Respectfully yours,

30

Assistant Engineer.

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EXHIBIT C-217 (*continued*):

NOTICE. — Bidders are particularly requested to carefully examine the Proposal for Bids, Form of Agreement, Specifications, Plan and the location of the work and the surroundings thereof before bidding.

10

THE CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

20

BUREAU OF SEWERS

1921

ASSESSMENT WORK

Proposal for Bids, Bid, Bond, Agreement and Specifications

30

“For the construction of a sewer and appurtenances in 76th street (Lott avenue) from 88th avenue (Syosset street) to Jamaica avenue; 77th (Rector) street from 90th avenue (Clinton place) to Jamaica avenue; 87th road (2d street) from 78th street (Snedeker avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th road (4th street) from 78th street (Snedeker avenue) to 85th (Yarmouth) street; 89th avenue (5th street) from 78th street (Snedeker avenue) to a point 100 feet east of 86th (Ferry) street; 90th avenue (6th street) from 77th (Rector) street to 84th (Digby street); 90th road (7th street) from 78th street (Snedeker avenue) to 84th (Digby) street; 91st avenue (8th street Fulton street) from 78th street (Snedeker avenue) to 89th street (Ocean View avenue); Rockaway boulevard from Atlantic avenue, north side, to 79th street (Dakota avenue); 79th street (Dakota avenue) from Rock-

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EXHIBIT C-217 (continued):

away boulevard to 91st avenue (8th street); 80th street (Shaw avenue) from Atlantic avenue, north side, to 88th avenue (3d street); 81st street (Nevada avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 82d street (Montana avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 84th (Digby) street from Atlantic avenue, north side, to 89th avenue (5th street), excluding the sewer on the westerly side between 91st avenue and 90th road; 86th (Ferry) street from Atlantic avenue, north side, to 89th avenue (5th street); 87th street (Benedict avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 88th street (Boyd avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 89th street (Ocean View avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); 90th street (Woodland avenue) from Atlantic avenue north side, to 91st avenue (Fulton street); and in 91st street (Thrall avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); Fourth Ward.”

NOTICE TO BIDDERS.

Bidders are invited to tender bids on 24-inch Vitrified Pipe Sewer, this being the standar of the Sewer Department and hereafter designated as Type “A” or on 24-inch Reinforced Concrete Pipe Sewer (Precast Type “B”) or on both types if they so desire, but it is to be distinctly understood that no bids will be accepted on combinations of Type “A” and “B”.

NOTICE TO BIDDERS.

Prices to be paid by The City of New York for indeterminate quantities, such as

ROCK EXCAVATION	8.00	Per Cu. Yd.
CLASS “A” CONCRETE	15.00	“ “ “
REINFORCING STEEL .....	.06	Per Lb.
STRUCTURAL STEEL .....	.08	“ “
FOUNDATION TIMBER	70.00	Per 1000 Ft. B. M.
SHEETING & BRACING	20.00	“ “ “ “ “
PILING (TIMBER)	1.00	Per Ft. driven and cut-off

EXHIBIT C-217 (*continued*):

Indeterminate quantities shall be those whose amount and necessity will be determined by the conditions encountered during the work of construction.

Time for presenting bids.

- 10 1. Sealed bids for the above-entitled work will be received at the office of the President of the Borough of Queens, Queens Subway Building, Long Island City, in The City of New York, until 11 o'clock a. m., on Friday Aug., 12th, 1921.

Time allowed for completion.

2. The time allowed for the full completion of the work herein described will be One hundred (100) CONSECUTIVE WORKING DAYS.

Security required.

- 20 3. The amount of security required will be Twenty-eight thousand Dollars (\$28,000.00).

Bidders referred to, form of agreement, etc.

- 30 4. Bidders are referred to the form of agreement, to the specifications and to the plan and drawings of Standard Details on file at the office of the President, and to the following Engineer's estimate of the quantity and kind of work required, the items whereof in all cases include all materials and labor necessary to fully complete said work. Price for each item shall be named, upon the sum total of which the comparison and tests of bids will be made.

Engineer's estimate.

TYPE "A" (OR SEWER DEPT. STANDARD).

PART I.

- 40 268 Linear Feet 24-inch Vitrified Pipe Sewer
250 Linear Feet 20-inch Vitrified Pipe Sewer
482 Linear Feet 18-inch Vitrified Pipe Sewer
250 Linear Feet 15-inch Vitrified Pipe Sewer
4,944 Linear Feet 12-inch Vitrified Pipe Sewer
50 Manholes, Complete

EXHIBIT C-217 (*continued*):

	12 Basin Manholes, Complete
	16 Inlets, Complete
	360 Linear Feet 12-inch Vitrified Pipe Basin Connection
	240 Linear Feet 10-inch Vitrified Pipe Basin Connection
10	10 Six-inch Spurs on 24-inch Vitrified Pipe Sewer
	14 Six-inch Spurs on 20-inch Vitrified Pipe Sewer
	23 Six-inch Spurs on 18-inch Vitrified Pipe Sewer
	17 Six-inch Spurs on 15-inch Vitrified Pipe Sewer
	346 Six-inch Spurs on 12-inch Vitrified Pipe Sewer
	4,304 Linear Feet 6-inch Vitrified Pipe House Connection Drains.

20

T Y P E "B"

PART I.

	268 Linear Feet 24-inch Reinforced Concrete Pipe Sewer (Precast Type "B")
	250 Linear Feet 20-inch Vitrified Pipe Sewer
30	482 Linear Feet 18-inch Vitrified Pipe Sewer
	250 Linear Feet 15-inch Vitrified Pipe Sewer
	4,944 Linear Feet 12-inch Vitrified Pipe Sewer
	50 Manholes, Complete
	12 Basin Manholes, Complete
	16 Inlets, Complete
40	360 Linear Feet 12-inch Vitrified Pipe Basin Connection
	240 Linear Feet 10-inch Vitrified Pipe Basin Connection
	10 Six-inch Spurs on 24-inch Reinforced Concrete Pipe Sewer (Precast Type "B")
	14 Six-inch Spurs on 20-inch Vitrified Pipe Sewer
	23 Six-inch Spurs on 18-inch Vitrified Pipe Sewer

EXHIBIT C-217 (*continued*):

17 Six-inch Spurs on 15-inch Vitrified Pipe Sewer
346 Six-inch Spurs on 12-inch Vitrified Pipe Sewer
4,304 Linear Feet 6-inch Vitrified Pipe House Connection
Drains.

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Personal examination of work.

20 5. The foregoing Engineer's Estimate is approximate only and is not to be considered as a binding feature of the contract. Bidders are required to submit their bids upon the following express conditions which apply to and become a part of every bid received. Bidders must satisfy themselves by personal examination of the location of the proposed work and surroundings thereof, and by such other means as they may prefer as to the accuracy of the foregoing estimate, and shall not at any time after submission of their bids, dispute or complain of such estimate of the Engineer, nor assert that there was any misunderstanding in regard to the quantity or kind of materials to be furnished or work to be done.

Prices to be stated in writing and in words and in figures.

30 6. Any bid which fails to name a price, written both in words and in figures, per unit of measurement for each of the items for which quantities are given, will be held to be informal and will be rejected. In case of any discrepancy between the price in words and that in figures, the price in words will be considered as the bid.

Prices bid to cover.

40 7. The prices bid must cover the cost of furnishing all necessary materials and labor for and the complete performance of all the work set forth in this proposal, described in the form of agreement and specifications annexed hereto, and indicated by the plan of the work on file in the office of the President, to all of which information the bidders are referred.

Rock excavation.

8. The attention of the bidders is particularly directed to the specifications relating to rock excavation.

EXHIBIT C-217 (*continued*):

Bids may be rejected.

9. Permission will not be given for the withdrawal of any bid within forty-five (45) days after receipt of bids, and the right is expressly reserved by the President to reject all bids if he shall deem it to be in the public interest so to do. No bid will be accepted from, or contract awarded to, any person who is in arrears to The City of New York upon debt or contract or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

Times and places for commencing and prosecuting work to be determined by the President.

10. Bidders are especially notified that the President reserves the right to determine the times and places for commencing and prosecuting the work, and that postponement or delay on the whole, or any part thereof, occasioned by the precedence of other contracts, which may be either let or executed before the opening of the bids for this work, can constitute no claim for damages nor for a reduction of the damages fixed for delay in completing the work beyond the time allowed.

No extra compensation.

11. The Contractor will be required to complete the entire work to the satisfaction of the President and in accordance with the agreement, the specifications and the plan of the work. No extra compensation beyond the amount payable for the several classes of work hereinbefore enumerated, which shall be actually furnished and performed at the prices bid therefor by the bidder to whom the contract is awarded, shall be due or payable for the entire materials and work.

Deposit to accompany bid.

12. No bid will be received or considered unless accompanied by either a certified check upon one of the National or State Banks or Trust Companies of The City of New York, or a check of such bank or trust company signed by a duly authorized officer thereof, drawn to the order of the Comptroller, or money or corporate stock or certificate of indebtedness of any nature issued by the City of New York, which the Comptroller shall approve as of equal value with the security required, to an amount of five per centum of the amount of the bond required for the faithful performance of the contract (as provided by sec-

EXHIBIT C-217 (*continued*):

tion 420 of The Greater New York Charter, as amended). Such check or money or other form of security must not be inclosed in the sealed envelope containing the bid, but must be handed to the officer or clerk who has charge of the bidding, and no bid shall be deposited in the box provided for that purpose until such check or money or other form of security has been examined by
10 said officer or clerk and found to be correct. All such deposits, except those of the lowest three bidders, will be returned to the persons making the same within 10 days after the opening of the bids; within three days after the awarding of the contract, the remaining deposits, except that made by the bidder whose bid has been accepted, will be returned to the persons making the same. If the successful bidder shall refuse or neglect to execute the contract within five days after notice that it has been awarded to him, and that the adequacy and sufficiency of the security offered has been approved by the Comptroller, the amount of
20 the deposit made by him shall be forfeited to and retained by The City of New York, but if he shall execute the contract and furnish the required security within the time aforesaid, the amount of his deposit will be returned to him.

Names of persons interested.

13. Bidders are required to state in their bids, under oath, their names and places of residence or business, the names of all persons interested with them therein, and if no other person be so interested, they shall distinctly state that fact; also,
30 that it is made without any connection with any other person making any bid for the same purpose, and that it is in all respects fair and without collusion or fraud; and that no member of the Board of Aldermen, head of a department, chief of a bureau, deputy thereof or clerk therein or officer or employee of The City of New York, is, shall be or become interested, directly or indirectly, as contracting party, partner, stockholder, surety or otherwise, in or in the performance of the contract or in the material, work or business to which it relates, or in any portion
40 of the profits thereof. Bidders must verify by oath, in writing, the several matters stated in their bids.

Sealed bids to be submitted.

14. Each bid must be delivered in a sealed envelope, endorsed with the title of the work for which the bid is made, with the name of the bidder, and the date of presentation to the Pre-

EXHIBIT C-217 (*continued*):

10 sident at his office, on or before the date and hour hereinbefore named, at which time and place the bids received will be publicly opened by the President and read and the award of the contract made according to law as soon thereafter as practicable. The person or persons to whom the contract may be awarded will be required to attend at said office with the sureties offered by him or them and execute the contract within five days from the date of the service of a notice to the effect that the contract has been so awarded and the surety accepted; and in case of failure or neglect so to do he or they will be considered as having abandoned the contract and as being in default to the City.

Bidders shall use blank forms to be furnished by the President.

20 15. Bidders shall make their bids upon the forms prepared by the President, a copy of which with the proper envelope in which to enclose the same can be obtained upon application therefor at the office of the President, Queens Subway Building, Long Island City, where the plan can be seen, as also the form of contract, including the specifications in the form approved by the Corporation Counsel.

MAURICE E. CONNOLLY,
President of the Borough of Queens.

30 The City of New York , 192...

THE CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

40

BUREAU OF SEWER

Contract for the construction of a sewer and appurtenances in 76th street (Lott avenue) from 88th avenue (Syosset street) to Jamaica avenue; 77th (Rector) street from 90th avenue (Clin-

EXHIBIT C-217 (*continued*):

ton place) to Jamaica avenue; 87th road (2d street) from 78th street (Snedeker avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th road (4th street) from 78th street (Snedeker avenue) to 85th (Yarmouth) street; 89th avenue (5th street) from 78th street (Snedeker avenue) to a point 100 feet east of 86th (Ferry) street; 90th avenue (6th street) from 77th (Rector) street to 84th (Digby street; 90th road (7th street) from 78th street (Snedeker avenue) to 84th (Digby) street; 91st avenue (8th street Fulton street) from 78th street (Snedeker avenue) to 89th street (Ocean View avenue); Rockaway boulevard from Atlantic avenue, north side, to 79th street (Dakota avenue); 79th street (Dakota avenue) from Rockaway boulevard to 91st avenue (8th street); 80th street (Shaw avenue) from Atlantic avenue, north side, to 88th avenue (3d street); 81st street (Nevada avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 82d street (Montana avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 84th (Digby) street from Atlantic avenue, north side, to 89th avenue (5th street), excluding the sewer on the westerly side between 91st avenue and 90th road; 86th (Ferry) street from Atlantic avenue, north side, to 89th avenue (5th street); 87th street (Benedict avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 88th street (Boyd avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 89th street (Ocean View avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); 90th street (Woodland avenue) from Atlantic avenue north side, to 91st avenue (Fulton street); and in 91st street (Thrall avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); Fourth Ward.”

Part 1 together with all the work incidental thereto.
Parties.

This Agreement, made and entered into this 29th day of August, in the year one thousand nine hundred and 21 by and between The City of New York, party of the first part, by the President of the Borough of Queens, and Angelo Paino of 2016 East 14th Street, Brooklyn, Contractor, party of the second part, pursuant to the provisions of The Greater New York Charter, and the resolution of The Board of Estimate and Apportionment adopted on the 25th day of June 1920, of which resolution the following is a copy:

EXHIBIT C-217 (*continued*):

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT

City of New York

10

(Call. No. 165)

A copy of a resolution of the Local Board of the Jamaica & Newton District, duly adopted by said Board on the 18th day of September, 1919, and approved by the President of the Borough of Queens on the 30th day of March, 1920, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

20 “RESOLVED, That this Board does hereby initiate proceedings for the said local improvement, to wit:

 “For the construction of a sewer and appurtenances in 76th street (Lott avenue) from 88th avenue (Syosset street) to Jamaica avenue; 77th (Rector) street from 90th avenue (Clinton place) to Jamaica avenue; 87th road (2d street) from 78th street (Snedeker avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott 30 avenue) to 80th street (Shaw avenue); 88th road (4th street) from 78th street (Snedeker avenue) to 85th (Yarmouth) street; 89th avenue (5th street) from 78th street (Snedeker avenue) to a point 100 feet east of 86th (Ferry) street; 90th avenue (6th street) from 77th (Rector) street to 84th (Digby street; 90th road (7th street) from 78th street (Snedeker avenue) to 84th (Digby) street; 91st avenue (8th street Fulton street) from 78th street (Snedeker avenue) to 89th street (Ocean View avenue); Rockaway boulevard from Atlantic avenue, north side, to 79th street (Dakota avenue); 79th street (Dakota avenue) from Rock- 40 away boulevard to 91st avenue (8th street); 80th street (Shaw avenue) from Atlantic avenue, north side, to 88th avenue (3d street); 81st street (Nevada avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 82d street (Montana avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 84th (Digby) street from Atlantic avenue, north side, to 89th avenue (5th street), excluding the sewer on the westerly side

EXHIBIT C-217 (*continued*):

10 between 91st avenue and 90th road; 86th (Ferry) street from Atlantic avenue, north side, to 89th avenue (5th street); 87th street (Benedict avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 88th street (Boyd avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 89th street (Ocean View avenue) from Atlantic avenue, north side, to 91st avenue (Fulton avenue); 90th street (Woodland avenue) from Atlantic avenue north side, to 91st avenue (Fulton street); and in 91st street (Thrall avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); Fourth Ward.”

20 And thereupon, on the 25th day of June, 1920, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Appointment an estimate in writing in such detail as the Board has directed, that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$199,000; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$3,451,000 having also been presented. it is

40 **RESOLVED**, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

EXHIBIT C-217 (*continued*):

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on Dated New York.

Assistant Secretary,

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Board of Estimate and Apportionment.

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT

CITY OF NEW YORK

20

Cal. No. 49

WHEREAS, The President of the Borough of Queens has transmitted to the Board of Estimate and Apportionment a copy of a resolution of the Local Board of the Jamaica & Newtown District, duly adopted by said Board of the 18th day of Sept., 1919 and approved by the President of the Borough of Queens on the 30th day of March, 1920 as follows, to wit:

30 "RESOLVED, That this Board does hereby initiate proceedings for the said local improvement to wit:

40 "For the construction of a sewer and appurtenances in 76th street (Lott avenue) from 88th avenue (Syosset street) to Jamaica avenue; 77th (Rector) street from 90th avenue (Clinton place) to Jamaica avenue; 87th road (2d street) from 78th street (Snedeker avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th road (4th street) from 78th street (Snedeker avenue) to 85th (Yarmouth) street; 89th avenue (5th street) from 78th street (Snedeker avenue) to a point 100 feet east of 86th (Ferry) street; 90th avenue (6th street) from 77th (Rector) street to 84th (Digby street); 90th road (7th street) from 78th street (Snedeker avenue) to 84th (Digby) street; 91st avenue (8th street Fulton street) from 78th street (Snedeker avenue) to 89th street (Ocean View avenue);

EXHIBIT C-217 (*continued*):

Rockaway boulevard from Atlantic avenue, north side, to 79th street (Dakota avenue); 79th street (Dakota avenue) from Rockaway boulevard to 91st avenue (8th street); 80th street (Shaw avenue) from Atlantic avenue, north side, to 88th avenue (3d street); 81st street (Nevada avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 82d street (Montana avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 10 84th (Digby) street from Atlantic avenue, north side, to 89th avenue (5th street), excluding the sewer on the westerly side between 91st avenue and 90th road; 86th (Ferry) street from Atlantic avenue, north side, to 89th avenue (5th street); 87th street (Benedict avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 88th street (Boyd avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 89th street (Ocean View avenue) from Atlantic avenue, north side, to 91st avenue (Fulton avenue); 90th street (Woodland avenue) from Atlantic avenue north side, to 91st avenue (Fulton street); and 20 in 91st street (Thrall avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); Fourth Ward.”

and which resolution is accompanied with an approximate estimate of the cost of work and the assessed value of the property benefited.

RESOLVED, That the Board of Estimate and Apportionment hereby authorizes the President of the Borough of Queens to prepare plans, specifications and an estimate of cost based on actual survey, and also to secure a determination of the 30 boundary of the district of assessment; the entire expense of the work done subsequent to the date of this authorization to be charged against the Street Improvement fund and later included in the assessment.

RESOLVED, That the Board of Estimate and Apportionment will consider the authorization of the construction of the said proposed improvement after the President of the Borough of Queens has submitted a statement showing that all of the 40 above described work has been done, that he has secured the approval of the form of contract by the Corporation Counsel, that he is prepared to place the improvement under contract as soon as he receives the consent of the Board, and that the assessment may will be completed on or before the date of payment on acceptance; this report being accompanied by a further statement showing the quantity of work to be performed under each item and the unit price thereof, the expense incurred for preliminary

EXHIBIT C-217 (*continued*):

work, the allowance to be made for additional engineering and contingencies, the total probable cost, and the number of working days to be allowed the contractor for carrying out the work.

A true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on June 25, 1920.

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Dated, New York.

(signed) JAMES MATTHEWS

Assistant Secretary,

Board of Estimate and Apportionment.

20

WITNESSETH, That the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the party of the first part for itself and its successors, and the party of the second part for itself, himself, of themselves, and its, his or their executors, administrators, successors and assigns, as follows:

30

Contract.

I. The contract for the hereinbefore entitled work shall include the following, which are hereby agreed upon as forming part and parcel thereof: the Proposal for Bids, the Bid, the Bond, this Agreement and the Specifications hereto annexed; also the Plan of the Work dated March 20th, 1921, filed in the office of the President of the Borough, entitled: Plan and Profile for the construction of a sewer and appurtenances in 40 76th street (Lott avenue) from 88th avenue (Syosset street) to Jamaica avenue; 77th (Rector) street from 90th avenue (Clinton place) to Jamaica avenue; 87th road (2d street) from 78th street (Snedeker avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th avenue (3d street) from 76th street (Lott avenue) to 80th street (Shaw avenue); 88th road (4th street) from 78th street (Snedeker avenue) to 85th (Yarmouth) street;

EXHIBIT C-217 (*continued*):

89th avenue (5th street) from 78th street (Snedeker avenue) to a point 100 feet east of 86th (Ferry) street; 90th avenue (6th street) from 77th (Rector) street to 84th (Digby street; 90th road (7th street) from 78th street (Snedeker avenue) to 84th (Digby) street; 91st avenue (8th street Fulton street) from 78th street (Snedeker avenue) to 89th street (Ocean View avenue);
10 Rockaway boulevard from Atlantic avenue, north side, to 79th street (Dakota avenue); 79th street (Dakota avenue) from Rockaway boulevard to 91st avenue (8th street); 80th street (Shaw avenue) from Atlantic avenue, north side, to 88th avenue (3d street); 81st street (Nevada avenue) from Atlantic avenue, north side, to 91st avenue (8th street); 82d street (Montana avenue) from Atlantic avenue, north side, to 91st avenue (8th street);
20 84th (Digby) street from Atlantic avenue, north side, to 89th avenue (5th street), excluding the sewer on the westerly side between 91st avenue and 90th road; 86th (Ferry) street from Atlantic avenue, north side, to 89th avenue (5th street); 87th street (Benedict avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 88th street (Boyd avenue) from Atlantic avenue, north side, to 89th avenue (5th street); 89th street (Ocean View avenue) from Atlantic avenue, north side, to 91st avenue (Fulton avenue); 90th street (Woodland avenue) from Atlantic avenue north side, to 91st avenue (Fulton street); and in 91st street (Thrall avenue) from Atlantic avenue, north side, to 91st avenue (Fulton street); Fourth Ward.”

30 And also Drawings of Standard Details pertinent thereto on file in the office of the Engineer.

Party of the first part.

II. Whenever the term “The City” or a word “President,” or a pronoun in place of either, is used, it refers to and means The City of New York, the party of the first part hereto, of the President of the Borough of Queens, or his authorized representative.

40 Party of the second part.

Whenever the word “Contractor,” or a pronoun in place thereof, is used, it refers to and means the party of the second part hereto.

EXHIBIT C-217 (*continued*):

Engineer described.

10 III. Whenever the word "Engineer," or a pronoun in place thereof, is used, it refers to and means the Engineer in Charge of Sewers, Borough of Queens, acting either directly or through assistants designated by him to act in the premises, limited to the particular duties entrusted to them. In case said
10 Engineer may not be able to act, then such Engineer as may be designated by the President shall act in his place.

Terms defined.

20 IV. Whenever the word "plan" is used it refers to and means the plan of this work and the standard drawing pertinent thereto. Whenever it is provided that anything is "to be" or "to be done", "if" or "as", or "when" or "where approved," "required," "directed," "permitted," "ordered," "designated" or "deemed
20 necessary" it shall be taken to mean approved, required, permitted, ordered, designated or deemed necessary as the case may be by the Engineer. Whenever the words "desirable," "suitable," "sufficient," "satisfactory" or others of a similar purport are used it is hereby agreed that the desirability, suitability, sufficiency, satisfactoriness or other denominated condition shall be as determined by the Engineer.

Contractor to furnish tools, proper appliances, etc.

30 V. The Contractor hereby agrees to furnish and provide all materials, labor, and appliances necessary and proper for the purpose, to excavate for, build, complete and connect in a good substantial manner, to the satisfaction of the President, and in conformity with the contract, the hereinbefore entitled work and all the work incidental thereto, and the Contractor hereby agrees to receive and accept as and for his full compensation the following prices, which are the amounts or rates at which this contract
40 was awarded to the Contractor at the public letting thereof:
40 Prices.

T Y P E "B"

Linear Feet 24-inch Reinforced Concrete Pipe Sewer (Pre-cast Type "B"), Per Linear Foot Seven Dollars (\$7.00).

EXHIBIT C-217 (continued):

Linear Feet 20-inch Vitrified Pipe Sewer, Per Linear Foot, Six Dollars (\$6.00).

Linear Feet 18-inch Vitrified Pipe Sewer, Per Linear Foot, Five Dollars (\$5.00).

10 Linear Feet 15-inch, Vitrified Pipe Sewer, Per Linear Foot, Four Dollars (\$4.00).

Linear Feet 12-inch Vitrified Pipe Sewer, Per Linear Foot, Three Dollars (\$3.00).

Manholes, Complete, Each, Sixty Dollars (\$60.00).

Basin Manholes, Complete, Each, One hundred Dollars (\$100.00).

20 Inlets, Complete, Each, Fifty Dollars (\$50.00).

Linear Feet 12-inch Vitrified Pipe, Basin Connection, Per Linear Foot, One Dollar (\$1.00).

Linear Feet 10-inch Vitrified Pipe, Basin Connection, Per Linear Foot, One Dollar (\$1.00).

30 Six-inch Spurs on 24-inch Reinforced Concrete Pipe Sewer (Precast Type "B"), Each One Dollar (\$1.00).

Six-inch Spurs on 20-inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).

Six-inch Spurs on 18-inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).

Six-inch Spurs on 15-inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).

40 Six-inch Spurs on 12-inch Vitrified Pipe Sewer, Each One Dollar (\$1.00).

Linear Feet 6-inch Vitrified Pipe House Connection Drains Per Linear Foot, One .50-100 Dollars (\$1.50).

EXHIBIT C-217 (*continued*):

Quantities are approximate only.

No extra compensation.

- VI. The Contractor admits that the quantities of materials to be furnished and the amount of work to be done, as stated in the proposal for bids for the work, are approximate only.
- 10 The Contractor agrees that The City is not to be held responsible that any of said quantities and amounts shall obtain in the construction of the work, as he has judged for himself as to such quantities and amounts and each of them, and as to the other circumstances affecting the cost of the performance of this contract; and that he will not at any time dispute or complain of such statement nor assert that there was any misunderstanding in regard to the character, size or depth of the excavations to be made or the kind or amount of the materials to be furnished or
- 20 work to be done. The Contractor hereby agrees that he will not ask, demand, sue for, nor seek to recover for the entire work any extra compensation beyond the amount payable for the several classes of work and kinds of materials in this contract enumerated, which shall be actually performed and furnished, at the prices therefor herein agreed upon and fixed.

Sewers, etc., to be built as shown on the plan.

- VII. The sewer and appurtenances will be built on the lines, at the depths and at the grades and in the manner shown on
- 30 the plan of the work as the same will be designated on the ground by the Engineer.

Line may be changed.

- The President may change the line of the sewer of the basin manholes, inlets, or other sewer appurtenances provided such changes do not materially affect either the character or the amount of the work to be done, or the conditions under which it
- 40 is to be performed, and the Contractor hereby agrees to make no claim for damages or extra compensation on account thereof.

Preservation of points, stakes, etc.

The Contractor will safeguard all points, stakes, grade marks, monuments and bench marks made or established on or near the line of work, and he agrees to accept responsibility for and to

EXHIBIT C-217 (*continued*):

remedy at his cost any mistakes that may be caused by the unauthorized disturbance or removal of such points, stakes, grade marks, monuments and bench marks.

Written order for extra work.

10 VIII. No claim for additional work or materials shall be made by or allowed to the Contractor, unless before the performance of such additional work the President shall have first authorized the same, in writing, and the same shall have been done or furnished under a written order from the President, given before the performance of such additional work or the furnishing of such additional materials. The aggregate price to be paid for additional work or materials so authorized or ordered shall not exceed five (5) per cent, of the contract price or the total cost of the work and materials.

20 Contract may be modified

This contract may be modified and changed from time to time as may previously be agreed to, in writing, between the parties hereto, in a manner not materially affecting the substances thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.

30 Limit to extras.

All claims for additional work or materials in any month shall be made to the Engineer; in writing, before the 15th day of the following month, and failing to make such claim within the time required, the rights of the Contractor to additional pay for such additional work or materials shall be deemed to have been waived and forfeited.

Inspection.

40 Work or materials may be condemned at any time.

IX. The Engineer shall inspect the materials furnished and the work done and see that the same correspond with the specifications. The Engineer is hereby authorized and empowered to reject and refuse all labor and material or method of application, or any part thereof, offered under or in fulfillment

EXHIBIT C-217 (*continued*):

of this contract, that do not comply in kind, quality or quantity with the terms thereof. Any material delivered or offered to be delivered under this contract, which shall be rejected by the Engineer as not conforming to the terms thereof, will be forthwith removed by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept the work or materials at any time thereafter.

20 Engineer to be final arbiter.

X. To prevent all dispute and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall in all cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this contract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive upon the Contractor; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

40 Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted by the Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

Work and materials must agree with specifications.

XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best

EXHIBIT C-217 (*continued*):

10 kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written notice to be served upon him, then the President may remove, or cause the same to be removed and satisfactorily replaced, by contract or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor; and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under his contract.

Examination.

20 During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so disturbed. Should the opening disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

Use of patented articles.

30 XII. Wherever an article or any kind of material is specified by trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York
40 Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circumstances that there can be a fair and reasonable opportunity for competition, the condition to secure which shall be prescribed by the Board of Estimate and Apportionment."

EXHIBIT C-217 (*continued*):

Claims for infringement.

10 The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will save harmless and indemnify The City all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

Commencement and completion.

20 XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor without notice shall be deemed and taken to be a waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

Time of performance.

30 XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by the Engineer, and will execute all the work in every respect in a thorough and workmanlike manner; and he will fully and entirely perform this contract on his part before the expiration of One hundred (100) CONSECUTIVE WORKING DAYS.

Time important.

40 It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

EXHIBIT C-217 (*continued*):

10 In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess of rock excavated and removed in accordance with the measurement of rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered in the prosecution of said work, then the time which the Contractor is delayed on account thereof will be determined and allowed by the President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in writing and duly served upon the President prior to the filing in the office of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

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End of time period.

40 The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the Engineer.

Liquidated damages.

XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of Ten 00/100 Dollars (\$10.00) for each and every day the time consumed in

EXHIBIT C-217 (*continued*):

10 said performance and completion exceeds the time hereinbefore allowed for that purpose; which said sum, in view of the difficulty of ascertaining the loss which The City will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due under this contract.

Work not provided for in contract.

20 XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

President's right to suspend work.

30 XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the roadways and pavements over the same satisfactorily restored, and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

No damages to be claimed for delay due to other contracts.

40 XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract; if, however, the Contractor shall

EXHIBIT C-217 (*continued*):

be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of the work or any part thereof being suspended as hereinbefore provided, such allowance of time on account thereof as the President shall deem reasonable will be made.

10 If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing the work for The City, the President, or whoever is directed by this contract, to make the certificate in reference to time, shall make such allowance of time for the completion of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be
20 made to the Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

Allowance of time for delays.

XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter provided.
30

Right to construct sewers, etc.

Permits for connections.

XX. Prior to the commencement of and during the progress of the work under this contract the President shall have the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof
40 located on and adjoining the line of the work, and for any connections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any part of this contract, in accordance with Section XVII, and the Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract

EXHIBIT C-217 (*continued*):

10 or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstruction in the way of such persons as may be employed in building such sewers and drains, or in making such connections, and the flow from such
20 sewers, drains and connections will be permitted by the Contractor to discharge into the work built under his contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the work. No new connections or drains will be allowed to be made or joined to the work built under this contract unless a permit therefor
has been duly issued by the President, which permit shall be shown in all cases to the Inspector of the work.

Flow of sewers and drains, etc.

Drains, etc., interrupted.

Sewers, etc., to be kept clean.

30 XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When
40 the permanent removal of any existing pipe sewers and appurtenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract, or the trenches in which it is to be constructed, follow the line, and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin

EXHIBIT C-217 (*continued*):

connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to do, at his own cost and expense. All sewers, drains, culverts, basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense, as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work. During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins, culverts and connections built under this contract shall be kept thoroughly cleaned throughout, and shall be left clean.

Sale of sand or earth.

XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, backfill the trench with the same material thrown out, provided it be suitable under the provisions of the specifications hereof; but if it be unsuitable, then the same shall be removed from the line of the work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or lessees thereof, will be removed by him and all damage to said property remedied by him at his own cost and expense. Unless such materials are removed and such damage remedied by the Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due or to become due under this contract.

EXHIBIT C-217 (*continued*):

Contractor to give personal attention to work.

Not to assign or sublet.

10 XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right title or interest therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, 20 this contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due 30 hereunder, unless authorized as aforesaid by the written consent of the President.

When Contractor is absent.

Disorderly workmen.

Contractor to provide assistance.

40 XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions, orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be de-

EXHIBIT C-217 (*continued*):

clared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ him on any part of the work. The Contractor will provide all necessary assistance for the Engineer when required, without charge or expense to The City or Engineer.

10 Contractor to plank and bridge for traffic.

XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.

20 Guards and lights.

Indemnification of City.

XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by
30 reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from negligence or carelessness in the performance of the work, or in guarding the same; or from any improper materials used in its prosecution, or by or on account of any act or omission of the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, at its option, be retained by
40 The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

Contractor to make repairs.

XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act

EXHIBIT C-217 (*continued*):

or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted
10 out of the moneys due or to become due under this contract.

Loss or damage to be assumed by Contractor.

XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same or from the action of the
20 elements, or from incumbrances on or near the line of the work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

Claims for labor, etc.

XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming
30 to have performed any labor or furnished any materials toward the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of the State of New York, then, and in every such case, The City shall retain — anything herein contained to the contrary thereof notwithstanding — from the moneys under its control, and due or to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge
40 the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or actions brought or that may be brought to enforce such claim or the lien created by the filing of such notice. The money so retained shall be retained by The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.

EXHIBIT C-217 (*continued*):

Contractor will prevent filing of liens, etc.

10 XXX. The Contractor will not, at any time suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to retain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and any such lien, attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever under or by virtue of this contract.

Evidence of satisfaction of liens, etc.

20 The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom materials used in the construction of the work may have been purchased or procured are fully satisfied and that the materials furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final payment under this contract.

30 Notice to gas companies, etc.

Not to hinder other companies.

40 XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give notice, in writing, to all gas, railroad, and other companies owning or controlling any pipe, tracks or other structures which during the progress of the work any be affected by the prosecution of the same so that said companies may protect or remove their structures, and he will not cause any hindrance to, or interference with, any such gas company or other company or companies in protecting their said pipes, tracks or other structures, nor in removing or otherwise protecting and replacing the main and service pipes, lampposts, lamps, tracks or other structures where necessary, but the Contractor will suffer the said company or companies to take all such measures as are requisite for the purpose aforesaid. But if said gas, railroad, or other companies,

EXHIBIT C-217 (*continued*):

within five days after receipt of such notice, fail to support, remove or otherwise protect their structures, the Contractor will upon the approval of the President protect or remove the same, it being expressly understood that the cost thereof shall not be a charge against The City, but shall be a matter for adjustment between the Contractor and the company or companies concerned.

10 Pipes, conduits, etc., of private companies.

20 XXXII. It is hereby agreed that The City is not responsible or liable for the support, protection or reconstruction of such gas pipes, conduits, water pipes, tracks or structures owned by private companies enjoying special franchises or occupying any portion of the street or way on or below the surface in its streets or ways, as the Contractor admits that he has carefully examined the location of work, has made special inquiry at the
30 offices of the companies owning, controlling or operating said pipes, conduits, tracks and structures, and he has determined to his satisfaction the character, size, location and length of such pipes, conduits, tracks and structures; that he has inspected the public records of the various City Departments having cognizance and control of pipes, conduits, and other subsurface structures, and of The City's water pipes, conduits and sewers, and he has made such further personal inspection and investigation as he deemed proper to determine the correctness of the information so obtained; and he clearly understands that The City does not
insure the accuracy of such reports or information, and agrees that he will not make any claim against The City for damages or extra work caused or occasioned by his relying upon such records, reports or information furnished by any City Department or any companies, either as a whole or in part.

Protection and restoration of pipes, etc., in private companies.

40 XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures, and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection, removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will

EXHIBIT C-217 (*continued*):

not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, removing or restoring the said pipes, conduits, tracks or other structures.

Contractor to notify Department of Water Supply,
Gas and Electricity.

10

XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

City's water pipes, etc.

20

XXXV. If upon excavating it shall be found that any existing water pipes or appurtenances owned or controlled or operated by The City follow the lines, or occupy the place, of the sewer or sewers and appurtenances to be laid or built as shown on the plan, such existing water pipes and appurtenances will be removed and relaid, or rebuilt, by and at the cost of the Department of Water Supply, Gas and Electricity of The City of New York; if, however, in order to facilitate the work to be done under this contract, it be found desirable to temporarily remove any water pipes or appurtenances, owned or controlled or operated by The City, to removal and replacing in their original positions of such water pipes and appurtenances will be done by the Department of Water Supply, Gas and Electricity for the Contractor at his cost and expense.

30

Protection of City's water pipes, etc.

40

XXXVI. The Contractor agrees to protect all water mains and service water pipes owned, controlled or operated by The City which may be affected in any manner by the work done under this contract, except as hereinbefore provided, and to protect all such water and service pipes from freezing, and if he fails to do so, the Commissioner of Water Supply, Gas and Electricity is hereby authorized to protect such main and service pipes, or in the event of their having suffered injury to replace such pipes, and recalk and repair the same immediately, as the work progresses, and the cost thereof shall be charged to the Contractor; the cost so charged shall be deducted from any sum or sums due

EXHIBIT C-217 (*continued*):

or to become due under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

Protection of gas and water mains and pipes, etc.

10 XXXVII. The Contractor agrees to sustain in their
places and protect all water or gas mains, conduit, subways or
service pipes, steam pipes and pneumatic pipes, that may be ad-
jacent to his work but entirely outside of the lines of the ex-
cavations as required by the specifications and all sidewalks,
curbs, stoops, areas, and all other property in the vicinity of his
work, from direct or indirect injury by caving or otherwise, and
he hereby assumes all expenses for direct or indirect damage
which may be occasioned by injury to any of them, and he agrees
to have at all times a sufficient quantity of timber and other ne-
cessary materials and appliances on the ground, and will use the
20 same, as required, for bracing and sheeting the sides and ends of
excavations, and for sustaining and supporting any and all pipes,
conduits, subways, lamp-posts and lamps or other structures that
are undermined, weakened, endangered or threatened; and in
case any damage or injury shall or may result to said pipes, con-
duits, subways, lamp-posts and lamps and other works or struc-
tures of any gas, electric, railroad or other company whatsoever,
or to any private property, through or by reason of any negli-
gence, wilfulness, carelessness or want of skill on the part of the
30 Contractor, his agents or servants, the Contractor hereby agrees
to pay such amount as may be sufficient to cover the expense and
damages occasioned by such negligence, wilfulness, carelessness or
unskillfulness, and that such amount shall be charged against
him; and the President is hereby authorized to deduct and retain
from any moneys which may be due, or which shall become due,
under this contract, a sum sufficient, in his judgment, to cover
the cost of making good any such damages, expense or loss, and
to apply said sum so deducted and retained to the requisite re-
pairs or renewals, or to reimburse the parties damaged or injured.

40 Old water and gas pipes.

XXXVIII. All iron, water and gas pipes which it be-
comes necessary to remove shall be considered the property of
The City and will be piled by the contractor in such part or parts
of the streets as may be directed, unless notice to the contrary is

EXHIBIT C-217 (continued):

given him in writing, in which case he will remove the same at his own expense.

Change of grade.

10 XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which there is no contract price, the provisions in relation to work not provided for in this contract shall apply.

Measurement of work and material.

20 XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such plan, lines and specifications. Should the dimensions of any part of the work, or of the materials be less than those required by the plan, the actual quantities only will be allowed in measurement.

Payment on acceptance of work.

30 XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations hereinbefore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller. The City will pay to the Contractor on or before the expiration of
40 thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except such sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of the State, under any ordinance of The City passed prior to the date of this contract and now in force.

EXHIBIT C-217 (*continued*):

Moneys to be retained for repairs to unpaved streets.

10 It is hereby further agreed that The City shall be and is hereby authorized to retain out of the moneys payable to the Contractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06/100 for each linear foot of sewer, basin connection, and house connection constructed under this contract within unpaved streets, and the sum of \$0.40/100 for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street surface as may become necessary by reason of the work done under this contract within two days of the date of service of notice upon him so to do, then the President may expend such sum or any part thereof in making such repairs.

20 Payment of retained moneys to be made after six months.

It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party of the second part the whole or such part of the moneys retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

Termination of six months' period.

30 It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

40 XLII. The action of the Engineer in Charge of Sewers, by which the Contractor is to be bound and concluded according to the terms of this contract, shall be that evidenced by said Engineer's final certificate, all prior certificates upon which eighty-five per centum (85%) payments may have been made being

EXHIBIT C-217 (*continued*):

merely estimates, and subject to the corrections of such final certificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based.

85% payments.

10 XLIII. In case the amount of this contract, based on the
Engineer's estimate and the contract prices, shall be five
thousand dollars (\$5,000.00) or over, payment will be made to the
Contractor by monthly installments of eighty-five Per Cent.
(85%) of the estimated value of the work performed, provided the
work is being prosecuted in conformity with the provisions of the
contract, and in a manner satisfactory to the Engineer, in which
case, however, the quantity returned shall be such that the
amount paid will be fairly due and in accordance with the pro-
20 visions and stipulations of this contract; provided, the amount
of work done on each installment shall not be less than fifteen
hundred dollars (\$1,500.00); and provided that The City may at
all times reserve and retain out of said installments, or any of
them, all such sum or sums as by the terms hereof or any act
of the Legislature of the State of New York, or of any ordinance
of The City of New York, now in force, it is or may be authorized
to reserve or retain; and provided that where the Contractor,
although the lowest bidder in the gross calculation, is to receive
unusual or extraordinary prices for any of the different items of
the work when considered separately, nothing herein contained
30 shall be construed to affect the right of the President to determine
the amount that may be due from time to time, not necessarily by
the prices agreed upon in this contract, but by causing an
estimate to be made of the value of the work done, taking as a
basis of the calculations the whole amount of money that will
have become due, according to the terms of this contract, when
the whole work shall be completed.

If abandoned, etc.

40 Contract may be declared abandoned.

Completion of work to be undertaken by President.

XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the

EXHIBIT C-217 (*continued*):

10 Engineer shall be of the opinion, and shall so certify, in writing to the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate of progress compared with the required progress (see Section XIV); or that the Contractor is wilfully violating any of the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed within the time designated in this contract for its completion, the President may declare this contract or any part thereof abandoned and notify the Contractor to discontinue all work or any part thereof under this contract, by written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV, or with any employee found on the work, and the Contractor agrees to thereupon dis-
20 continue said work or such part thereof, and he further agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work declared abandoned and to use such plant and materials as he may find upon the line of the work, and to procure other plants and materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor; and it is further agreed that the expense so charged shall be
30 deducted and also liquidated damages for delay in the completion of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work. And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated damages shall be less than the sum which would be payable to the Contractor, if the Contractor had completed the contract, he shall
40 be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to discontinue all or any part of the work, he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the

EXHIBIT C-217 (*continued*):

Contractor, for the purpose hereinbefore specified, and no such plan or materials shall be removed so long as the same may be wanted for the work. In the computation of liquidated damages for delay in completion of the work, the time taken by The City or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time taken in advertising and awarding such contract, shall be added
10 to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this clause, and from such total there shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with
20 the persons or workmen employed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

30 Notice to Contractor.

XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other communications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service
40 thereof upon the Contractor. It is also further agreed that the place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to proclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

EXHIBIT C-217 (*continued*):

Labor Law.

10 XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency, caused by fire, flood or danger to life or property; that the wages to be paid for a legal day's work or upon any material to be used thereon shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such public work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provision of section 222 of the Labor Law.

20

No estoppel.

30 XLVII. The City shall not, nor shall any Department or officer thereof be precluded or estopped by any return or certificate made or given by the President, any Engineer or other officer, agent or appointee of The City under any provision of this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do not in fact conform to the contract; and The City shall not be precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.

40

Understanding of plans and specifications.

XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this con-

EXHIBIT C-217 (*continued*):

tract, he has carefully read the same, and the whole thereof, together with and in connection with the plan and specifications, and that he has made such examination of this contract and of said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as
10 and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and specifications; and distinctly agrees that he will not hereafter make any claim or demand upon The City, based upon or arising out of any alleged misunderstanding or misconception on his part of the said requirements, covenants, stipulations and restrictions; and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect whatsoever,
20 upon the total amount of work to be paid for, in the final settlement.

Substitution of Sureties.

XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or
30 shall be made until the new sureties shall qualify and be accepted by the Comptroller.

Chap. 478 Laws 1916.

L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of and keep insured during the life of this contract the employees engaged thereon, in compliance with the provisions of Chapter 41 of the Laws of 1914,
40 known as the Workmen's Compensation Law, and acts amendatory thereof.

IN WITNESS WHEREOF, The President of the Borough of Queens has hereunto set his hand for and on behalf of The City of New York, and the Contractor has also hereunto set his or its hand the day and year herein first above written; and the

EXHIBIT C-217 (*continued*):

President and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with the Comptroller of The City of New York, and the third to be delivered to the Contractor.

10

THE CITY OF NEW YORK,

By MAURICE E. CONNOLLY,

President of the Borough of Queens.

ANGELO PAINO,

Contractor.

20

County of Queens,
The City and State of New York, ss. :

30

On this 30th day of August, 1921, before me personally came Maurice E. CONNOLLY, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the foregoing instrument, and he acknowledged to me that he executed the same as said Acting President for the purposes therein mentioned.

40

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

EXHIBIT C-217 (*continued*):

The City and State of New York, ss.:
County of Queens

On this 29th day of Aug., 1921, before me personally came ANGELO PAINO, to me known and known to me to be the same person described in and who executed the foregoing instrument, and he acknowledged to me that he execute the same for the purposes therein mentioned.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

20

KNOW ALL MEN BY THESE PRESENTS, That we ANGELO PAINO, hereinafter called the "Contractor," and U. S. FIDELITY and GUARANTY CO hereinafter called the "Surety," are held and firmly bound unto The City of New York, in the sum of TWENTY EIGHT THOUSAND DOLLARS, lawful money of the United States of America, to be paid unto THE CITY OF NEW YORK, or to its certain attorneys, successors or assigns; for which payment, well and truly to be made, we and each of us do bind ourselves and our several and respective heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

30

Signed, sealed and dated this 29th day of August 1921.

WHEREAS, The above bounden Contractor, by an instrument in writing under his hand, and bearing even date with these presents, one part whereof is hereto annexed, has contracted with The City of New York, by the President of the Borough of Queens, to furnish all the labor and materials, and to excavate for, build, construct and in all respects complete sewer, etc. in 76th Street, from 88th, Ave to Jamaica Ave, etc., 4th Ward together with all the work incidental thereto, as is fully and at large set forth and described in the contract aforesaid.

40

NOW, THEREFORE, The condition of the above obligation in such that if the said above bounden Contractor and

EXHIBIT C-217 (*continued*):

10 its, his or their heirs, executors, administrators and assigns, or any or either of them, shall well and truly, and in a good, sufficient and workmanlike manner, perform or cause to be performed the said contract, and each and every of the covenants, promises, agreements and provisions therein contained on his part to be performed, and complete the same within the period therein stipulated, and in each and every respect comply with the conditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

ANGELO PAINO [L. S.]

Contractor.

United States Fidelity and Guaranty Co. [L.S.]

20

By C. P. MARSAC,

Attorney-in-fact.

Attest: JOHN F. PLUMMER,

Attorney-in-fact.

#276815-21

30

: ss THE CITY AND STATE OF NEW YORK,
COUNTY OF QUEENS,

40 On this 29th day of Aug. 1921, before me personally came ANGELO PAINO, to me personally known and known to me to be the same person described in and who executed the foregoing bond or obligation, and severally acknowledged that he executed the same.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

EXHIBIT C-217 (*continued*):

FUNDS

PRESIDENT'S CERTIFICATE

10 It is hereby certified that the estimated cost of the work and materials required by the within contract is Thirty four thousand and eighty four Dollars (\$34084.00) and is chargeable to the Street Improvement Fund of the City of New York.

MAURICE E. CONNOLLY,

President of the Borough of Queens.

THE CITY OF NEW YORK, August 30th, 1921.

20

SPECIFICATIONS.

TRENCHES

30

Length of trench.

1. Unless otherwise directed or permitted not more than 200 feet of any trench in advance of the end of the built sewer shall be open at any time, and unless written permission to the contrary is given, the trench shall be excavated to its full depth for a distance of at least 20 feet more than the minimum length
40 of sewer permitted to be laid in it. (See paragraph 154.) Trenches for house connection drains shall not be open on both sides of the street at the same time, unless permission has previously been given to close the street. Unless otherwise directed each trench for basin connections and house connection drains shall be fully excavated for its entire length before any pipes are laid therein.

EXHIBIT C-217 (*continued*):

Sheeting and bracing.

2. Where necessary the sides of the trenches and excavations shall be supported by adequate sheeting and bracing. Steel sheeting may be used only where shown on the plan or directed. Sheetting and bracing will be paid for only when left in place by written order, in which event the amount left in place will be paid for at the contract price for such material. Unless specially permitted sheeting against which concrete is placed shall not be removed and will not be paid for. The Contractor will be held accountable and responsible for the sufficiency of all sheeting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.
- 10

Sheeting in soft material.

3. Where the material to be excavated is of such a character as to render it necessary, the sheeting shall be closely driven and to such depth below the bottom of the sewer as may be directed.
- 20

Tunneling.

4. All work shall be done in open trenches or excavations; no tunneling shall be done except with the consent of the Engineer.

30 Trees and stumps.

5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.
- 40

Roadway, sidewalks, etc., to be kept clear.

7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary, a roadway not less

EXHIBIT C-217 (*continued*):

10 than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in satisfactory condition, and the work shall at all times be so conducted as to cause a minimum of inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

Surplus material.

20 8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the sewer, so much of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

Fence.

9. Where necessary a suitable fence shall be placed along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

30 10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

Disposal of water from trenches.

40 11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

Cost to be covered.

12. The cost of all labor required to be done and all materials required to be furnished in the performance of all of the

EXHIBIT C-217 (*continued*):

work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

EARTH EXCAVATION.

10

13. Earth excavation shall include the removal of all material other than rock as hereinafter defined.

Width of trench for sewers, etc.

20

14. The minimum widths of trenches in earth, for pipe sewers, basin connections, house connection and other drains not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of larger diameters 10 inches on each side of the pipe, exclusive of spurs and hubs.

15. Where a manhole or other appurtenance or the foundation therefor extends beyond the exterior lines of the sewer or its foundation, the minimum excavation in earth, required for the same shall be that contained in a prism with vertical sides and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for basin manholes, etc.

30

16. The minimum dimensions of the excavation in earth, for brick basin manholes, & inlets shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above the foundation, but in all such cases the excavation shall be large enough to include the foundations for such structures shown on the plan. The excavation for concrete basin manholes & inlets, shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

40

Depth of trenches.

17. The trenches shall be excavated to the depths required for the foundations of the sewers and appurtenances shown on the plan and where the conditions are such as to make it necessary to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall

EXHIBIT C-217 (*continued*):

be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

Cost to be covered.

- 10 18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

ROCK EXCAVATION

- 20 19. Rock excavation shall include the excavation and removal of the following materials:

(a) Rock which shall be determined to be of such a character as to warrant its removal by blasting, in order to insure the prompt and proper prosecution of the work.

(b) Boulders and pieces of rock, masonry in mortar and concrete, each of which contains 1 cubic yard or more, except the masonry and concrete of old sewers and their appurtenances.

- 30 20. Pieces of rock, masonry, concrete or boulders, which fall or slide into the trench from beyond the lines thereof, as herein defined, will not be measured, and the cost of the removal of the same shall be covered by all the contract prices for all the items for which there are contract prices.

Width of trench.

Rock excavation for basin manholes, etc..

- 40 21. The required width of trench in rock for pipe sewers, basin connections & house connections will be such as to give a clearance of 1 foot on each side of the pipe, exclusive of spurs and hubs. Where a manhole or other appurtenance, or the foundation therefor, extends beyond the exterior lines of the sewer or its foundation, the excavation in rock required for the same will be that contained in a prism with vertical sides and a horizontal section 1 foot wider on each side than the smallest rectangle which will enclose such appurtenance and its foundation. The required

EXHIBIT C-217 (*continued*):

dimensions of the excavation in rock, for basin manholes & inlets will be such as to give a clearance of 1 foot on all sides above their foundation.

Denth of trench.

10 22. The rock shall be excavated to the depths required for the foundations of the structures as shown on the plan.

Measurements.

23. The volume of rock to be paid for will be that contained in prisms with vertical sides and of such dimensions as to give the widths and clearances hereinbefore specified from the bottoms of the trenches, as specified, to the surface of the rock.

Rock stripped.

20 24. Rock shall be stripped in sections, which, unless otherwise permitted, shall be not less than 50 feet in length, and the Engineer shall then be notified in order that he may measure the same. Rock excavated or blasted before such measurement is made will not be paid for.

Excavation for branches.

30 25. Wherever a branch for a proposed sewer or extension of a sewer is built in rock, the required trench shall be excavated for a distance of not less than 5 feet beyond the end of such branch, in the direction of the proposed sewer or extension.

Blasting.

40 26. All blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives. Any rock excavation within 5 feet of water main less than 36 inches in diameter, and within 10 feet of a water main 36 inches or more in diameter, shall be done with very light charges of explosive, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main.

Exposed structures to be protected.

27. All exposed sewers, manholes, receiving basins and other structures shall be carefully protected from the effects of

EXHIBIT C-217 (*continued*):

blasts. Any damage done to such structures shall be promptly repaired by the Contractor at his own expense.

Price to cover.

28. The contract price for rock excavation shall cover the cost of all labor and materials required to excavate and remove all rock as specified, and without regard to its subsequent use.

BACKFILLING.

Backfilling around sewers, etc.

29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the sewer, basin connection or house connection, the materials for backfilling trenches as excavated shall be clean earth, sand or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

Backfilling for remainder of trench.

30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This backfilling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

Backfilling around basin manholes, etc.

31. Backfilling within 2 feet of manholes, house connection drains, basin manholes, inlets and other structures shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

EXHIBIT C-217 (*continued*):

pudding.

32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

Deficiency of filling.

34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

Curves, branches, etc., not to be covered.

36. Basin connections, house and sewer connections and intersections, ends of sewers and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.

Removal of surplus material.

37. As the trenches are backfilled, the Contractor shall remove all surplus materials and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of an until the final acceptance of the work, he shall maintain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the service upon him of a written notice so to do, the President may furnish all materials and do all work required, and the

EXHIBIT C-217 (*continued*):

cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract, where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

10 Cost covered.

33. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

CEMENT.

20

39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

30 Specific gravity; weight.

40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212° F. It shall weigh not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

Fineness.

40 41. The cement shall be dry, finely ground, of uniform color and free from lumps. It shall leave a residue of not more than 8 per cent. by weight, when passed through a No. 100 sieve, and not more than 25 per cent. when passed through a No. 200 sieve.

Tensile strength.

42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table:

EXHIBIT C-217 (continued):

Neat Cement:

24 hours 175 pounds per sq. in.

7 days (1 day in moist air, 6 days in water)
500 pounds per sq. in.

10 28 days (1 day in moist air, 27 days in water)
600 pounds per sq. in.

Mortar consisting of 1 part cement and 3 parts of Standard Ottawa Sand, by weight:

7 days (1 day in moist air, 6 days in water)
180 pounds per sq. in.

28 days (1 day in moist air, 27 days in water)
225 pounds per sq. in.

20 The average of the tensile strengths developed at each age by the briquettes in any set made from one sample will be considered the strength of the sample at that age, excluding any results that are manifestly faulty. The average strength of briquettes at 28 days shall be greater than the average strength at 7 days, and if tests are made after 28 days the strength shall be not less than that at 28 days.

Soundness.

30 43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

Setting.

40 44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

Testing.

45. The cement will be subjected to such tests as the Engineer may deem necessary, and such test will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil En-

EXHIBIT C-217 (*continued*):

gineers, except that the time of setting will usually be determined by means of the Gillmore needless. In case of dispute as to the time of setting, this test will be made by means of the Vicat needle.

Retesting.

- 10 46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

20 Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for tetsting. Samples will be taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

30 Delivery and storing.

49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it had been tested and accepted, and any concrete or masonry which may have been made under such permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.
- 40

Cost to be covered.

50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing,

EXHIBIT C-217 (*continued*):

shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.

MORTAR.

- 10 51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and $2\frac{1}{2}$ volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.

Sand.

- 20 52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestone. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ($\frac{1}{4}$) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5) per cent. by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1) per cent. of organic matter.

- 30 Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

Mixing.

- 40 53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require retempering shall not be used.

Freezing weather.

54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.

EXHIBIT C-217 (*continued*):

Cost covered.

55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

10

CONCRETE.

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

Class A concrete.

20 57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken into roughly cubical or pyramidal fragments. Broken stone which contains dust, loam, clay, organic matter or other improper substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings $1\frac{1}{4}$ inches in diameter and shall be retained on a screen with openings $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

30 Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as containing $\frac{9}{10}$ cubic foot, and the other ingredients shall be measured by an approved method.

Water.

59. Only clean fresh water shall be used for concrete.

40 Mixing.

60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required

EXHIBIT C-217 (*continued*):

10 consistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about 6 inches deep and shall be thoroughly wetted. The cement and sand shall be mixed dry on a suitable platform, until the mixture has a uniform color. This mixture shall be spread evenly on the bed or wet stone, water added, and the entire mass turned until each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

Placing concrete.

20 61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted the concrete in the work shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material. When a comparatively dry concrete is used it shall be deposited in horizontal layers not exceeding .6 inches in depth and solidly tamped.

Joining old and new concrete.

40 62. When fresh concrete is to be laid on or adjoining concrete already set, the surfact of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

Forms and centres.

63. The Contractor shall provided all necessary forms and centres for shaping concrete wherever used. They shall be

EXHIBIT C-217 (*continued*):

10 true to the required shapes and sizes, strong enough and so secured in place as to withstand all operations incidental to placing the concrete, and watertight, and the face against which the concrete is to be placed shall be satisfactorily smooth and clean. Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approved lubricant; when no lubricant is required such surfaces shall be thoroughly wetted just before the concrete is placed.

Removal of forms and centres.

20 64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so has been given.

Exposed surfaces.

30 65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections or other imperfections be found, such defects shall at once be corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

Freezing weather.

40 67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed one per cent, by weight of salt shall be added to the water for each degree Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 20 degrees Fahrenheit.

EXHIBIT C-217 (*continued*):

Protection.

68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before filling, backfilling or other material is placed upon or against it. It shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering as well as the concrete shall be kept wet for such time as may be directed.

Measurement.

69. The cost of all concrete and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it used.

BRICK MASONRY

Quality of bricks

71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location of the work in which they are to be used.

How laid

72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall be not wider than $\frac{3}{8}$ inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed $\frac{1}{4}$ inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and

EXHIBIT C-217 (*continued*):

Protection.

pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be racked back in courses, unless otherwise permitted.

Protection

- 10 73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if required, it shall be sprinkled with water at such intervals and for such a time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, be removed and rebuilt.

Freezing weather.

- 20 74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

Cost of Brick Masonry.

75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

30

STEEL REINFORCEMENT BARS.

Shape

90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bond with the concrete frequent intervals and to insure intimate contact between the steel and concrete

40

Samples

91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

EXHIBIT C-217 (continued):

Size

92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

10 Variation in weight.

93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

Quality.

20 94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised Standard Specifications for Steel Reinforcement Bars adopted by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

		Structural Steel Grade		Cold Twisted
Properties Considered		Plain Bars	Deformed Bars	Bars
30	Phosphorus, max.			0.10
	Open Hearth	0.05	0.05	0.05
	Bessemer	0.10	0.10	
	Ultimate Tensile Strength, pounds per sq. in.	55,000-70,000	55,000-70,000	Recorded only
	Yield Point, minimum pounds per sq. in.	33,000	33,000	55,000
	Elongation, minimum per cent. in 8 inches	1,400,000	1,250,000	5 per cent.
		tens. str.	tens. str.	
40	Cold bend without fracture:			
	Bars under 3/4 in. in diam. or thickness	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of 3t.
	thickness and over	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 2t.

t : Nominal thickness or diameter of bar.

EXHIBIT C-217 (*continued*):

95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

10 96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar when being bent, will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

Delivery and protection

20 97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from dirt, scale-rust, paint and oil. Bars which are not to be embedded in concrete within a short time after being placed in the work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

Cutting and bending.

30 98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templets. When bars are cut and bent on the work, the contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing

40 99. All bars shall be as long as can be conveniently used accurately bent, placed, spaced and pointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.

100. The cost of all steel reinforcement bars and the requirements specified in connection with which it is used.

EXHIBIT C-217 (*continued*):

WROUGHT IRON

Quality.

10 101. Wrought iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation of at least 20 per cent. in 8 inches, and a fracture wholly fibrous. Specimens shall bend cold, with a fiber, through 180 degrees around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

20 Galvanizing,

102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

30 IRON CASTINGS.

Quality.

40 104. Iron castings shall be of the best foundry pig iron, gray, tough and free from cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The casting shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

Cost covered.

105. The cost of all labor and materials required to furnish, coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

EXHIBIT C-217 (*continued*):

TIMBER SHEETING.

10 110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of sufficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a manner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.

When paid for.

20 111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

Measurement.

30 112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by written order, and will not include sheeting, rangers and braces left in place without such order, nor sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

Price to cover.

40 113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to place the same.

EXHIBIT C-217 (continued):

TYPE "B"

Cement Concrete Pipe With Reinforcement

131. Reinforced cement concrete pipe used shall be circular in section with or without flat base and shall conform in dimensions as shown in table.

General dimensions of pipes and minimum test load per lin. ft. of pipe.

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe
20	24"	3 "	4'	3 "	3350 Lbs.
	27"	3½"	4'	3 "	3700 "
	30"	3½"	4'	3 "	4400 "
	33"	4 "	4'	3 "	4600 "
	36"	4 "	4'	4 "	4800 "
	39"	4 "	4'	4 "	5200 "
	42"	4½"	4'	5½"	5600 "
	45"	4½"	4'	5½"	6100 "
	48"	5 "	4'	5½"	6600 "
	51"	5 "	4'	5½"	7050 "
30	54"	5½"	4'	5½"	7500 "
	57"	5½"	4'	5½"	7750 "
	60"	6 "	4'	5½"	8000 "
	63"	6 "	4'	5½"	8400 "
	66"	6½"	4'	5½"	8800 "
	72"	7 "	4'	5½"	9400 "
	78"	8 "	4'	5½"	10400 "
	84"	8 "	4'	5½"	11200 "
	90"	8½"	4'	5½"	12000 "
	96"	8½"	4'	5½"	12800 "
40	102"	9 "	4'	5½"	13600 "
	108"	9 "	4'	5½"	14400 "

Testing pipe.

Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes for each size of sewer (reinforced concrete) shall

EXHIBIT C-217 (*continued*):

10 be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering Construction.

Material of pipe, cement, sand, stone or gravel.

20 132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be an accurate 1—2—4 mix. Each pipe shall be as made with care of manufacture.

Joints.

30 133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ($1\frac{1}{2}$) per cent. from the hereinbefore mentioned dimensions will be permitted.

Jointing.

40 134. All joints to be made of 1:2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line, making a continuous invert. After this has been done, steel forms especially designated for the purpose shall be placed over and around the entire joint, and the mortar for sealing the arch portions grouted or poured through an opening in the crown of the pipe. Joints must be water-tight.

EXHIBIT C-217 (*continued*):

Laying pipe.

135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has not been seasoned for twenty-one (21) days, unless otherwise Construction.

10 Steel for reinforcement.

136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Company's, or Clinton Wire Cloth. For all sizes of reinforced concrete pipe, reinforcing shall be at distances not less than one (1) inch from the surface.

Spurs.

20 137. Reinforced concrete pipe shall have openings to receive spur and branch connection wherever required by the plans. The openings shall be made in a manner satisfactory to the Engineer-in-Charge of Engineering-Construction.

Where depth of cover on precast pipe sewer is 16 feet or over extra reinforcing steel shall be used in the pipe to take care of the increased stresses. The cost of such extra steel shall be included in the price bid for precast pipe Sewer.

30 Disposal of water from trenches.

138. The provisions of paragraph No. 11 of the specifications shall be in full force and effect, even though reinforced concrete pipe shall be furnished on this contract.

Rejection of defective pipe.

40 139. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench, shall be replaced and removed from site of the work at the expense of the contractors.

EXHIBIT C-217 (*continued*):

VITRIFIED PIPE SEWERS.

Vitrified pipe.

10 140. Vitrified pipe sewers shall be built of shale or clay hub and spigot pipes with deep and wide sockets. They shall be thoroughly and perfectly burned, without warps, cracks or other imperfections, and shall be fully and smoothly salt-glazed over the entire inner and outer surfaces, except that the inside of the hub and the outside of the spigot may be unglazed for two-thirds the depth of the hub. On all other portions of the pipe the glazing shall completely cover and form an integral part of the pipe body. If not left unglazed the inside of the hub and the outside of the spigot shall be scored in 3 parallel lines extending completely around the circumference. When it is broken, vitrified pipe shall show dense and solid material, without serious cracks or laminations; it shall be of such toughness that it can be worked with a chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

Identification marks.

30 141. Each shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

Shape and dimensions.

142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows:

40	Size	Length	Thickness	Depth of Socket	Annular Space
	6.....	2 feet	$\frac{5}{8}$ inch	$2\frac{1}{2}$ inches	$\frac{5}{8}$ inch
	8.....	3 "	$\frac{3}{4}$ "	$2\frac{3}{4}$ "	$\frac{5}{8}$ "
	10.....	3 "	$\frac{7}{8}$ "	$2\frac{3}{4}$ "	$\frac{5}{8}$ "
	12.....	3 "	1 "	3 "	$\frac{5}{8}$ "
	15.....	3 "	$1\frac{1}{4}$ "	3 "	$\frac{5}{8}$ "

EXHIBIT C-217 (continued):

18.....	3	“	1 1/2	“	2 1/4	“	5/8	“
20.....	3	“	1 2/3	“	3 1/2	“	5/8	“
22.....	3	“	1 5/6	“	3 3/4	“	5/8	“
24.....	3	“	2 inches		4	“	5/8	“

Curves, bends, etc.

- 10 143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective sizes. Curved pipe, bends, siphons, and special pipe of the sizes and forms shown on the plan shall be furnished and laid, and unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

Samples for testing.

- 20 144. Any or all of the following tests may be applied to samples selected on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

Crushing tests.

- 30 145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures:

		Diameter	Pressure
	6 inches	.....	900 lbs. per lin. ft.
	8 “	.....	900 “ “ “ “
	10 “	.....	1,000 “ “ “ “
40	12 “	.....	1,050 “ “ “ “
	15 “	.....	1,250 “ “ “ “
	18 “	.....	1,400 “ “ “ “
	20 “	.....	1,550 “ “ “ “
	22 “	.....	1,750 “ “ “ “
	24 “	.....	1,950 “ “ “ “

EXHIBIT C-217 (*continued*):

Drop weight test.

- 10 146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2 blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

Hydrostatic test.

147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

Absorption test.

- 20 148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken edges shall not absorb more than 4 per cent. of their weight of water.

Factory rejection.

- 30 149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

Without cradle.

- 40 151. When the sewer is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

How laid.

154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with

EXHIBIT C-217 (*continued*):

a smooth and uniform invert. Unless otherwise permitted or directed, not less than form invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

10 155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.

Gasket and mortar joints.

20 156. Gasket and mortar joints shall be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than $\frac{3}{4}$ -inch, and in one piece of sufficient length to pass around the pipe and lap at the top, shall be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket shall, if directed, be saturated with neat cement grout. The remainder of the space shall then be completely filled with plastic mortar mixed 1 to $1\frac{1}{2}$, and the joint wiped inside and finished to a smooth bevel outside.

Inspection of joints.

30 157. Unless otherwise permitted, at least 4 finished joints shall be left exposed for inspection throughout the working day, and the necessary staging for the protection of the exposed sewers and for the handling of excavated material shall be provided. A suitable ladder affording easy access for such inspection shall be furnished at every trench open for the proposed sewer.

Subgrade to be tested.

40 158. No pipe shall be laid or placed until the subgrade of the trench shall have been tested and found correct.

Sewer to be kept clean.

159. The interior of the sewer shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description.

EXHIBIT C-217 (*continued*):

Backfilling.

10 160. Immediately after the sewer is laid the trench shall be backfilled as provided in paragraphs 29 to 37 inclusive and 157. No walking on or working upon the completed sewer (except as may be necessary in tamping the backfilling) will be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the sewer.

Temporary covers.

161. The exposed ends of pipe sewers shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

Branch pipes.

20 162. Branch pipes and connection pipes shall be of the same quality and dimensions, and laid in the same manner as specified for vitrified pipe sewers. Dead ends of pipes shall be closed with bulkheads of brick masonry 8 inches in thickness.

.. Connection with existing work.

30 163. Wherever the proposed sewer is to connect with an existing manhole in which there is a branch pipe which is damaged or of unsuitable size or in improper position, such pipe shall be removed and be replaced with a pipe of suitable size or be reset in the proper position. The pipe so substituted or reset will be paid for at the contract price, for the corresponding size of pipe sewer.

Pipes cut to fit masonry.

40 164. The ends of pipes which enter masonry shall be neatly cut to fit the face of the masonry. When directed, such cutting shall be done before the pipes are built in.

Measurement.

165. The length of pipe sewers to be paid for will be determined by horizontal measurements along their center lines, and no deductions will be made on account of openings at manholes.

EXHIBIT C-217 (*continued*):

Prices to cover.

- 10 166. The contract prices for vitrified pipe sewers shall cover the cost of all necessary excavation (except rock) of all necessary trimmings, fittings and building into masonry; of all bulkheads; of all backfilling; of all samples furnished; and of all labor and materials required to furnish and lay the sewers complete in place, as shown on the plan and as specified.

BASIN CONNECTIONS.

- 20 177. The connections between inlets and basin manholes and between basin manholes and sewers or sewer manholes shall be of vitrified pipe of the size shown on the standard details on file in the Engineer's Office, Bureau of Engineering-Construction, Division of Sewers. The pipes shall be of the same quality and dimensions, and laid in the same manner as hereinbefore specified for vitrified pipe sewers.

Measurement.

178. The lengths of basin connections to be paid for will be determined by measurements along their axes.

- 30 Prices to cover.

179. The contract price for basin connections shall cover the cost of all necessary excavation (except rock); of all necessary trimming, fitting and building into concrete, or masonry; of all backfilling; and of all labor and materials required to furnish and lay the basin connections complete in place, as specified.

40 SPURS FOR HOUSE CONNECTIONS.

180. Spurs for house connections shall be of vitrified pipe 6 inches in diameter, equal in quality and dimensions to that specified for vitrified pipe sewers.
In concrete sewers.

EXHIBIT C-217 (*continued*):

181. In concrete sewers spurs shall be built in as shown on the plan or as directed. They shall be hub and spigot pipes with the spigot end molded or cut to fit flush with the inner surface of the sewer, and of sufficient length to reach the exterior of the sewer.

10 In pipe sewers.

182. Pipes having 6-inch spurs with hubs molded thereon shall be furnished and laid in pipe sewers where shown on the plan or directed. Such pipes will be paid for at the contract prices for vitrified pipe sewers, and the spurs will be paid for in addition at the contract price for spurs.

Covers.

20 183. The ends of all spurs not connected with drains shall be closed with approved covers. If required such covers shall be cemented in place, and when directed the covers shall be so cemented before the pipes are lowered into the trench.

Price to cover.

30 184. The contract price for spurs shall cover the cost of all labor and materials required to furnish and place the same as specified, and the cost of furnishing and cementing the covers for the same.

DRAINS FOR HOUSE CONNECTIONS.

185. Where shown on the plan or where directed, drains for house connections shall be built from the spurs in such a manner and for such distance as may be shown or directed.

40 Depth at curb.

186. House connection drains shall be laid with a minimum gradient of $\frac{1}{4}$ inch to a foot, and wherever possible the depth from curb grade to the inner bottom of the drain at curb line shall be at least 8 feet.

EXHIBIT C-217 (*continued*):

Material.

187. Unless otherwise shown on the plan, drains for house connections shall be of vitrified pipe of the quality and dimensions specified for vitrified pipe sewers. The ends of the drains shall be closed with approved covers.

10 How laid.

188. All the requirements, as hereinbefore specified, relating to excavation, laying and backfilling of vitrified pipe sewers shall apply, as far as they are applicable, to drains for house connections.

Measurement.

20 189. The lengths of pipe drains for house connections to be paid for will be determined by measurement along their axes.

Price to cover.

30 190. The contract price for drains for house connections shall cover the cost of all necessary excavation (except rock); the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to finish and lay the drains for house connections complete in place, as specified.

MANHOLES.

194. The masonry or concrete for manholes shall be built to within such distances of the existing surface of the ground as directed.

40 Brick manholes.

195. Brick manholes shall be formed by means of templates placed at top and bottom with not less than 8 lines drawn between them, and they shall be smoothly and evenly plastered on the outside with a layer of mortar $\frac{1}{2}$ -inch thick.

EXHIBIT C-217 (*continued*):

Steps.

197. Galvanized wrought iron steps of the size and shape shown on the plan shall be firmly built into the manholes at vertical intervals, of about 16 inches.

10 Head and cover.

198. The manhole head and cover shall be of cast iron, and unless otherwise shown on the plan, each head, exclusive of cover, shall weigh not less than 500 pounds and each cover shall weigh not less than 160 pounds. The weight of each head and cover shall be conspicuously painted thereon by the manufacturer with white oil paint. The head shall be set on the masonry or concrete in a full bed of stiff mortar.

20 Price to cover.

199. The contract price for manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all plastering; of all concrete slabs; of all steps; and of all labor and materials required to construct the same complete, in place, as shown on the plan and specified.

BASIN MANHOLES.

30

Brick basin manholes.

200. Brick basin manholes shall be formed by means of templates placed at top and bottom with not less than 10 vertical lines drawn between them.

40 201. Where the walls of brick basin manholes are not built of two rings of brickwork with a mortar layer between the inside of the brickwork shall be smoothly and even plastered with a layer of 1-2 Portland cement mortar $\frac{1}{2}$ inch thick.

202. Where the wall of the basin manhole consists of two rings of brickwork, with a mortar layer between, the outer ring shall be carried up not less than 1 foot in advance of the inner ring, and the inner surface of the former shall be plastered with

EXHIBIT C-217 (*continued*):

two coats of mortar. The second coat of mortar shall be applied before the first is set, and the total thickness of the mortar layer shall be 1 inch.

Concrete basin manholes.

- 10 203. Concrete basin manholes shall, if required, be built in such a manner that the bottom and sidewalls shall be formed in one continuous operation. Concrete basins shall be coated with a grout of neat cement on the inside.

Concrete cover slabs.

204. Concrete cover slabs of basin manholes shall be built of Class "A" concrete, reinforced as shown on plan.

- 20 Head cover and trap.

205. The basin manhole head and cover shall be of cast iron, as shown on plan, and known as a Standard Sidewalk Manhole Head and Cover. Each head exclusive of cover shall weigh not less than 260 pounds and each cover shall weigh not less than 100 pounds. An iron hood or trap, of the size and dimensions shown on the plan, must be furnished by the Contractor for each basin manhole and is to be built into the basin manhole, as shown on plan.
- 30

Restoration of sidewalks, curbs, etc.

206. All sidewalk pavements and curbs, disturbed by the construction of basin manholes, shall be restored by the Contractor in accordance with the specifications for similar work of the Bureau of Highways.

Price to cover.

- 40 207. The contract price for basin manholes shall cover the cost of all necessary excavation (except rock); of all back-filling; of all sidewalk and curb restorations and of all labor and materials required to construct the basin manholes complete in place, as shown on the plan and specified.

EXHIBIT C-217 (*continued*):

INLETS.

208. Inlets and the heads therefor shall be of the materials, forms and dimensions shown on the plan. The specifications for brickwork and concrete shall be those hereinbefore
10 specified for basin manholes.

Heads.

209. The head shall be of cast iron and shall conform in all respects to the specifications for iron castings. If required, the inlets shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

20 Restoration of roadway, pavements, etc.

210. All roadway pavements, sidewalk pavements and curbs, disturbed by the construction of inlets, shall be restored by the Contractor in accordance with the specifications of the Bureau of Highways for similar work or specifications hereafter attached. In unpaved streets and macadamized streets where the inlets are approximately at the surface of the street a space of two and one-half (2½) feet adjoining such inlets shall, if required, be paved with approved paving blocks.

30 Price to cover.

211. The contract price for inlets shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlets, when required; of all roadway, sidewalk and curb restorations; of all labor and materials required to construct the inlets, complete in place, as shown on the plan and specified.

40 RESTORATION OF SURFACE AND CLEANING UP.

Restoration of unpaved roadways, sidewalks, etc.

219. At such time as may be directed, all unpaved roadways, gutters and sidewalks affected by the work done under

EXHIBIT C-217 (*continued*):

this contract shall be restored by the Contractor to the same condition in which they were at the time of the opening of bids for this contract.

Pavements, etc., restored by Contractor.

- 10 220. If required by the plan, roadway and sidewalk pavements, crosswalks, curbs, etc., shall be satisfactorily restored and adjusted by the Contractor at such times as may be directed. Sidewalk pavements shall be restored in whole flags, squares or sections which shall correspond in quality and appearance with the original or adjoining flags, squares or sections. All work and materials used in such restoration and adjustment shall conform in all respects to the standard specifications now in use by the President for similar work and materials.

- 20 Temporary restoration.

222. At such times as may be directed roadway and sidewalk pavements, crosswalks, curbs, etc., which have been removed, whether under guarantee or not, shall be temporarily restored by the Contractor to the satisfaction of the Engineer.

When new pavement is laid.

- 30 223. If pavements, sidewalks, crosswalks, curbs, etc., are laid where none existed at the time the bids for this contract were opened, the Contractor shall excavate and remove such portions of the pavements, sidewalks, crosswalks, curbs, etc., and their foundations as may be necessary for the prosecution of the work, but he will not be required to make a permanent restoration of them.

Trenches flooded.

- 40 224. Before laying any pavements, sidewalks, crosswalks, curbs, etc., the trenches shall, if required, be flooded with water, as directed, and all resulting holes or depressions shall be filled and tamped solid.

Cleaning up.

225. At such times as may be directed the Contractor shall remove from the streets, all materials which were placed

EXHIBIT C-217 (*continued*):

10 thereon by him as a consequence of performing this work and which are not required by the contract to be left as part of the finished work. The entire work and portions of the streets affected thereby shall be left in a satisfactory condition. The sidewalks and crosswalks shall be swept clean of all material which may have come thereon by reason of the work under this contract, and if required, they shall be sprinkled with water during the sweeping.

Cost to be covered.

226. The cost of all the labor required to be done and all the materials required to be furnished in the performance of all the work specified in paragraphs 219 to 225 inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

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30

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EXHIBIT C-126

EXHIBIT C-126

*(Detailed Statement of pipe Sales Lock Joint Pipe Co.
January 1st, 1922 to Dec. 31st, 1927)*

ROYALTY PAID ⁶⁷ J. M. PHILLIPS

JANUARY 1st, 1922 TO DECEMBER 31st, 1927

Size	24"	27"	30"	33"	36"	39"	42"	45"	48"	51"	54"	57"	60"	63"	66"	72"	78"	84"	90"	96"		
Royalty per foot of pipe manufactured	<u>.25</u>	<u>.28</u>	<u>.30</u>	<u>.36</u>	<u>.40</u>	<u>.45</u>	<u>.50</u>	<u>.55</u>	<u>.60</u>	<u>.65</u>	<u>.70</u>	<u>.75</u>	<u>.80</u>	<u>.90</u>	<u>1.00</u>	<u>1.20</u>	<u>1.35</u>	<u>1.50</u>	<u>1.80</u>	<u>2.10</u>		
1922	2,176	800	1,124	948	1,272	1,428	800	-	996	-	1,004	-	552	-	-	-	-	-	-	-	4,176	\$15,509.48
1923	2,648	736	480	1,628	1,308	256	252	870	428	1,100	-	-	-	-	-	-	-	-	1,940	-	-	7,304.86
1924	1,300	324	368	-	544	-	-	-	320	-	752	320	-	-	660	-	1,400	2,700	2,760	3,620	-	20,872.12
1925	2,540	1,500	1,100	2,076	1,500	3,400	1,720	752	1,628	-	3,360	-	2,880	-	2,360	1,752	-	2,180	780	2,440	-	25,429.16
1926	1,820	3,260	1,992	1,200	7,952	2,384	16,100	44	2,480	424	2,296	220	2,364	952	552	504	660	-	340	720	-	25,180.80
1927	4,020	1,580	1,604	2,300	3,292	940	700	1,200	1,640	-	900	-	4	-	440	200	1,436	1,700	-	400	-	13,182.20
14,704	8,200	6,668	8,052	15,868	8,408	19,572	2,866	7,492	1,524	8,312	540	5,800	952	4,012	2,456	2,496	6,580	5,820	11,356	105,428.62		

EXHIBIT C-31 :

EXHIBIT C-31.

10 *(Contract between the City of New York and H. J. Mullen Contracting Co., Inc. for the construction of a sewer and appurtenances in Norwood Place (166th St.) from Queens Avenue to California (43rd) Avenue; California (43rd) Avenue from Norwood Place to Stiles Place (171st St.); Stiles Place from California Avenue to Station Road; Station Road from Stiles Place to Lancaster Avenue (192nd St.) and in Lancaster Avenue from Station Road to Linn Sreet (39th Ave.); Third Ward, Borough of Queens, on May 2, 1922.)*

20 THE CITY OF NEW YORK — DEPARTMENT OF FINANCE

Office of the Comptroller

CONTRACT SUMMARY

30 Contractor H. J. MULLEN CONTRACTING CO., INC.

No. 61239

Names of Sureties U. S. Fidelity & Guaranty Co.,

Union Indemnity Co.,
New Amsterdam Casualty Co.,
Commercial Casualty Inc. Co.

40 Amount of Bond \$185,000

Date of award: May 2, 1922; Department Pres. Boro of Queens;

Date of contract May 22, 1922; Borough; Date of expiration;

Date of filing ; Damages; Per day; Date paid in

full, 11/19/25.

EXHIBIT C-31 (*continued*) :

DESCRIPTION OF WORK

10 For the construction of a sewer and appurtenances in Norwood Place (166th St.) from Queens Avenue to California (43rd) Avenue; California (43rd) Avenue from Norwood Place to Stiles Place (171st St.); Stiles Place from California Avenue to Station Road; Station Road from Stiles Place to Lancaster Avenue (192nd St.), and in Lancaster Avenue from Station Road to Linn Street (39th Ave.); Third Ward, Borough of Queens.

Original estimate: \$311,855.00

R. E. 2,359.68

20

—————
\$314,214.68

ACCOUNTS TO BE CHARGED

C. F. M. 25

30

The obligation on this surety bond ceases as to anything occurring after April 27, 1925.

If the conditions of the contract have been complied with, the retained percentage (if any) is due on or after April 27, 1925.

GEORGE W. MORTAR,

40

Examiner.

See agreement dated Aug. 9, 1922, attached.

Give no effect thereto. P. L. K. 8/18/22.

EXHIBIT C-31 (continued) :

PAYMENTS, AMOUNTS RETAINED AND EARNED

	Date ...%	Payments	Amount paid to date	Amount retained to date	Amount earned to date
10	9-19-22	18,211.25	18,211.25	3,213.75	21,425.00
	10-24-22	17,680.00	35,891.25	6,333.75	42,225.00
	11-23-22	22,950.00	58,841.25	10,383.75	69,225.00
	12-26-22	17,114.75	75,956.00	13,404.00	89,360.00
	2- 7-23	67,872.25	82,743.25	14,601.75	97,345.00
	4-17-23	26,864.25	109,607.50	19,342.50	128,950.00
	6- 5-23	18,741.65	128,349.15	22,649.85	150,999.00
	7- 3-23	9,078.85	137,428.00	24,252.00	161,680.00
20	7- 3-23	18,813.90	156,241.90	27,572.10	183,814.00
	9-10-23	21,364.75	177,606.65	31,342.35	208,949.00
	10 11-23	16,365.90	193,972.55	34,230.45	228,203.00
	11-16-23	14,948.95	208,921.50	36,868.50	245,790.00
	12-19-23	12,067.87	220,989.37	38,998.13	259,987.50
	1-22-24	11,293.95	232,283.32	40,991.18	273,274.50
	8-15-24	20,650.75	252,934.07	44,635.43	297,569.50
	9-30-24	4,879.00	257,813.07	45,496.43	303,309.50
	11- 6-24	6,328.25	264,141.32	46,613.18	310,754.50
	2-27-25	1,000.00	Credit a/c T. 2		
30		48,380.06	313,521.38	693.30	314,214.68
40	11- 4-25	693.30	314, 214.68		
		<hr/>			
		314,214.68			

IN FULL

EXHIBIT C-31 (*continued*) :

BOARD OF ESTIMATE AND APPORTIONMENT.

CITY OF NEW YORK.

(Cal. No. 90-A)

10

A copy of a resolution of the Local Board of the Jamaica District, duly adopted by said Board on the 18th day of November, 1920, and approved by the Acting President of the Borough of Queens on the 26th day of November, 1920, having been transmitted to the Board of Estimate and Apportionment, initiating proceedings for the following local improvement, to wit:

20 For the construction of a sewer and appurtenances in Norwood Place (166th St.) from Queens Avenue to California (43rd) Avenue; California (43rd) Avenue from Norwood Place to Stiles Place (171st St.); Stiles Place from California Avenue to Station Road; Station Road from Stiles Place to Lancaster Avenue (192nd St.), and in Lancaster Avenue from Station Road to Linn Street (39th Ave.); Third Ward, Borough of Queens.

30 —and thereupon, on the 18th day of November, 1921, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens had submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough of Queens, as appears
40 by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed that the cost of the proposed work or improvement, together with the preliminary expenses, will be the sum of \$405,100; and a statement of the

EXHIBIT C-31 (*continued*) :

assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$3,395,320, having also been presented; it is

Resolved, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized.
10 This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

A true copy of resolution adopted by the Board of Estimate and Apportionment, March 24, 1922.

20

JAMES MATTHEWS,

Assistant Secretary.

30

40

EXHIBIT C-31 (continued) :

THE CITY OF NEW YORK

ADVICE OF AWARD OF CONTRACT

(This Copy to be retained by Bookkeeping Division,

10 Department of Finance).

Contract No. 61239 (To be filled by the Dept. of Finance)

Dep't of President of the Borough of Queens.

*Date May 2nd, 1922

Comptroller of The City of New York:

20 Please take notice that the following described contract has this day* been awarded to Contractor H. J. Mullen Contracting Co., Inc., Address: Jamaica Avenue & 144th Street, Jamaica, N. Y. Amount of bond: \$185,000.00

Sureties: United States & Fidelity & Guaranty Co. \$46,250

30	Union Indemnity Co.	46,250
	New Amsterdam Casualty Co.	46,250
	Commercial Casualty Insurance Co.	46,250

DETAILS OF PURPOSE OF CONTRACT

40 For the construction of a sewer and appurtenances in Norwood Place (166th St.) from Queens Avenue to California (43rd) Avenue; California (43rd) Avenue from Norwood Place to Stiles Place (171st St.); Stiles Place from California Avenue to Station Road; Station Road from Stiles Place to Lancaster Avenue (192nd St.), and in Lancaster Avenue from Station Road to Linn Street (39th Ave.); Third Ward, Borough of Queens.

EXHIBIT C-31 (continued) :

TYPE B

10	Contract Chargeable to Code No.	Estimated Amount	Contracts Previously Awarded (Including Adjustments)	Open Market Orders Issued To Date (Including Adjustments)	Mics. Vouchers, Payrolls, and Order Charges
	CFM 25	\$311,855.00	\$5,624,623.14	\$5,612.01	\$193,414.87

Enter full titles of accounts below and refer to code numbers by means of line numbers in margin.

Street Improvement Fund

20

Your respectfully,

MAURICE E. CONNOLLY,

President, Borough of Queens, *Head of Dept.*

30

* This will be the date of the entry by which the fund is charged with the estimate amount of the contract both in the department making the award and by the Department of Finance. There must therefore be no delay in forwarding this advice.

40

EXHIBIT C-31 (*continued*) :

City of New York

Office of the

PRESIDENT OF THE BOROUGH OF QUEENS

10 Maurice E. Connolly
President

Joseph Flanagan
Borough Secretary

Hugh Hall
Secretary to President

Long Island City, May 31, 1922.

20 Charles L. Craig, Comptroller,
City of New York.

Sir:—

I transmit herewith for registration in the Department of Finance, City of New York, the following described contract;—

30 "For constructing sewers and appurtenances in
NORWOOD PLACE (166th Street) from Queens Ave. to
California Ave. (43rd Ave.);
CALIFORNIA (43rd) AVENUE from Norwood Place to Stiles
Place (171st St.);
STILES PLACE from California Ave. to Station Road;
STATION ROAD from Stiles Place to Lancaster Ave. (192nd
St.); and in
LANCASTER AVENUE from Station Road to Lin St. (39th
40 Ave.); Third Ward, Borough of Queens, together with all
the work incidental thereto."

Yours very truly,

MAURICE E. CONNOLLY,

President of the Borough of Queens.

EXHIBIT C-31 (*continued*) :

City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

10 Maurice E. Connolly
President

Joseph Flanagan
Borough Secretary

Long Island City, June 29, 1922.

Charles L. Craig, Comptroller,
20 City of New York.

Sir :—

Referring to contract, No. 61239;—

“For constructing sewers and appurtenances in
NORWOOD PLACE (166th Street) from Queens Ave. to
California Ave. (43rd Ave.);
30 CALIFORNIA (43rd) AVENUE from Norwood Place to Stiles
Place (171st St.);
STILES PLACE from California Ave. to Station Road;
STATION ROAD from Stiles Place to Lancaster Ave. (192nd
St.); and in
LANCASTER AVENUE from Station Road to Lin St. (39th
Ave.); Third Ward, Borough of Queens, together with all
the work incidental thereto.”

I beg to inform you that the contractor, H. J. Mullen
Contracting Co., Inc., Jamaica Avenue & 144th Street, Jamaica,
40 L. I., N. Y., has been ordered to commence the work embraced in
said contract on July 10, 1922, or within five days from said date.

Yours very truly,

BENJAMIN MARIUN,

President of the Borough of Queens.

EXHIBIT C-31 (*continued*) :

AGREEMENT made this 9th day of August 1922, between THE CITY OF NEW YORK, hereinafter called "THE CITY" and H. J. Mullen Contracting Co., Inc., Jamaica Ave. & 144th St., Jamaica, N. Y., hereinafter called the "Contractor";

10 WHEREAS, under date of May 22, 1922, a contract was entered into between The City and the Contractor, designated as #61,239

"For constructing sewers and appurtenances in

NORWOOD PLACE (166th Street) from Queens Ave. to California Ave. (43rd Ave.);

20 CALIFORNIA (43rd) AVENUE from Norwood Place to Stiles Place (171st St.);

STILES PLACE from California Ave. to Station Road;

STATION ROAD from Stiles Place to Lancaster Ave. (192nd St.); and in

LANCASTER AVENUE from Station Road to Lin St. (39th Ave.); Third Ward."

30

WHEREAS, the Contractor has requested that the contract be modified so that partial payments may be made for reinforced concrete pipe delivered on the line of the work for the reason that the present coal strike will probably cause a shortage of steel and cement and the consequent delay in the manufacture of pipe, if the pipe is made as the work progresses, and that said modification will expedite the work by getting all of the precast pipe on the site, so that the contractor may start in several sections at once and then not be delayed on account of the non-delivery of pipe after the work starts.

40

WHEREAS, paragraph VIII of the Contract provides:
"This contract may be modified and changed from time to time, as may be previously agreed to in writing, between the parties hereto in a manner not materially affecting the substance thereof or increasing the contract price there-

EXHIBIT C-31 (*continued*) :

under, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.”

10 1 — NOW, THEREFORE, it is agreed that contract #61,239, dated May 22, 1922, be and the same is hereby modified to provide that 85% progress payments may be made to the Contractor for precast pipe actually delivered on the work and accepted by the engineer, in accordance with the following schedule of prices.

20 2 — No payment will be made by The City for any precast pipe so delivered, but not incorporated in the sewer structure or for any other work performed, until the Contractor shall have furnished the President of the Borough of Queens and the Comptroller of The City of New York satisfactory evidence that the contractor is the sole owner of the pipe free and clear from all liens or encumbrances and such pipe, upon being estimated for payment, shall become the property of The City. The Contractor shall not be relieved from responsibility for said pipe and the protection thereof by reason of said payments, and he shall make good any loss or damage thereto, and shall be responsible for the entire work until the same is finally accepted by The City, as provided in the contract.

30 3 — This agreement shall take effect if, and only when, the written consents of the sureties upon said contract are obtained and attached hereto.

SCHEDULE OF UNIT PRICES TO BE USED IN MAKING UP 85% CERTIFICATES.

	4,406 lin. ft. 8'0" Reinforced Concrete		
40	Pipe Sewer @	\$52.00	— 239,111.00
	Precast Pipe Delivered	\$24.00	
	Excavation, laying, joints,		
	backfill, etc.	28.00	52.00
			<hr/>

EXHIBIT C-31 (continued) :

982 lin. ft. 7'6" Reinforced Concrete

	Pipe Sewer @	\$52.00	—	48,054.00
	Precast Pipe Delivered	\$23.00		
	Excavation, laying, joints,			
10	backfill, etc.	29.00	52.00	

228 lin. ft. 5'6" Reinforced Concrete

	Pipe Sewer @	\$33.00	—	7,524.00
	Precast Pipe Delivered	\$13.00		
	Excavation, laying, joints,			
20	backfill, etc.	20.00	33.00	—

ALL OTHER ITEMS TO BE PAID FOR AT THE PRICES BID.

IN WITNESS WHEREOF, the parties hereto have executed this agreement, the day and year first above written.

30

MAURICE E. CONNOLLY,

President of the Borough of Queens.

H. J. MULLEN CONT. CO., INC.,

F. B. MULLEN, *Vice-Pres.*,

Contractor.

40

EXHIBIT C-31 (*continued*) :

10 The undersigned, Commercial Casualty Insurance Company, New Amsterdam Casualty Company, Union Indemnity Company and United States Fidelity and Guaranty Company, sureties upon the said bond mentioned and described in the foregoing assignment, do hereby consent to the execution and delivery thereof by H. J. Mullen Contracting Co., Inc. and hereby agree to be bound by the terms of our said original bond executed and delivered herein.

Commercial Casualty Insurance Company

by L. A. DELANEY,

Attorney-in-fact.

20

New Amsterdam Casualty Company

..... Vice President.

Attest. W. L. M. GINTY,

Assistant Secretary.

30

Union Indemnity Company

By GEORGE E. HAYES,

Attest. NORMAN HOAG,

United States Fidelity and Guaranty Company

By C. D. MARSAC,

40

Attorney-in- fact.

Attest

Attorney-in- fact.

EXHIBIT C-31 (*continued*) :

MEMORANDUM FOR DEPUTY COMPTROLLER

HENRY SMITH.

10 I submit herewith contract No. 61239 with H. J. Mullen Contracting Company Inc. for the construction of a sewer and appurtenances in Norwood Place, etc., Borough of Queens, together with an agreement entered into on August 9, 1922 purporting to modify the contract so as to permit payments to be made for material delivered at the site of the work but not incorporated therein.

The estimated cost of the contract is \$311,855. and the estimated cost of the items affected by the purported modification is \$294,689.

20 The reason given for the proposed modification of the contract is that the present coal strike will probably cause a shortage of steel and cement and the consequent delay in the manufacture of pipe if the pipe is to be made as the work progresses and that the modification will expedite the work by getting all of the pre-cast pipe on the site so that the contractor may start in several sections at once and then not be delayed after the work starts.

30 The proposed modification contemplates a material change in the payment clause of the contract and in harmony with my previous action on matters of the same character, I recommend subject to your approval, that no effect be given thereto.

D. E. KENILO,

Chief Auditor of Accounts.

40 August 16, 1922.

enc.

EXHIBIT C-31 (*continued*) :

City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

10 Maurice E. Connolly,
President.

Michael J. Shugrue,
Borough Secretary.

Long Island City, January 9th, 1925.

20 The Honorable Charles L. Craig,
Municipal Building,
New York City.

Sir:—

30 In accordance with the recommendation of the Engineer of
Sewers, this Department, I have granted an extension of time
Three hundred and sixty-five and one quarter ($365\frac{1}{4}$) working
days, to H. J. Mullen Contracting Company, Inc., Jamaica and
144th Street, Jamaica, N. Y., in which to complete the work in
connection with contract No. 61239;

“For constructing a sewer and appurtenances in Norwood
Place (166th Street), from Queens Avenue to California
(43rd) Avenue, etc., 3rd Ward.”

40 This work actually started on July 20th., 1922. Previous
to the starting of this work, on March 29th., 1922, a communica-
tion was addressed to the Board of Estimate and Apportionment,
asking for approval of the form of easement to construct and
maintain a sewer under the tracks of the Long Island Railroad
at Lancaster Avenue, as part of the sewer work in connection

EXHIBIT C-31 (*continued*) :

10 with this contract had to cross the L. I. R. R. tracks at this point. Many efforts were made to have this easement executed, but it was not until July 1924 that the same was duly passed and executed, by the Board. While this matter was pending numerous requests have been made by the contractor asking that the easement be executed and that he be given the right of way to construct the sewer under the Long Island Railroad tracks.

A considerable number of linear feet of sewer were to be constructed under this contract, amounting to about 5700 feet. The contractor started from one end and worked only with one machine, the progress of which was very slow compelling us to constantly urge him to make better progress, however he claimed his inability to use more than one machine was due to the failure of the City to provide an easement across the Long Island Railroad tracks.

20 In view of the fact that the City failed to execute the easement and give the contractor a clear right of way, and as no one was seriously inconvenienced by the delay in the construction of this sewer, the above extension of time was granted.

Very truly yours,

30 MAURICE E. CONNOLLY,
President of the Borough of Queens.

40

EXHIBIT C-31 (*continued*) :

City of New York

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS.

10 Maurice E. Connolly,
President.

Michael J. Shugrue,
Borough Secretary.

Long Island City, February 19, 1925.

20 The Honorable Charles L. Craig,
Comptroller of The City of New York,
Municipal Building,
New York, N. Y.

30 Sir :—

In transmitting herewith Final Certificate on contract #61239, H. J. Mullen Contracting Co., Inc., 139-39 Jamaica Ave., Jamaica, N. Y., Contractor:

40 For constructing a sewer and appurtenances in NORWOOD PL. (166th St.) from Queens Ave. to California (43rd) Ave., etc., Third Ward,

I beg to state that the contract cost exceeds the prices bid by \$2,359.68, as noted below:

EXHIBIT C-31 (continued) :

IN EXCESS OF ESTIMATED QUANTITY.

10	9.76 lin. ft. 8'0" R. C. P. Sewer (Pre-cast Type B) @	\$ 52.00 — 507.52
	1.64 lin. ft. 7'6" R. C. P. Sewer (Pre-cast Type B) @	52.00 — 85.28
	2. lin. ft. 5'6" R. C. P. Sewer (Pre-cast Type B) @	33.00 — 66.00
20	167 lin. ft. 12" Vit. Pipe Basin Connections @.....	2.00 — 334.00
	48 6 lin. Spurs, 24" long on R. C. P. Sewer (Type B) @	1.00 — 48.00
	5 Inlets @	55.00 — 275.00
30	2 Basin Manholes @	110.00 — 220.00
	73.86 cu. yds. Rock, etc. @	8.00 — 590.88
464	" " Steam Cinders (del. & Placed) @	1.25 — 580.00

40

2706.68

EXHIBIT C-31 (*continued*) :

LESS THAN ESTIMATED QUANTITY.

10	194	lin. ft. 10" V. P. Basin Connec-			
		tion @	1.50	—	291.00
	56	lin. ft. 6" V. P. H. C. Drains @	1.00	—	56.00
					347.00

COST OVER BID PRICE \$2359.68

20 I hereby request that you issue a certificate of additional estimate applicable to this contract in the sum of \$2359.68.

Yours very truly,

MAURICE E. CONNOLLY,
President of Borough of Queens.

30 (Enc.)
JFP/I

40

EXHIBIT C-31 (*continued*) :

General Release

CORPORATION.

To all to whom these Presents shall come or may concern,
10 Greeting:

KNOW YE, that H. J. Mullen Cont. Co. Inc.,

139-39 Jamaica Ave., Jamaica, L. I.

for and in consideration of the sum of Forty eight thousand,
three hundred, eighty 06/100**** Dollars, lawful money of the
United States of America, to it paid by the City of New York,
the receipt of which is hereby acknowledged, have remised, re-
20 the receipt of which is hereby acknowledged, have remised,
released and forever discharge and by these presents, does
for itself, its successors and assigns, remise, release and
discharge the said City of New York, their successors and
assigns, of and from all and all manner of action and
actions, cause and causes of action, suits, debts, dues, sums
of money, accounts, reckonings, bonds, bills, specialties, covenants,
contrats, controversies, agreements, promises, variances, tres-
passes, damages, judgments, extents, executions, claims and
30 demands whatsoever in law or in equity, which against them it
ever had, now has or which it or its successors or assigns here-
after can, shall or may have, for, upon or by reason of a certain
contract or agreement made the 22nd day of May, A. D., 1922, by
and between H. J. Mullen Cont. Co. Inc., and the said The City
of New York, for Contract No. 61239, Sewer, Norwood Place, &c.,
or by reason of any matter, cause or thing whatsoever resulting
or arising therefrom, from the beginning of the world to the day
of the date of these presents. Excepting the sum of \$693.30 re-
40 tained as repairing security and the further sum of \$1,000.: re-
tained pending satisfactory completion of work, and further
excepting as per rider attached hereto excepting and reserving
any claim or claims that the undersigned may have against The
City of New York on account of damages, losses and expenses by
the undersigned:—

EXHIBIT C-31 (*continued*) :

10 (1) By reason of being prevented from doing the work and performing the contract with two organizations or gangs instead of one; (2) By reason of being required to work in seasons and weather not suitable for such sewer work; (3) From delays caused by The City of New York for sundry reasons and causes, including the neglect and failure of The City in securing and granting to claimant rights-of-way for said sewer over and along the Long Island Railroad at or near Lancaster Ave; (4) From permitting and allowing obstructions to be created and maintained along the line of the sewer which caused to claimant greater expense in the performance and construction and completion of the sewer; (5) For increased cost and expense, overhead charges, bond premiums, etc. caused and resulting from said delays; in the aggregate sum of \$20,000. which said claims are not released by the undersigned nor are they conceded by The City of New York.

20 IN WITNESS WHEREOF, H. J. Mullen Cont. Co. Inc., has caused its corporate seal to be affixed hereto and its corporate name to be signed to these presents by its Prest this 1st day of April in the year one thousand, nine hundred and twenty five.

H. J. Mullen Cont. Co. Inc. [L. S.]

30 F. B. MULLEN, Pres.

Sealed and delivered in the presence of

W. F. HEFFERNAN.

40

EXHIBIT C-31 (*continued*) :

State of New York,

County of New York, ss.:

City of New York,

10 On this 1st day of April 1925, before me personally came F. B. MULLEN, to me known, who being by me duly sworn, did depose and say that he resided in Jamaica, L. I., that he is the Pres of the H. J. MULLEN CONT. CO., INC., he Corporation described in and which executed the above instrument, that he knew the seal of said Corporation; that the seal affixed to said instrument was such corporate seal; that it was so affixed by order of the Board of Directors of said Corporation, and that he signed his name thereto by like order.

20

W. F. HEFFERNAN,

Notary Public, Commissioner of Deeds.

30

40

EXHIBIT C-31 (*continued*) :

No. 2.

THE CITY OF NEW YORK

Office of the

THE PRESIDENT OF THE BOROUGH OF QUEENS

10

BUREAU OF SEWERS

20

Sealed Bids or Proposals for the herein named work will be received at the office of the President of the Borough of Queens on the 4th Floor of the Queens Subway Building, 68 Hunterspoint Avenue, Long Island City, Borough of Queens, in The City of New York, until 11 o'clock a. m. On Apr 12, 1922.

30

The time allowed for the completion of the work and the full performance of the contract is 300 CONSECUTIVE WORKING DAYS.

The liquidated damages for each day in excess of the allowed time, as stipulated in the contract, is ten dollars per day:

The amount of SECURITY or surety bond required will be (\$185,000.00).

40

NOTE. — All bids must be submitted upon the proper blank form of bid and in the sealed envelope prepared and furnished by the Borough President, and must be made out as required. Any bid which fails to name a price, both in writing and in figures per unit of measurement for each and every item of the proposed work where quantities are given, or is incomplete, conditional, obscure, or irregular, may be held to be informal and may be rejected, and in case of any discrepancy between the price written in the bid and given in figures, the price in writing will be considered as the bid. The writing must be in ink.

EXHIBIT C-31 (continued) :

BID OR ESTIMATE

10 For the construction of a sewer and appurtenances in Norwood Place (166th St.) from Queens Avenue to California (43rd) Avenue; California (43rd) Avenue from Norwood Place to Stiles Place (171st St.); Stiles Place from California Avenue to Station Road; Station Road from Stiles Place to Lancaster Avenue (192nd St.), and in Lancaster Avenue from Station Road to Linn Street (39th Ave.); Third Ward, Borough of Queens.

Made by the firm or corporation of H. J. MULLEN CONTRACTING CO., INC.,

20 Address Jamaica Ave. & 144th St., Jamaica, N. Y.

NAME AND ADDRESS OF EACH AND EVERY MEMBER
OF THE FIRM OR PRINCIPAL OFFICERS
OF THE CORPORATION.

NOTE. — The bidder's name and residence or address must be inserted herebelow, and in case of a firm, the name and address of each and every member of the firm must be inserted.

30 In case a bid shall be submitted by or in behalf of any corporation, the complete legal name and address of such corporation must be written herebelow, together with the name, address and title of the principal officers of the corporation.

Name H. J. MULLEN CONTRACTING CO., INC.,
Address Jamaica Ave. & 144th St., Jamaica, N. Y.

Name H. J. MULLEN, Pres.,
Address 448 Hillside Ave., Jamaica, N. Y.

40 Name W. H. HASTINGS, Treas.,
Address 6 Hillside Court, Jamaica, N. Y.

Name V. W. THOMSON, sec'y.,
Address 21 - 87th Ave., Woodhaven, N. Y.

EXHIBIT C-31 (*continued*) :

10 The party named above (of lawful age), as Bidder, declares: That the only person or persons interested in this bid or proposal as principal or principals is or are named above, and that no other person than herein above named has any interest in this bid or in the contract proposed to be taken; that this bid is made without any connection with any other person or persons making a bid for the same work or purpose; that the bid is in all respects fair and without collusion or fraud, and that no member of the Board of Aldermen, no head of a department, no chief of a bureau, deputy thereof, or clerk therein, nor any other officer or employee of The City of New York, is shall be or become, directly or indirectly, interested as contracting party, partner, stockholder, surety or otherwise in the performance of the contract, or in the supplies, work or business to which it relates, or in any portion of the profits thereof, that he has examined the form of contract and specifications approved by the Corporation Counsel and any plans therein referred to, and that he has visited the site of the proposed work and has made himself familiar with all the existing conditions; and he proposes and agrees, if this bid be accepted, that he will contract, in the form so approved, to provide, furnish and deliver all necessary work, labor, services, materials or supplies, machinery, tools, plant, and appliances, and to perform and complete all the work mentioned in said approved form of contract and specifications, and in strict accordance with the terms and conditions thereof, and that he will accept in full payment therefor the following named sums or prices:

20

30

40 The Engineer's estimate of the quantities as advertised and the nature and extent of the work and materials or supplies required, though stated with as much accuracy as is practicable in advance, are APPROXIMATE only and are given to form a basis of comparison for testing bids and are not guaranteed to be accurate and are not considered as a binding feature of the contract. Before bidding, Contractors must satisfy themselves by personal examination of the Plans, Specifications, Contract, and location of the proposed work, and by such other means as they may prefer, as to the accuracy of the foregoing statement, and they must determine for themselves, and allow for all difficulties which may be encountered in the prosecution of the work.

EXHIBIT C-31 (continued) :

T Y P E "B"

1. 4,406 Linear Feet 8'-0" Reinforced Concrete Pipe Sewer,
(Precast Type "B"), Per Linear Foot, Fifty-two
Dollars (\$52.00)
- 10 2. 982 Linear Feet 7'-6" Reinforced Concrete Pipe Sewer,
(Precast Type "B"), Per Linear Foot, Fifty-two
Dollars (\$52.00)
3. 228 Linear Feet 5'-6" Reinforced Concrete Pipe Sewer,
(Precast Type "B"), Per Linear Foot, Thirty-three
Dollars (\$33.00)
- 20 4. 50 Linear Feet 5'-6" Reinforced Concrete Pipe Sewer,
(Precast Type "B"), including concrete casing for
R. R. Crossing, as shown, Per Linear Foot, Sixty-
five Dollars (\$65.00)
5. 33 Manholes and Drop Manholes, Complete, Each, One
hundred and twenty-five Dollars (\$125.00)
6. 22 Basin Manholes, Complete, Each, One hundred and
ten Dollars (\$110.00)
- 30 7. 37 Inlets, Complete, Each, Fifty-five Dollars (\$55.00)
8. 450 Linear Feet 12-inch Vitrified Pipe, Basin Connection,
Per Linear Foot, Two Dollars (\$2.00)
9. 560 Linear Feet 10-inch Vitrified Pipe, Basin Connection,
Per Linear Foot, One dollar and fifty cents (\$1.50)
10. 261 Six-inch Spurs 24-inches long on Reinforced Concrete
40 Pipe Sewer (Precast Type "B"), Each, One Dollar
(\$1.00)
11. 224 Linear Feet 6-inch Vitrified Pipe House Connection
Drains, Per Linear Foot, One Dollar (\$1.00)
12. 1 Decreaser Chamber in 46th Ave., at 166th St., Com-
plete, Five hundred Dollars (\$500.00)

EXHIBIT C-31 (*continued*) :

13. 1 Chamber in 166th St. at 45th Ave., Complete, Five hundred Dollars (\$500.00)
14. 1 Chamber in 166th St. at 43rd Ave., Complete, Two thousand Dollars (\$2000.00)
- 10 15. 1 Chamber in 43rd Ave. at 171st St., Complete, Two thousand (\$2000.00)
16. 1 Chamber in 171st St. at Station Road, Complete, Two thousand Dollars (\$2000.00)
17. 1 Chamber in Station Road at Utopia Parkway, Complete, Five hundred Dollars (\$500.00)
18. 1 Chamber in Station Road at 192nd St., Complete, Two thousand Dollars (\$2000.00)
- 20 19. 1 Chamber in 192nd St. at 39th Ave., Complete, Five hundred Dollars (\$500.00)

30 No bid will be allowed to be withdrawn, for any reason whatever, after it has been received and deposited with the President. The President expressly reserves the right to reject all bids if he shall deem it for the public interest so to do. No bid will be accepted from, nor contract awarded to, any person who is in arrears to The City of New York upon debt or contract, or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

40 No bid or proposal will be received, considered and deposited unless, as a condition precedent to the reception or consideration of any proposal it be accompanied by either a certified check upon one of the State The City of New York, or money to the amount of five per centum (5%) of the amount of the security or surety bond required for the faithful performance of the contract. Such check or money must not be inclosed in the sealed envelope containing the proposal, but must be either inclosed in a separate envelope addressed to the Borough President, or submitted personally upon the presentation of the bid or proposal and handed to the officer or clerk of the Department who has charge of the proposal box, and who will give a proper vou-

EXHIBIT C-31 (continued) :

cher for the deposit, and no bid can be deposited in said box until such check or money has been examined by said officer or clerk and found to be correct. All such deposits, except that made by the bidder to whom the contract shall be awarded, will be returned to the person or persons making the same within three (3) days after the decision as to who, shall receive the contract.

10 If the bidder to whom the contract shall have been awarded shall refuse or neglect to execute the same within five days after due notice that the contract has been awarded to him, and that the adequacy and sufficiency of the surety offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York as liquidated damages for such neglect or refusal; but if he shall execute the contract and furnish the said security within the time aforesaid, the amount of the deposit shall be returned to him.

20

Each and every person bidding must sign here.

NOTE.—Each and every person bidding and named above must sign here. In the case of a firm, give the name of each and every partner in full.

H. J. MULLEN CONTRACT-
ING CO., INC.
F. B. MULLEN, Vice-Pres.

.....[L. S.]

30

In case a bid shall be submitted by or in behalf of a corporation it must be signed in the full legal name of such corporation by some authorized officer or agent thereof, who shall subscribe his name and office. If practicable, the seal of the corporation must be affixed.

.....[L. S.]

.....[L. S.]

40

The following affidavit must be similarly signed and sworn to:

EXHIBIT C-31 (*continued*) :

THE CITY AND STATE OF NEW YORK, COUNTY OF
QUEENS ss.:

The above-named bidder (s), being severally duly sworn,
say, each for himself, that the several matters stated in the above
bid are in all respects true.

10

Subscribed and sworn to before
me, this 12th day of April 1922.

Signature(s) of bidder(s)

F. B. MULLEN

J. H. MULLEN,

20

Notary Public, Queens County.

30

NOTICE TO BIDDERS.

40

Bidders are invited to tender bids on monolithic plain and
reinforced concrete sewers from 27-inches upward, these sewers
being the standards of the Sewer Department and hereafter
designated as Type "A", or on reinforced concrete pipe sewers
from 24-inches upward (precast) which will be designated as
Type "B", or on both types, if they so desire, but it is to be
distinctly understood that no bids will be accepted on combina-
tions of Types "A" and "B".

EXHIBIT C-31 (continued) :

NOTICE TO BIDDERS.

Prices to be paid by The City of New York for indeterminate quantities, such as

10	ROCK EXCAVATION	8.00	Per	Cu.	Yd.
	CLASS "A" CONCRETE	15.00	"	"	"
	REINFORCING STEEL .....	.06	Per	Lb.	
	STRUCTURAL STEEL .....	.08	"	"	
20	FOUNDATION TIMBER	70.00	Per	1000	Ft. B. M.
	SHEETING & BRACING	20.00	"	"	" " "
	PILING (TIMBER)	1.00	Per	Ft.	driven and cut-off
	STEAM CINDERS (Delivered & Placed)	1.25	Per	Cu.	Yd.

30 Indeterminate quantities shall be those whose amount and necessity will be determined by the conditions encountered during the work of construction.

Time for presenting bids.

1. Sealed bids for the above-entitled work will be received at the office of the President of the Borough of Queens, Queens Subway Building, Long Island City, in the City of New York, until 11 o'clock A. M., on WEDNESDAY April 12th, 1922.

40 Time allowed for completion.

2. The time allowed for the full completion of the work herein described will be three hundred (300) CONSECUTIVE WORKING DAYS.

EXHIBIT C-31 (*continued*) :

Security required.

3. The amount of security required will be One hundred and eighty-five thousand 00-100 Dollars (\$185,000.00).

Bidders referred to, form or agreement, etc.

10 4. Bidders are referred to the form of agreement, to the specifications and to the plan and drawings of Standard Details on file at the office of the President, and to the following Engineer's estimate of the quantity and kind of work required, the items whereof in all cases include all materials and labor necessary to fully complete said work. Prices for each item shall be named, upon the sum total of which the comparison and tests of bids will be made.

20 Engineer's estimate.

TYPE "A" (OR SEWER DEPT. STANDARD)

4,406 Linear Feet 8'-0" Circular Reinforced Concrete Sewer
982 Linear Feet 7'-6" Circular Reinforced Concrete Sewer
30 278 Linear Feet 5'-6" Circular Reinforced Concrete Sewer
33 Manholes and Drop Manholes, Complete
22 Basin Manholes, Complete
37 Inlets, Complete
450 Linear Feet 12-inch Vitrified Pipe, Basin Connections
40 560 Linear Feet 10-inch Vitrified Pipe, Basin Connections
361 Six-inch Spurs 24-inches long on Concrete Sewers
224 Linear Feet 6-inch Vitrified Pipe House Connection Drains
1 Decreaser Chamber in 46th Ave. at 166th St.

EXHIBIT C-31 (*continued*) :

- 1 Chamber in 166th St. at 45th Ave.
- 1 Chamber in 166th St. at 43rd Ave.
- 1 Chamber in 43rd Ave. at 171st St.
- 10 1 Chamber in 171st St. at Station Road
- 1 Chamber in Station Road at Utopia Parkway
- 1 Chamber in Station Road at 192nd St.
- 1 Chamber in 192nd St. at 39th Ave.

T Y P E "B"

- 20 4,406 Linear Feet 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B")
- 982 Linear Feet 7'-6" Reinforced Concrete Pipe Sewer (Precast Type "B")
- 228 Linear Feet 5'-6" Reinforced Concrete Pipe Sewer (Precast Type "B")
- 30 50 Linear Feet 5'-6" Reinforced Concrete Pipe Sewer (Precast Type "B", including concrete casing for R. R. Crossing, as shown)
- 33 Manholes and Drop Manholes, Complete
- 22 Basin Manholes, Complete
- 37 Inlets, Complete
- 40 450 Linear Feet 12-inch Vitrified Pipe, Basin Connections
- 560 Linear Feet 10-inch Vitrified Pipe, Basin Connections
- 361 Six-inch Spurs, 20-inches long on Reinforced Concrete Pipe Sewer (Precast Type "B")

EXHIBIT C-31 (*continued*) :

224 Linear Feet 6-inch Vitrified Pipe House Connection Drains

- 1 Decreaser Chamber in 46th Ave. at 166th St.
- 1 Chamber in 166th St. at 45th Ave.
- 10 1 Chamber in 166th St. at 43rd Ave.
- 1 Chamber in 43rd Ave. at 171st St.
- 1 Chamber in 171st St. at Station Road
- 1 Chamber in Station Road at Utopia Parkway
- 1 Chamber in Station Road at 192nd St.
- 20 1 Chamber in 192nd St. at 39th Ave.

Personal examination of work.

5. The foregoing Engineer's Estimate is approximate only and is not to be considered as a binding feature of the contract. Bidders are required to submit their bids upon the following express conditions which apply to and become a part of every bid received. Bidders must satisfy themselves by personal examination of the location of the proposed work and surroundings thereof, and by such other means as they may prefer as to the accuracy of the foregoing estimate, and shall not at any time after submission of their bids, dispute or complain of such estimate of the Engineer, nor assert that there was any misunderstanding in regard to the quantity or kind of materials to be furnished or work to be done.
- 30

Prices to be stated in writing and in words and in figures.

6. Any bid which fails to name a price, written both in words and in figures, per unit of measurement for each of the items for which quantities are given, will be held to be informal and will be rejected. In case of any discrepancy between the price in words and that in figures, the price in words will be considered as the bid.
- 40

EXHIBIT C-31 (*continued*) :

Prices bid to cover.

10 7. The prices bid must cover the cost of furnishing all necessary materials and labor for and the complete performance of all the work set forth in this proposal, described in the form of agreement and specifications annexed hereto, and indicated by the plan of the work on file in the office of the President, to all of which information the bidders are referred.

Rock excavation.

8. The attention of the bidders is particularly directed to the specifications relating to rock excavation.

Bids may be rejected.

20 9. Permission will not be given for the withdrawal of any bid within forty-five (45) days after receipt of bids, and the right is expressly reserved by the President to reject all bids if he shall deem it to be in the public interest so to do. No bid will be accepted from, or contract awarded to, any person who is in arrears to The City of New York upon debt or contract or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

30 Times and places for commencing and prosecuting work to be determined by the President.

40 10. Bidders are especially notified that the President reserves the right to determine the times and places for commencing and prosecuting the work, and that postponement or delay on the whole, or any part thereof, occasioned by the precedence of other contracts, which may be either let or executed before the opening of the bids for this work, can constitute no claim for damages nor for a reduction of the damages fixed for delay in completing the work beyond the time allowed.

No extra compensation.

11. The Contractor will be required to complete the entire work to the satisfaction of the President and in accordance with the agreement, the specifications and the plan of the work. No extra compensation beyond the amount payable for the se-

EXHIBIT C-31 (*continued*) :

veral classes of work hereinbefore enumerated, which shall be actually furnished and performed at the prices bid therefor by the bidder to whom the contract is awarded, shall be due or payable for the entire materials and work.

Deposit to accompany bid.

- 10 12. No bid will be received or considered unless accom-
panied by either a certified check upon one of the National or
State Banks or Trust Companies of The City of New York, or
a check of such bank or trust company signed by a duly autho-
rized officer thereof, drawn to the order of the Comptroller, or
money or corporate stock or certificate of indebtedness of any
nature issued by the City of New York, which the Comptroller
shall approve as of equal value with the security required, to an
amount of five per centum of the amount of the bond required
20 for the faithful performance of the contract (as provided by sec-
tion 420 of The Greater New York Charter as amended). Such
check or money or other form of security must not be inclosed
in the sealed envelope containing the bid, but must be handed
to the officer or clerk who has charge of the bidding, and no bid
shall be deposited in the box provided for that purpose until
such check or money or other form of security has been examin-
ed by said officer or clerk and found to be correct. All such de-
posits, except those of the lowest three bidders, will be returned
to the persons making the same within 10 days after the open-
30 ing of the bids; within three days after the awarding of the con-
tract, the remaining deposits, except that made by the bidder
whose bid has been accepted, will be returned to the persons
making the same. If the successful bidder shall refuse or ne-
glect to execute the contract within five days after notice that
it has been awarded to him, and that the adequacy and suffi-
ciency of the security offered has been approved by the Comp-
troller, the amount of the deposit made by him shall be forfeited
to and retained by The City of New York, but if he shall execute
the contract and furnish the required security within the time
40 aforesaid, the amount of his deposit will be returned to him.

Names of persons interested.

13. Bidders are required to state in their bids, under oath, their names and places of residence or business, the names of all persons interested with them therein, and if no other person be so interested, they shall distinctly state that fact; also,

EXHIBIT C-31 (*continued*) :

10 that it is made without any connection with any other person making any bid for the same purpose, and that it is in all respects fair and without collusion or fraud; and that no member of the Board of Aldermen, head of a department, chief of a bureau, deputy thereof or clerk therein or officer or employee of The City of New York, is, shall be or become interested, directly or indirectly, as contracting party, partner, stockholder, surety or otherwise, in or in the performance of the contract or in the material, work or business to which it relates, or in any portion of the profits thereof. Bidders must verify by oath, in writing, the several matters stated in their bids.

Sealed bids to be submitted.

20 14. Each bid must be delivered in a sealed envelope, endorsed with the title of the work for which the bid is made, with the name of the bidder, and the date of presentation to the President at his office, on or before the date and hour hereinbefore named, at which time and place the bids received will be publicly opened by the President and read and the award of the contract made according to law as soon thereafter as practicable. The person or persons to whom the contract may be awarded will be required to attend at said office with the sureties offered by him or them and execute the contract within five days from the date of the service of a notice to the effect that the contract has been
30 so awarded and the surety accepted; and in case of failure or neglect so to do he or they will be considered as having abandoned the contract and as being in default to the City.

Bidders shall use blank forms to be furnished by the President.

40 15. Bidders shall make their bids upon the forms prepared by the President, a copy of which with the proper envelope in which to enclose the same can be obtained upon application therefor at the office of the President, Queens Subway Building, Long Island City, where the plan can be seen, as also the form of contract, including the specifications in the form approved by the Corporation Counsel.

MAURICE E. CONNOLLY,

President of the Borough of Queens.

The City of New York, 192...

EXHIBIT C-31 (*continued*) :

THE CITY OF NEW YORK

OFFICE OF THE PRESIDENT OF THE BOROUGH
OF QUEENS.

10

BUREAU OF SEWERS.

CONTRACT FOR the construction of a sewer and appurtenances
in NORWOOD PLACE (166th Street) from Queens Ave. to Cali-
fornia Ave. (43rd Ave.) ; CALIFORNIA (43rd) AVENUE from
Norwood Place to Stiles Place (171st St.) ; STILES PLACE from
California Ave. to Station Road; STATION ROAD from Stiles
Place to Lancaster Ave. (192nd St.); and in LANCASTER
20 AVENUE from Station Road to Linn Street (39th Ave.), Third
Ward, Borough of Queens.

together with all the work incidental thereto.

Parties.

THIS AGREEMENT, made and entered into this 22nd day
of May, in the year one thousand nine hundred and 22 by and
between The City of New York, party of the first part, by the
30 President of the Borough of Queens, and H. J. MULLEN CON-
TRACTING CO. INC. of Jamaica Ave. and 144th Street, Jamaica
L. I., Contractor, party of the second part, pursuant to the
provisions of The Greater New York Charter, and the resolution
of The Board of Estimate and Apportionment adopted on the
18th day of November, 1921, of which resolution the following is
a copy:

40

EXHIBIT C-31 (*continued*) :

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT.

City of New York

(Cal. No. 90-A)

10

A copy of a resolution of the Local Board of the Jamaica District, duly adopted by said Board on the 18th day of November, 1920 and approved by the President of the Borough of Queens on the 26th day of November, 1920, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

“RESOLVED, That this Board does hereby initiate proceedings for the said local improvement, to wit :

20

For the construction of a sewer and appurtenances in Norwood Place (166th St.) from Queens Avenue to California (43rd) Avenue; California (43rd) Avenue from Norwood Place to Stiles Place (171st St.); Stiles Place from California Avenue to Station Road; Station Road from Stiles Place to Lancaster Avenue (192nd St.), and in Lancaster Avenue from Station Road to Linn Street (39th Ave.); Third Ward, Borough of Queens; and thereupon, on the 18th day of November, 1921, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed, that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$405,100.; and a statement of the assessed value according to the last preceding tax roll of

30

40

EXHIBIT C-31 (*continued*) :

the real estate included within the probable area of assessment, to wit, the sum of \$3,395,320. having also been presented, it is

10 RESOLVED, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the afore-said preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on March 24, 1922.

20 Dated, New York,

(Signed) JAMES MATTHEWS,

Assistant Secretary,

Board of Estimate and Apportionment.

30

40

EXHIBIT C-31 (*continued*) :

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT

10

CITY OF NEW YORK

Cal. No. 90-A

20 WHEREAS, The President of the Borough of Queens has transmitted to the Board of Estimate and Apportionment a copy of a resolution of the Local Board of the Jamaica & Newtown District, duly adopted by said Board on the 18th day of Nov., 1920 and approved by the President of the Borough of Queens on the 26th day of November, 1920, as follows, to wit:

“RESOLVED, that the following resolutions adopted by the Jamaica Local Board of Improvements * * * be and the same are hereby amended and combined to read as follows:

30 “For the construction of a sewer and appurtenances in NORWOOD PLACE (166th Street) from Queens Avenue to California Avenue (43rd Avenue); CALIFORNIA (43rd) AVENUE from Norwood Place to Stiles Place (171st Street); STILES PLACE from California Avenue to Station Road; STATION ROAD from Stiles Place to Lancaster Avenue (192nd Street); and in LANCASTER AVENUE from Station Road to Linn Street (39th Avenue), Third Ward, Borough of Queens;

and which resolution is accompanied with an approximate estimate of the cost of work and the assessed value of the property benefited.

40

RESOLVED, That the Board of Estimate and Apportionment hereby authorizes the President of the Borough of Queens to prepare plans, specifications and an estimate of cost based on actual survey, and also to secure a determination of the boundary of the district of assessment; the entire expense of the work done subsequent to the date of this authorization to be

EXHIBIT C-31 (*continued*) :

charged against the Street Improvement fund and later included in the assessment.

10 RESOLVED, That the Board of Estimate and Apportionment will consider the authorization of the construction of the said proposed improvement after the President of the Borough of Queens has submitted a statement showing that all of the above described work has been done, that he has secured the approval of the form of contract by the Corporation Counsel, that he is prepared to place the improvement under contract as soon as he receives the consent of the Board, and that the assessment may will be completed on or before the date of payment on acceptance; this report being accompanied by a further statement showing the quantity of work to be performed under each item and the unit price thereof, the expense incurred for preliminary work, the allowance to be made for additional engineering and contingencies, the total probable cost, and the number of working days to be allowed the contractor for carrying out the work.

20 A true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on November 18, 1921.

Dated, New York.

30 (signed) JAMES MATTHEWS
Assistant Secretary,
Board of Estimate and Apportionment.

40 Covenant.

WITNESSETH, That the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the party of the first part for itself and its successors, and the party of the second part for itself, himself, or themselves, and its, his or their executors, administrators, successors and assigns, as follows:

EXHIBIT C-31 (*continued*) :

Contract.

I. The contract for the hereinbefore entitled work shall include the following, which are hereby agreed upon as forming part and parcel thereof: the Proposal for Bids, the Bid, the Bond, this Agreement and the Specifications hereto annexed; also the
10 plan of the work dated January 27th, 1922, filed in the office of the President of the Borough, entitled: Plans, Profiles and Details for the construction of a sewer and apurenances in NORWOOD PACE (166th Street) from Queens Avenue to California Avenue (43rd Avenue); CALIFORNIA (43rd) AVENUE from Norwood Place to Stiles Place (171st St.); STILES PLACE from Califor Avenue to Station Road; STATION ROAD from Stiles Place to Lancaster Avenue (192nd Street); and in LANCASTER AVE-
20 NUE from Station Road to Linn Street (39th Avenue), Third Ward, Borough of Queens; and also Drawings of Standard Details pertinent thereto on file in the office of the Engineer.

Party of the first part.

II. Whenever the term "The City" or a word "President," or a pronoun in place of either, is used, it refers to and means The City of New York, the party of the first part hereto, or the President of the Borough of Queens, or his authorized representative.

30 Party of the second part.

Whenever the word "Contractor," or a pronoun in place thereof, is used, it refers to and means the party of the second part hereto.

Engineer described.

III. Whenever the word "Engineer," or a pronoun in place thereof, is used, it refers to and means the Engineer in
40 Charge of Sewers, Borough of Queens, acting either directly or through assistants designated by him to act in the premises, limited to the particular duties entrusted to them. In case said Engineer may not be able to act, then such Engineer as may be designated by the President shall act in his place.

EXHIBIT C-31 (*continued*) :

Terms defined.

10 IV. Whenever the word "plan" is used it refers to and means the plan of this work and the standard drawings pertinent thereto. Whenever it is provided that anything is "to be" or "to be done," "if" or "as," or "when" or "where approved," "required," "directed," "permitted," "ordered," "designated" or "deemed necessary" it shall be taken to mean approved, required, permitted, ordered, designated or deemed necessary as the case may be by the Engineer. Whenever the words "desirable," "suitable," "sufficient," "satisfactory" or others of a similar purport are used it is hereby agreed that the desirability, suitability, sufficiency, satisfactoriness or other denominated condition shall be as determined by the Engineer.

Contractor to furnish tools, proper appliances, etc.

20 V. The Contractor hereby agrees to furnish and provide all materials, labor, and appliances necessary and proper for the purpose, to excavate for, build, complete and connect in a good substantial manner, to the satisfaction of the President, and in conformity with the contract, the hereinbefore entitled work and all the work incidental thereto, and the Contractor hereby agrees to receive and accept as and for his full compensation the following prices, which are the amounts or rates at which this contract was awarded to the Contractor at the public letting thereof:

30 Prices.

T Y P E "B"

- Linear Feet 8'-0" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Fifty-Two 00-100 Dollars (\$52.00).
- 40 Linear Feet 7'-6" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Fifty-Two 00-100 Dollars (\$52.00).
- Linear Feet 5'-6" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Thirty-three 00-100 Dollars (\$33.00).

EXHIBIT C-31 (continued) :

- Linear Feet 5'-6" Reinforced Concrete Pipe Sewer (Precast Type "B"), including concrete casing for R. R. crossing, as shown on plan, Per Linear Foot, Sixty-five 00-100 Dollars (\$65.00).
- 10 Manholes and Drop Manholes, Complete, Each, One hundred twenty-five 00-100 Dollars (\$125.00).
- Basin Manholes, Complete, Each, One hundred ten 00-100 Dollars (\$110.00).
- Inlets, Complete, Each, Fifty-five 00-100 Dollars (\$55.00).
- Linear Feet 12-inch Vitrified Pipe, Basin Connection, Per Linear Foot, Two 00-100 Dollars (\$2.00).
- 20 Linear Feet 10-inch Vitrified Pipe, Basin Connection, Per Linear Foot, One 50-100 Dollars (\$1.50).
- Six-inch Spurs 24-inches long on reinforced Concrete Pipe Sewer, (Precast Type "B"), Each, One 00-100 Dollars (\$1.00).
- Linear Feet 6-inch Vitrified Pipe House Connection Drains, Per Linear Foot, One 00-100 Dollars (\$1.00).
- 30 Decreaser Chamber in 46th Ave. at 166th St., Complete, Five hundred 00-100 Dollars (\$500.00).
- Chamber in 166th St. at 45th Ave., Complete, Five hundred 00-100 Dollars (\$500.00).
- Chamber in 166th St. at 45th Ave., Complete, Two thousand 00-100 Dollars (\$2000.00).
- Chamber in 43rd Ave. at 171st St., Complete, Two thousand 00-100 Dollars (\$2000.00).
- 40 Chamber in 171st St. at Station Road, Complete, Two thousand 00-100 Dollars (\$2000.00).
- Chamber in Station Road at Utopia Parkway, Complete, Five hundred 00-100 Dollars (\$500.00).

EXHIBIT C-31 (*continued*) :

Chamber in Station Road at 192nd St., Complete, Two thousand
00-100 Dollars (\$2000.00).

Chamber in 192nd St. at 39th Ave., Complete, Five hundred 00-100
Dollars (\$500.00).

- 10 Quantities are approximate only.
No extra compensation.

20 VI. The Contractor admits that the quantities of materials to be furnished and the amount of work to be done, as stated in the proposal for bids for the work, are approximate only. The Contractor agrees that The City is not to be held responsible that any of said quantities and amounts shall obtain in the construction of the work, as he has judged for himself as to such quantities and amounts and each of them, and as to the
30 other circumstances affecting the cost of the performance of this contract; and that he will not at any time dispute or complain of such statement nor assert that there was any misunderstanding in regard to the character, size or depth of the excavations to be made or the kind or amount of the materials to be furnished or work to be done. The Contractor hereby agrees that he will not ask, demand, sue for, nor seek to recover for the entire work any extra compensation beyond the amount payable for the several classes of work and kinds of materials in this contract enumerated, which shall be actually performed and furnished, at
the prices therefor herein agreed upon and fixed.

Sewers, etc., to be built as shown on the plan.

VII. The sewer and appurtenances will be built on the lines, at the depths and at the grades and in the manner shown on the plan of the work as the same will be designated on the ground by the Engineer.

- 40 Line may be changed.

The President may change the line of the sewer or the location of the receiving basins, or other sewer appurtenances provided such changes do not materially affect either the character or the amount of the work to be done, or the conditions under which it is to be performed, and the Contractor hereby

EXHIBIT C-31 (*continued*) :

agrees to make no claim for damages or extra compensation on account thereof.

Preservation of points, stakes, etc.

10 The Contractor will safeguard all points, stakes, grade marks, monuments and bench marks made or established on or near the line of work, and he agrees to accept responsibility for and to remedy at his cost any mistakes that may be caused by the unauthorized disturbance or removal of such points, stakes, grade marks, monuments and bench marks.

Written order for extra work.

20 VIII. No claim for additional work or materials shall be made by or allowed to the Contractor, unless before the performance of such additional work the President shall have first authorized the same, in writing, and the same shall have been done or furnished under a written order from the President, given before the performance of such additional work or the furnishing of such additional materials. The aggregate price to be paid for additional work or materials so authorized or ordered shall not exceed five per cent. (5%) of the contract price or the total cost of the work and materials.

Contract may be modified.

30 This contract may be modified and changed from time to time as may previously be agreed to, in writing, between the parties hereto, in a manner not materially affecting the substance thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.

Limit to extras.

40 All claims for additional work or materials in any month shall be made to the Engineer, in writing, before the 15th day of the following month, and failing to make such claim within the time required, the rights of the Contractor to additional pay for such additional work or materials shall be deemed to have been waived and forfeited.

EXHIBIT C-31 (*continued*) :

Inspection.

Work or materials may be condemned at any time.

IX. The Engineer shall inspect the materials furnished and the work done and see that the same correspond with the specifications. The Engineer is hereby authorized and empowered to reject and refuse all labor and material or method of application, or any part thereof, offered under or in fulfillment of this contract, that do not comply in kind, quality or quantity with the terms thereof. Any material delivered or offered to be delivered under this contract, which shall be rejected by the Engineer as not conforming to the terms thereof, will be forthwith removed by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept the work or materials at any time thereafter.

Engineer to be final arbiter.

X. To prevent all disputes and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall, in all cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this contract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted by the

EXHIBIT C-31 (*continued*) :

Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

Work and materials must agree with specifications.

10 XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written notice to be served upon him, then the President may remove, or cause
20 the same to be removed and satisfactorily replaced, by contract or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor: and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under this contract.

Examinations.

30 During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so disturbed. Should the openings disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

Use of patented articles.

40 XII. Wherever an article or any kind of material is specified by a trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York

EXHIBIT C-31 (*continued*) :

Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circumstances that there can be a fair and reasonable opportunity for competition, the conditions to secure which shall be prescribed by the Board of Estimate and Apportionment."

10 Claims for infringement.

The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will have harmless and indemnify The City against all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

20 Commencement and completion.

XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor shall be deemed and taken to be a
30 waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

Time of performance.

XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by the Engineer, and will execute all the work in every respect in a
40 thorough and workmanlike manner; and he will fully and entirely perform this contract on his part before the expiration of Three hundred (300) CONSECUTIVE WORKING DAYS.

Time important.

It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of

EXHIBIT C-31 (*continued*) :

this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

- 10 In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted
- 20 in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess of rock excavated and removed in accordance with the measurement of rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set
- 30 forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered in the prosecution of said work then the time which the Contractor is delayed on account thereof will be determined and allowed by the President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in writing and duly served upon the President prior to the filing in the office
- 40 of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

End of time period.

The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the Engineer.

EXHIBIT C-31 (*continued*) :

Liquidated damages.

10 XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of ten Dollars (\$10.00) for each and every day the time consumed in said performance and completion exceeds the time hereinbefore
allowed for that purpose; which said sum, in view of the difficulty of ascertaining the loss which The City will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due to the Contractor under this contract.

20 Work not provided for in contract.

30 XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

President's right to suspend work.

40 XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the roadways and pavements over the same satisfactorily restored, and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

EXHIBIT C-31 (*continued*) :

No damages to be claimed for delay
due to other contracts.

10 XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract; if, however, the Contractor shall be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of the work or any work or any part thereof being suspended as herein before provided, such allowance of time on account thereof as the President shall deem reasonable will be made.

20 If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing work for The City, the President, or whoever is directed by this contract, to make the certificate in reference to time, shall make such allowance of time for the completion of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be made to the
30 Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

Allowance of time for delays.

XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter
40 provided.

Right to construct sewers, etc.

Permits for connections.

XX. Prior to the commencement of and during the progress of the work under this contract the President shall have

EXHIBIT C-31 (*continued*) :

the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof located on and adjoining the line of the work, and for any connections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any part of this contract, in accordance with Section XVII., and the

10 Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstructions in the way of such persons as may be employed in building such

20 sewers and drains, or in making such connections, and the flow from such sewers, drains and connections will be permitted by the Contractor to discharge into the work built under this contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the work. No new connections or drains will be allowed to be made or joined to the work built under this contract unless a permit therefor has been duly issued by the President, which permit shall

30 be shown in all cases to the Inspector of the work.

Flow of sewers and drains, etc.

Drains, etc., interrupted.

Sewers, etc., to be kept clean.

XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during

40 the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When

EXHIBIT C-31 (*continued*) :

the permanent removal of any existing pipe sewers and appurtenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract,
10 or the trenches in which it is to be constructed, follow the line and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to
20 do, at his own cost and expense. All sewers, drains, culverts, basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense, as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work. During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins, culverts and connections built under this contract shall be kept
30 thoroughly cleaned throughout, and shall be left clean.

Sale of sand or earth.

XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, back-
40 fill the trench with the same material thrown out, provided it be suitable, then the same shall be removed from the line of work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

EXHIBIT C-31 (*continued*) :

10 The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or lessees thereof, will be removed by him and all damage to said property remedied by him at his own cost and expense. Unless such materials are removed and such damage remedied by the Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due or to become due under this contract.

Contractor to give personal attention to work.

Not to assign or sublet.

20 XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right, title or interest
30 therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, this contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the
40 State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due hereunder, unless authorized as aforesaid by the written consent of the President.

EXHIBIT C-31 (*continued*) :

When Contractor is absent.

Disorderly workmen.

Contractor to provide assistance.

10 XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions, orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be declared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ him on any part of the work. The Contractor will provide all
20 necessary assistance for the Engineer when required, without charge or expense to The City or Engineer:

Contractor to plank and bridge for traffic.

30 XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.

Guards and lights.

Indemnification of City.

40 XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from negligence or carelessness in the performance of the work, or in guarding the same, or from any improper materials used in its prosecution, or by or on account of any act or omission of

EXHIBIT C-31 (*continued*) :

the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, as its option, be retained by The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

10

Contractor to make repairs.

XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted out of the moneys due or to become due to the Contractor under this contract.

20

Loss or damage to be assumed by Contractor.

XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same, or from the action of the elements, or from incumbrances on or near the line of the work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

30

Claims for labor, etc.

XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any materials toward the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of

40

EXHIBIT C-31 (*continued*) :

10 the State of New York, then, and in every such case, The City shall retain—anything herein contained to the contrary thereto notwithstanding—from the moneys under its control, and due or to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or actions brought to enforce such claim or the lien created by the filing of such notice. The money so retained shall be retained by The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.

Contractor will prevent filing of liens, etc.

20 XXX. The Contractor will not, at any time, suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to remain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and that any such lien, attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever under or by virtue of this contract.

30 Evidence of satisfaction of liens, etc.

40 The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom materials used in the construction of the work may have been purchased or procured are fully satisfied and that the materials furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final payment under this contract.

Notice to gas companies, etc.

Not to hinder other companies.

XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give

EXHIBIT C-31 (*continued*) :

10 notice, in writing, to all gas, railroad and other companies owning or controlling any pipe, tracks or other structures which during the progress of the work may be affected by the prosecution of the same so that said companies may protect or remove their structures, and he will not cause any hindrance to, or interference with, any such gas company or other company or companies in protecting their said
20 pipes, tracks or other structures, nor in removing or otherwise protecting and replacing the main and service pipe, lampposts, lamps, tracks or other structures where necessary, but the Contractor will suffer the said company or companies to take all such measures as are requisite for the purpose aforesaid. But if said gas, railroad, or other companies, within five days after receipt of such notice, fail to support, remove or otherwise protect their structures, the Contractor will upon the approval of the President protect or remove the same, it being expressly understood that the cost thereof shall not be a charge against The City, but shall be a matter for adjustment between the Contractor and the company or companies concerned.

Pipes, conduits, etc., of private companies.

30 XXXII. It is hereby agreed that The City is not responsible or liable for the support, protection or reconstruction of such gas pipes, conduits, water pipes, tracks or structures owned by private companies enjoying special franchises or occupying any portion of the street or way on or below the surface in its streets or ways, as the Contractor admits that he has carefully examined the location of work, has made special inquiry at the offices of the companies owning, controlling or operating said pipes, conduits, tracks and structures, and he has determined to his satisfaction the character, size, location and length of such pipes, conduits, tracks and structures; that he has inspected the public records of the various City Departments having cognizance and control of pipes, conduits, and other subsurface structures. and of The City's water pipes, conduits and sewers, and he has
40 made such further personal inspection and investigation as he deemed proper to determine the correctness of the information so obtained; and he clearly understands that The City does not insure the accuracy of such reports or information, and agrees that he will not make any claim against The City for damages or extra work caused or occasioned by his relying upon such records, reports or information furnished by any City Department or any companies, either as a whole or in part.

EXHIBIT C-31 (*continued*) :

Protection and restoration of pipes, etc., of private companies.

10 XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures; and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection, removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, or restoring the said pipes, conduits, tracks or other structures.

20 XXXIII-A. The contractor hereby agrees to secure the support and protection by the Long Island Railroad Company of its tracks and property at the point where such tracks and property are crossed by the sewer to be constructed, as herein provided, and agrees to pay in advance to the said railroad company the sum of Two Thousand, Four Hundred and Twenty Dollars (\$2,420.00), which is the cost of such support and protection, as estimated by the Railroad Company. The difference, if any, between the actual cost of such work and the amount paid in advance to the railroad company, will be returned by the company to the City of New York, and the contractor shall have no
30 claim thereto.

Contractor to notify Department of Water Supply.

Gas and Electricity.

40 XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

City's water pipes, etc.

XXXV. If upon excavating it shall be found that any existing water pipes or appurtenances owned or controlled or operated by The City follow the lines, or occupy the place, of the sewer or sewers and appurtenances to be laid or built as shown

EXHIBIT C-31 (*continued*) :

on the plan, such existing water pipes and appurtenances will be removed and relaid, or rebuilt, by and at the cost of the Department of Water Supply, Gas and Electricity of The City of New York; if, however, in order to facilitate the work to be done under this contract, it be found desirable to temporarily remove any water pipes or appurtenances owned or controlled or operated by The City, the removal and replacing in their original positions of such water pipes and appurtenances will be done by the Department of Water Supply, Gas and Electricity for the Contractor at his cost and expense.

Protection of City's water pipes, etc.

XXXVI. The contractor agrees to protect all water mains and service water pipes owned, controlled or operated by The City which may be affected in any manner by the work done under this contract, except as hereinbefore provided, and to protect all such water and service pipes from freezing, and if he fails to do so, the Commissioner of Water Supply, Gas and Electricity is hereby authorized to protect such main and service pipes, or in the event of their having suffered injury to replace such pipes, and recalk and repair the same immediately, as the work progresses, and the cost thereof shall be charged to the Contractor; the cost so charged shall be deducted from any sum or sums due or to become due to the Contractor under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

Protection of gas and water mains and pipes, etc.

XXXVII. The Contractor agrees to sustain in their places and protect from injury all water or gas mains, conduits, subways or service pipes, steam pipes and pneumatic pipes, and all sidewalks, curbs, stoops, areas, and all other property in the vicinity of his work, from direct or indirect injury by caving or otherwise, and he hereby assumes all expenses for direct or indirect damage which may be occasioned by injury to any of them, and he agrees to have at all times a sufficient quantity of timber and other necessary materials and appliances on the ground, and will use the same, as required, for bracing and sheeting the sides and ends of excavations, and for sustaining and supporting any and all pipes, conduits, subways, lamp-posts and lamps or other structures that are undermined, weakened, endangered or threat-

EXHIBIT C-31 (*continued*) :

ened; and in case any damage or injury shall or may result to said pipes, conduits, subways, lamp-posts and lamps and other works or structures of any gas, electric, railroad or other company whatsoever, or to any private property, through or by reason of any negligence, wilfulness, carelessness or want of skill on the part of the Contractor, his agents or servants, the Contractor hereby agrees to pay such amount as may be sufficient to cover the expense and damages occasioned by such negligence, wilfulness, carelessness or unskillfulness, and that such amount shall be charged against him; and the President is hereby authorized to deduct and retain from any moneys which may be due, or which shall become due, under this Contract, a sum sufficient, in his judgment, to cover the cost of making good any such damages, expense or loss, and to apply said sum so deducted and retained to the requisite repairs or renewals, or to reimburse the parties damaged or injured.

20 Old water and gas pipes.

XXXVIII. All iron, water and gas pipes which it becomes necessary to remove shall be considered the property of The City and will be piled by the Contractor in such part or parts of the streets as may be directed, unless notice to the contrary is given him in writing, in which case he will remove the same at his own expense.

30 Change of grade.

XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which here is no contract price, the provisions in relation to work not provided for in this contract shall apply.

Measurement of work and material.

40

XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such plan, lines and specifications. Should the dimensions of any part

EXHIBIT C-31 (*continued*) :

of the work, or of the materials, be less than those required by the plan, the actual quantities only will be allowed in measurement.

Payment on acceptance of work.

10 XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations hereinbefore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller. The City will pay to the Contractor on or before the expiration of
20 thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except such sum or sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of the State, or under any ordinance of The City passed prior to the date of this contract and now in force.

Moneys to be retained for repairs to unpaved streets.

30 It is hereby further agreed that The City shall be and is hereby authorized to retain out the moneys payable to the Contractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06 for each linear foot of sewer, basin connection, and house connection constructed under this contract within unpaved streets, and the sum of \$0.25 for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street
40 surface as may become necessary by reason of the work done under this contract within two days of the date of service of notice upon him so to do. then the President may expend such sum or any part thereof in making such repairs.

Payment of retained moneys to be made after six months.

It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party

EXHIBIT C-31 (*continued*) :

of the second part the whole or such part of the moneys retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

Termination of six months' period.

10 It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

20 **XLII.** The action of the Engineer in Charge of Sewers by which the Contractor is to be bound and concluded according to the terms of this Contract shall be that evidenced by said Engineer's final certificate, all prior certificates upon which eighty-five per centum (85%) payments may have been made being merely estimates, and subject to the corrections of such final certificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based.

85% payments.

30 **XLIII.** In case the amount of this contract, based on the Engineer's estimate and the contract prices, shall be five thousand dollars (\$5,000.00) or over, payment will be made to the Contractor by monthly installments of eighty-five Per Cent. (85%) of the estimated value of the work performed, provided the work is being prosecuted in conformity with the provisions of the contract, and in a manner satisfactory to the Engineer, in which case, however, the quantity returned shall be such that the amount paid will be fairly due and in accordance with the provisions and stipulations of this contract; provided, the amount of work done
40 on each installment shall not be less than fifteen hundred dollars (\$1,500.00); and provided that The City may at all times reserve and retain out of said installments, or any of them, all such sum or sums as by the terms hereof or any act of the Legislature of the State of New York, or of any ordinance of The City of New York, now in force, it is or may be authorized to reserve or retain; and provided that where the Contractor, although the lowest bidder

EXHIBIT C-31 (*continued*) :

10 in the gross calculation, is to receive unusual or extraordinary prices for any of the different items of the work when considered separately, nothing herein contained shall be construed to affect the right of the President to determine the amount that may be due from time to time, not necessarily by the prices agreed upon in this contract, but by causing an estimate to be made of the value of the work done, taking as a basis of the calculations the whole amount of money that will have become due, according to the terms of this contract, when the whole work shall be completed.

If abandoned, etc.

Contract may be declared abandoned.

Completion of work to be undertaken by President.

20 XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the Engineer shall be of the opinion, and shall so certify, in writing, to the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate of progress compared with the required progress (See Section XIV); or that the Contractor is wilfully violating any of the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed within the time designated in this contract for its completion, the President may declare this contract or any part thereof abandoned and notify the Contractor to discontinue all work or any part thereof under this contract, by a written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV., or with any employee found on the work, and the Contractor agrees to thereupon discontinue said work or such part thereof, and he further agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work declared abandoned, and to use such materials as he may find upon the line of the work, and to procure other plants and

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EXHIBIT C-31 (*continued*) :

materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor; and it is further agreed that the expense so charged shall be deducted and also liquidated damages for delay in the completion of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work.

10 And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated damages shall be less than the sum which would be payable to the Contractor, if the Contractor had completed the contract, he shall be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to discontinue all or any part of the work,

20 he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the Contractor, for the purpose hereinbefore specified, and no such plant or materials shall be removed so long as the same may be wanted for the work. In the computation of liquidated damages for delay in completion of the work, the time taken by The City or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time taken in advertising and awarding

30 such contract, shall be added to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this clause, and from such total there shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in

40 no wise to hinder or interfere with the persons or workmen employed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to

EXHIBIT C-31 (*continued*) :

the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

Notice to Contractor.

10 XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other communications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service thereof upon the Contractor. It is also further agreed that the
20 place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

Labor law.

30 XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency, caused by fire, flood or danger to life or property; that the wages to be paid for a legal day's work to all classes of such laborers, workmen or mechanics upon public work or upon any material to be used thereon shall not be less than the prevailing rate for
40 a day's work in the same trade or occupation in the locality where such public work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provisions of section 222 of the Labor Law.

EXHIBIT C-31 (*continued*) :

No estoppel.

10 XLVII. The City shall not, nor shall any Department or officer thereof be precluded or estopped by any return or certificate made or given by the President, any Engineer or other officer, agent or appointee of The City under any provision of this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do not in fact conform to the contract: and The City shall not be precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.

20 Understanding of plans and specifications.

30 XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this contract, he has carefully read the same, and the whole thereof, together with and in connection with the plan and specifications, and that he has made such examination of this contract and of said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as to enable him to thoroughly understand the intention of the same, and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and specifications; and distinctly agrees that he will not hereafter make any claim or demand upon The City, based upon or arising out of any alleged misunderstanding or misconception on his part of the said requirements, covenants, stipulations and restrictions: and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect whatsoever, upon the total amount of work to be paid for, in the final settlement.

EXHIBIT C-31 (*continued*) :

Substitution of sureties.

10 XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or shall be made until the new sureties shall qualify and be accepted by the Comptroller.

Chap. 478, Laws 1916.

20 L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of, and keep insured during the life of this contract, the employees engaged thereon, in compliance with the provisions of Chapter 41 of the laws of 1914, known as the Workmen's Compensation Law, and acts amendatory thereof.

30 IN WITNESS WHEREOF, The President of the Borough of Queens has hereunto set his hand for and on behalf of The City of New York, and the Contractor has also hereunto set his or its hand the day and year herein first above written; and the President and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with the Comptroller of The City of New York, and the third to be delivered to the Contractor.

THE CITY OF NEW YORK,

By BENJAMIN MARIUN,

Acting President of the
Borough of Queens.

40

H. J. MULLEN CONT. CO., INC.,

Contractor.

By F. B. MULLEN, Vice Pres.

EXHIBIT C-31 (*continued*) :

The City and State of New York, ss. :
County of Queens

10 On this 31st day of May, 1922, before me personally came Benjamin MARIUN, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the same as said Acting President for the purposes therein mentioned.

JEFFERSON J. REILLY,
Commissioner of Deeds, New York City.

20

The City and State of New York, ss. :
County of Queens

30 On this 22nd day of May, 1922, before me personally came F. B. MULLEN, to me known and known to me to be the Vice President of the H. J. MULLEN CONT. CO., INC., who being by me duly sworn, did depose and say for himself that he resides in Jamaica; that he is the Vice President of the H. J. MULLEN CONT. CO., INC., the corporation described in and which executed the above instrument; that he knew the corporate seal of said corporation; that the seal affixed to the said instrument is such corporate seal that it was affixed by order of the Board of Directors of said H. J. MULLEN CONT. CO., INC., and that, by
40 like order, he hereunto signed his name and official designation.

JEFFERSON J. REILLY,
Commissioner of Deeds, New York City.

EXHIBIT C-31 (*continued*) :

The City and State of New York, ss. :
County of Queens

10 KNOW ALL MEN BY THESE PRESENTS, That we H. J. MULLEN CONT. CO., INC., hereinafter called the "contractor", and Commercial Casualty Insurance Co., New Amsterdam Casualty Co., Union Indemnity Co. and U. S. Fidelity and Guaranty Co., hereinafter called the "Surety", are held and firmly bound unto The City of New York, in the sum of One hundred eighty-five thousand Dollars, lawful money of the United States of America, to be paid unto THE CITY OF NEW YORK, or to its certain attorneys, successors or assigns; for which payment, well and truly to be made, we and each of us do bind ourselves and our several and respective heirs, executors, administrators
20 and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this 22nd day of May, 1922.

WHEREAS, The above bounden Contractor, by an instrument in writing under their hand, and bearing even date with these presents, one part whereof is hereunto annexed, has contracted with The City of New York, by the President of the Borough of Queens. to furnish all the labor and materials, and to excavate for, build, construct and in all respects complete
30 sewer, etc., in Norwood Place, from Queens Ave. to California Ave, etc., 3rd Ward. together with all the work incidental thereto, as is fully and at large set forth and described in the contract aforésaid.

NOW, THEREFORE, The condition of the above obligation is such that if the said above bounden Contractor and its, his or their heirs, executors, administrators and assigns, or any or either of them, shall well and truly, and in a good, sufficient and workmanlike manner, perform or cause to be performed the
40 said contract, and each and every of the covenants, promises, agreements and provisions therein contained on their part to be performed, and complete the same within the period of therein stipulated, and in each and every respect comply with the conditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

EXHIBIT C-31 (continued) :

H. J. MULLEN CONT. CO., INC. [L. S.]

By F. B. MULLEN, Vice Pres.

Sureties.

10

U. S. Fidelity and Guaranty Company,

By E. MARSAC,

Attorney-in-fact.

20

Attest: EDWARD LEWIS,

Attorney-in-fact.

New Amsterdam Casualty Company,

By

Vice President.

30

Attest: W. L. W. GINTY,

Asst Secretary.

Union Indemnity Company,

By GEORGE E. HAYES,

Asistant Secretary.

40

Attest: EDWARD

Attorney-in-Fact.

EXHIBIT C-31 (*continued*) :

Comercial Casualty Insurance Co.,

By EDWARD A. DANLEY.

#276261-22

10

State of New York,

20 County of Queens ss.:

On this 22nd day of May, 1922, before me personally came F. B. MULLEN to me known and known to me to be the Vice President of the H. J. MULLEN CONT. CO., INC., who, being by me duly sworn, did depose and say for himself that he resides in Jamaica, L. Y.; that he is the Vice President of the H. J. MULLEN CONT. CO., INC., the corporation described in, and which executed the above instrument, that he knows the corporate seal of said corporation; that the seal affixed to the said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said corporation and that by like order he hereto signed his name and official designation.

30

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

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EXHIBIT C-31 (*continued*) :

FUNDS

PRESIDENT'S CERTIFICATE

10

It is hereby certified that the estimated cost of the work and materials required by the within contract is Three hundred eleven thousand eight hundred fifty five 00-100 Dollars (\$311,855.00), and is chargeable to the Street Improvement Fund of the City of New York.

20

BENJAMIN MARIUN,

Acting President of the Borough of Queens.

The City of New York, May 31, 1922.

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EXHIBIT C-31 (*continued*) :

SPECIFICATIONS

10

TRENCHES

Length of trench.

1. Unless otherwise directed or permitted not more than 200 feet of any trench in advance of the end of the built sewer shall be open at any time, and unless written permission to the contrary is given, the trench shall be excavated to its full depth for a distance of at least 20 feet more than the minimum length of sewer permitted to be laid in it. (See paragraphs 127 and 154.) Trenches for house connection drains shall not be open on both sides of the street at the same time, unless permission has previously been given to close the street. Unless otherwise directed each trench for basin connections and house connection drains shall be fully excavated for its entire length before any pipes are laid therein.

Sheeting and bracing.

30

2. Where necessary the sides of the trenches and excavations shall be supported by adequate sheeting and bracing. Steel sheeting may be used only where directed. Sheeting and bracing will be paid for only when left in place by written order, in which event the amount left in place will be paid for at the contract price for such material. Unless specially permitted sheeting against which concrete is placed shall not be removed and will not be paid for. The Contractor will be held accountable and responsible for the sufficiency of all sheeting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.

40

Sheeting in soft material.

3. Where the material to be excavated is of such a character as to render it necessary, the sheeting shall be closely driven

EXHIBIT C-31 (*continued*) :

and to such depth below the bottom of the sewer as may be directed.

Tunneling.

- 10 4. All work shall be done in open trenches or excavations; no tunneling shall be done except with the consent of the Engineer.

Trees and stumps.

5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

- 20 6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.

Roadway, sidewalks, etc., to be kept clear.

- 30 7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary a roadway not less than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in satisfactory condition, and the work shall at all times be so conducted as to cause a minimum inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

40 Surplus material.

8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the sewer, so much

EXHIBIT C-31 (*continued*) :

of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

Fence.

- 10 9. Where necessary a suitable fence shall be placed along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

- 20 Disposal of water from trenches.

11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

- 30 Cost to be covered.

12. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

40 EARTH EXCAVATION.

13. Earth excavation shall include the removal of all material other than rock as hereinafter defined.

EXHIBIT C-31 (*continued*) :

Width of trench for sewers, etc.

10 14. The minimum widths of trenches in earth, for pipe sewers, basin connections, house connections not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of larger diameters 10 inches on each side of the pipe, exclusive of spurs and hubs; The minimum widths of trenches in earth, inside the sheeting, for others sewers shall be the greatest external width of the structures, including the necessary forms, to be built therein.

20 15. Where a manhole or other appurtenance of the foundation therefor extends beyond the exterior lines of the sewer or its foundation, the minimum excavation in earth, required for the same shall be that contained in a prism with vertical sides and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for basin manholes, etc.

30 16. The minimum dimensions of the excavation in earth, for brick basin manholes and inlets, shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above the foundation, but in all such cases the excavation shall be large enough to include the foundations for such structures shown on the plan. The excavation for concrete basin manholes and inlets, shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

Depth of trenches.

40 17. The trenches shall be excavated to the depths required for the foundations of the sewers and appurtenances shown on the plan, and where the conditions are such as to make it necessary, to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

EXHIBIT C-31 (*continued*) :

Cost to be covered.

10 18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

ROCK EXCAVATION.

19. Rock excavation shall include the excavation and removal of the following materials:

20 (a) Rock which shall be determined to be of such a character as to warrant its removal by blasting, in order to insure the prompt and proper prosecution of the work.

(b) Boulders and pieces of rock, masonry in mortar and concrete, each of which contains 1 cubic yard or more, except the masonry and concrete of old sewers and their appurtenances.

30 20. Pieces of rock, masonry, concrete or boulders, which fall or slide into the trench from beyond the lines thereof, as herein defined, will not be measured, and the cost of the removal of the same shall be covered by all the contract prices for all the items for which there are contract prices.

Width of trench.

Rock excavation for basin manholes, etc.

40 21. The required width of trench in rock for pipe sewers, basin connections and house connections will be such as to give a clearance of 1 foot on each side of the pipe, exclusive of spurs and hubs; the required width of trench in rock, for other sewers and drains, will be such as to give a clearance of 1 foot on each side of the structure to be built therein at its greatest external width. Where a manhole or other appurtenance, or the foundation therefor, extends beyond the exterior lines of the sewer or its foundation, the excavation in rock required for the same will be that contained in a prism with vertical sides and a horizontal section 1 foot wider on each side

EXHIBIT C-31 (*continued*) :

than the smallest rectangle which will enclose such appurtenance and its foundation. The required dimensions of the excavation in rock, for basin manholes and inlets will be such as to give a clearance of 1 foot on all sides above their foundation.

Depth of trench.

- 10 22. The rock shall be excavated to the depths required for the foundations of the structures as shown on the plan.

Measurement.

23. The volume of rock to be paid for will be that contained in prisms with vertical sides and of such dimensions as to give the widths and clearances hereinbefore specified from the bottoms of the trenches, as specified, to the surface of the rock.

- 20 Rock stripped.

24. Rock shall be stripped in sections, which, unless otherwise permitted, shall be not less than 50 feet in length, and the Engineer shall then be notified in order that he may measure the same. Rock excavated or blasted before such measurement is made will not be paid for.

Excavation for branches.

- 30 25. Wherever a branch for a proposed sewer or extension of a sewer is built in rock, the required trench shall be excavated for a distance of not less than 5 feet beyond the end of such branch, in the direction of the proposed sewer or extension.

Blasting.

- 40 26. All blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives. Any rock excavation within 5 feet of water main less than 36 inches in diameter, and within 10 feet of a water main 36 inches or more in diameter, shall be done with very light charges of explosive, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main.

EXHIBIT C-31 (*continued*) :

Exposed structures to be protected.

27. All exposed sewers, manholes receiving basins and other structures shall be carefully protected from the effects of blasts. Any damage done to such structures shall be promptly repaired by the Contractor at his own expense.

10 Price to cover.

28. The contract price for rock excavation shall cover the cost of all labor and materials required to excavate and remove all rock as specified, and without regard to its subsequent use.

BACKFILLING.

20 Backfilling around sewers, etc.

29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the sewer, basin connection or house connection, the material for backfilling trenches as excavated shall be clean earth, sand or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

30

Backfilling for remainder of trench.

30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This backfilling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

40

Backfilling around basin manholes, etc.

31. Backfilling within 2 feet of manholes, house connection drains, basin manholes, inlets and other structures

EXHIBIT C-31 (*continued*) :

shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

Puddling.

10 32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

Deficiency of filling.

20 34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

30 35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

Curves, branches, etc., not to be covered.

40 36. Basin connections, house and sewer connections and intersections, ends of sewers and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.

Removal of surplus material.

37. As the trenches are backfilled, the Contractor shall remove all surplus material and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of and until the final acceptance of the work, he shall main-

EXHIBIT C-31 (*continued*) :

tain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the service upon him of a written notice so to do, the President may furnish all materials and do all work required, and the cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

Cost covered.

38. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

CEMENT.

39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

Specific gravity; weight.

40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212° F. It shall weigh not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

EXHIBIT C-31 (continued) :

Fineness.

10 41. The cement shall be dry, finely ground, of uniform color and free for lumps. It shall leave a residue of not more than 8 per cent. by weight, when passed through a No. 100 sieve, and not more than 25 per cent. when passed through a No. 200 sieve.

Tensile strength.

42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table.

Neat Cement :

20 24 hours 175 pounds per sq. in.
 7 days (1 day in moist air, 6 days in
 water) 500 pounds per sq. in.
 28 days (1 day in moist air, 27 days
 in water) 600 pounds per sq. in.

30 Mortar consisting of 1 part cement and 3 parts of Standard Ot-
 tawa Sand, by weight :

 7 days (1 day in moist air, 6 days in
 water) 180 pounds per sq. in.
 28 days (1 day in moist air, 27 days
 in water) 225 pounds per sq. in.

40 The average of the tensile strengths developed at each age by the
briquettes in any set made from one sample will be considered
the strength of the sample at that age, excluding any results that
are manifestly faulty. The average strength of briquettes at 28
days shall be greater than the average strength at 7 days, and if
tests are made after 28 days the strength shall be not less than
that at 28 days.

EXHIBIT C-31 (*continued*) :

Soundness.

43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

10 Setting.

44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

Testing.

20 45. The cement will be subjected to such tests as the Engineer may deem necessary, and such tests will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers, except that the time of setting will usually be determined by means of the Gillmore needles. In case of dispute as to the time of setting, this test will be made by means of the Vicat needle.

30 Retesting.

46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

40 47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for testing. Samples will be

EXHIBIT C-31 (*continued*) :

taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

Delivery and storing.

- 10 49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and the name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it has been tested and accepted, and any concrete or masonry which may have been made under such
- 20 permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.

Cost to be covered.

50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing, shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.

30

MORTAR.

51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and $2\frac{1}{2}$ volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.

40

Sand.

52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestones. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ($\frac{1}{4}$) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5%)

EXHIBIT C-31 (*continued*) :

per cent, by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1%) per cent. of organic matter.

10 Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

Mixing.

20 53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require retempering shall not be used.

Freezing weather.

54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.

30 Cost covered.

55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

CONCRETE.

40

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

Class A concrete.

57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken

EXHIBIT C-31 (*continued*) :

10 into roughly cubical or pyramidal fragments. Broken stone which contains dust, loam, clay, organic matter or other improper substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings $1\frac{1}{4}$ inches in diameter and shall be retained on a screen with openings $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as containing $\frac{9}{10}$ cubic foot, and the other ingredients shall be measured by an approved method.

20 Water.

59. Only clean fresh water shall be used for concrete.

Mixing.

30 60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required consistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about 6 inches deep and shall be thoroughly wetted. The cement and sand shall be mixed dry on a suitable platform, until the mixture has a uniform color. This mixture shall be spread evenly on the bed of wet stone, water added, and the entire mass turned until
40 each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

EXHIBIT C-31 (*continued*) :

Placing concrete.

- 10 61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted the concrete in the work, shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material. When 20 a comparatively dry concrete is used it shall be deposited in horizontal layers not exceeding 6 inches in depth and solidly tamped.

Joining old and new concrete.

- 30 62. When fresh concrete is to be laid on or adjoining concrete already set, the surface of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

30 Forms and centres.

- 40 63. The Contractor shall provide all necessary forms and centres for shaping concrete wherever used. They shall be true to the required shapes and sizes, strong enough and so secured in place as to withstand all operations incidental to placing the concrete, and watertight, and the faces against which the concrete is to be placed shall be satisfactorily smooth and clean. Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approval lubricant; when no lubricant is required such surfaces shall be thoroughly wetted just before the concrete is placed.

EXHIBIT C-31 (*continued*) :

Removal of forms and centres.

64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so has been given.

Exposed surfaces.

65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections or other imperfections be found, such defects shall at once be corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

Freezing weather.

67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed, one per cent. by weight of salt shall be added to the water for each degree Fahrenheit that the temperature of the air is below 32 degrees Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 20 degrees Fahrenheit.

Protection.

68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before filling, backfilling or other material is placed upon or against it. It shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering

EXHIBIT C-31 (*continued*) :

as well as the concrete shall be kept wet for such time as may be directed.

Measurement.

69. The cost of all concrete and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

BRICK MASONRY.

Quality of bricks.

71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location of the work in which they are to be used.

How laid.

72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall be not wider than $\frac{3}{8}$ inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed $\frac{1}{4}$ inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be raked back in courses, unless otherwise permitted.

Protection.

73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if required, it shall be sprinkled with water at such intervals and for such a time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, be removed and rebuilt.

EXHIBIT C-31 (*continued*) :

Freezing weather.

74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

Cost of Brick Masonry.

- 10 75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

STEEL REINFORCEMENT BARS.

Shape.

- 20 90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bond with the concrete at frequent intervals and to insure intimate contact between the steel and concrete.

Samples.

- 30 91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

Size.

92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

Variation in weight.

- 40 93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

Quality.

94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised

EXHIBIT C-31 (*continued*) :

Standard Specifications for Steel Reinforcement Bars adopted by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

10	Properties Considered	Structural Steel Grade		Cold Twisted Bars
		Plain Bars	Deformed Bars	
	Phosphorus, max.			
	Open Hearth	0.05	0.05	0.10
	Bessemer	0.10	0.10	0.05
	Ultimate Tensile Strength, pounds per sq. in.	55,000-70,000	55,000-70,000	Recorded only
	Yield Point, minimum pounds per sq. in.	33,000	33,000	53,000
	Elongation, minimum per cent. in 8 inches	1,400,000	1,250,000	5 per cent.
20		tens. str.	tens. str.	
	Cold bend without fracture:			
	Bars under 3/4 in. in diam. or thickness	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of 2t.
	thickness and over	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 3t.
	t : Nominal thickness or diameter of bar.			

30 95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar when being bent will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

Delivery and protection.

40 97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from dirt, scale-rust, paint and oil. Bars which are not to be embedded in concrete within a short time after being placed in the

EXHIBIT C-31 (*continued*) :

work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

Cutting and bending.

10 98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templets. When bars are cut and bent on the work, the Contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing.

99. All bars shall be as long as can be conveniently used, accurately bent, placed, spaced and jointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.

20 100. The cost of all steel reinforcement bars and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

WROUGHT IRON.

30 Quality.

101. Wrought iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation of at least 20 per cent. in 8 inches, and a fracture wholly fibrous. Specimens shall bend cold, with the fiber, through 180 degrees around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

40

Galvanizing.

102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

EXHIBIT C-31 (*continued*) :

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

IRON CASTINGS.

10

Quality.

104. Iron castings shall be of the best foundry pig iron, gray, tough and free from cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The castings shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

20

Cost covered.

105. The cost of all labor and materials required to furnish coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

TIMBER SHEETING.

30

Quality, placing, etc.

110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of sufficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a manner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.

40

When paid for.

111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

EXHIBIT C-31 (*continued*) :

Measurement.

10 112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by written order, and will not include sheeting, dangers and braces left in place without such order, not sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by all the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

Price to cover.

20 113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to place the same

CONCRETE SEWERS.

(Type "A" or Sewer Department Standard)

30 Inverts.

40 122. Inverts of concrete sewers shall be formed between transverse templets and shall be screeded. The templets shall be placed at such intervals as to divide the invert into sections of suitable size for convenient construction, and unless otherwise permitted, the concrete shall be deposited in alternate sections and allowed to set before the remaining sections are built. Unless otherwise shown on the plan, a layer of mortar not less than 1/2-inch thick shall be spread evenly and to a smoothly finished surface upon the concrete of the invert as soon as such concrete is in place. Where the radii of inverts are too short to permit screeding between templets, the inverts shall be shaped by means of suitable forms, which shall be removed as soon as the concrete has a sufficient set, and if required, the surfaces of inverts shall be floated or troweled to a smooth finish. The concrete for inverts shall be deposited continuously for their entire cross sec-

EXHIBIT C-31 (*continued*) :

tions and for such longitudinal distances as may be convenient. Inverts shall be carefully protected from all injury during progress of the work.

Side walls.

10 123. Concrete in the side walls of sewers shall be deposited continuously to the height directed and for such longitudinal distances as may be convenient.

Roof.

20 124. Concrete in the roofs of sewers shall be deposited continuously for the full depths and widths of the roofs and for such longitudinal distances as may be convenient. The outer surfaces of roofs shall be finished with an excess of mortar and left true and smooth. They shall be covered and protected as specified in paragraph 68, and such covering shall remain thereon until the backfilling or embankment is placed.

Bulkheads.

30 125. While being deposited the concrete for sewers shall be confined by temporary, vertical bulkheads placed at such intervals longitudinally as may be required for convenient working. The bulkheads shall be so designed as to give an approved shape to the end of the section of concrete under construction, shall be satisfactorily secured in place before the concrete is deposited, and shall remain in place until the concrete has set sufficiently to hold its shape.

Reinforcement.

40 126. Where shown on the plan concrete sewers shall be reinforced with metal of the dimensions and shapes shown, and of the quality and in the manner hereinbefore specified.

Minimum length of invert.

127. Unless otherwise permitted or ordered, not less than 16 feet of foundation or invert for concrete sewer shall be built at one operation.

EXHIBIT C-31 (*continued*) :

Connections.

10 128. Connections and branches for lateral sewers and receiving basins shall be built in where shown on the plan or where directed. Such connections and branches shall be closed with bulkheads of brick masonry 8 inches thick unless otherwise shown on the plan. All necessary openings and bulkheads for branch sewers shall be built in concrete sewers where shown on the plan or where directed.

Measurements.

20 129. The lengths of concrete sewers will be determined by horizontal measurements, along their centre lines. No deductions will be made on account of openings at branches and manholes. The measurement of a branch concrete sewer will be made from the inner surface of the wall of the main sewer through which it enters. A reducer will be paid for at the contract price for the sewer at the larger end thereof.

Price to cover.

30 130. The contract prices for concrete sewers shall cover the cost of all necessary excavation (except rock); of furnishing, maintaining and removing all forms, centres, templets and temporary bulkheads; of all openings and bulkheads; of all back-filling; and of all labor and materials required to construct concrete sewers as shown by the normal sections on the plan and as specified.

TYPE "B"

CEMENT CONCRETE PIPE WITH REINFORCEMENT

40 131. Reinforced cement concrete pipe used shall be circular in section with or without that base and shall conform in dimensions as shown in table.

EXHIBIT C-31 (continued) :

General dimensions of pipes and minimum test load per lin. ft. of pipe.

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe
10	24"	3 "	4'	3 "	3350 Lbs.
	27"	3 1/2"	4'	3 "	3700 "
	30"	3 1/2"	4'	3 "	4400 "
	33"	4 "	4'	3 "	4600 "
	36"	4 "	4'	4 "	4800 "
	39"	4 "	4'	4 "	5200 "
	42"	4 1/2"	4'	5 1/2"	5600 "
	45"	4 1/2"	4'	5 1/2"	6100 "
	48"	5 "	4'	5 1/2"	6600 "
	20	51"	5 "	4'	5 1/2"	7050 "
54"		5 1/2"	4'	5 1/2"	7500 "
57"		5 1/2"	4'	5 1/2"	7750 "
60"		6 "	4'	5 1/2"	8000 "
63"		6 "	4'	5 1/2"	8400 "
66"		6 1/2"	4'	5 1/2"	8800 "
72"		7 "	4'	5 1/2"	9400 "
78"		8 "	4'	5 1/2"	10400 "
84"		8 "	4'	5 1/2"	11200 "
90"		8 1/2"	4'	5 1/2"	12000 "
30	96"	8 1/2"	4'	5 1/2"	12800 "
	102"	9 "	4'	5 1/2"	13600 "
	108"	9 "	4'	5 1/2"	14400 "

Testing pipe.

40 Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes, for each size of sewer (reinforced concrete) shall be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall

EXHIBIT C-31 (*continued*) :

be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering-Construction.

Material of pipe, cement, sand, stone or gravel.

- 10 132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the whether requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform to the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be an accurate 1—2—4 mix. Each pipe be stamped as made with date of manufacture.

20 Joints.

133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ($\frac{1}{2}$) per cent from the hereinbefore mentioned dimensions will be permitted.

Jointing.

- 30 134. All joints to be made of 1 : 2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line making a continuous invert. After this has been done, steel forms especially designed for the purpose shall be placed over and around the entire joint, and the mortar for sealing the arch portion grouted or poured through an opening in the crown of the pipe. Joints must be water-tight.

40 Laying pipe.

135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has not been seasoned for twenty-one (21) days, unless otherwise specially ordered by the Engineer-in-Charge of Engineering-Construction.

EXHIBIT C-31 (*continued*) :

Steel for reinforcement.

10 136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Company's, or Clinton Wire Cloth. For all sizes of reinforced concrete pipe, reinforcing shall be at distances not less than one (1) inch from the surface.

Spurs.

137. Reinforced concrete pipe shall have openings to receive spur and branch connection wherever required by the plans. The openings shall be made in a manner satisfactory to the Engineer-in-Charge of Engineering-Construction.

20 Where depth of cover on precast pipe sewer is sixteen feet (16') or over extra reinforcing steel shall be used in the pipe to take care of the increased stresses. The cost of such extra steel shall be included in the price bid for precast pipe sewer.

Disposal of water from trenches.

138. The provisions of paragraph No. 11 of the specifications shall be in full force and effect, even through reinforced concrete pipe shall be furnished on this contract.

30 Rejection of defective pipe.

139. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench, shall be replaced and removed from site of the work at the expense of the contractors.

VITRIFIED PIPE SEWERS.

40 Vitrified pipe.

140. Vitrified pipe sewers shall be built of shale or clay hub and spigot pipes with deep and wide sockets. They shall be thoroughly and perfectly burned, without warps, cracks or other imperfections, and shall be fully and smoothly salt-glazed over the entire inner and outer surfaces, except that the inside of the hub and the outside of the spigot may be unglazed for two-thirds

EXHIBIT C-31 (*continued*) :

10 the depth of the hub. On all other portions of the pipe the glazing shall completely cover and form an integral part of the pipe body. If not left unglazed the inside of the hub and the outside of the spigot shall be scored in 3 parallel lines extending completely around the circumference. When it is broken, vitrified pipe shall show dense and solid material, without serious cracks or laminations: it shall be of such toughness that it can be worked with a chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

Identification marks.

141. Each pipe shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

20 Shape and dimensions.

142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows :

	Size	Length	Thickness	Depth of Socket	Annular Space
30	6.....	2 feet	5/8 inch	2 1/2 inches	5/8 inch
	8.....	3 "	3/4 "	2 3/4 "	5/8 "
	10.....	3 "	7/8 "	2 3/4 "	5/8 "
	12.....	3 "	1 "	3 "	5/8 "
	15.....	3 "	1 1/4 "	3 "	5/8 "
	18.....	3 "	1 1/2 "	3 1/4 "	5/8 "
	20.....	3 "	1 2/3 "	3 1/2 "	5/8 "
	22.....	3 "	1 5/6 "	3 3/4 "	5/8 "
	24.....	3 "	2 inches	4 "	5/8 "

40 Curves, bends, etc.

143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective sizes. Curved pipe, bends, siphons, and special pipe of the sizes and forms shown on the plan shall be furnished and laid, and

EXHIBIT C-31 (continued) :

unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

Samples for testing.

10 144. Any or all of the following tests may be applied to samples selected from the pipe delivered on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

Crushing tests.

20 145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures:

	Diameter	Pressure
	6 inches	900 lbs. per lin. ft.
	8 "	900 " " " "
	10 "	1,000 " " " "
	12 "	1,050 " " " "
	15 "	1,250 " " " "
	18 "	1,400 " " " "
30	20 "	1,550 " " " "
	22 "	1,750 " " " "
	24 "	1,950 " " " "

Drop weight test.

40 146. When supported on a dry sand bed 2 inches deep, all pipe shall withstand without cracking the impact from 2 blows of a cast iron ball weighing 8 pounds falling 18 inches. Spurs shall resist without fracture the impact from 2 blows of such a ball falling 6 inches and striking on the extreme end of the hub of the spur.

Hydrostatic test.

147. When subjected to an internal hydrostatic pressure of 8 pounds per square inch, vitrified pipe shall show no percolation.

EXHIBIT C-31 (*continued*) :

Absorption test.

148. After having been thoroughly dried and then immersed in water for 24 hours, sample pieces of pipe with all broken edges shall not absorb more than 4 per cent. of their weight of water.

10 Factory rejection.

149. The entire product of any pipe factory may be rejected when, in the judgment of the Engineer, the methods of manufacture fail to guarantee uniform results, or where the materials used are such as produce inferior pipe, as indicated by repeated failure to comply with the tests herein specified.

Without cradle.

20 151. When the sewer is to be laid without a cradle the trench shall be excavated as specified in paragraph 17 and the earth forming the bed carefully freed of stones. The pipe shall then be evenly bedded therein and the backfilling placed and firmly tamped in such a manner as to avoid disturbing the sewer.

How laid.

30 154. All pipes shall be laid with ends abutting and true to line and grade. The pipes shall be fitted together and matched so that when laid in the work they will form a sewer with a smooth and uniform invert. Unless otherwise permitted or directed, not less than 12 feet of pipe sewer shall be laid in one operation.

155. Unless otherwise shown on the plan, the joints of vitrified pipe sewers shall be made as hereinafter specified in paragraph 156.

40 Gasket and mortar joints.

156. Gasket and mortar joints shall be made in the following manner: A closely twisted hemp or oakum gasket of suitable diameter, in no case less than $\frac{3}{4}$ -inch, and in one piece of sufficient length to pass around the pipe and lap at the top, shall be solidly rammed into the annular space between the pipes with a suitable calking tool. Before being placed, the gasket shall, if

EXHIBIT C-31 (*continued*) :

desired, be saturated with neat cement grout. The remainder of the space shall then be completely filled with plastic mortar mixed 1 to 1½, and the joint wiped inside and finished to a smooth level outside.

Inspection of joints.

- 10 157. Unless otherwise permitted, at least 4 finished joints shall be left exposed for inspection throughout the working day, and the necessary staging for the protection of the exposed sewers and for the handling of excavated material shall be provided. A suitable ladder affording easy access for such inspection shall be furnished at every trench open for the proposed sewer.

Subgrade to be tested.

- 20 158. No pipe shall be laid or placed until the subgrade of the trench shall have been tested and found correct.

Sewer to be kept clean.

159. The interior of the sewer shall, as the work progresses, be cleared of all dirt, cement and superfluous materials of every description.

Backfilling.

- 30 160. Immediately after the sewer is laid the trench shall be backfilled as provided in paragraphs 29 to 37 inclusive and 157. No walking on or working upon the completed sewer (except as may be necessary in tamping the backfilling) will be permitted until the trench has been backfilled to a height of at least 2 feet over the top of the sewer.

Temporary covers.

- 40 161. The exposed ends of pipe sewers shall be provided with approved temporary covers fitted to the pipe so as to exclude earth and other materials.

Branch pipes.

162. Branch pipes and connection pipes shall be of the same quality and dimensions, and laid in the same manner as

EXHIBIT C-31 (*continued*) :

specified for vitrified pipe sewers. Dead ends of pipes shall be closed with bulkheads of brick masonry 8 inches in thickness.

Connection with existing work.

10 163. Wherever the proposed sewer is to connect with an existing manhole in which there is a branch pipe which is damaged or of unsuitable size or in improper position, such pipe shall be removed and be replaced with a pipe of suitable size or be reset in the proper position. The pipe so substituted or reset will be paid for at the contract price, for the corresponding size of pipe sewer.

Pipes cut to fit masonry.

20 164. The ends of pipes which enter masonry shall be neatly cut to fit the face of the masonry. When directed, such cutting shall be done before the pipes are built in.

Measurement.

165. The length of pipe sewers to be paid for will be determined by horizontal measurements along their center lines, and no deductions will be made on account of openings at manholes.

Prices to cover.

30 166. The contract prices for vitrified pipe sewers shall cover the cost of all necessary excavation (except rock); of all necessary trimmings, fittings and building into masonry; of all bulkheads; of all backfilling; of all samples furnished; and of all labor and materials required to furnish and lay the sewers complete in place, as shown on the plan and as specified.

BASIN CONNECTIONS.

40

177. The connections between inlets and basin manholes and between basin manholes and sewers or sewer manholes shall be of vitrified pipe of the size shown on the standard details on file in the Engineer's Office, Bureau of Engineering-Construction, Division of Sewers. The pipes shall be of the same quality and dimensions, and laid in the same manner as hereinbefore specified for vitrified pipe sewers.

EXHIBIT C-31 (*continued*) :

Measurement.

178. The lengths of basin connections to be paid for will be determined by measurements along their axes.

Prices to cover.

- 10 179. The contract price for basin connections shall cover the cost of all necessary excavation (except rock); of all necessary trimming, fitting and building into concrete, or masonry; of all backfilling; and of all labor and materials required to furnish and lay the basin connections complete in place as specified.

SPURS FOR HOUSE CONNECTIONS.

20

180. Spurs for house connections shall be of vitrified pipe 6 inches in diameter, equal in quality and dimensions to that specified for vitrified pipe sewers.

In concrete sewers.

- 30 181. In concrete sewers spurs shall be built in as shown on the plan or as directed. They shall be hub and spigot pipes with the spigot end molded or cut to fit flush with the inner surface of the sewer, and of sufficient length to reach the exterior of the sewer.

In pipe sewers.

- 40 182. Pipes having 6-inch spurs with hubs molded thereon shall be furnished and laid in pipe sewers where shown on the plan or directed. Such pipes will be paid for at the contract prices for vitrified pipe sewers, and the spurs will be paid for in addition at the contract price for spurs.

Covers.

183. The ends of all spurs not connected with drains shall be closed with approved covers. If required such covers shall be cemented in place, and when directed the covers shall be so cemented before the pipes are lowered into the trench.

EXHIBIT C-31 (*continued*) :

Price to cover.

184. The contract price for spurs shall cover the cost of all labor and materials required to furnish and place the same as specified, and the cost of furnishing and cementing the covers for the same.

10

DRAINS FOR HOUSE CONNECTIONS.

185. Where shown on the plan or where directed, drains for house connections shall be built from the spurs in such a manner and for such distance as may be shown or directed.

Depth at curb.

20

186. House connections drains shall be laid with a minimum gradient of $\frac{1}{4}$ inch to a foot, and wherever possible the depth from curb grade to the inner bottom of the drain at curb line shall be at least 8 feet.

Material.

30

187. Unless otherwise shown on the plan, drains for house connections shall be of vitrified pipe of the quality and dimensions specified for vitrified pipe sewers. The ends of the drains shall be closed with approved covers.

How laid.

188. All the requirements, as hereinbefore specified, relating to excavation, laying and backfilling of vitrified pipe sewers shall apply, as far as they are applicable, to drains for house connections.

40

Measurement.

189. The lengths of pipe drains for house connections to be paid for will be determined by measurement along their axes.

Price to cover.

190. The contract price for drains for house connections shall cover the cost of all necessary excavation (except rock);

EXHIBIT C-31 (*continued*) :

the cost of all backfilling; the cost of all covers, bends and specials required; and the cost of all labor and materials required to furnish and lay the drains for house connections complete in place, as specified.

MANHOLES.

10

194. The masonry or concrete for manholes shall be built to within such distances of the existing surface of the ground as directed.

Brick manholes.

20

195. Brick manholes shall be formed by means of templets placed at top and bottom with not less than 8 lines drawn between them, and they shall be smoothly and evenly plastered on the outside with a layer of mortar $\frac{1}{2}$ inch thick.

Steps.

197. Galvanized wrought iron steps of the size and shape shown on the plan shall be firmly built into the manholes at vertical intervals of about 16 inches.

30

Head and cover.

198. The manhole head and cover shall be of cast iron, and unless otherwise shown on the plan, each head, exclusive of cover, shall weigh not less than 500 pounds and each cover shall weigh not less than 160 pounds. The weight of each head and cover shall be conspicuously painted thereon by the manufacturer with white oil paint. The head shall be set on the masonry or concrete in a full bed of stiff mortar.

40

Price to cover.

199. The contract price for manholes shall cover the cost of all necessary excavation (except rock); of all backfilling; of all plastering; of all bluestones; of all concrete slabs; of all steps; and of all labor and materials required to construct the same complete, in place, as shown on the plan and specified.

EXHIBIT C-31 (*continued*) :

BASIN MANHOLES

Brick basin manholes.

10 200. Brick basin manholes shall be formed by means of
 templates placed at top and bottom with not less than 10 vertical
 lines drawn between them.

201. Where the walls of brick basin manholes are not
built of two rings of brickwork with a mortar layer between,
the inside of the brickwork shall be smoothly and even plastered
with a layer of 1 — 2 Portland cement mortar $\frac{1}{2}$ inch thick.

20 202. Where the wall of the basin manhole consists of two
 rings of brickwork, with a mortar layer between, the outer ring
 shall be carried up not less than 1 foot in advance of the inner
 ring, and the inner surface of the former shall be plastered with
 two coats of mortar. The second coat of mortar shall be applied
 before the first is set, and the total thickness of the mortar layer
 shall be 1 inch.

Concrete basin manholes.

30 203. Concrete basin manholes shall, if required, be built
 in such a manner that the bottom and sidewalks shall be formed
 in one continuous operation. Concrete basins shall be coated
 with a grout of neat cement on the inside.

Concrete cover slabs.

204. Concrete cover slabs of basin manholes shall be built
of Class "A" concrete, reinforced as shown on plan.

Head cover and trap.

40 205. The basin manhole head and cover shall be of cast
 iron, as shown on plan, and known as a Standard Sidewalk Man-
 hole Head and Cover. Each head exclusive of cover shall weigh
 not less than 260 pounds and each cover shall weigh not less
 100 pounds. An iron hood or trap, of the size and dimen-
 sions shown on the plan, must be furnished by the Contractor
 for each basin manhole and is to be built into the basin manhole,
 as shown on plan.

EXHIBIT C-31 (*continued*) :

Restoration of sidewalks, curbs, etc.

206. All sidewalk pavements and curbs, disturbed by the construction of basin manholes, shall be restored by the Contractor in accordance with the specifications for similar work of the Bureau of Highways.

10 Price to cover.

207. The contract price for basin manholes shall cover the cost of all necessary excavation (except rock); of all back-filling; of all sidewalk and curb restorations and of all labor and materials required to construct the basin manholes complete in place, as shown on the plan and specified.

INLETS.

20

208. Inlets and the heads therefor shall be of the materials, forms and dimensions shown on the plan. The specifications for brickwork and concrete shall be those hereinbefore specified for basin manholes.

Heads.

30 209. The head shall be of cast iron and shall conform in all respects to the specifications for iron castings. If required, the inlets shall be closed with bulkheads of brick masonry and such bulkheads shall be removed when directed.

Restoration of roadway pavements, etc.

40 210. All roadway pavements, sidewalk pavements and curbs, disturbed by the construction of inlets, shall be restored by the Contractor in accordance with the specifications of the Bureau of Highways for similar work or specifications hereafter attached. In unpaved streets and macadamized streets where the inlets are approximately at the surface of the street a space of two and one-half ($2\frac{1}{2}$) feet adjoining such inlets shall, if required, be paved with approved paving blocks.

EXHIBIT C-31 (*continued*) :

Price to cover.

211. The contract price for inlets shall cover the cost of all necessary excavation (except rock); of all backfilling; of the temporary brick bulkheads in the mouths of the inlets, when required; of all roadway, sidewalk and curb restorations; of all labor and materials required to construct the inlets, complete in place, as shown on the plan and specified.

RESTORATION OF SURFACE AND CLEANING UP.

Restoration of unpaved roadways, sidewalks, etc.

219. At such time as may be directed, all unpaved roadways, gutters and sidewalks affected by the work done under this contract shall be restored by the Contractor to the same condition in which they were at the time of the opening of bids for this contract.

Pavements, etc., restored by Contractor.

220. If required by the plan, roadway and sidewalk pavements, crosswalks, curbs, etc., shall be satisfactorily restored and adjusted by the Contractor at such times as may be directed. Sidewalk pavements shall be restored in whole flags, squares or sections which shall correspond in quality and appearance with the original or adjoining flags, squares or sections. All work and materials used in such restoration and adjustment shall conform in all respects to the standard specifications now in use by the President for similar work and materials.

Temporary restoration.

222. At such times as may be directed roadway and sidewalk pavements, crosswalks, curbs, etc., which have been removed, whether under guarantee or not, shall be temporarily restored by the Contractor to the satisfaction of the Engineer.

When new pavement is laid.

223. If pavement, sidewalks, crosswalks, curbs, etc., are laid where none existed at the time the bids for this contract were

EXHIBIT C-31 (*continued*) :

opened, the Contractor shall excavate and remove such portions of the pavements, sidewalks, crosswalks, curbs, etc., and their foundations as may be necessary for the prosecution of the work, but he will not be required to make a permanent restoration of them.

10 Trenches flooded.

224. Before laying any pavements, sidewalks, crosswalks, curbs, etc., the trenches shall, if required, be flooded with water, as directed, and all resulting holes or depressions shall be filled and tamped solid.

Cleaning up.

20 225. At such times as may be directed the Contractor shall remove from the streets, all materials which were placed thereon by him as a consequence of performing this work and which are not required by the contract to be left as part of the finished work. The entire work and portions of the streets affected thereby shall be left in a satisfactory condition. The sidewalks and crosswalks shall be swept clean of all material which may have come thereon by reason of the work under this contract, and if required, they shall be sprinkled with water during the sweeping.

30 Cost to be covered.

226. The cost of all the labor required to be done and all the materials required to be furnished in the performance of all the work specified in paragraphs 219 to 225 inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

EXHIBIT C-32:

EXHIBIT C-32

(Lists of checks of H. J. Mullen Contracting Co. Inc. Paid to Daniel Creem, account re Norwood Ave., assignee of John M. Phillips.)

10

CHECKS RECEIVED FROM

H. J. MULLEN CONTRACTING CO., Inc.,

139-39 Jamaica Avenue,

Jamaica, N. Y.

20

DANIEL CREEM ACCOUNT.

	No. 2157	Daniel Creem, Sewer Pipe Norwood Ave. ...	\$11400.00
	" 2244	" " " " " " " ...	11400.00
	" 2339	" " " " " " " ...	13890.00
	" 2466	" " " " " " " ...	10800.00
	" 2640	" " " " " " " ...	18450.00
	" 2720	" " " " " " " ...	11400.00
	" 2828	" " " " " " " ...	5400.00
30	" 2892	" " " " " " " ...	10560.00
	" 2944	" " " " " " " ...	10500.00
	" 3008	" " " " " " " ...	9600.00
	" 3093	" " " " " " " ...	9240.00
	" 3186	" " " " " " " ...	7140.00
	" 3327	" " " " " " " ...	5000.00
	" 3344	" " " " " " " ...	18460.00

40) Three (3) receipt as received from DANIEL J. CREEM as assignee of John M. Phillips.

Feb. 5, 1923 — \$10800 Receipt.

May 11, 1923 — 18450 "

Jun. 29, 1923 — 11400 "

EXHIBIT C-32 (continued) :

Reading as follows :

“Received from H. J. MULLEN CONTRACTING CO., Inc. ———
for pipe furnished on NORWOOD STREET SEWER under con-
tract dated June 2, 1922 between H. J. Mullen Contracting Co.,
Inc. and John M. Phillips.

10

(Signed) DAN'L. J. CREEM

Assignee of John M. Phillips.

Received as above noted.

JOHN F. FINNELL,

20

Special Agent,

U. S. Income Revenue.

30

40

EXHIBIT C-32 (continued) :

COPY AS GIVEN TO FEDERAL AGENT.

**H. J. Mullen Contracting Co. Inc.
Checks Payable to John M. Phillips.**

Date	No.	Payee	Amount	Remarks of settlement made on check	Endorsement	Stamped on Face	Cancelled by Jamaica Bank.
8/ 9/26	4761	J. M. Phillips	\$20,000	Pipe 158th St. 20,000	For deposit J. M. P.	11-L. I. City	8/11/26
10/ 1/26	4902	Do.	\$10,000	None	Do.	Do.	10/ 5/26
11/30/26	5077	Do.	\$20,000	None	Do.	Do.	12/ 1/26
3/10/27	5289	Do.	\$20,000	None	Do.	Do.	3/11/27
4/11/27	5383	Do.	\$ 360	None	J. M. Phillips—Peter B. Campbell Corn Ex. Bk., Queens Co. Br.	Do.	4/14/27
4/11/27	5384	Do.	\$20,000	None	For Deposit J. M. P.	Do.	4/12/27
5/18/27	5480	Do.	\$10,000	None	Do.	Do.	5/20/27
7/26/27	5708	Do.	\$20,000	None	Do.	Do.	7/26/27
8/24/27	5774	Do.	\$10,000	None	J. M. Phillips	Do.	8/25/27
9/15/27	5853	Do.	\$11,030	Bal. Due on acct.	J. M. Phillips	Do.	9/17/27
			<u>\$131,390.00</u>				
1/26/22	1488	Do.	\$ 3,109.70	None	J. M. Phillips—Marian Hanes	Bk. of Rock- ville Centre	1/30/22

Checks received from H. J. Mullen Contracting Co. Inc.,
SEARLE OKEY & MILLER,
by Wm. F. Marquardt.

EXHIBIT C-124

EXHIBIT C-124

(Book, Wire Reinforcing Fabrics, January, 1923)

January, 1923
Cancels issue of June, 1919

Wire
Reinforcing
Fabric
in
Buildings

Triangle Mesh Fabric
Electric Weld Fabric

American Steel & Wire
Company

EXHIBIT C-124 (continued)

Wire Fabric Concrete Reinforcement

ILLUSTRATIONS SUGGESTIONS AND TABLES COVERING ITS USE IN BUILDING CONSTRUCTION

Made by

American Steel & Wire Company

Sales Offices

CHICAGO	208 So. La Salle Street	CINCINNATI	Union Trust Building
NEW YORK	30 Church Street	BALTIMORE	32 So. Charles Street
CLEVELAND	Western Reserve Building	WILKES BARRE, PA.	Miners Bank Building
WORCESTER	94 Grove Street	ST. LOUIS	31 National Bank Building
BOSTON	185 Franklin Street	ST. PAUL-MINNEAPOLIS	Pioneer Bldg., Sr. Paul
PHILADELPHIA	Widener Building	OKLAHOMA CITY	State National Bank Building
PITTSBURGH	Frick Building	BIRMINGHAM, ALA.	Brown-Marx Building
BUFFALO	337 Washington Street	DENVER	1st National Bank Building
DETROIT	Foot of First Street	SALT LAKE CITY	Walker Bank Building

United States Steel Products Company

Pacific Coast Dept.: San Francisco, Los Angeles, Seattle, Portland
Export Dept.: 30 Church Street, New York

EXHIBIT C-124 (continued)

American Steel & Wire Company

45

Table No. 20

Volume of Concrete Based on a Barrel of 3.8 Cubic Feet

(Reprinted by permission from Taylor & Thompson's "Concrete, Plain and Reinforced")

Proportions by Parts			Proportions by Volume			Volume of Mortar in Terms of Percentage of Volume of Stone	Average Volume of Rammed Concrete Made from One Barrel of Cement				
Cement	Sand	Stone	Cement Barrels	Sand Cubic Feet	Stone Cubic Feet		Percentages of Voids in Broken Stone or Gravel				
							50%*	45%†	40%‡	30%§	20%¶
						Cubic Feet	Cubic Feet	Cubic Feet	Cubic Feet	Cubic Feet	
1	...	1	1	...	3.8	94	5.3	5.5	5.7	6.2	6.7
1	...	2	1	...	7.6	51	7.4	7.8	8.2	9.2	10.2
1	...	3	1	...	11.4	36	...	10.0	10.6	12.2	13.6
1	...	4	1	...	15.2	29	...	...	...	15.2	17.1
1	...	5	1	...	19.0	25	...	...	...	18.2	20.6
1	...	6	1	...	22.8	22	...	...	...	21.1	24.0
1	...	7	1	...	26.6	20	...	...	...	...	27.5
1	...	8	1	...	30.4	19	...	...	...	...	31.0
1	...	9	1	...	34.2	18	...	...	...	...	34.4
1	...	10	1	...	38.0	17	...	...	...	...	37.9
1	...	11	1	...	41.8	16	...	...	...	...	41.4
1	...	12	1	...	45.5	15	...	...	...	...	44.8
1	1	1 1/2	1	3.8	5.7	99	8.5	8.8	9.1	9.7	10.3
1	1	2	1	3.8	7.6	75	9.5	9.9	10.3	11.1	11.9
1	1	3	1	3.8	9.5	61	10.5	10.9	11.5	12.6	13.6
1	1	4	1	3.8	11.4	51	11.5	12.2	12.8	14.0	15.2
1	1	5	1	3.8	13.3	44	12.5	13.3	14.0	15.2	16.6
1	1	6	1	3.8	15.2	39	13.9	14.6	15.4	16.8	18.2
1	1	7	1	3.8	17.1	34	15.0	15.8	16.6	18.2	19.9
1	1	8	1	3.8	19.0	30	16.0	16.9	17.8	19.7	21.5
1	1	9	1	3.8	20.9	27	17.0	18.0	19.1	21.1	23.2
1	1	10	1	3.8	22.8	25	18.0	19.0	20.1	22.5	24.5
1	1	11	1	3.8	24.7	23	19.0	20.0	21.1	23.9	26.2
1	1	12	1	3.8	26.6	21	20.0	21.0	22.1	25.4	27.8
1	1	1 1/2	1	7.6	11.4	87	15.7	16.3	16.9	18.1	19.3
1	1	2	1	7.6	15.2	75	16.7	17.4	18.1	19.6	21.0
1	1	3	1	7.6	19.0	66	17.7	18.5	19.3	21.0	22.6
1	1	4	1	7.6	22.8	60	18.7	19.6	20.6	22.4	24.3
1	1	5	1	7.6	26.6	54	19.8	20.8	21.8	23.9	25.9
1	1	6	1	7.6	30.4	49	20.8	21.9	23.0	25.3	27.6
1	1	7	1	7.6	34.2	46	21.8	23.0	24.3	26.7	29.2
1	1	8	1	7.6	38.0	42	22.8	24.2	25.5	28.2	30.8
1	1	9	1	7.6	41.8	40	23.9	25.3	26.7	29.6	32.5
1	1	10	1	7.6	45.5	38	25.0	26.4	27.8	31.0	34.2
1	1	1 1/2	1	11.4	15.2	78	19.1	19.9	20.7	22.4	24.0
1	1	2	1	11.4	19.0	68	20.1	21.0	21.9	23.8	25.6
1	1	3	1	11.4	22.8	61	21.1	22.1	23.2	25.2	27.2
1	1	4	1	11.4	26.6	56	22.1	23.3	24.4	26.7	28.9
1	1	5	1	11.4	30.4	52	23.2	24.4	25.6	28.1	30.6
1	1	6	1	11.4	34.2	48	24.2	25.5	26.9	29.5	32.2
1	1	7	1	11.4	38.0	45	25.2	26.7	28.1	31.0	33.8
1	1	8	1	11.4	41.8	42	26.2	27.8	29.3	32.4	35.5
1	1	9	1	11.4	45.5	40	27.3	28.9	30.6	33.8	37.3
1	1	10	1	11.4	49.4	38	28.4	29.9	31.9	35.2	39.0
1	1	11	1	11.4	53.3	36	29.5	31.1	33.0	36.6	40.7
1	1	12	1	11.4	57.2	34	30.6	32.3	34.1	38.0	42.4
1	1	1 1/2	1	15.2	19.0	76	23.9	24.9	25.9	28.0	30.0
1	1	2	1	15.2	22.8	64	25.9	27.2	28.4	30.8	33.3
1	1	3	1	15.2	26.6	55	28.0	29.4	30.8	33.7	36.6
1	1	4	1	15.2	30.4	49	30.0	31.7	33.3	36.6	39.9
1	1	5	1	15.2	34.2	44	32.1	33.9	35.8	39.4	43.1
1	1	6	1	15.2	38.0	40	34.1	36.2	38.2	42.3	46.4
1	1	7	1	15.2	41.8	37	36.9	38.9	41.0	45.1	49.2
1	1	8	1	15.2	45.5	34	40.0	42.2	44.3	48.4	52.4
1	1	9	1	15.2	49.4	31	43.7	46.2	48.6	53.6	58.5

Note—Variations in the fineness of the sand and the compacting of the concrete may affect the volumes by 10 per cent in either direction.

*Use 50 per cent column for broken stone screened to uniform size. †Use 45 per cent column for average condition sand for broken stone with dust screened out. ‡Use 40 per cent column for gravel or mixed stone and gravel. §Use these columns for scientifically graded mixtures.

EXHIBIT C-124 (continued)

American Steel & Wire Company

47

Table No. 22

**Quantities of Materials for One Cubic Yard of Rammed Concrete
Based on a Barrel of 3.8 Cubic Feet**

(Reprinted by permission from Taylor & Thompson's "Concrete, Plain and Reinforced")

Proportions by Parts			Proportions by Volumes			Volume of Mortar in Terms of Percentage of Volume of Stone	Percentages of Voids in Broken Stone or Gravel															
							50%*			45%†			40%‡			30%§			20%¶			
Cement	Sand	Stone	Packed Cement	Loose Sand	Loose Stone	Cement	Sand	Stone	Cement	Sand	Stone	Cement	Sand	Stone	Cement	Sand	Stone	Cement	Sand	Stone		
																					bbf.	cu. ft.
1	1	1	1	3.8	94	5.09	0.72	4.90	0.69	4.73	0.67	4.33	0.61	4.02	0.57	3.67	0.53	3.48	0.49	3.30	0.43	3.14
1	1	2	1	7.6	51	3.67	1.03	3.48	0.98	3.30	0.93	2.93	0.82	2.65	0.75	2.57	0.36	0.90	2.45	0.34	0.86	2.34
1	1	3	1	11.4	36	2.57	1.36	2.69	1.14	2.54	1.07	2.22	0.94	1.98	0.84	1.93	0.33	0.99	2.22	0.31	0.94	2.12
1	1	4	1	15.2	29	2.34	1.52	2.22	1.31	2.12	1.20	1.93	1.10	1.77	1.60	1.50	0.30	0.90	1.93	0.27	0.82	1.77
1	1	5	1	19.0	25	2.49	1.64	2.00	1.41	1.91	1.30	1.76	1.10	1.63	1.48	1.38	0.29	0.87	1.76	0.26	0.81	1.63
1	1	6	1	22.8	22	2.27	1.76	1.84	1.51	1.76	1.37	1.61	1.09	1.58	1.48	1.38	0.28	0.84	1.61	0.25	0.79	1.58
1	1	7	1	26.6	20	2.09	1.88	1.74	1.61	1.61	1.48	1.48	1.07	1.48	1.48	1.38	0.27	0.81	1.48	0.24	0.77	1.48
1	1	8	1	30.4	19	1.94	1.96	1.61	1.61	1.61	1.48	1.48	1.07	1.48	1.48	1.38	0.26	0.79	1.48	0.23	0.75	1.48
1	1	9	1	34.2	18	1.80	2.01	1.51	1.61	1.61	1.48	1.48	1.07	1.48	1.48	1.38	0.25	0.77	1.48	0.22	0.72	1.48
1	1	10	1	38.0	17	1.69	2.06	1.41	1.61	1.61	1.48	1.48	1.07	1.48	1.48	1.38	0.24	0.75	1.48	0.21	0.69	1.48
1	1	11	1	41.8	16	1.59	2.12	1.31	1.61	1.61	1.48	1.48	1.07	1.48	1.48	1.38	0.23	0.72	1.48	0.20	0.66	1.48
1	1	12	1	45.5	15	1.49	2.18	1.21	1.61	1.61	1.48	1.48	1.07	1.48	1.48	1.38	0.22	0.70	1.48	0.19	0.63	1.48
1	1	1 1/2	1	3.8	99	3.19	0.45	0.67	3.08	0.43	0.65	2.97	0.42	0.63	2.78	0.39	0.53	2.62	0.37	0.74	2.43	0.34
1	1	2 1/2	1	3.8	75	2.85	0.40	0.80	2.73	0.38	0.77	2.62	0.37	0.74	2.43	0.34	0.68	2.26	0.32	0.70	2.15	0.30
1	1	3 1/2	1	3.8	61	2.57	0.36	0.90	2.45	0.34	0.86	2.34	0.33	0.82	2.15	0.30	0.76	1.99	0.28	0.70	1.93	0.27
1	1	4 1/2	1	3.8	51	2.34	0.33	0.99	2.22	0.31	0.94	2.12	0.30	0.90	1.93	0.27	0.82	1.77	0.25	0.75	1.76	0.26
1	1	5 1/2	1	5.7	93	2.49	0.53	0.70	2.40	0.51	0.68	2.31	0.49	0.65	2.16	0.46	0.61	2.03	0.43	0.57	1.94	0.41
1	1	6 1/2	1	5.7	76	2.27	0.48	0.80	2.18	0.46	0.77	2.09	0.44	0.74	1.94	0.41	0.68	1.80	0.38	0.63	1.76	0.37
1	1	7 1/2	1	5.7	64	2.09	0.44	0.88	2.00	0.42	0.81	1.91	0.40	0.81	1.76	0.37	0.74	1.63	0.34	0.69	1.61	0.34
1	1	8 1/2	1	5.7	55	1.94	0.41	0.96	1.84	0.39	0.91	1.76	0.37	0.87	1.61	0.34	0.79	1.48	0.31	0.73	1.48	0.31
1	1	9 1/2	1	5.7	49	1.80	0.38	1.01	1.71	0.36	0.96	1.63	0.34	0.92	1.48	0.31	0.83	1.36	0.29	0.77	1.48	0.30
1	1	10 1/2	1	5.7	44	1.69	0.36	1.07	1.60	0.34	1.01	1.51	0.32	0.96	1.37	0.29	0.87	1.25	0.26	0.79	1.48	0.29
1	1	11 1/2	1	5.7	40	1.59	0.34	1.12	1.50	0.32	1.06	1.42	0.30	1.00	1.28	0.27	0.90	1.17	0.25	0.82	1.48	0.28
1	1	12 1/2	1	7.6	75	4.89	0.53	0.80	1.81	0.51	0.76	1.74	0.49	0.74	1.61	0.45	0.68	1.50	0.42	0.63	1.48	0.41
1	1	1 1/2	1	7.6	65	1.76	0.49	0.87	1.68	0.47	0.83	1.61	0.45	0.79	1.48	0.42	0.73	1.38	0.39	0.68	1.48	0.38
1	1	2 1/2	1	7.6	57	1.65	0.46	0.93	1.57	0.44	0.88	1.50	0.42	0.84	1.38	0.39	0.78	1.27	0.36	0.72	1.48	0.36
1	1	3 1/2	1	7.6	51	1.55	0.44	0.98	1.48	0.42	0.94	1.41	0.40	0.89	1.28	0.36	0.81	1.18	0.33	0.75	1.48	0.35
1	1	4 1/2	1	7.6	47	1.47	0.41	1.03	1.39	0.39	0.98	1.32	0.37	0.93	1.20	0.34	0.84	1.10	0.31	0.77	1.48	0.34
1	1	5 1/2	1	7.6	43	1.39	0.39	1.08	1.31	0.37	1.01	1.25	0.35	0.97	1.13	0.32	0.87	1.03	0.29	0.80	1.48	0.33
1	1	6 1/2	1	7.6	40	1.32	0.37	1.11	1.25	0.35	1.06	1.18	0.33	1.00	1.06	0.30	0.89	0.97	0.27	0.82	1.48	0.32
1	1	7 1/2	1	9.5	87	1.72	0.61	0.73	1.66	0.58	0.70	1.60	0.56	0.68	1.49	0.52	0.63	1.40	0.49	0.59	1.48	0.49
1	1	8 1/2	1	9.5	75	1.62	0.57	0.80	1.55	0.55	0.76	1.49	0.52	0.73	1.38	0.49	0.68	1.29	0.45	0.64	1.48	0.48
1	1	9 1/2	1	9.5	66	1.52	0.54	0.86	1.46	0.51	0.82	1.40	0.49	0.79	1.29	0.45	0.73	1.19	0.42	0.67	1.48	0.47
1	1	10 1/2	1	9.5	60	1.44	0.51	0.91	1.37	0.48	0.87	1.31	0.46	0.83	1.20	0.42	0.76	1.11	0.39	0.70	1.48	0.46
1	1	11 1/2	1	9.5	54	1.37	0.48	0.96	1.30	0.46	0.92	1.24	0.44	0.87	1.13	0.40	0.80	1.04	0.37	0.73	1.48	0.45
1	1	12 1/2	1	9.5	49	1.30	0.46	1.01	1.23	0.43	0.95	1.17	0.41	0.91	1.07	0.38	0.83	0.98	0.34	0.76	1.48	0.44
1	1	1 1/2	1	9.5	46	1.24	0.44	1.05	1.17	0.41	0.99	1.11	0.39	0.94	1.01	0.36	0.85	0.92	0.32	0.78	1.48	0.43
1	1	2 1/2	1	9.5	42	1.18	0.42	1.08	1.12	0.39	1.02	1.06	0.37	0.97	0.96	0.34	0.88	0.88	0.31	0.80	1.48	0.42
1	1	3 1/2	1	9.5	40	1.13	0.40	1.11	1.07	0.38	1.05	1.01	0.36	0.99	0.91	0.32	0.90	0.83	0.29	0.82	1.48	0.41
1	1	4 1/2	1	11.4	76	1.42	0.60	0.80	1.36	0.57	0.77	1.30	0.55	0.73	1.21	0.51	0.68	1.12	0.47	0.63	1.48	0.47
1	1	5 1/2	1	11.4	68	1.34	0.57	0.85	1.28	0.54	0.81	1.23	0.52	0.78	1.13	0.48	0.72	1.05	0.44	0.66	1.48	0.46
1	1	6 1/2	1	11.4	61	1.28	0.54	0.90	1.22	0.52	0.86	1.17	0.49	0.82	1.07	0.45	0.75	0.99	0.42	0.70	1.48	0.45
1	1	7 1/2	1	11.4	56	1.22	0.52	0.94	1.16	0.49	0.90	1.11	0.47	0.86	1.01	0.43	0.78	0.93	0.39	0.72	1.48	0.44
1	1	8 1/2	1	11.4	52	1.16	0.49	0.98	1.11	0.47	0.94	1.05	0.44	0.89	0.96	0.41	0.81	0.88	0.37	0.74	1.48	0.43
1	1	9 1/2	1	11.4	48	1.12	0.47	1.02	1.06	0.45	0.97	1.01	0.43	0.92	0.92	0.39	0.84	0.84	0.35	0.77	1.48	0.42
1	1	10 1/2	1	11.4	45	1.07	0.45	1.05	1.01	0.43	0.99	0.96	0.40	0.95	0.87	0.37	0.86	0.80	0.34	0.70	1.48	0.41
1	1	11 1/2	1	11.4	42	1.03	0.44	1.09	0.97	0.41	1.02	0.92	0.39	0.97	0.83	0.35	0.88	0.76	0.32	0.80	1.48	0.40
1	1	12 1/2	1	11.4	40	0.99	0.42	1.11	0.93	0.39	1.05	0.85	0.37	0.99	0.80	0.34	0.90	0.73	0.31	0.82	1.48	0.39
1	1	1 1/2	1	15.2	76	1.13	0.61	0.80	1.08	0.61	0.76	1.04	0.59	0.73	0.96	0.54	0.68	0.90	0.51	0.68	1.48	0.49
1	1	2 1/2	1	15.2	64	1.04	0.59	0.88	0.99	0.56	0.84	0.95	0.54	0.80	0.87	0.49	0.73	0.81	0.46	0.68	1.48	0.48
1	1	3 1/2	1	15.2	55	0.96	0.54	0.95	0.92	0.52	0.91	0.88	0.50	0.87	0.80	0.45	0.79	0.74	0.42	0.73	1.48	0.47
1	1	4 1/2	1	15.2	49	0.90	0.50	1.01	0.85	0.48	0.96	0.81	0.46	0.91	0.74	0.42	0.83	0.68	0.38	0.77	1.48	0.46
1	1	5 1/2	1	15.2	44	0.84	0.47	1.06	0.80	0.45	1.01	0.76	0.43	0.96	0.68	0.38	0.86	0.63	0.35	0.80	1.48	0.45
1	1	6 1/2	1	15.2	40	0.79	0.44	1.11	0.75	0.42	1.06	0.71	0.40	1.00	0.64	0.36	0.90	0.58	0.33	0.82	1.48	0.44
1	1	7 1/2	1	19.0	47	0.73	0.52	1.03	0.69	0.49	0.97	0.66	0.46	0.93	0.60	0.42	0.84	0.55	0.39	0.77	1.48	0.43
1	1	8 1/2	1	22.8	46	0.62	0.52	1.04	0.58	0.49	0.98	0.56	0.47	0.94	0.50	0.42	0.84	0.46	0.39	0.78	1.48	0.42

NOTE—Variations in the fineness of the sand and the compacting of the concrete may affect the quantities 10 per cent in either direction.

*Use 50 per cent columns for broken stone screened to uniform size. †Use 45 per cent columns for average conditions and for broken stone with dust screened out. ‡Use 40 per cent columns for gravel or mixed stone and gravel. §Use these columns for scientifically graded mixtures.

EXHIBIT C-221 :

EXHIBIT C-221

10 *(Contract between The City of New York and Angelo Paino, for the construction of a sewer and appurtenances in Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens, on May 1st, 1923).*

ANNEXES TO CONTRACT

20

THE CITY OF NEW YORK — DEPARTMENT OF FINANCE
OFFICE OF THE COMPTROLLER

30

CONTRACT SUMMARY

Contractor: ANGELO PAINO

No. 65411

Names of sureties: The U. S. Fidelity & Guaranty Co.

Amount of bond \$8,000.00

40 Date of award: April 18, 1923; Department Pres. Boro of Queens

Date of contract: May 1, 1923

EXHIBIT C-221 (continued) :

DESCRIPTION OF WORK

10 For the construction of a sewer and appurtenances in Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens.

Original estimate:	\$15,673.00
A. E.	136.55
	<hr/>
	15,809.55

ACCOUNTS TO BE CHARGED

20

C. F. M. 25.

The obligation on this surety bond ceases as to anything occurring after November 20, 1924.

If the conditions of the contract have been complied with, the retained percentage (if any) is due on or after November 20, 1924.

30

GEORGE W. MORTAR,

Examiner.

PAYMENTS, AMOUNTS RETAINED AND EARNED.

		Amount paid to date	Amount retained to date	Amount earned to date
40	8-17-23	3,665.20	646.80	4,312.00
	10-18-23	5,431.50	3,665.20	10,702.00
	11-28-23	4,254.72	2,356.13	15,707.55
	5-21-24	1,980.58	477.55	15,809.55
	12- 9-24	477.55		15,809.55
		<hr/>		
		\$15,809.55		

IN FULL

EXHIBIT C-221 (*continued*) :

BOARD OF ESTIMATE AND APPORTIONMENT

CITY OF NEW YORK

10

(Cal. No. 131)

A copy of a resolution of the Local Board of the Jamaica and Newton District, duly adopted by said Board on the 4th day of May, 1922, and approved by the Acting President of the Borough of Queens on the 11th day of May, 1922, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

20 “Resolved, That this Board do hereby initiate proceedings for the said local improvement, to wit :

For the construction of a sewer and appurtenances in Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens.

30 —and thereupon, on the 22nd day of September, 1922, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolutions, and the said resolutions having been duly complied with by the President of the Borough of Queens, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of Estimate and Apportionment an estimate in writing in such detail as the Board has directed that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$18,200; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$107,110, having also been presented, it is :

40

EXHIBIT C-221 (*continued*) :

10 **RESOLVED**, That the said resolution of the Local Board be and the same is hereby approved and the construction of the local improvement therein provided for is hereby authorized. This Board does hereby determine that no portion of the cost and expense thereof shall be borne and paid by The City of New York, but that the whole of such cost and expense, including the aforesaid preliminary expenses, shall be assessed upon the property deemed to be benefited by the said local improvement.

 A true copy of resolution adopted by the Board of Estimate and Apportionment, March 16, 1923.

(Signed) JAMES MATTHEWS,
Assistant Secretary,

20

30

40

EXHIBIT C-221 (continued) :

**President of the Borough of Queens—Bureau of Sewers
SUMMARY OF PROPOSALS**

NO. 2

TYPE "E"

Lowest Bidder ANGELO PAIRO

Contract Awarded to _____

Date _____

For the construction of a sewer and appurtenances in METROPOLITAN AVENUE from Avalea Street to Mt. Olivet Avenue, and in MT. OLIVET AVENUE from Metropolitan Avenue to Evelyn Street, Second Ward, Borough of Queens.

530 Linear Feet 2'-9" Reinforced Concrete Pipe Sewer (Precast Type "B")
 669 Linear Feet 18-inch Vitrified Pipe Sewer
 11 Manholes, Complete
 4 Basin Manholes, Complete
 4 Inlets, Complete
 76 Linear Feet 12-inch Vitrified Pipe Sewer Basin Connections
 38 Six-inch Spurs 24-inches long on Reinforced Concrete Pipe Sewer (Precast Type "B")
 22 Six-inch Spurs on 18-inch Vitrified Pipe Sewer
 444 Linear Feet 12-inch Vitrified Pipe Chamber at the North Side of Metropolitan Avenue & Avalea Street
 2 Chamber at the South Side of Metropolitan Avenue & Avalea Street

Bids opened on APRIL 17, 1923,

Surities \$ 8,000.00

Deposit \$ 400.00

Engineer's Estimate—\$ 16,306.70-1/12/23

Time

Allowed

No. of Working

Days 60

BIDDER	TOTAL AMOUNT	UNIT PRICES																REMARKS
		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		
○ ANGELO PAIRO	15,673.00	12.00	5.00	4.00	100.	200.	75.	1.00	1.00	1.00	4.00	2.00	3.00	700.	700.			
DAVID A. GROSS	19,170.00	18.00	6.00	4.50	120.	125.	60.	4.00	2.00	.50	3.00	1.50	2.00	900.	500.			
JAMES GALLO	22,542.00	25.00	7.00	4.00	110.	150.	60.	3.00	2.00	1.00	5.00	2.00	2.25	300.	600.			
SEASIDE CONT. CO. INC.	28,245.55	27.75	8.10	5.90	150.	175.	75.	4.00	2.50	1.00	5.00	1.75	4.95	700.	700.			
DOMINICK BONACCI	28,261.50	29.00	13.00	5.75	100.	100.	75.	5.75	4.00	2.50	2.50	2.50	1.75	700.	700.			

EXHIBIT C-221 (*continued*) :

CONTRACT NO. 65411

The City of New York

10

ADVICE OF AWARD OF CONTRACT

(This copy to be retained by Bookkeeping Division,
Department of Finance)

*Date April 18, 1923

20

Dept of PRESIDENT OF THE BOROUGH OF QUEENS.

Comptroller of the City of New York :

Please take notice that the following described contract
has this day* been awarded to Contractor ANGELO PAINO,

Adress 32 Court Street, Brooklyn, N. Y.

30

Sureties : United States Fidelity & Guaranty Co.

Amt. of bond \$8,000.00

DETAILS OF PURPOSE OF CONTRACT

40

For the construction of a sewer and apurtenances in
Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue
and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin
Street, Second Ward, Borough of Queens.

EXHIBIT C-221 (continued) :

TYPE "B"

	Contract Chargeable to Code No.	Estimated Amount	Contracts Previously Awarded (Including Adjustments)	Open Market Orders Issued To Date (Including Adjustments)	Misc. Vouchers, Payrolls, and Other Charges
10	C. F. M. 25	\$15,673.00	\$3,528,766.79	\$5,869.86	\$60,912.97

Enter full titles of accounts and refer to code numbers by
means of line numbers in margin.

Street Improvement Fund.

Yours respectfully,

20

MAURICE E. CONNOLLY,

President, Borough of Queens, *Head of Dept.*

* This will be the date of the entry by which the fund is
charged with the estimated amount of the contract both in the
department making the award and by the Department of Finance.

30 There must therefore be no delay in forwarding this advice.

40

EXHIBIT C-221 (*continued*) :

CITY OF NEW YORK

Office of

10 THE PRESIDENT OF THE BOROUGH OF QUEENS.

Maurice E. Connolly,
President.

Joseph Flanagan,
Borough Secretary.

20 James M. Murtha,
Secretary to President.

Charles L. Craig, Comptroller,
City of New York.

Long Island City, May 11, 1923.

Sir :—

30 Referring to contract, No. 65411;—

For the construction of a sewer and appurtenances in Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens.

40 I beg to inform you that the contractor, ANGELO PAINO, 32 Court Street, Brooklyn, N. Y., has been ordered to commence the work embraced in said contract on May 24, 1923, or within five days from said contract.

Yours very truly,

BENJAMIN MARIUN,

Acting President of the Borough of Queens.

JJR-PJH

EXHIBIT C-221 (*continued*) :

CITY OF NEW YORK

Office of

10 THE PRESIDENT OF THE BOROUGH OF QUEENS.

Maurice E. Connolly,
President.

Joseph Flanagan,
Borough Secretary

20 Long Island City, December 20th, 1923.

Hon. Chas. L. Craig, Comptroller,
Department of Finance,
Municipal Building,
New York City, N. Y.

Dear Sir:—

30 In accordance with the recommendation of the Engineer of Sewers, this Department, I have granted an extension of time of Fifty-two (52) working days, to Angelo Paino, 32 Court Street, Brooklyn, N. Y., in which to complete the work in connection with

Contract No. 65411 —

40 For the construction of a sewer and appurtenances in Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens.

While the contractor claimed the reason for the delay on this contract was because he was unable to obtain material in time, there were a number of other causes which materially delayed the progress of this work. A water-main was encountered,

EXHIBIT C-221 (*continued*) :

which ran in the trench practically throughout the entire length of Metropolitan Avenue. At one time during the course of construction the water-main broke, flooded this trench and caused some delay. The contractor was also delayed on account of waiting for the Brooklyn Rapid Transit Company to install crossovers, so that the cars could be switched around the construction work. Metropolitan Avenue is a very heavily travelled street and considerable difficulty was encountered in carrying the house connections across the street from the sewer under the car tracks and to the curb line. Extra precautions had to be taken to prevent accidents, and naturally caused the work to slow down; and it is for the above reasons that an extension of time was granted.

Very truly yours,

20

BENJAMIN MARIUN,

Actin President of the Borough of Queens.

30

40

EXHIBIT C-221 (continued) :

NOTICE.—Bidders are particularly requested to carefully examine the Proposal for Bids, Form of Agreement, Specifications, Plan and the location of the work and the surroundings thereof before bidding.

10

No. 5

CITY OF NEW YORK

Office of

20

THE PRESIDENT OF THE BOROUGH OF QUEENS.

BUREAU OF SEWERS

1923

Assessment work

30

Proposal for Bids, Bid, Bond, Agreement and Specifications

For the construction of a sewer and appurtenances in Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens.

together with all the work incidental thereto.

40

EXHIBIT C-221 (*continued*) :

No. 2

THE CITY OF NEW YORK

Office of

10

THE PRESIDENT OF THE BOROUGH OF QUEENS.

BUREAU OF SEWERS

20

Sealed Bids or Proposals for the herein named work will be received at the office of the President of the Borough of Queens, on the 4th Floor of the Queens Subway Building, 68 Hunterspoint Avenue, Long Island, Borough of Queens, in The City of New York, until 11 o'clock a. m. on April 17th, 1923.

The time allowed for the completion of the whok and the full performance of the contract is 60 CONSECUTIVE WORKING DAYS.

30

The liquidated damages for each day in excess of the allowed time, as stipulated in the contract is ten dollars per day.

The amount of SECURITY or surety bond required will be (\$8,000.00).

40

NOTE.—All bids must be submitted upon the proper blank form of bid and in the sealed envelope prepared and furnished by the Borough President, and must be made out as required. Any bid which fails to name the price, both in writing and in figures per unit of measurement for each and every item of the proposed work where quantities are given, or is incomplete, conditional, obscure, or irregular, may be held to be informal and may be rejected, and in case of any discrepancy between the price written in and the bid and that given in figures, the price in writing will be considered as the bid. The writing must be in ink.

EXHIBIT C-221 (*continued*) :

BID OR ESTIMATE

10 For the construction of a sewer and appurtenances in Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens.

Made by the firm or corporation of ANGELO PAINO

Address 32 Court Street, Brooklyn, N. Y.

NAME AND ADDRESS OF EACH AND EVERY MEMBER
OF THE FIRM OR PRINCIPAL OFFICERS OF
20 THE CORPORATION

NOTE.—The bidder's name and residence or address must be inserted herebelow, and in case of a firm, the name and address of each and every member of the firm must be inserted.

In case a bid shall be submitted by or in behalf of any corporation, the complete legal name and address of such corporation must be written herebelow, together with the name, address and title of the principal officers of the corporation.

30 Name ANGELO PAINO

Address 32 Court St., Brooklyn, N. Y.

40 The party named above (of lawful age), as Bidder, declares: That the only person or persons interested in this bid or proposal as principal or principals is or are named above, and that no other person than herein above named has any interest in this bid or in the contract proposed to be taken; that this bid is made without any connection with any other person or persons making a bid for the same work or purpose; that the bid is in all respects fair and without collusion or fraud, and that no member of the Board of Aldermen, no head of a department, no chief of a bureau, deputy thereof, or clerk therein, nor any other officer or employee of The City of New York, is, shall be or be

EXHIBIT C-221 (continued) :

10 come, directly or indirectly, interested as contracting party, partner, stockholder, surety or otherwise in the performance of the contract, or in the supplies, work or business to which it relates, or in any portion of the profits thereof, that he has examined the form of contract and specifications approved by the Corporation Counsel and any plans therein referred to, and that he has visited the site of the proposed work and has made himself familiar with all the existing conditions; and he proposes and agrees, if this bid be accepted, that he will contract in the form so approved, to provide, furnish and deliver all necessary work, labor, services, materials or supplies, machinery tools, plant, and appliances, and to perform and complete all the work mentioned in said approved form of contract and specifications, and in strict accordance with the terms and conditions thereof, and that he will accept in full payment therefor the following named sums or prices :

20 The Engineer's estimate of the quantities as advertised and the nature and extent of the work and materials or supplies required, though stated with as much accuracy as is practicable in advance, are approximate only and are given to form a basis of comparison for testing bids and are not guaranteed to be accurate and are not considered as a binding feature of the contract. Before bidding, Contractors must satisfy themselves by personal examination of the Plans, Specifications, Contract, and location of the proposed work, and by such other means as they
30 may prefer, as to the accuracy of the foregoing statement, and they must determine for themselves, and allow for all difficulties which may be encountered in the prosecution of the work.

T Y P E "B"

- 40 1. 530 Linear Feet 2'-9" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Twelve 00-100 Dollars (\$12.00).
2. 369 Linear Feet 18-inch Vitrified Pipe Sewer, Per Linear Foot, Five 00-100 Dollars (\$5.00).
3. 564 Linear Feet 12-inch Vitrified Pipe Sewer, Per Linear Foot, Four 00-100 Dollars (\$4.00).

EXHIBIT C-221 (*continued*) :

4. 11 Manholes, Complete, Each, One hundred 00-100 Dollars (\$100.00).
5. 4 Basin Manholes, Complete, Each, Two hundred 00-100 Dollars (\$200.00).
- 10 6. 4 Inlets, Complete, Each, Seventy-five 00-100 Dollars (\$75.00).
7. 76 Linear Feet 12-inch Vitrified Pipe, Basin connections, Per Linear Foot, One 00-100 Dollars (\$1.00).
8. 60 Linear Feet 10-inch Vitrified Pipe, Basin Connections, Per Linear Foot, One 00-100 Dollars (\$1.00).
9. 38 Six-inch Spurs 24-inches long on Reinforced Concrete Pipe Sewer (Precast Type "B"), Each, One 00-100 Dollars (\$1.00).
- 20 10. 12 Six-inch Spurs on 18-inch Vitrified Pipe Sewer, Each, Four 00-100 Dollars (\$4.00).
11. 29 Six-inch Spurs on 12-inch Vitrified Pipe Sewer, Each, Two 00-100 Dollars (\$2.00).
12. 444 Linear Feet 6-inch Vitrified Pipe House Connection Drains, Per Linear Foot, Three 00-100 Dollars (\$3.00).
- 30 13. 1 Chamber at the North Side of Metropolitan Ave. & Azalea St. (Price to include the cost of removing existing manhole, and making necessary connections), Complete, Seven hundred 00-100 Dollars (\$700.00).
14. 1 Chamber at the South Side of Metropolitan Ave. & Azalea St., Complete, Seven hundred 00-100 Dollars (\$700.00).

40 No bid will be allowed to be withdrawn, for any reason whatever, after it has been received and deposited with the President. The President expressly reserves the right to reject all bids if he shall deem it for the public interest so to do. No bid will be accepted from, nor contract awarded to, any person who is in arrears to The City of New York upon debt or contract, or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

No bid or proposal will be received, considered and deposited unless, as a condition precedent to the reception or consi-

EXHIBIT C-221 (continued) :

deration of any proposal it be accompanied by either a certified check upon one of the State or National Banks of The City of New York, drawn and made payable to the order of the Comptroller of the City of New York, or money to the amount of five per centum (5%) of the amount of the security or surety bond required for the faithful performance of the contract.

10 Such check or money must not be inclosed in the sealed envelope containing the proposal, but must be either inclosed in a separate envelope addressed to the Borough President, or submitted personally upon the presentation of the bid or proposal and handed to the officer or clerk of the Department who has charge of the proposal box, and who will give a proper voucher for the deposit, and no bid can be deposited in said box until such check or money has been examined by said officer or clerk and found to be correct. All such deposits, except that made by the bidder to whom the contract shall be awarded, will be

20 returned to the person or persons making the same within three (3) days after the decision as to who shall receive the contract. If the bidder to whom the contract shall have been awarded shall refuse or neglect to execute the same within five days after due notice that the contract has been awarded to him, and that the adequacy and sufficiency of the surety offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York as liquidated damages for such neglect or refusal; but if he shall execute the contract and furnish the said security within

30 the time aforesaid, the amount of the deposit shall be returned to him.

Each and every person bidding must sign here.

ANGELO PAINO [L. S.]

NOTE.—Each and every person bidding and named above must sign here. In the case of

40 a firm, give the name of each and every partner in full.

..... [L. S.]

In case a bid shall be submitted by or in behalf of a corporation it must be signed in the full legal name of such corporation by some authorized officer or

..... [L. S.]

EXHIBIT C-221 (continued) :

agent thereof, who shall subscribe his name and office. If practicable, the seal of the corporation must be affixed.

.....[L. S.]

The following affidavit must be similarly signed and sworn to:

10

THE CITY AND STATE OF NEW YORK,
COUNTY OF QUEENS.

The above-named bidder (s), being severally duly sworn, say, each for himself, that the several matters stated in the above bid are in all respects true.

20

ANGELO PAINO

Subscribed and sworn to before me, this 17th day of April, 1923.

.....

Commissioner of Deeds, City of New York
Certificate filed Queens County.

30

40

EXHIBIT C-221 (continued) :

NOTICE TO BIDDERS.

Bidders are invited to tender bids on monolithic concrete sewers from 27-inches upward, these sewers being the standards of the Sewer Department and hereafter designated as Type "A" or on reinforced concrete pipe sewer from 24-inches upward (Pre-cast) which will be designated as Type "B", or on both types, if they so desire, but it is to be distinctly understood that no bids will be accepted on combinations of Types "A" and "B".

NOTICE TO BIDDERS.

Prices to be paid by The City of New York for indeterminate quantities, such as

ROCK EXCAVATION	8.00	Per Cu. Yd.
CLASS "A" CONCRETE	15.00	" " "
REINFORCING STEEL .....	.06	Per Lb.
STRUCTURAL STEEL .....	.08	" "
FOUNDATION TIMBER	70.00	Per 1000 Ft. B. M.
SHEETING & BRACING	20.00	" " " " "
PILING (TIMBER)	1.00	Per Ft. driven and cut-off
STEAMS CENDERS (Delivered & Placed)	1.25	Per Cu. Yd.

Indeterminate quantities shall be those whose amount and necessity will be determined by the conditions encountered during the work of construction.

Time for presenting bids.

1. Sealed bids for the above-entitled work will be received at the office of the President of the Borough of Queens, Queens Subway Building, Long Island City, in The City of New York, until 11 o'clock a. m., on Tuesday April 17th, 1923.

EXHIBIT C-221 (continued) :

Time allowed for completion.

2. The time allowed for the full completion of the work herein described will be Sixty (60) **CONSECUTIVE WORKING DAYS.**

10 **Security required.**

3. The amount of security required will be Eight thousand 00-100 Dollars (\$8,000.00).

Bidders referred to, form of agreement, etc.

20 4. Bidders are referred to the form of agreement, to the specifications and to the plan and drawings of Standard Details on file at the office of the President, and to the following Engineer's estimate of the quantity and kind of work required, the items whereof in all cases include all materials and labor necessary to fully complete said work. Price for each item shall be named, upon the sum total of which the comparison and tests of bids will be made.

Engineer's estimate.

TYPE "A" (OR SEWER DEPT. STANDARD).

30

PART I.

530 Linear Feet 2'-9" Plain Concrete Sewer

369 Linear Feet 18-inch Vitrified Pipe Sewer

564 Linear Feet 12-inch Vitrified Pipe Sewer

11 Manholes, Complete

40 **4 Basin Manholes, Complete**

4 Inlets, Complete

76 Linear Feet 12-inch Vitrified Pipe, Basin Connection

60 Linear Feet 10-inch Vitrified Pipe, Basin Connection

38 Six-inch Spurs 24-inches long on Plain Concrete Sewer

EXHIBIT C-221 (continued) :

- 12 Six-inch Spurs on 18-inch Vitrified Pipe Sewer
- 29 Six-inch Spurs on 12-inch Vitrified Pipe Sewer
- 444 Linear Feet 6-inch Vitrified Pipe House Connection
Drains
- 10 1 Chamber at the North Side of Metropolitan Avenue &
Azalea Street (Price to include the cost of removing existing
manhole, and making the necessary connections).
- 1 Chamber at the North Side of Metropolitan Avenue &
Azalea Street.

T Y P E "B"

- 20 530 Linear Feet 2'-9" Reinforced Concrete Pipe Sewer
(Precast Type "B")
- 369 Linear Feet 18-inch Vitrified Pipe Sewer
- 564 Linear Feet 12-inch Vitrified Pipe Sewer
- 11 Manholes, Complete
- 30 4 Basin Manholes, Complete
- 4 Inlets, Complete
- 76 Linear Feet 12-inch Vitrified Pipe, Basin Connection
- 60 Linear Feet 10-inch Vitrified Pipe, Basin Connection
- 38 Six-inch Spurs 24-inches long on Reinforced Concrete
Pipe Sewer (Precast Type "B")
- 12 Six-inch Spurs on 18-inch Vitrified Pipe Sewer
- 40 29 Six-inch Spurs on 12-inch Vitrified Pipe Sewer
- 444 Linear Feet 6-inch Vitrified Pipe House Connection
Drains
- 1 Chamber at the North Side of Metropolitan Avenue &
Azalea Street. (Price to include the cost of removing existing
manhole, and making necessary connections).

EXHIBIT C-221 (*continued*) :

1 Chamber at the North Side of Metropolitan Avenue &
Azalea Street

Personal examination of work.

10

5. The foregoing Engineer's Estimate is approximate only and is not to be considered as a binding feature of the contract. Bidders are required to submit their bids upon the following express conditions which apply to and become a part of every bid received. Bidders must satisfy themselves by personal examination of the location of the proposed work and surroundings thereof, and by such other means as they may prefer as to the accuracy of the foregoing estimate, and shall not at any time after submission of their bids, dispute or complain of such estimate of the Engineer, nor assert that there was any misunderstanding in regard to the quantity or kind of materials to be furnished or work to be done.

20

Prices to be stated in writing and in words and in figures.

6. Any bid which fails to name a price, written both in words and in figures, per unit of measurement for each of the items for which quantities are given, will be held to be informal and will be rejected. In case of any discrepancy between the price in words and that in figures, the price in words will be considered as the bid.

30

Prices bid to cover.

7. The prices bid must cover the cost of furnishing all necessary materials and labor for and the complete performance of all the work set forth in this proposal, described in the form of agreement and specifications annexed hereto, and indicated by the plan of the work on file in the office of the President, to all of which information the bidders are referred.

40

Rock excavation.

8. The attention of the bidders is particularly directed to the specifications relating to rock excavation.

EXHIBIT C-221 (*continued*) :

Bids may be rejected.

10 9. Permission will not be given for the withdrawal of any bid within forty-five (45) days after receipt of bids, and the right is expressly reserved by the President to reject all bids if he shall deem it to the public interest so to do. No bid will be accepted from, or contract awarded to, any person who is in arrears to The City of New York upon debt or contract or who is a defaulter, as surety or otherwise, upon any obligation to The City of New York.

Times and places for commencing and prosecuting work to be determined by the President.

20 10. Bidders are especially notified that the President reserves the right to determine the times and places for commencing and prosecuting the work, and that postponement or delay on the whole, or any part thereof, occasioned by the precedence of other contracts, which may be either let or executed before the opening of the bids for this work, can constitute no claim for damages nor for a reduction of the damages fixed for delay in completing the work beyond the time allowed.

No extra compensation.

30 11. The Contractor will be required to complete the entire work to the satisfaction of the President and in accordance with the agreement, the specifications and the plan of the work. No extra compensation beyond the amount payable for the several classes of work hereinbefore enumerated, which shall be actually furnished and performed at the prices bid therefor by the bidder to whom the contract is awarded, shall be due or payable for the entire materials and work.

Deposit to accompany bid.

40 12. No bid will be received or considered unless accompanied by either a certified check upon one of the National or State Banks or Trust Companies of The City of New York, or a check of such bank or trust company signed by a duly authorized officer thereof, drawn to the order of the Comptroller, or money or corporate stock or certificate of indebtedness of any nature issued by the City of New York, which the Comptroller shall

EXHIBIT C-221 (*continued*) :

10 approve as of equal value with the security required, to an amount of five per centum of the amount of the bond required for the faithful performance of the contract (as provided by section 420 of The Greater New York Charter, as amended). Such check or money or other form of security must not be inclosed in the sealed envelope containing the bid, but must be handed to the officer or clerk who has charge of the bidding, and no bid shall be deposited in the box provided for that purpose until such check or money or other form of security has been examined by said officer or clerk and found to be correct. All such deposits, except those of the lowest three bidders, will be returned to the persons making the same within 10 days after the opening of the bids; within three days after the awarding of the contract, the remaining deposits, except that made by the bidder whose bid has been accepted, will be returned to the persons making the same. If the successful bidder shall refuse or neglect to execute the contract within five days after notice that it has been awarded to him, and that the adequacy and sufficiency of the security offered has been approved by the Comptroller, the amount of the deposit made by him shall be forfeited to and retained by The City of New York, but if he shall execute the contract and furnish the required security within the time aforesaid, the amount of his deposit will be returned to him.

Names of persons interested.

30 13. Bidders are required to state in their bids, under oath, their names and places of residence or business, the names of all persons interested with them therein, and if no other person be so interested, they shall distinctly state that fact; also, that it is made without any connection with any other person making any bid for the same purpose, and that it is in all respects fair and without collusion or fraud; and that no member of the Board of Aldermen, head of a department, chief of a bureau, deputy thereof or clerk therein or officer or employee of The City of New York, is, shall be or become interested, directly or indirectly, as contracting party, partner, stockholder, surety 40 or otherwise, in or in the performance of the contract or in the material, work or business to which it relates, or in any portion of the profits thereof. Bidders must verify by oath, in writing, the several matters stated in their bids.

EXHIBIT C-221 (continued) :

Sealed bids to be submitted.

10 14. Each bid must be delivered in a sealed envelope, endorsed with the title of the work for which the bid is made, with the name of the bidder, and the date of presentation to the President at his office, on or before the date and hour hereinbefore named, at which time and place the bids received will be publicly opened by the President and read and the award of the contract made according to law as soon thereafter as practicable. The person or persons to whom the contract may be awarded will be required to attend at said office with the sureties offered by him or them and execute the contract within five days from the date of the service of a notice to the effect that the contract has been so awarded and the surety accepted; and in case of failure or neglect so to do he or they will be considered as having abandoned the contract and as being in default to the City.

20 Bidders shall use blank forms to be furnished by the President.

15. Bidders shall make their bids upon the forms prepared by the President, a copy of which with the proper envelope in which to enclose the same can be obtained upon application therefor at the office of the President, Queens Subway Building, Long Island City, where the plan can be seen, as also the form of contract, including the specifications in the form approved by the Corporation Counsel.

30

MAURICE E. CONNOLLY,

President of the Borough of Queens.

The City of New York , 192...

40

EXHIBIT C-221 (*continued*) :

THE CITY OF NEW YORK

Office of

THE PRESIDENT OF THE BOROUGH OF QUEENS

10

BUREAU OF SEWER

20 CONTRACT FOR the construction of a sewer and appurtenances in METROPOLITAN AVENUE from Azalea Street to Mt. Olivet Avenue, and in MT. OLIVET AVENUE from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens, together with all the work incidental thereto.

Parties.

30 THIS AGREEMENT, made and entered into this first day of May, in the year one thousand nine hundred and 23 between The City of New York, party of the first part, by the President of the Borough of Queens, and Angelo Paino of 32 Court Street, Brooklyn, Contractor, party of the second part, pursuant to the provisions of The Greater New York Charter, and the resolution of The Board of Estimate and Apportionment adopted on the 22nd day of September, 1922, of which resolution the following is a copy:

40

EXHIBIT C-221 (*continued*) :

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT

City of New York

10

(Cal. No. 131)

A copy of a resolution of the Local Board of the Newtown District, duly adopted by said Board on the 4th day of May, 1922, and approved by the President of the Borough of Queens on the 11th day of May, 1922, having been transmitted to the Board of Estimate and Apportionment, as follows, to wit:

20 “RESOLVED, That this Board does hereby initiate proceedings for the said local improvement, to wit:

For the construction of a sewer and appurtenances in Metropolitan Avenue from Azalea Street to Mt. Olivet Avenue and in Mt. Olivet Avenue from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens.

30 And thereupon, on the 22nd day of Sept., 1922, resolutions having been adopted by the Board of Estimate and Apportionment authorizing the President of the Borough of Queens to prepare the necessary plans, specifications and an estimate of the cost of the proposed improvement based on actual survey and further resolving that the Board of Estimate and Apportionment will consider the authorization of the construction of the proposed improvement after the President of the Borough of Queens has submitted certain statements as provided in the said resolution, and the said resolution having been duly complied with by the President of the Borough, as appears by papers and documents on the files of the Board of Estimate and Apportionment, and there having been presented to the Board of
40 Estimate and Appointment an estimate in writing in such detail as the Board has directed, that the cost of the proposed work or improvement, together with the preliminary expenses will be the sum of \$18,200; and a statement of the assessed value according to the last preceding tax roll of the real estate included within the probable area of assessment, to wit, the sum of \$107,160 having also been presented, it is

EXHIBIT C-221 (*continued*) :

RESOLVED, That the said resolution of the Local Board
be and the same is hereby approved and the construction of the
local improvement therein provided for is hereby authorized.
This Board does hereby determine that no portion of the cost
and expense thereof shall be borne and paid by The City of New
York, but that the whole of such cost and expense, including the
10 aforesaid preliminary expenses, shall be assessed upon the prop-
erty deemed to be benefited by the said local improvement.

A true copy of a resolution adopted by the Board of Esti-
mate and Apportionment, March 16, 1923.

(Signed) JAMES MATTHEWS,
Assistant Secretary.

20

RESOLUTION

BOARD OF ESTIMATE AND APPORTIONMENT

30

CITY OF NEW YORK

(Cal. No. 198)

40

WHEREAS, The President of the Borough of Queens has
transmitted to the Board of Estimate and Apportionment a copy
of a resolution of the Local Board of the Newtown District, duly
adopted by said Board on the 4th day of May, 1922, and approved
by the President of the Borough of Queens on the 11th day of
May, 1922, as follows, to wit:

“RESOLVED, That this Board does hereby initiate pro-
ceedings for the said local improvement to wit:

“For the construction of a sewer and appurtenances in:—
METROPOLITAN AVENUE from Azalea Street to Mt. Olivet
Avenue and in MT. OLIVET AVENUE, from Metropolitan Ave-

EXHIBIT C-221 (*continued*) :

nue to Evelin Street, Second Ward, Borough of Queens"; and which resolution is accompanied with an approximate estimate of the cost of work and the assessed value of the property benefited.

10 RESOLVED, That the Board of Estimate and Apportionment hereby authorizes the President of the Borough of Queens to prepare plans, specifications and an estimate of cost based on actual survey, and also to secure a determination of the boundary of the district of assessment; the entire expense of the work done subsequent to the date of this authorization to be charged against the Street Improvement fund and later included in the assessment.

20 RESOLVED, That the Board of Estimate and Apportionment will consider the authorization of the construction of the said proposed improvement after the President of the Borough of Queens has submitted a statement showing that all of the above described work has been done, that he has secured the approval of the form of contract by the Corporation Counsel, that he is prepared to place the improvement under contract as soon as he receives the consent of the Board, and that the assessment may will be completed on or before the date of payment on acceptance; this report being accompanied by a further statement showing the quantity of work to be performed under each item and the unit price thereof, the expense incurred for preliminary work, the allowance to be made for additional engineering and 30 contingencies, the total probable cost, and the number of working days to be allowed the contractor for carrying out the work.

I hereby certify that the foregoing is a true copy of a resolution adopted by the Board of Estimate and Apportionment at a meeting of said Board held on September 22, 1922.

Dated, New York.

40

(signed) JAMES MATTHEWS

Assistant Secretary,

Board of Estimate and Apportionment.

EXHIBIT C-221 (*continued*) :

Covenant.

10 WITNESSETH, That the parties to these presents, each in consideration of the agreements on the part of the other herein contained, have mutually agreed, and hereby mutually agree, the party of the first part for itself and its successors, and the party of the second part for itself, himself, of themselves, and its, his or their executors, administrators, successors and assigns, as follows:

Contract.

20 I. The contract for the hereinbefore entitled work shall include the following, which are hereby agreed upon as forming part and parcel thereof: the Proposal for Bids, the Bid, the Bond, this Agreement and the Specifications hereto annexed; also the January 12th, 1923, filed in the office of the President of the Borough, entitled: Plan, Profiles and Details for the construction of a sewer and appurtenances in METROPOLITAN AVENUE from Azalea Street to Mt. Olivet Avenue, and in MT. OLIVET AVENUE from Metropolitan Avenue to Evelin Street, Second Ward, Borough of Queens, and also Drawings of Standards Details pertinent thereto on file in the office of the Engineer.

Party of the first part.

30 II. Whenever the term "The City" or a word "President," or a pronoun in place of either, is used, it refers to and means The City of New York, the party of the first part hereto, of the President of the Borough of Queens, or his authorized representative.

Party of the second part.

Whenever the word "Contractor," or a pronoun in place thereof, is used, it refers to and means the party of the second part hereto.

40 Engineer described.

III. Whenever the word "Engineer," or a pronoun in place thereof, is used, it refers to and means the Engineer in Charge of Sewers, Borough of Queens, acting either directly or through assistants designated by him to act in the premises,

EXHIBIT C-221 (*continued*) :

limited to the particular duties entrusted to them. In case said Engineer may not be able to act, then such Engineer as may be designated by the President shall act in his place.

Terms defined.

10 IV. Whenever the word "plan" is used it refers to and means the plan of this work and the standard drawing pertinent thereto. Whenever it is provided that anything is "to be" or "to be done", "if" or "as", or "when" or "where approved," "required," "directed," "permitted," "ordered," "designated" or "deemed necessary" it shall be taken to mean approved, required, permitted, ordered, designated or deemed necessary as the case may be by the Engineer. Whenever the words "desirable," "suitable," "sufficient," "satisfactory" or others of a similar purport are used it is hereby agreed that the desirability, suitability, sufficiency, satisfactoriness or other denominated condition shall 20 be as determined by the Engineer.

Contractor to furnish tools, proper appliances, etc.

30 V. The Contractor hereby agrees to furnish and provide all materials, labor, and appliances necessary and proper for the purpose, to excavate for, build, complete and connect in a good substantial manner, to the satisfaction of the President, and in conformity with the contract, the hereinbefore entitled work and all the work incidental thereto, and the Contractor hereby agrees to receive and accept as and for his full compensation the following prices, which are the amounts or rates at which this contract was awarded to the Contractor at the public letting thereof:

EXHIBIT C-221 (continued) :

Prices.

T Y P E "B"

- Linear Feet 2'-9" Reinforced Concrete Pipe Sewer (Precast Type "B"), Per Linear Foot, Twelve 00-100 Dollars (\$12.00).
- 10 Linear Feet 18-inch Vitrified Pipe Sewer, Per Linear Foot, Five 00-100 Dollars (\$5.00).
- Linear Feet 12-inch Vitrified Pipe Sewer, Per Linear Foot, Four 00-100 Dollars (\$4.00).
- Manholes, Complete, Each, One hundred 00-100 Dollars (\$100.00).
- Basin Manholes, Complete, Each, Two hundred 00-100 Dollars (\$200.00).
- 20 Inlets, Complete, Each, Seventy-five 00-100 Dollars (\$75.00).
- Linear Feet 12-inch Vitrified Pipe, Basin Connections, Per Linear Foot, One 00-100 Dollars (\$1.00).
- Linear Feet 10-inch Vitrified Pipe, Basin Connections, Per Linear Foot, One 00-100 Dollars (\$1.00).
- 30 Six-inch Spurs 24-inches long on Reinforced Concrete Pipe Sewer (Precast Type "B"), Each, One 00-100 Dollars (\$1.00).
- Six-inch Spurs on 18-inch Vitrified Pipe Sewer, Each, Four 00-100 Dollars (\$4.00).
- Six-inch Spurs on 12-inch Vitrified Pipe Sewer, Each, Two 00-100 Dollars (\$2.00).
- Linear Feet 6-inch Vitrified Pipe House Connection Drains Per Linear Foot, Three 00-100 Dollars (\$3.00).
- 40 Chamber at the North Side of Metropolitan Avenue and Azalea Street (Price to include the cost of removing existing manhole and making the necessary connections), Complete, Seven hundred 00-100 Dollars (\$700.00).
- Chamber at the South Side of Metropolitan Avenue and Azalea Street, Complete, Seven hundred 00-100 Dollars (\$700.00).

EXHIBIT C-221 (*continued*) :

Quantities are approximate only.

No extra compensation.

VI. The Contractor admits that the quantities of materials to be furnished and the amount of work to be done, as stated in the proposal for bids for the work, are approximate only.

10 The Contractor agrees that The City is not to be held responsible that any of said quantities and amounts shall obtain in the construction of the work, as he has judged for himself as to such quantities and amounts and each of them, and as to the other circumstances affecting the cost of the performance of this contract; and that he will not at any time dispute or complain of such statement nor assert that there was any misunderstanding in regard to the character, size or depth of the excavations to be made or the kind or amount of the materials to be furnished or

20 work to be done. The Contractor hereby agrees that he will not ask, demand, sue for, nor seek to recover for the entire work any extra compensation beyond the amount payable for the several classes of work and kinds of materials in this contract enumerated, which shall be actually performed and furnished, at the prices therefor herein agreed upon and fixed.

Sewers, etc., to be built as shown on the plan.

VII. The sewer and appurtenances will be built on the lines, at the depths and at the grades and in the manner shown on

30 the plan of the work as the same will be designated on the ground by the Engineer.

Line may be changed.

The President may change the line of the sewer of the basin manholes, inlets, or other sewer appurtenances provided such changes do not materially affect either the character or the amount of the work to be done, or the conditions under which it is to be performed, and the Contractor hereby agrees to make no

40 claim for damages or extra compensation on account thereof.

Preservation of points, stakes, etc.

The Contractor will safeguard all points, stakes, grade marks, monuments and bench marks made or established on or near the

EXHIBIT C-221 (*continued*) :

line of work, and he agrees to accept responsibility for and to remedy at his cost any mistakes that may be caused by the unauthorized disturbance or removal of such points, stakes, grade marks, monuments and bench marks.

Written order for extra work.

- 10 VIII. No claim for additional work or materials shall be made by or allowed to the Contractor, unless before the performance of such additional work the President shall have first authorized the same, in writing, and the same shall have been done or furnished under a written order from the President, given before the performance of such additional work or the furnishing of such additional materials. The aggregate price to be paid for additional work or materials so authorized or ordered shall not exceed five (5) per cent, of the contract price or the total cost of the work and materials.

20

Contract may be modified

This contract may be modified and changed from time to time as may previously be agreed to, in writing, between the parties hereto, in a manner not materially affecting the substances thereof or increasing the contract price thereunder, in order to carry out and complete more fully and perfectly the work herein agreed to be done and performed.

30

Limit to extras.

All claims for additional work or materials in any month shall be made to the Engineer; in writing, before the 15th day of the following month, and failing to make such claim within the time required, the rights of the Contractor to additional pay for such additional work or materials shall be deemed to have been waived and forfeited.

- 40 Inspection.

Work or materials may be condemned at any time.

IX. The Engineer shall inspect the materials furnished and the work done and see that the same correspond with the specifications. The Engineer is hereby authorized and empower-

EXHIBIT C-221 (*continued*) :

ed to reject and refuse all labor and material or method of application, or any part thereof, offered under or in fulfilment of this contract, that do not comply in kind, quality or quantity with the terms thereof. Any material delivered or offered to be delivered under this contract, which shall be rejected by the Engineer as not conforming to the terms thereof, will be forthwith removed by the Contractor, and material which does so conform will be forthwith furnished and delivered by him in place thereof. The Contractor hereby agrees not to use any material which has not been inspected and accepted, nor to perform any work except under inspection, to which end he further agrees to notify the Engineer when lines, grades or inspection are required so that the Engineer may have time to provide for the same. No inspection, approval or acceptance of any part of the work herein contracted for or of the materials used therein, or any payment on account thereof, shall prevent the President from refusing to accept the work or materials at any time thereafter.

Engineer to be final arbiter.

X. To prevent all dispute and litigation, it is hereby agreed that the Chief Engineer in Charge of Sewers shall in all cases determine the amount and the quality of the several kinds of work and materials which are to be paid for under this contract, and he shall determine all questions in relation to the work and materials and the construction thereof, and he shall in all cases decide every question which may arise relative to the execution of this contract on the part of the Contractor, and his decision will be final and conclusive upon the Contractor; and such decision, in case any question shall arise, shall be a condition precedent to the right of the Contractor to receive any money under this contract.

Any doubt as to the meaning of this contract and the specifications thereof, or any obscurity as to the wording of them, or any discrepancy between them and the plan will be explained by the Engineer, and his explanation will be accepted by the Contractor, who hereby agrees to execute the work in accordance with such explanation, and to make no charge or claim for any extra work or damage on account thereof.

EXHIBIT C-221 (*continued*) :

Work and materials must agree with specifications.

10 XI. The work will be performed in the best manner, and all materials of which the work is composed will be of the best kind, and a sufficient number of persons will be at all times employed to execute the work with due dispatch, the whole to be done to the satisfaction of the Engineer, and any materials furnished or work done not satisfactory to the Engineer will be immediately removed and satisfactorily replaced by the Contractor at his own expense; or if he shall neglect or refuse to remove and replace the same when notified so to do by a written notice to be served upon him, then the President may remove, or cause the same to be removed and satisfactorily replaced, by contract or otherwise, as he may deem expedient, and charge the expense thereof to the Contractor; and the expense so charged shall be deducted and paid by The City out of such moneys as are or may become due under his contract.

20

Examination.

During the progress or after the completion of the work, should the Engineer require it, for the purpose of examining the same, the Contractor will make such openings, and to such extent through such part or parts of the work as the Engineer may direct, and the Contractor will satisfactorily restore the work so disturbed. Should the opening disclose defects in the work such defects shall be remedied in accordance with the provisions of the first paragraph of this section.

30

Use of patented articles.

40 XII. Wherever an article or any kind of material is specified by trade name or by the name of a patentee, manufacturer or dealer, or by reference to the catalogue of a manufacturer or dealer, it shall be taken as intending to mean and specify the article or kind of material designated, or any other equal thereto in quality, finish and durability, and equally serviceable for the purposes for which it is or they are intended. Nothing on the plan or in the specifications shall be interpreted or taken to violate the provisions of section 1554 of the Greater New York Charter, which provides that "except for repairs, no patented pavement shall be laid and no patented article shall be advertised for, contracted for or purchased, except under such circum-

EXHIBIT C-221 (*continued*) :

stances that there can be a fair and reasonable opportunity for competition, the condition to secure which shall be prescribed by the Board of Estimate and Apportionment.”

Claims for infringement.

10 The Contractor will be responsible for any claims made against The City for any infringement of patents, by the use of patented articles or processes in the construction and completion of the work, and he will save harmless and indemnify The City all costs, expenses and damages caused by reason of any infringement of patents used in the construction and completion of the work.

Commencement and completion.

20 XIII. The Contractor will begin the work herein agreed to be performed on such date as the President shall notify him to begin on and from which date the time hereinafter fixed for the completion of the work shall begin to run. The place where the work is to be begun will be either stated in said notice or designated on the ground by the Engineer. The commencement of work by the Contractor without notice shall be deemed and taken to be a waiver on his part of notice to begin work, in which case the time for the completion of the work will begin to run on and from the date the work was commenced.

30 Time of performance.

XIV. The Contractor will carry on the work with such force and in such manner and order and at such places, times and seasons, including freezing weather, as may be directed by the Engineer, and will execute all the work in every respect in a thorough and workmanlike manner; and he will fully and entirely perform this contract on his part before the expiration of Sixty (60) CONSECUTIVE WORKING DAYS.

40 Time important.

It is hereby agreed that the time designated for the performance of all the work under this Contract is of the essence of this agreement, in view whereof it is hereby further agreed that a rate of progress will be maintained so that the work performed

EXHIBIT C-221 (continued) :

up to any time will be at least the same percentage of the total work to be performed under this contract as the net elapsed time at such time is of the total time allowed for the performance of all the work under this contract.

10 In the computation of the number of consecutive working days, the time during which the completion of the work has been delayed in consequence of the condition of the weather, or tides, or by any act or omission of the party of the first part or during such period as the work has been suspended by written order of the President, or delays for which the Contractor is not responsible (all of which will be determined by the President, who shall certify to the same in writing, and whose determination and certificate thereof shall be binding and conclusive upon the Contractor), will be allowed to the Contractor and will be deducted in computation. Sundays and also holidays on which no work is done, will also be excluded from said computation. In case a larger amount of rock excavation than is set forth in the Engineer's Estimate shall be necessary, an allowance of one day will be made for each 25 cubic yards of such excess of rock excavated and removed in accordance with the measurement of rock allowed by the specifications. If the completion of the work to be done under this contract shall require work or materials or both in greater amounts than those set forth in the Engineer's Estimate of Quantities, or if unforeseen obstacles are encountered in the prosecution of said work, then the time which the Contractor is delayed on account thereof will be determined and allowed by the President at the completion of the work, upon the receipt by him of a written application from the Contractor for such determination and allowance. No demand by the Contractor that the President determine and certify the matters aforesaid shall be of any effect whatsoever unless the same be made in writing and duly served upon the President prior to the filing in the office of the Comptroller of The City of the final certificate of the completion and acceptance of the work.

20

30

40 End of time period.

The time shall run against this contract until all work called for in this contract is completed to the satisfaction of the Engineer.

EXHIBIT C-221 (*continued*) :

Liquidated damages.

10 XV. In case the Contractor shall fail to complete the work hereunder in accordance with the contract within the time aforesaid, he agrees to pay to The City the sum of Ten 00/100 Dollars (\$10.00) for each and every day the time consumed in said performance and completion exceeds the time hereinbefore
of ascertaining the loss which The City will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed and determined by the parties hereto as the liquidated damages that The City will suffer by reason of said delay and default, and not as a penalty; and The City shall and may deduct and retain the amount of such liquidated damages out of the moneys which may be due or become due under this contract.

20 Work not provided for in contract.

30 XVI. If, before the completion of the work contemplated herein, it shall become necessary to do any other or further work on or near the line thereof than is provided for in this contract, the Contractor will not in any way interfere with or molest such person or persons as the President may employ to do such work, and will carry on the work under this contract in such manner as may be ordered so as to afford all reasonable facilities for doing such other or further work; and no damage or claim by the Contractor shall be allowed therefor, except such allowance of time for delay as the President may deem reasonable.

President's right to suspend work.

40 XVII. The President is hereby authorized to suspend the whole or any part of the work herein contracted to be done, if he shall deem it for the interest of The City so to do. During such suspension the trenches shall be backfilled, if required, and the roadways and pavements over the same satisfactorily restored, and all materials upon the work shall be neatly piled so as not to obstruct public travel, or shall be removed from the line of the work, if directed.

No damages to be claimed for delay due to other contracts.

XVIII. Should postponement or delay be occasioned by the precedence of paving or other contracts, which may have been

EXHIBIT C-221 (*continued*) :

10 either let or executed before the opening of the bids for this contract, the Contractor will make no claim for damages therefor nor for any damages in consequence of the street or the adjoining sewers not being in the condition contemplated by the parties at the time of making the contract; if, however, the Contractor shall be delayed in performance of his work by reason of the street or the adjoining sewers not being in such condition, or by reason of the work or any part thereof being suspended as hereinbefore provided, such allowance of time on account thereof as the President shall deem reasonable will be made.

20 If the work be suspended or delayed by any act or omission of The City, or for the reason that The City does not own or has not obtained possession of, or the right to enter upon the land upon which the work is to be performed, or because of any act or omission of any employee or agent of The City or any other Contractor performing the work for The City, the President, or whoever is directed by this contract, to make the certificate in reference to time, shall make such allowance of time for the completion of the work as the Engineer shall certify that the work has been delayed. No allowance whatever as damages will be made to the Contractor because of any such suspension or delays, and no claim shall be made by the Contractor on account thereof.

Allowance of time for delays.

30 XIX. No allowances of time for delays under the provisions of this contract nor the delivery and acceptance of any articles or materials called for by this contract, shall be deemed to be a waiver by the President of the right to abrogate this contract for abandonment or delay in the manner hereinafter provided.

Right to construct sewers, etc.

Permits for connections.

40 XX. Prior to the commencement of and during the progress of the work under this contract the President shall have the right to undertake, and to grant permits for, any construction, reconstruction, and repairing of any pipes, sewers, basins, subway ducts and railway tracks, and any appurtenances thereof located on and adjoining the line of the work, and for any con-

EXHIBIT C-221 (*continued*) :

nections with and additions to such pipes, etc., and for such purposes the President is hereby authorized to suspend work on any part of this contract, in accordance with Section XVII, and the Contractor will not interfere with nor place any obstructions in the way of any person or persons who may be engaged upon such work. The President is hereby authorized to connect, by contract or otherwise, any sewers and drains with the work built under this contract and to grant permits to any person or persons to make connections therewith at any time before it is completed; and the Contractor will not interfere with nor place obstruction in the way of such persons as may be employed in building such sewers and drains, or in making such connections, and the flow from such sewers, drains and connections will be permitted by the Contractor to discharge into the work built under his contract and the Contractor agrees to make no claim for compensation, damages or delay on account thereof. The issuance of such permits shall not be considered as an acceptance by The City of that part of the sewer into which such connections empty or flow, nor shall the Contractor on account thereof be relieved from the cleaning of the sewer prior to the final examination of the work. No new connections or drains will be allowed to be made or joined to the work built under this contract unless a permit therefor has been duly issued by the President, which permit shall be shown in all cases to the Inspector of the work.

Flow of sewers and drains, etc.

Drains, etc., interrupted.

Sewers, etc., to be kept clean.

XXI. The Contractor will provide at his own cost for the flow of the sewers, drains and water courses interrupted during the progress of the work, and will immediately cart away and remove all offensive matter. The flow throughout the entire length of such sewers and appurtenances as are to be replaced by the work to be done under this contract will be maintained by the Contractor. The Contractor will remove at his own cost and expense all such bulkheads, as may be directed, from the sewers with which the work under this contract will be connected. When the permanent removal of any existing pipe sewers and appurtenances and pipe drains is necessitated by the work to be done under this contract, such of the materials of such structures as may be

EXHIBIT C-221 (continued) :

10 directed shall be carefully taken up, piled and left at the disposal of The City, and shall not be used in the work, and the remainder shall be removed from the work and disposed of by the Contractor. Wherever the work to be built under this contract, or the trenches in which it is to be constructed, follow the line, and occupy the place of or intercept the Fire Alarm Telegraph System of The City, or any existing sewers, drains, culverts, basin connections or house connections for which permits may have been granted prior to the opening of the bids for this contract, the Contractor will make the same good, and will rebuild the Fire Alarm Telegraph System of The City and also said sewers, drains, culverts and connections, or connect the same with the sewer built under this contract, whichever he may be directed to do, at his own cost and expense. All sewers, drains, culverts, basins and basin connections rendered unnecessary by the construction of the work herein contemplated, shall be thoroughly broken up, except 20 as otherwise hereinbefore provided, and satisfactorily filled in by the Contractor at his own cost and expense, as shall also all portions of water courses in, through or across any street that may be rendered unnecessary by the construction of this work. During the progress of the work, and until the completion and acceptance thereof, the sewers, drains, basins, culverts and connections built under this contract shall be kept thoroughly cleaned throughout, and shall be left clean.

30 Sale of sand or earth.

30 XXII. The Contractor will not sell, nor permit to be removed from the line of the work, before the trench shall have been backfilled, any building sand or earth thrown up, except upon written permission, and then only so much as shall remain after reserving a sufficient quantity to backfill the trench and complete the paving; and the Contractor will, in all cases, backfill the trench with the same material thrown out, provided it be suitable under the provisions of the specifications hereof; but if it be unsuitable, then the same shall be removed from the 40 line of the work, and suitable material procured and used for backfilling the trench, and when required sand of proper quality and depth shall be spread on the surface to receive the pavement.

The Contractor hereby agrees that all excavated material and materials of construction placed by him or for him upon private property, unless by written permission of the owners or

EXHIBIT C-221 (*continued*) :

10 lessees thereof, will be removed by him and all damage to said property remedied by him at his own cost and expense. Unless such materials are removed and such damage remedied by the Contractor within 48 hours after the receipt by him of a written notice so to do, he agrees that the President shall be and is hereby authorized to dispose of such materials, and to remedy such damage and to deduct the expense thereof from the moneys due or to become due under this contract.

Contractor to give personal attention to work.

Not to assign or sublet.

20 XXIII. The Contractor will give his personal attention constantly to the faithful prosecution of the work; he will not assign, transfer, convey, sublet or otherwise dispose of this contract, or his right, title or interest in or to the same, or any part thereof, without the previous consent, in writing, of the President, indorsed hereon or hereto attached; and he will not assign, by power of attorney or otherwise, any of the moneys to become due and payable under this contract, unless by and with the like consent, signified in like manner. If the Contractor shall, without such previous written consent, assign, transfer, convey, sublet or otherwise dispose of this contract, or of his right title or interest therein, or any of the moneys due or to become due under this contract, to any other person, company or other corporation, 30 this contract may, at the option of the President, be revoked and annulled, and The City shall thereupon be relieved and discharged from any and all liability and obligations growing out of the same to the Contractor, and to his assignee or transferee; provided that nothing herein contained shall be construed to hinder, prevent or affect an assignment by the Contractor for the benefit of his creditors, made pursuant to the statutes of the State of New York; and no right under this contract, or to any money to become due hereunder, shall be asserted against The City, in law or in equity, by reason of any so-called assignment of this contract, or any part thereof, or of any moneys due or to become due 40 hereunder, unless authorized as aforesaid by the written consent of the President.

EXHIBIT C-221 (*continued*) :

When Contractor is absent.

Disorderly workmen.

Contractor to provide assistance.

- 10 XXIV. Whenever the Contractor is not present on any part of the work where it may be necessary to give directions, orders will be given by the Engineer to and shall be received and obeyed by the superintendents and foremen who may have immediate charge of the men employed on the particular work in relation to which the order may be given; and at any time, if a foreman or workman employed by the Contractor shall be declared by the Engineer to be disobedient, incompetent or disrespectful, the Contractor, on receiving written notice to that effect, will forthwith dismiss such person, and will not again employ
20 him on any part of the work. The Contractor will provide all necessary assistance for the Engineer when required, without charge or expense to The City or Engineer.

Contractor to plank and bridge for traffic.

- XXV. The Contractor will observe the law and all ordinances of The City in relation to obstructing the streets, keeping open passageways and protecting the same where they are exposed and would be dangerous to the public travel, and
30 such passageways shall, as may be required, be planked or bridged by the Contractor, at his own expense.

Guards and lights.

Indemnification of City.

- XXVI. During the performance of the work herein set forth the Contractor will place proper guards upon and around the same for the prevention of accidents, and at night will put up
40 and keep suitable and sufficient lights, and he will indemnify and save harmless The City against and from all claims, suits and actions, of every name and description, brought against it, and all costs and damages to which it may be put on account or by reason of any injury or alleged injury to the person or property of another, resulting from the prosecution of the work or from

EXHIBIT C-221 (*continued*) :

10 negligence or carelessness in the performance of the work, or in guarding the same; or from any improper materials used in its prosecution, or by or on account of any act or omission of the Contractor or his agents; and the Contractor agrees that the whole or so much of the moneys due to the Contractor under and by virtue of this contract, as shall or may be considered necessary by the Comptroller of The City, may, at its option, be retained by The City until all such suits and claims for damages as aforesaid shall have been settled, and evidence to that effect furnished to the satisfaction of the Comptroller.

Contractor to make repairs.

20 XXVII. In case any injury is done to property along the line of the work, or to any sidewalk, in consequence of any act or omission on the part of the Contractor or his employees or agents in carrying out any of the provisions or requirements of this contract, the Contractor will make such repairs as are necessary in consequence thereof, at his own expense and to the satisfaction of the President, and in case of failure on the part of the Contractor to promptly make such repairs, they may be made by the President, and the expense thereof will be deducted out of the moneys due or to become due under this contract.

Loss or damage to be assumed by Contractor.

30 XXVIII. The Contractor agrees to assume, and to make no claim on account of, any and all loss or damages arising out of the nature of the work to be done under this contract, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same or from the action of the elements, or from incumbrances on or near the line of the work, or from the breaking of water mains, sewer and gas mains on or near the line of the work.

Claims for labor, etc.

40 XXIX. The Contractor will pay promptly, and in cash, for all labor employed upon and all materials furnished and used in the work, and if at any time before or within thirty days after the whole work herein agreed to be performed has been completed and accepted by The City, any person or persons claiming to have performed any labor or furnished any materials toward

EXHIBIT C-221 (*continued*) :

10 the performance and completion of the contract, shall file with the President and with the Comptroller of The City any such notice as is described in the Lien Law or any act of the Legislature of the State of New York, then, and in every such case, The City shall retain — anything herein contained to the contrary thereof notwithstanding — from the moneys under its control, and due or to become due under this contract, so much of the moneys as shall be sufficient to pay off, satisfy and discharge the amount in such notice alleged or claimed to be due to the person or persons filing such notice, together with the reasonable cost of any action or actions brought or that may be brought to enforce such claim or the lien created by the filing of such notice. The money so retained shall be retained by The City until the lien thereon created by the said act and the filing of the said notice shall be discharged, pursuant to the provisions of the said act.

20 Contractor will prevent filing of liens, etc.

30 XXX. The Contractor will not, at any time suffer or permit any lien, attachment, or other incumbrances, under the law of this State or otherwise, by any person or persons whomsoever, to retain on file in the Finance Department or at the office of the City Department having supervision of the work against any money due or to become due for any work done or materials furnished under this contract, or by reason of any other claim or demand against the Contractor; and any such lien, attachment, or other incumbrance, until it is removed, shall preclude any and all claim or demand for any payment whatsoever under or by virtue of this contract.

Evidence of satisfaction of liens, etc.

40 The Contractor further agrees that he will present to the party of the first part satisfactory evidence that all just liens, claims and demands of his employees, or of parties from whom materials used in the construction of the work may have been purchased or procured are fully satisfied and that the materials furnished and work done under this contract are fully released from all such liens, claims and demands before said party of the second part will demand or shall receive the sums due on final payment under this contract.

EXHIBIT C-221 (*continued*) :

Notice to gas companies, etc.

Not to hinder other companies.

10 XXXI. At least 24 hours before breaking ground for the work under this contract the Contractor will give notice, in writing, to all gas, railroad, and other companies owning or controlling any pipe, tracks or other structures which during the progress of the work any be affected by the prosecution of the same so that said companies may protect or remove their structures, and he will not cause any hindrance to, or interference with, any such gas company or other company or companies in protecting their said pipes, tracks or other structures, nor in removing or otherwise protecting and replacing the main and service pipes, lampposts, lamps, tracks or other structures where necessary, but the Contractor will suffer the said company or companies to take all such measures as are requisite for the purpose aforesaid. But if said as, railroad, or other companies, 20 within five days after receipt of such notice, fail to support, remove or otherwise protect their structures, the Contractor will upon the approval of the President protect or remove the same, it being expressly understood that the cost thereof shall not be a charge against The City, but shall be a matter for adjustment between the Contractor and the company or companies concerned.

Pipes, conduits, etc., of private companies.

30 XXXII. It is hereby agreed that The City is not responsible or liable for the support, protection or reconstruction of such gas pipes, conduits, water pipes, tracks or structures owned by private companies enjoying special franchises or occupying any portion of the street or way on or below the surface in its streets or ways, as the Contractor admits that he has carefully examined the location of work, has made special inquiry at the offices of the companies owning, controlling or operating said pipes, conduits, tracks and structures, and he has determined to 40 his satisfaction the character, size, location and length of such pipes, conduits, tracks and structures; that he has inspected the public records of the various City Departments having cognizance and control of pipes, conduits, and other subsurface structures, and of The City's water pipes, conduits and sewers, and he has made such further personal inspection and investigation as he deemed proper to determine the correctness of the information so

EXHIBIT C-221 (*continued*) :

obtained; and he clearly understands that The City does not insure the accuracy of such reports or information, and agrees that he will not make any claim against The City for damages or extra work caused or occasioned by his relying upon such records, reports or information furnished by any City Department or any companies, either as a whole or in part.

- 10 Protection and restoration of pipes, etc., in private companies.

20 XXXIII. The Contractor agrees to confer with and to make to or entertain an offer from such private companies as own the said pipes, conduits, tracks or structures, and the Contractor further agrees to enter into an agreement with said companies by what terms and at what prices the support, protection, removal and reconstruction of the pipes, conduits, tracks and structures will be undertaken and accomplished, and in the event of the failure to make such an agreement with said companies, he will not complain nor make any demand on The City for additional compensation or pay for supporting, protecting, removing or restoring the said pipes, conduits, tracks or other structures.

30 XXXIII-a. If the paving between and for a distance of two (2) feet in width outside the tracks of any street railroad company is disturbed by the work of this contract, the Contractor shall restore, at his expense, the said pavement, and replace same in good condition to the satisfaction of the Engineer in charge, notwithstanding anything hereinbefore, or hereinafter mentioned in these specifications.

Contractor to notify Department of Water Supply,

Gas and Electricity.

40 XXXIV. At least twenty-four hours before breaking ground, for the purpose of constructing the work of this contract, the Contractor agrees to give notice thereof in writing to the Department of Water Supply, Gas and Electricity.

City's water pipes, etc.

XXXV. If upon excavating it shall be found that any existing water pipes or appurtenances owned or controlled or operated by The City follow the lines, or occupy the place, of the sewer or sewers and appurtenances to be laid or built as shown

EXHIBIT C-221 (*continued*) :

10 on the plan, such existing water pipes and appurtenances will be removed and relaid, or rebuilt, by and at the cost of the Department of Water Supply, Gas and Electricity of The City of New York; if, however, in order to facilitate the work to be done under this contract, it be found desirable to temporarily remove any water pipes or appurtenances, owned or controlled or operated by The City, to removal and replacing in their original positions of such water pipes and appurtenances will be done by the Department of Water Supply, Gas and Electricity for the Contractor at his cost and expense.

Protection of City's water pipes, etc.

20 XXXVI. The Contractor agrees to protect all water mains and service water pipes owned, controlled or operated by The City which may be affected in any manner by the work done under this contract, except as hereinbefore provided, and to protect all such water and service pipes from freezing, and if he fails to do so, the Commissioner of Water Supply, Gas and Electricity is hereby authorized to protect such main and service pipes, or in the event of their having suffered injury to replace such pipes, and recalk and repair the same immediately, as the work progresses, and the cost thereof shall be charged to the Contractor; the cost so charged shall be deducted from any sum or sums due or to become due under this contract, and in case such sum or sums shall be insufficient to cover such cost, the Contractor will be liable for the balance.

30

Protection of gas and water mains and pipes, etc.

40 XXXVII. The Contractor agrees to sustain in their places and protect all water or gas mains, conduit, subways or service pipes, steam pipes and pneumatic pipes, that may be adjacent to his work but entirely outside of the lines of the excavations as required by the specifications and all sidewalks, curbs, stoops, areas, and all other property in the vicinity of his work, from direct or indirect injury by caving or otherwise, and he hereby assumes all expenses for direct or indirect damage which may be occasioned by injury to any of them, and he agrees to have at all times a sufficient quantity of timber and other necessary materials and appliances on the ground, and will use the same, as required, for bracing and sheeting the sides and ends of excavations, and for sustaining and supporting any and all pipes,

EXHIBIT C-221 (continued) :

10 conduits, subways, lamp-posts and lamps or other structures that are undermined, weakened, endangered or threatened; and in case any damage or injury shall or may result to said pipes, conduits, subways, lamp-posts and lamps and other works or structures of any gas, electric, railroad or other company whatsoever, or to any private property, through or by reason of any negligence, wilfulness, carelessness or want of skill on the part of the Contractor, his agents or servants, the Contractor hereby agrees to pay such amount as may be sufficient to cover the expense and damages occasioned by such negligence, wilfulness, carelessness or unskillfulness, and that such amount shall be charged against him; and the President is hereby authorized to deduct and retain from any moneys which may be due, or which shall become due, under this contract, a sum sufficient, in his judgment, to cover the cost of making good any such damages, expense or loss, and to apply said sum so deducted and retained to the requisite repairs or renewals, or to reimburse the parties damaged or injured.

20 Old water and gas pipes.

XXXVIII. All iron, water and gas pipes which it becomes necessary to remove shall be considered the property of The City and will be piled by the contractor in such part or parts of the streets as may be directed, unless notice to the contrary is given him in writing, in which case he will remove the same at his own expense.

30 Change of grade.

XXXIX. In case the grade of the street shall be changed during the progress of the work, the Contractor will conform to the altered grade at the contract prices, as far as they are applicable; and for any work for which there is no contract price, the provisions in relation to work not provided for in this contract shall apply.

40 Measurement of work and material.

XL. All quantities of work and materials to be paid for will be measured and determined, according to the plan and the working lines that may be given, and the specifications, when the work conforms thereto. No allowance will be made on any part of the work for any excess above the quantities required by such plan, lines and specifications. Should the dimensions of any part

EXHIBIT C-221 (*continued*) :

of the work, or of the materials be less than those required by the plan, the actual quantities only will be allowed in measurement.

Payment on acceptance of work.

10 XLI. The Contractor will not be entitled to demand or receive payment for any portion of the work or materials unless the same has been fully completed in the manner set forth in this contract, and such completion duly certified by the Engineer in Charge of Sewers, and until each and every one of the stipulations hereinbefore mentioned is complied with, and the work completed to the satisfaction of the President and accepted by him, and the final certificate of completion and acceptance thereof, signed by the President and said Engineer, filed with the Comptroller. The City will pay to the Contractor on or before the expiration of
20 thirty days from the filing of said final certificate of completion and acceptance in the office of the Comptroller, the whole of the moneys accruing to the Contractor, under this contract, except such sums of money as shall be retained under any of the provisions herein contained for that purpose, or in any law of the State, under any ordinance of The City passed prior to the date of this contract and now in force.

Moneys to be retain for repairs to unpaved streets.

30 It is hereby further agreed that The City shall be and is hereby authorized to retain out of the moneys payable to the Contractor, during a period of six months from the date of the final completion and the acceptance by the President of the work done under this contract, the sum of \$0.06/100 for each linear foot of sewer, basin connection, and house connection constructed under this contract within unpaved streets, and the sum of \$0.25/100 for each linear foot constructed within streets repaired by the Contractor. And should the Contractor fail to make such repairs to the street surface as may become necessary by reason
40 of the work done under this contract within two days of the date of service of notice upon him so to do, then the President may expend such sum or any part thereof in making such repairs.

Payment of retained moneys to be made after six months.

It is hereby further agreed that The City, upon the expiration of the said period of six months, will pay to the said party of the second part the whole or such part of the moneys

EXHIBIT C-221 (*continued*) :

retained as may remain after the expenses of making said repairs, in the manner aforesaid, shall have been paid therefrom.

Termination of six months' period.

10 It is hereby further agreed that if the termination of the said period of six months after the completion and acceptance of the work done under this contract shall fall within the months of December, January, February or March, then and in that case the said months of December, January, February and March, or such part thereof as the President may determine, will not be included in the computation of said period of six months.

Final certificate to control.

20 XLII. The action of the Engineer in Charge of Sewers, by which the Contractor is to be bound and concluded according to the terms of this contract, shall be that evidenced by said Engineer's final certificate, all prior certificates upon which eighty-five per centum (85%) payments may have been made being merely estimates, and subject to the corrections of such final certificate, which may be made without notice to the Contractor thereof, or of the measurements upon which the same is based.

85% payments.

30 XLIII. In case the amount of this contract, based on the Engineer's estimate and the contract prices, shall be five thousand dollars (\$5,000.00) or over the Engineer shall from time to time, as the work progresses, but not oftener than once a month, make in writing an estimate, such as in his opinion, shall be just and fair, of the amount of the work done and material installed by the Contractor in the performance of this contract on his part, and of the value thereof under and according to the terms of this contract. No allowance will be made in these estimates for materials furnished and delivered until such materials shall have
40 been permanently incorporated in the work, except as hereinafter stated. The first such estimate will be of the amount of work done and materials furnished and installed since the Contractor commenced the performance of this contract on his part, and every subsequent estimate except the final one, will be of the amount of work done and materials furnished and installed since the last preceding estimate was made. In the estimates allow-

EXHIBIT C-221 (*continued*) :

ances will be made for Reinforcing Steel, Structural Steel, Pumps, Electric Motors, Valves, Cast Iron Pipe, Salt Glazed Tile Pipe 12 inches in diameter and larger sizes, Precast Concrete Pipe 24 inches in diameter and larger sizes, Stationary Screens, Mechanically Driven Screens, Cast Iron Tunnel Lining and Precast concrete Blocks for Tunnel Lining, prior to their installation, which are owned by the Contractor and free from all liens or claims, and which have been delivered at locations where work is to be performed under this contract. Such allowances will be calculated at Eighty (80) per cent of the cost price for said materials. But no allowances will be made for those materials delivered which are in excess of the quantities permitted under the specifications to be distributed along the lines of the work. The Contractor will be required to furnish, prior to the certification for payment, written evidence satisfactory to the Borough President that the Contractor is the owner of the materials upon which payment is to be certified, and that such materials are free from liens or claims. Before certifying for payment for materials aforesaid, the Contractor shall execute or have executed and delivered to The City any and all instruments required to vest in The City title to such materials free from claims or liens. Title to materials certified for payment shall vest in The City upon certification of the same for payment. The Contractor, however, agrees to and does assume responsibility for the safety, care and protection of all such materials until they have been finally installed in the work and the completed work accepted by the City, and further agrees at his own cost to replace any such materials that may be lost or damaged. The aforesaid estimates of amount and quantity will not be required to be made by strict measurement, but they may be made by measurement or by estimation, or partly by one and partly by the other, and it shall be sufficient if they are approximate only and estimates strictly so called. Upon each such estimate, made prior to the time of the completion of all the work of laying all the sewers and appurtenances and the backfilling of trenches, said estimate being certified in writing by the Borough President and Engineer and filed with the Comptroller, The City will pay to the Contractor eighty-five per centum of the amount stated in such estimate to be the value of the work therein certified to have been done and materials certified therein to have been furnished and installed, and eighty-five per cent of eighty per cent of the cost not exceeding the contract value of materials not installed hereinabove specified except that subsequent to the completion

EXHIBIT C-221 (*continued*) :

of all the work of laying all the sewers and appurtenances and the backfilling of the trenches, The City will pay to the Contractor eighty-five per centum of the value of the work done and materials furnished under the contract as certified in each such estimate, shall amount to more than fifteen hundred dollars (\$1500.) and provided, that The City pay at all times reserve and retain out of said installments, or any of them, such sum
10 sums as by the terms hereof, or of any act of the Legislature of the State of New York, or of any ordinance of The City passed prior to the date hereof, it is or may be authorized to reserve or retain; and provided that where the Contractor, although the lowest bidder in the gross calculation, is to receive unusual or extraordinary prices for any of the different items of the work when considered separately, nothing herein contained shall be construed to affect the right of the President to determine the amount that may be due from time to time, not necessarily by
20 the prices agreed upon in this contract, but by causing an estimate to be made of the value of the work done, taking as a basis of the calculations the whole amount of money that will have become due, according to the terms of this contract, when the whole work shall be completed.

If abandoned, etc.

Contract may be declared abandoned.

30 Completion of work to be undertaken by President.

XLIV. The Contractor hereby agrees that if the work to be done under this contract shall be abandoned by him, or if this contract shall be assigned or the work sublet by him otherwise than as provided by the terms hereof, or if at any time the Engineer shall be of the opinion, and shall so certify, in writing to the President that the performance of the contract is unnecessarily or unreasonably delayed, as evidenced by its actual rate of progress compared with the required progress (see Section XIV); or that the Contractor is wilfully violating any of
40 the conditions or covenants of this contract or the specifications thereof, or is executing the same in bad faith, or not in accordance with the terms thereof, or that the work is not fully completed within the time designated in this contract for its completion, the President may declare this contract or any part thereof abandoned and notify the Contractor to discontinue all work or

EXHIBIT C-221 (continued) :

any part thereof under this contract, by written notice to be served upon the Contractor either personally, or by leaving said notice at his residence, or with his agent in charge of the work, or in the manner provided in Section XLV, or with any employee found on the work, and the Contractor agrees to thereupon discontinue said work or such part thereof, and he further agrees that the President shall thereupon have the power to contract for the completion of the contract in the manner prescribed by law, or to place such and so many persons as he may deem advisable, by contract or otherwise, to work at and complete the work declared abandoned and to use such plant and materials as he may find upon the line of the work, and to procure other plants and materials for the completion of the same, and to charge the expense of said plant, labor and materials to the Contractor; and it is further agreed that the expense so charged shall be deducted and also liquidated damages for delay in the completion of the work, as provided in Clause XV shall be deducted and paid by the City out of such moneys as would have been payable to the Contractor if he had completed the work. And in case such expense and liquidated damages shall exceed the sum which would have been payable under this contract, if the same had been completed by the Contractor, he shall and will pay the amount of such excess to the City; and in case such expense and liquidated damages shall be less than the sum which would be payable to the Contractor, if the Contractor had completed the contract, he shall be entitled to the difference, subject to all the other terms, covenants and conditions of this contract. Upon the President signing the aforesaid written notice to the Contractor to discontinue all or any part of the work, he shall have the right to take immediate possession on behalf of The City of the plant and materials upon the line of the work, without notice to the Contractor, for the purpose hereinbefore specified, and no such plan or materials shall be removed so long as the same may be wanted for the work. In the computation of liquidated damages for delay in completion of the work, the time taken by The City or given to the new Contractor to whom the contract for the completion of this contract may be awarded, as well as the time taken in advertising and awarding such contract, shall be added to the time consumed by the Contractor under this contract up to the date when The City shall take the action provided in this clause, and from such total there shall be deducted the time allowed to the Contractor for completing the work under this contract. When any particular part of the work is being carried

EXHIBIT C-221 (*continued*) :

10 on by The City by contract or otherwise under the provisions of this clause of the contract, the Contractor agrees to continue the remainder of the work in conformity with the terms of this contract and in such manner as in no wise to hinder or interfere with the persons or workmen employed, as above provided by The City by contract or otherwise to do any part of the work, or to complete the same under the provisions of this clause of the contract. In the event of the President undertaking to have performed the work or any part thereof under this clause of the contract, his certificate as to the amount of work done, cost, and of the excess cost, if any, of completing the work called for by this contract shall be binding and conclusive upon the Contractor, his assignees and his sureties.

Notice to Contractor.

20 XLV. It is agreed that the residence or place of business, given in the bid upon which this contract is founded, is hereby designated as the place where all notices, letters and other communications shall be served, mailed or delivered. It is further agreed that any notice, letter or other communication addressed to the Contractor and delivered at the above-named place, or deposited in a post-paid wrapper in any post-office box regularly maintained by the post-office, shall be deemed sufficient service thereof upon the Contractor. It is also further agreed that the place named may be changed at any time by an instrument in writing, executed and acknowledged by the Contractor and delivered to the President. It is also further agreed that nothing herein contained shall be deemed to proclude or render inoperative the service of any notice, letter or other communication upon the Contractor personally.

Labor Law.

40 XLVI. The Contractor agrees that he will comply with the provisions of "The Labor Law." He further agrees that no laborer, workman or mechanic in the employ of the Contractor, sub-contractor or other person doing or contracting to do the whole or a part of the work contemplated by the contract, shall be permitted or required to work more than eight hours in any one calendar day, except in cases of extraordinary emergency, caused by fire, flood or danger to life or property; that the wages to be paid for a legal day's work or upon any material to be used there-

EXHIBIT C-221 (*continued*):

on shall not be less than the prevailing rate for a day's work in the same trade or occupation in the locality where such public work is being constructed. Each such laborer, workman or mechanic shall receive the prevailing rate of wages. This contract shall be void and of no effect, unless the person or corporation, making or performing the same shall comply with the provision of section 222 of the Labor Law.

10

No estoppel.

XLVII. The City shall not, nor shall any Department or officer thereof be procluded or estopped by any return or certificate made or given by the President, any Engineer or other officer, agent or appointee of The City under any provision of this contract from at any time (either before or after the final completion and acceptance of the work and payment therefor pursuant to any such return or certificate) showing the true and correct amount, quality and character of the work done and materials furnished by the Contractor, or any other person under this contract, or from showing at any time that any such return or certificate is untrue and incorrect or improperly made in any particular, or that the work and materials, or any part thereof do not in fact conform to the contract; and The City shall not be precluded or estopped, notwithstanding any such return or certificate or payment in accordance therewith, from demanding and recovering from the Contractor such damages as it may sustain by reason of his failure to comply with the contract.

20

30

Understanding of plans and specifications.

XLVIII. The Contractor hereby distinctly and expressly declares and acknowledges that, before the signing of this contract, he has carefully read the same, and the whole thereof, together with and in connection with the plan and specifications, and that he has made such examination of this contract and of said plan and specifications, and the location where said work is to be done, and such investigation of the work required to be done, and in regard to the material required to be furnished, as to enable him to thoroughly understand the intention of the same, and the requirements, covenants, agreements, stipulations and restrictions contained in this contract and in said plan and specifications; and distinctly agrees that he will not hereafter make any claim or demand upon The City, based upon or arising

40

EXHIBIT C-221 (*continued*) :

out of any alleged misunderstanding or misconception on his part of the said requirements, covenants, stipulations and restrictions; and that any information given to the Contractor by the Engineer or others as to the quantities in the work, prior to, or during the progress of the work, shall have no bearing or effect whatsoever, upon the total amount of work to be paid for, in the final settlement.

10

Substitution of Sureties.

XLIX. Should the Comptroller at any time deem the sureties under the contract to be unsatisfactory he shall notify the Contractor to that effect and the Contractor shall when so notified forthwith submit in substitution new sureties acceptable to the Comptroller. No further payment shall be deemed due or shall be made until the new sureties shall qualify and be accepted by the Comptroller.

20

Chap. 478 Laws 1916.

L. This contract shall be void and of no effect unless the person or corporation making or performing the same shall secure compensation for the benefit of and keep insured during the life of this contract the employees engaged thereon, in compliance with the provisions of Chapter 41 of the Laws of 1914, known as the Workmen's Compensation Law, and acts amendatory thereof.

30

IN WITNESS WHEREOF, The President of the Borough of Queens for and on behalf of The City of New York, and Contractor have executed this agreement in triplicate; one part of which is to remain with the President, one other to be filed with the Comptroller of The City of New York, and the third to be delivered to the Contractor.

40

THE CITY OF NEW YORK,

By BENJAMIN MARIUN,

Acting President of the Borough of Queens.

ANGELO PAINO,

Contractor.

EXHIBIT C-221 (continued) :

The City and State of New York, ss. :
County of Queens,

On this 3rd day of May, 1923, before me personally came Benjamin MARIUN, to me known and known to me to be the Acting President of the Borough of Queens, of The City of New York, the person described as such in and who as such executed the foregoing instrument, and he acknowledged to me that he executed the same as said Acting President for the purposes therein mentioned.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

20

The City and State of New York, ss. :
County of Queens

On this 1st day of May, 1923, before me personally came ANGELO PAINO, to me known and known to me to be the same person described in and who executed the foregoing instrument, and he acknowledged to me that he execute the same for the purposes therein mentioned.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

40

EXHIBIT C-221 (continued) :

KNOW ALL MEN BY THESE PRESENTS, That we ANGELO PAINO, hereinafter called the "Contractor," and U. S. FIDELITY and GUARANTY CO hereinafter called the "Surety," are held and firmly bound unto The City of New York, in the sum of EIGHT THOUSAND DOLLARS, lawful money of the United States of America, to be paid unto THE CITY OF NEW YORK, or to its certain attorneys, successors or assigns; for which payment, well and truly to be made, we and each of us do bind ourselves and our several and respective heirs, executors, administrators and assigns, jointly and severally, firmly by these presents.

Signed, sealed and dated this 1st day of May, 1923.

WHEREAS, The above bounden Contractor, by an instrument in writing signed by said contractor, and bearing even date with these presents, one part whereof is hereto annexed, has contracted with The City of New York, by the President of the Borough of Queens, to furnish all the labor and materials, and to excavate for, build, construct and in all respects complete sewers, etc., in Metropolitan Ave., from Azalea Street to Mt. Olivet Ave., 2nd Ward, together with all the work incidental thereto, as is fully and at large set forth and described in the contract aforesaid.

NOW, THEREFORE, The condition of the above obligation in such that if the said above bounden Contractor and its, his or their heirs, executors, administrators and assigns, or any or either of them, shall well and truly, and in a good, sufficient and workmanlike manner, perform or cause to be performed the said contract, and each and every of the covenants, promises, agreements and provisions therein contained to be performed by said contractor and complete the same within the period therein stipulated, and in each and every respect comply with the conditions therein contained, then this obligation to be void; otherwise, to remain in full force and virtue.

ANGELO PAINO [L. S.]

Contractor.

United States Fidelity and Guaranty Co. [L.S.]

By C. P. MARSAC,

Attorney-in-fact.

Attest : ADOLPHUS A. JACKSON,

Attorney-in-fact.

#275898-23

EXHIBIT C-221 (*continued*) :

THE CITY AND STATE OF NEW YORK, ss :
COUNTY OF QUEENS,

On this 1st day of May, 1923, before me personally came ANGELO PAINO, to me personally known and known to me to be the same person described in and who executed the foregoing
10 bond or obligation, and severally acknowledged that he executed the same.

JEFFERSON J. REILLY

Commissioner of Deeds, New York City.

20

FUNDS

PRESIDENT'S CERTIFICATE

30 Funds O. K. R.

It is hereby certified that the estimated cost of the work six hundred seventy-three 00-100 Dollars (\$1563.00) and is charge- and materials required by the within contract is Fifteen thousand able to the Street Improvement Fund of the City of New York.

BENJAMIN MARIUN,

Acting President of the Borough of Queens.

40

THE CITY OF NEW YORK, May 3rd, 1923.

EXHIBIT C-221 (*continued*) :

SPECIFICATIONS.

TRENCHES

10

Length of trench.

1. Unless otherwise directed or permitted not more than 200 feet of any trench in advance of the end of the built sewer shall be open at any time, and unless written permission to the contrary is given, the trench shall be excavated to its full depth for a distance of at least 20 feet more than the minimum length of sewer permitted to be laid in it. (See paragraph 154.) Trenches for house connection drains shall not be open on both sides of the street at the same time, unless permission has previously been given to close the street. Unless otherwise directed each trench for basin connections and house connection drains shall be fully excavated for its entire length before any pipes are laid therein.

Sheeting and bracing.

2. Where necessary the sides of the trenches and excavations shall be supported by adequate sheeting and bracing. Steel sheeting may be used only where shown on the plan or directed. Sheetting and bracing will be paid for only when left in place by written order, in which event the amount left in place will be paid for at the contract price for such material. Unless specially permitted sheeting against which concrete is placed shall not be removed and will not be paid for. The Contractor will be held accountable and responsible for the sufficiency of all sheeting and bracing used, and for all damage to persons or property resulting from the improper quality, strength, placing, maintaining or removing of the same.

Sheeting in soft material.

3. Where the material to be excavated is of such a character as to render it necessary, the sheeting shall be closely driven and to such depth below the bottom of the sewer as may be directed.

EXHIBIT C-221 (*continued*) :

Tunneling.

4. All work shall be done in open trenches or excavations; no tunneling shall be done except with the consent of the Engineer.

10 Trees and stumps.

5. The Contractor shall grub and clear the surface over the trenches and excavations of all trees and stumps and remove the same from the work.

Material to be disinfected.

6. If required, any or all of the excavated material shall be satisfactorily disinfected or deodorized or immediately removed from the work.

20 Roadway, sidewalks, etc., to be kept clear.

7. The excavated material and materials of construction shall be so deposited, and the work shall be so conducted as to leave open and free for traffic all crosswalks, a space on each sidewalk not less than one-third the width of such sidewalk and unless permission is given to the contrary, a roadway not less than 8 feet wide for the free passage of vehicles. Street hydrants, water gates, fire alarm boxes and letter boxes shall be kept accessible for use. During the progress of the work the Contractor shall maintain such crosswalks, sidewalks and roadways in satisfactory condition, and the work shall at all times be so conducted as to cause a minimum of inconvenience to public travel, and permit of safe and convenient access to private and public property along the line of the work.

Surplus material.

40 8. If all of the excavated material cannot be stored on the street in such a manner as to maintain the traffic conditions hereinbefore specified, the surplus shall be removed from the work and stored. After the construction of the sewer, so much of this material as is of satisfactory quality and necessary for the purpose shall be brought back and used for backfilling the trench.

EXHIBIT C-221 (*continued*) :

Fence.

9. Where necessary a suitable fence shall be placed along the sides of the trench to keep the street safe for traffic.

Temporary bridges.

10 10. Where any crosswalk is intersected by the trench, it shall be temporarily replaced by a substantial timber bridge not less than 3 feet wide, with side railings. Where required, suitable temporary bridges for vehicles shall be provided and maintained across the trench.

Disposal of water from trenches.

20 11. The Contractor shall at all times during the progress of the work keep the trenches and excavations free from water. The water from the trenches and excavations shall be disposed of in such a manner as will not cause injury to the public health, nor to public or private property, nor to the work completed or in progress, nor to the surface of the streets, nor cause any interference with the use of the same by the public.

Cost to be covered.

30 12. The cost of all labor required to be done and all materials required to be furnished in the performance of all of the work specified in paragraphs 1 to 11 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

EARTH EXCAVATION.

40 13. Earth exvacation shall include the removal of all material other than rock as hereinafter defined.

Width of trench for sewers, etc.

14. The minimum widths of trenches in earth, for pipe sewers, basin connections, and house connections not over 18 inches in diameter, shall be such as to give a clearance inside the sheeting of 8 inches on each side of the pipe, and for those of

EXHIBIT C-221 (*continued*) :

larger diameters 10 inches on each side of the pipe, exclusive of spurs and hubs. The minimum widths of trenches in earth, inside the sheeting, for other sewers shall be the greatest external width of the structures, including the necessary forms, to be built therein.

- 10 15. Where a manhole or other appurtenance or the foundation therefor extends beyond the exterior lines of the sewer or its foundation, the minimum excavation in earth, required for the same shall be that contained in a prism with vertical sides and a horizontal section equal to the smallest rectangle which will enclose such appurtenance and its foundation.

Excavation for basin manholes, etc.

- 20 16. The minimum dimensions of the excavation in earth, for brick basin manholes, & inlets shall be such as to give a clearance inside the sheeting of 1 foot on all sides, above the foundation, but in all such cases the excavation shall be large enough to include the foundations for such structures shown on the plan. The excavation for concrete basin manholes & inlets, shall be of such dimensions as to permit the proper placing and removal of the necessary forms.

Depth of trenches.

- 30 17. The trenches shall be excavated to the depths required for the foundations of the sewers and appurtenances shown on the plan and where the conditions are such as to make it necessary to such additional depths as may be directed. Where pipe is laid without a cradle the bottom of the trenches shall be excavated to fit the lower third of the pipe, and excavations shall be made to receive the hubs. All irregularities in the bottoms of the trenches shall be filled up to the required grade with suitable material.

- 40 Cost to be covered.

18. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 15 to 17 inclusive, except as otherwise provided, shall be covered by all the contract prices for all the items for which there are contract prices.

EXHIBIT C-221 (continued) :

ROCK EXCAVATION

19. Rock excavation shall include the excavation and removal of the following materials:

10 (a) Rock which shall be determined to be of such a character as to warrant its removal by blasting, in order to insure the prompt and proper prosecution of the work.

(b) Boulders and pieces of rock, masonry in mortar and concrete, each of which contains 1 cubic yard or more, except the masonry and concrete of old sewers and their appurtenances.

20 20. Pieces of rock, masonry, concrete or boulders, which fall or slide into the trench from beyond the lines thereof, as herein defined, will not be measured, and the cost of the removal of the same shall be covered by all the contract prices for all the items for which there are contract prices.

Width of trench.

Rock excavation for basin manholes, etc.

30 21. The required width of trench in rock for pipe sewers, basin connections & house connections will be such as to give a clearance of 1 foot on each side of the pipe, exclusive of spurs and hubs. Where a manhole or other appurtenance, or the foundation therefor, extends beyond the exterior lines of the sewer or its foundation, the excavation in rock required for the same will be that contained in a prism with vertical sides and a horizontal section 1 foot wider on each side than the smallest rectangle which will enclose such appurtenance and its foundation. The required dimensions of the excavation in rock, for basin manholes & inlets will be such as to give a clearance of 1 foot on all sides above
40 their foundation.

Denth of trench.

22. The rock shall be excavated to the depths required for the foundations of the structures as shown on the plan.

EXHIBIT C-221 (*continued*) :

Measurements.

23. The volume of rock to be paid for will be that contained in prisms with vertical sides and of such dimensions as to give the widths and clearances hereinbefore specified from the bottoms of the trenches, as specified, to the surface of the rock.

10

Rock stripped.

24. Rock shall be stripped in sections, which, unless otherwise permitted, shall be not less than 50 feet in length, and the Engineer shall then be notified in order that he may measure the same. Rock excavated or blasted before such measurement is made will not be paid for.

20

Excavation for branches.

25. Wherever a branch for a proposed sewer or extension of a sewer is built in rock, the required trench shall be excavated for a distance of not less than 5 feet beyond the end of such branch, in the direction of the proposed sewer or extension.

Blasting.

26. All blasting operations shall be conducted in strict accordance with the City ordinances and regulations relative to rock blasting and the storage and use of explosives. Any rock excavation within 5 feet of water main less than 36 inches in diameter, and within 10 feet of a water main 36 inches or more in diameter, shall be done with very light charges of explosive, or if directed, without blasting, and the utmost care shall be used to avoid breaking or disturbing the main.

30

Exposed structures to be protected.

27. All exposed sewers, manholes, receiving basins and other structures shall be carefully protected from the effects of blasts. Any damage done to such structures shall be promptly repaired by the Contractor at his own expense.

40

EXHIBIT C-221 (*continued*) :

Price to cover.

28. The contract price for rock excavation shall cover the cost of all labor and materials required to excavate and remove all rock as specified, and without regard to its subsequent use.

10

BACKFILLING.

Backfilling around sewers, etc.

20 29. Unless otherwise specified or directed, all trenches and excavations shall be backfilled immediately after the structures are built therein. For a depth of at least 2 feet over the top of the sewer, basin connection or house connection, the materials for backfilling trenches as excavated shall be clean earth, sand or rock dust. It shall be carefully deposited in uniform layers not exceeding 6 inches in depth, and unless otherwise permitted, each layer shall be carefully and solidly tamped with appropriate tools in such a manner as to avoid injuring or disturbing the completed work.

Backfilling for remainder of trench.

30 30. Backfilling for the remainder of the trenches as excavated, shall be approved material free from organic matter and containing no stone over 10 inches in their largest dimensions. Any stones shall be so distributed through the mass that all interstices are filled with the fine material. This backfilling shall be deposited as directed, and unless otherwise permitted, shall be spread in layers and solidly tamped.

Backfilling around basin manholes, etc.

40 31. Backfilling within 2 feet of manholes, house connection drains, basin manholes, inlets and other structures shall be of the same quality as that specified in paragraph 29. It shall be uniformly deposited on all sides and unless otherwise permitted, solidly tamped in such a manner as to avoid injuring the structures or producing unequal pressures thereon.

EXHIBIT C-221 (*continued*) :

pudding.

32. Backfilling shall, if required, be flooded or puddled with water as the work progresses, instead of being tamped.

10 33. When sheeting is drawn, all cavities remaining in or adjoining the trench shall be solidly filled. When sheeting is left in place all cavities behind such sheeting shall be solidly filled as directed.

Deficiency of filling.

20 34. Unless otherwise shown on the plan, the trenches shall be backfilled to the height of the surface of the ground as it existed at the commencement of the work. Should there be a deficiency of proper material for the purpose, the Contractor shall furnish and place such additional material as may be required.

Temporary bulkheads.

35. For retaining the backfilling only temporary bulkheads will be allowed over sewers, basin connections and drains. Such bulkheads shall not be of stone, and they shall be removed as the trenches are backfilled.

30 Curves, branches, etc., not to be covered.

36. Basin connections, house and sewer connections and intersections, ends of sewers and branches shall not be covered until the Engineer shall have inspected, measured and located the same, and given permission to backfill the trenches over them.

Removal of surplus material.

40 37. As the trenches are backfilled, the Contractor shall remove all surplus materials and regrade and leave free, clear and in good order all roadways and sidewalks. During the progress of an until the final acceptance of the work, he shall maintain in good and safe condition the surface of the street over all the trenches, and promptly fill all depressions over and adjoining the trenches caused by settlement of the backfilling. In case

EXHIBIT C-221 (continued) :

of failure or neglect on the part of the Contractor to comply with the requirements of this paragraph within 24 hours after the service upon him of a written notice so to do, the President may furnish all materials and do all work required, and the cost thereof will be charged to the Contractor and deducted from any moneys due or to become due him under this contract. All surplus material or any part thereof shall, if required, be deposited as directed on the streets and avenues within the limits of this contract, where the same are below grade, and in such a manner as to leave the surfaces of the filled material even.

Cost covered.

38. The cost of all labor required to be done and all materials required to be furnished in the performance of all the work specified in paragraphs 30 to 37, inclusive, shall be covered by all the contract prices for all the items for which there are contract prices.

CEMENT.

39. All cement used in the work shall be a high grade Portland cement of a well-established and approved brand. It shall be the product obtained by finely pulverizing clinker produced by calcining to incipient fusion, an intimate mixture of properly proportioned argillaceous and calcareous substances, with only such additions subsequent to calcining as may be necessary to control certain properties. Such additions shall not exceed 3 per cent. by weight, of the calcined product.

Specific gravity; weight.

40. The cement shall have a specific gravity of not less than 3.10 after being thoroughly dried at 212° F. It shall weigh not less than 380 pounds net, to the barrel, 4 bags of 95 pounds each being considered equivalent to a barrel.

Fineness.

41. The cement shall be dry, finely ground, of uniform color and free from lumps. It shall leave a residue of not more than 8 per cent. by weight, when passed through a No. 100 sieve,

EXHIBIT C-221 (continued) :

and not more than 25 per cent. when passed through a No. 200 sieve.

Tensile strength.

10 42. Standard briquettes shall develop within the periods specified, tensile strength not less than that shown in the following table:

Neat Cement:

	24 hours	175 pounds per sq. in.
	7 days (1 day in moist air, 6 days in water)	500 pounds per sq. in.
20	28 days (1 day in moist air, 27 days in water)	600 pounds per sq. in.

Mortar consisting of 1 part cement and 3 parts of Standard Ottawa Sand, by weight:

	7 days (1 day in moist air, 6 days in water)	180 pounds per sq. in.
30	28 days (1 day in moist air, 27 days in water)	225 pounds per sq. in.

40 The average of the tensile strengths developed at each age by the briquettes in any set made from one sample will be considered the strength of the sample at that age, excluding any results that are manifestly faulty. The average strength of briquettes at 28 days shall be greater than the average strength at 7 days, and if tests are made after 28 days the strength shall be not less than that at 28 days.

Soundness.

43. Pats of neat cement when tested for constancy of volume or soundness shall remain firm and hard and show no sign of checking, cracking, distortion or disintegration.

EXHIBIT C-221 (*continued*) :

Setting.

44. Unless otherwise required, the cement shall not develop initial set in less than 30 minutes, and shall develop final set in not less than 1 hour nor more than 10 hours. Quick-setting cement of an approved brand shall, if required, be kept on the work in sufficient quantity to provide for any contingency requiring the use of the same.

Testing.

45. The cement will be subjected to such tests as the Engineer may deem necessary, and such test will be made in accordance with the methods recommended by the Committee on Uniform Tests of Cement of the American Society of Civil Engineers, except that the time of setting will usually be determined by means of the Gillmore needles. In case of dispute as to the time of setting, this test will be made by means of the Vicat needle.

Retesting.

46. Any cement which shall have been kept in storage after testing for a sufficient time to warrant it, shall be retested. Any prior acceptance shall be considered void and the acceptance or rejection of the cement shall depend upon the results of the latest tests.

Approval of brand may be rescinded.

47. The Engineer may at any time rescind the approval of any brand of cement that develops objectionable qualities.

Samples.

48. The Contractor shall notify the Engineer of the arrival of cement on the work, and furnish such facilities as may be required for obtaining samples for testing. Samples will be taken so as to fairly represent the material. The number of packages sampled and the quantity to be taken from each will depend upon the importance of the work and the number of tests to be made.

EXHIBIT C-221 (*continued*) :

Delivery and storing.

- 10 49. Cement shall be delivered on the work in barrels or approved bags of uniform size, with the brand and name of the manufacturer plainly marked thereon; it shall be immediately stored in a dry place and carefully protected from the weather. A sufficient stock of cement shall be kept on the work in advance of the necessity for its use to permit of the making of the required seven day tests. Except by written permission, no cement shall be used before it had been tested and accepted, and any concrete or masonry which may have been made under such permission with cement that is subsequently rejected, shall be removed and replaced by the Contractor, at his own expense, with concrete or masonry made of accepted cement.

Cost to be covered.

- 20 50. The cost of furnishing, storing and incorporating cement in the work, and the cost of samples required for testing, shall be covered by the contract prices for the structures or classes of work in connection with which the cement is used.

MORTAR.

- 30 51. All mortar used in the work, unless otherwise specified, shall be composed of 1 volume of cement, as in the original package, and $2\frac{1}{2}$ volumes of sand. Where required, mortar of cement and sand in other proportions or mortar of neat cement shall be used as directed.

Sand.

- 40 52. Sand shall be composed of grains of clean sharp quartz, not softer than hard limestone. It shall be moderately coarse and preferably made up of grains of varying size not exceeding one-quarter ($\frac{1}{4}$) inch producing a mass with low percentage of voids. It shall not contain, in all, more than five (5) per cent. by volume of clay, loam, mica, scales, silt, or other objectionable inorganic matter, nor more than one (1) per cent. of organic matter.

EXHIBIT C-221 (*continued*) :

Tests may also be made of the cement and sand used in the proportions of one (1) part cement to three (3) parts sand, and these tests must show at least 70 per cent. of the strength of the mortar made with the cement and standard sand, or the sand may be rejected.

10 Mixing.

53. Mortar shall be mixed in a suitable box or on a tight platform, and never upon the pavement or ground. The cement and sand shall be thoroughly mixed dry, until the mixture has a uniform color. Clean, fresh water shall then be added and the mass worked until a mortar, which is uniform and of the required consistency is produced. The mortar shall be mixed in no greater quantity than is required for the work in hand, and any that has set sufficiently to require retempering shall not be used.

20 Freezing weather.

54. The mixing and use of mortar in freezing weather shall be subject to the same requirements as hereinafter specified for mixing and placing concrete under similar conditions.

Cost covered.

30 55. The cost of all labor and materials required to furnish and place the mortar in the work, as specified, shall be covered by the contract price for the structure or class of work in connection with which the mortar is used.

CONCRETE.

56. Class A concrete shall be made of 1 part of cement, 2 parts of sand and 4 parts of broken stone or gravel.

40 Class A concrete.

57. Broken stone for Class A concrete shall be approved trap rock, dense fine-grained blue limestone or granite broken into roughly cubical or pyramidal fragments. Broken stone

EXHIBIT C-221 (*continued*) :

10 which contains dust, loam, clay, organic matter or other improper substances shall not be used. Broken stone for Class A concrete shall be the run of the crusher that will pass through a screen with circular openings $1\frac{1}{4}$ inches in diameter and shall be retained on a screen with openings $\frac{1}{8}$ -inch in diameter. Gravel shall be equal in quality to North Shore Long Island gravel, shall be clean and sound, and shall be of the sizes herein specified for broken stone.

Measuring ingredients.

58. For the purpose of determining the proportions of the materials for concrete, each bag of cement will be considered as containing $\frac{9}{10}$ cubic foot, and the other ingredients shall be measured by an approved method.

20 Water.

59. Only clean fresh water shall be used for concrete.

Mixing.

30 60. Unless permitted to be mixed by hand, concrete shall be mixed in approved mechanical batch mixers, so constructed and operated that the ingredients of the concrete may be accurately measured and thoroughly mixed. Enough water shall be added during the mixing to bring the concrete to the required consistency, which generally shall be such that the concrete may be poured into place without causing the separation of the stones from the mortar. When concrete is mixed by hand the broken stone or gravel shall be spread on a tight platform in a bed about 6 inches deep and shall be thoroughly wetted. The cement and sand shall be mixed dry on a suitable platform, until the mixture has a uniform color. This mixture shall be spread evenly on the bed or wet stone, water added, and the entire mass turned until each piece of stone is entirely coated with mortar and a concrete produced which is uniform and of the consistency
40 herein specified for machine mixed concrete. When a comparatively dry concrete is required it shall be mixed to such consistency as may be directed.

EXHIBIT C-221 (*continued*) :

Placing concrete.

61. Concrete shall be mixed only in such quantity as is required for the work in hand, and any that has set sufficiently to require retempering shall not be used. Any concrete in which the water has separated from the solid matter shall be satisfactorily remixed before being placed. The concrete shall be so deposited in the work as to prevent the separation of the stone from the mortar. It shall be deposited in as nearly a continuous operation as practicable and shall be tamped or spaded with suitable tools to expel air bubbles and produce a dense and compact mass. When the operation of placing concrete is interrupted the concrete in the work shall, if required, be confined by suitable temporary forms or bulkheads. When concrete is to surround reinforcing metal, structural steel, or wire netting, it shall be so deposited as to work closely around such material.
- 10
- 20 When a comparatively dry concrete is used it shall be deposited in horizontal layers not exceeding 6 inches in depth and solidly tamped.

Joining old and new concrete.

62. When fresh concrete is to be laid on or adjoining concrete already set, the surface of the latter shall be thoroughly cleaned, washed, and roughened, and coated with a grout of neat cement before the fresh concrete is deposited.

30 Forms and centres.

63. The Contractor shall provided all necessary forms and centres for shaping concrete wherever used. They shall be true to the required shapes and sizes, strong enough and so secured in place as to withstand all operations incidental to placing the concrete, and watertight, and the face against which the concrete is to be placed shall be satisfactorily smooth and clean. Timber used in forms and centres for exposed faces of concrete shall be seasoned stock. Unless otherwise permitted, those surfaces of forms and centres which will be in contact with concrete shall be coated as directed with an approved lubricant; when no lubricant is required such surfaces shall be thoroughly wetted just before the concrete is placed.
- 40

EXHIBIT C-221 (*continued*) :

Removal of forms and centres.

64. The forms and centres shall be left in place until the concrete has set sufficiently to permit their removal without danger to the structure, and until so much of the backfilling or embankment as may be directed has been put in place. No forms or centres shall be struck or removed until permission to do so
10 has been given.

Exposed surfaces.

65. Special care shall be used to secure a smooth and uniform finish to the surfaces of concrete which will be exposed in the completed structure. Immediately after the removal of the forms such surfaces, if uneven, shall be rubbed smooth to a uniform and satisfactory finish, all exposed edges of concrete shall be neatly rounded as directed, and if any voids, projections
20 or other imperfections be found, such defects shall at once be corrected by tooling, cutting out and filling with mortar, or otherwise, as directed.

Freezing weather.

67. In freezing weather, until the temperature falls to 24 degrees Fahrenheit the water used for concrete shall, if directed, be heated to an approved temperature, and if directed one per cent, by weight of salt shall be added to the water for
30 each degree Fahrenheit. The other materials for the concrete shall be heated sufficiently to remove all frost and ice. No concrete shall be laid when the temperature of the air is below 20 degrees Fahrenheit.

Protection.

68. Concrete shall be allowed to set for such time as may be directed before being worked or walked upon, or before
40 filling, backfilling or other material is placed upon or against it. It shall not be flooded with water until it has sufficiently set. Concrete shall be carefully protected from injury, from freezing and from the drying effects of the sun and wind by covering it with canvas, bagging, hay or other suitable and approved ma-

EXHIBIT C-221 (*continued*) :

materials. Such protection shall be placed as soon as the concrete is in condition to receive it, and except in freezing weather, the covering as well as the concrete shall be kept wet for such time as may be directed.

Prices to cover.

- 10 69. The cost of all concrete and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

BRICK MASONRY

Quality of bricks

- 20 71. All bricks used in the work shall be sound and hard burned throughout, and of uniform size and quality. If required the bricks shall be culled immediately after they are brought on the work and all bricks which are warped, cracked or of improper quality shall be at once removed. The proportion of bats permitted will be determined according to the character and location or the work in which they are to be used.

How laid

- 30 72. Bricks shall be satisfactorily wet when being laid and each brick shall be laid in mortar so as to form full bed, end and side joints in one operation. The joints shall be not wider than $\frac{3}{8}$ inch, except when the bricks are laid radially, in which case the narrowest part of the joint shall not exceed $\frac{1}{4}$ inch. The bricks shall be laid in a workmanlike manner, true to line, and wherever practicable the joint shall be carefully struck and pointed on the inside. Brickwork shall be laid with a satisfactory bond, and as it progresses shall be raked back in courses, unless
40 otherwise permitted.

Protection.

73. All fresh brickwork shall be carefully protected from freezing and from the drying effects of the sun and wind, and if required, it shall be sprinkled with water at such intervals

EXHIBIT C-221 (*continued*) :

and for such a time as may be directed. Brickwork shall be protected from injuries of all sorts, and all portions which may become damaged or may be found defective shall be repaired, or if directed, be removed and rebuilt.

Freezing weather.

- 10 74. In freezing weather bricks shall be heated sufficiently to remove all ice and frost.

Cost of Brick Masonry.

75. The cost of all brick masonry and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

20

STEEL REINFORCEMENT BARS.

Shape

90. Steel bars for reinforcing concrete shall be of such shape as to afford an approved mechanical bond with the concrete frequent intervals and to insure intimate contact between the steel and concrete

30

Samples

91. The Contractor shall indicate the type of bars proposed to be used, and if required shall furnish samples thereof, and he is cautioned not to place the order for the bars until the type has been approved.

Size

40

92. Each bar shall have a net cross sectional area equivalent to that designated on the plan or required, or it shall be the commercial size of the approved type of bar having a net cross sectional area next larger than that designated or required.

EXHIBIT C-221 (continued) :

Variation in weight.

93. Reinforcement bars will be rejected if their actual weight varies more than 5 per cent. from their theoretical weight as shown by the manufacturer's tables.

Quality.

10

94. All steel for reinforcement bars shall be made by the open hearth process and shall conform to the latest revised Standard Specifications for Steel Reinforcement Bars adopted by the American Society for Testing Materials, and such tests as may be required, shall be made in accordance therewith, and at the places hereinafter specified. The chemical and physical properties of the steel shall be as follows:

20

Properties Considered	Structural Steel Grade		Cold Twisted Bars
	Plain Bars	Deformed Bars	
Phosphorus, max.			
Open Hearth	0.05	0.05	0.10
Bessemer	0.10	0.10	0.05
Ultimate Tensile Strength, pounds per sq. in.	55,000-70,000	55,000-70,000	Recorded only
Yield Point, minimum pounds per sq. in.	33,000	33,000	55,000
Elongation, minimum per cent. in 8 inches	1,400,000	1,250,000	5 per cent.
	tens. str.	tens. str.	
Cold bend without fracture:			
Bars under 3/4 in. in diam. or thickness	180° to diam. of 1t.	180° to diam. of 1t.	180° to diam. of 3t.
thickness and over	180° to diam. of 1t.	180° to diam. of 2t.	180° to diam. of 2t.
	t : Nominal thickness or diameter of bar.		

30

40

95. Reinforcement bars shall be rolled from billets of new steel; they shall be straight and free from seams, flaws, cracks and imperfections of all kinds.

EXHIBIT C-221 (*continued*) :

96. Test pieces 18 inches long may be cut from any of the bars delivered on the work, and the failure of any test piece to meet the specified requirements, or the failure of any bar when being bent, will be sufficient cause for the rejection of all steel from the melt from which the test piece or bar was made.

10 Delivery and protection

97. Bars shall be delivered in bundles, to each of which shall be securely wired a metal tag with the number of the melt from which the bars were made stamped thereon. The bars shall be protected at all times from mechanical injury and from the weather and when placed in the work they shall be free from dirt, scale-rust, paint and oil. Bars which are not to be embedded in concrete within a short time after being placed in the work shall, if directed, be immediately coated with a thin grout of equal parts of cement and sand.

20 Cutting and bending.

98. The bars shall be bent to the shapes shown on the plan and in conformity with approved templates. When bars are cut and bent on the work, the contractor shall employ competent men and shall provide the necessary appliances for the purpose.

Placing

30 99. All bars shall be as long as can be conveniently used accurately bent, placed, spaced and pointed as shown or directed, and they shall be securely held in their required positions by approved devices until the concrete has been placed around them.

100. The cost of all steel reinforcement bars and the requirements specified in connection with which it is used.

40

WROUGHT IRON

Quality.

101. Wrought iron shall be double rolled, tough, fibrous and uniform in quality. It shall be thoroughly welded in rolling

EXHIBIT C-221 (*continued*) :

and be free from surface defects. It shall have an ultimate tensile strength of at least 48,000 pounds per square inch, an elongation of at least 20 per cent. in 8 inches, and a fracture wholly fibrous. Specimens shall bend cold, with a fiber, through 180 degrees around a diameter equal to the thickness of the piece tested. When nicked and bent the fracture shall be at least 90 per cent. fibrous.

10

Galvanizing,

102. Exposed wrought iron shall be thoroughly and uniformly galvanized.

103. The cost of all wrought iron and the requirements specified in connection therewith shall be covered by the contract price for the structure in connection with which it is used.

20

IRON CASTINGS.

Quality.

104. Iron castings shall be of the best foundry pig iron, gray, tough and free from cold shuts, blow holes and other imperfections. The weight shall be conspicuously painted by the manufacturer with white oil paint on each casting. The casting shall be sound, clean and neatly finished. Where required, castings shall be thoroughly coated with coal tar pitch varnish.

30

Cost covered.

105. The cost of all labor and materials required to furnish, coat and place the castings as specified, shall be covered by the contract price for the structure or class of work in connection with which they are used.

40

TIMBER SHEETING.

Quality, placing, etc.

110. Timber sheeting and the rangers and braces for the same shall be of a satisfactory quality of timber and of suf-

EXHIBIT C-221 (*continued*) :

ficient size and strength to adequately support the sides of the trenches and excavations. Sheeting shall be driven in such a manner as to avoid cracking and splitting, and if required for the proper prosecution of the work, shall be tongued and grooved.

When paid for.

- 10 111. Timber sheeting will be paid for as such only when left in place by written order. When sheeting is left in, so much of it below the surface of the ground as may be directed shall be cut off.

Measurement.

- 20 112. The amount of timber sheeting to be paid for as such will be all timber sheeting, rangers and braces left in place by written order, and will not include sheeting, rangers and braces left in place without such order, nor sheeting left in place because concrete is placed against it, nor that part of the sheeting that extended above the ground after having been driven, the cost of all of which shall be covered by the contract prices for all the items for which there are contract prices. Inclined piling or planking at the bottom of a trench, if used to prevent the caving in of the excavation and in such a position that it cannot be drawn, shall be paid for at the price bid for sheet piling.

- 30 Price to cover.

113. The contract price for timber sheeting shall cover the cost of all labor and materials required to furnish, place and cut off the sheeting, rangers and braces as specified, and shall also cover the cost of all excavation necessary to pduce the same.

CONCRETE SEWERS.

40

(Type "A" or Sewer Department Standard)

Inverts.

122. Inverts of concrete sewers shall be formed between transverse templets and shall be screeded. The templets shall be placed at such intervals as to divide the invert into sections of

EXHIBIT C-221 (*continued*) :

10 suitable size for convenient construction, and unless otherwise permitted, the concrete shall be deposited in alternate sections and allowed to set before the remaining sections are built. Unless otherwise shown on the plan, a layer of mortar not less than $\frac{1}{2}$ inch thick shall be spread evenly and to a smoothly finished surface upon the concrete of the invert as soon as such concrete is in place. Where the radii of inverts are too short to permit screeding between templates, the inverts shall be shaped by means of suitable forms, which shall be removed as soon as the concrete has a sufficient set, and if required, the surfaces of inverts shall be floated or troweled to a smooth finish. The concrete for inverts shall be deposited continuously for their entire cross sections and for such longitudinal distances as may be convenient. Inverts shall be carefully protected from all injury during progress of the work.

20 Side walls.

123. Concrete in the side walls of sewers shall be deposited continuously to the height directed and for such longitudinal distances as may be convenient.

Roof.

30 124. Concrete in the roofs of sewers shall be deposited continuously for the full depths and widths of the roofs and for such longitudinal distances as may be convenient. The outer surfaces of roofs shall be finished with an excess of mortar and left true and smooth. They shall be covered and protected as specified in paragraph 68, and such covering shall remain thereon until the backfilling or embankment is placed.

Bulkheads.

40 125. While being deposited the concrete for sewers shall be confined by temporary, vertical bulkheads placed at such intervals longitudinally as may be required for convenient working. The bulkheads shall be so designed as to give an approved shape to the end of the section of concrete under construction, shall be satisfactorily secured in place before the concrete is deposited, and shall remain in place until the concrete has set sufficiently to hold its shape.

EXHIBIT C-221 (*continued*) :

Reinforcement.

126. Where shown on the plan concrete sewers shall be reinforced with metal of the dimensions and shapes shown, and of the quality and in the manner hereinbefore specified.

Minimums length of invert.

10

127. Unless otherwise permitted or ordered, not less than 16 feet of foundation or invert for concrete sewer shall be built at one operation.

Connections.

20

128. Connections and branches for lateral sewers and basin manholes shall be built in where shown on the plan or where directed. Such connections and branches shall be closed with bulkheads of brick masonry 8 inches thick unless otherwise shown on the plan. All necessary openings and bulkheads for branch sewers shall be built in concrete sewers where shown on the plan or where directed.

Measurements.

30

129. The lengths of concrete sewers will be determined by horizontal measurements, along their centre lines. No deductions will be made on accounts of openings at branches and manholes. The measurement of a branch concrete sewer will be made from the inner surface of the wall of the main sewer through which it enters. A reducer will be paid for at the contract price for the sewer at the larger end thereof.

Price to cover.

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130. The contract prices for concrete sewers shall cover the cost of all necessary excavation (except rock); of furnishing, maintaining and removing all forms, centres, templets and temporary bulkheads; of all openings and bulkheads; of all back-filling; and of all labor and materials required to construct concrete sewers as shown by the normal sections on the plan and as specified.

EXHIBIT C-221 (continued) :

TYPE "B"

Cement Concrete Pipe With Reinforcement

10 131. Reinforced cement concrete pipe used shall be circular in section with or without flat base and shall conform in dimensions as shown in table.

General dimensions of pipes and minimum test load per lin. ft. of pipe.

	Size	Minimum thickness	Minimum length in feet	Minimum joint length inches	Minimum test load per lin ft. of pipe	
20	24"	3 "	4'	3 "	3350 Lbs.	
	27"	3 1/2"	4'	3 "	3700 "	
	30"	3 1/2"	4'	3 "	4400 "	
	33"	4 "	4'	3 "	4600 "	
	36"	4 "	4'	4 "	4800 "	
	39"	4 "	4'	4 "	5200 "	
	42"	4 1/2"	4'	5 1/2"	5600 "	
	45"	4 1/2"	4'	5 1/2"	6100 "	
	30	48"	5 "	4'	5 1/2"	6600 "
		51"	5 "	4'	5 1/2"	7050 "
		54"	5 1/2"	4'	5 1/2"	7500 "
		57"	5 1/2"	4'	5 1/2"	7750 "
		60"	6 "	4'	5 1/2"	8000 "
		63"	6 "	4'	5 1/2"	8400 "
66"		6 1/2"	4'	5 1/2"	8800 "	
72"		7 "	4'	5 1/2"	9400 "	
78"		8 "	4'	5 1/2"	10400 "	
84"		8 "	4'	5 1/2"	11200 "	
40	90"	8 1/2"	4'	5 1/2"	12000 "	
	96"	8 1/2"	4'	5 1/2"	12800 "	
	102"	9 "	4'	5 1/2"	13600 "	
	108"	9 "	4'	5 1/2"	14400 "	

EXHIBIT C-221 (*continued*) :

Testing pipe.

10 Reinforced concrete pipe shall not have less thickness of concrete, less length of pipe or joint than specified above, and two (2) pipes for each size of sewer (reinforced concrete) shall be selected at random for a load test. These pipes shall be tested at the age of twenty-one (21) days and the total load specified per lineal foot shall be applied on the upper half of the sewer. The lower half of the pipe shall be supported in a cradle covering an arc 180 degrees. The pipe shall sustain these loads per lineal foot without hair-cracks of any kind whatsoever. Failure to fulfill the above requirements in the manner set forth will be sufficient cause for the rejection of the pipe. Testing of pipe shall be done by the contractor at his own expense and under the supervision and to the satisfaction of the Engineer-in-Charge of Engineering Construction.

20 Material of pipe, cement, sand, stone or gravel.

30 132. Reinforced concrete pipe shall be constructed at the site of the work, in a shed if the weather requires, and the pipe shall be made by a manufacturer of established reputation, who shall have had previous experience in the manufacture of reinforced concrete pipe. The cement, sand, stone or gravel shall conform the specifications of the Division of Sewers, Bureau of Engineering Construction. The forms shall be of steel and the reinforcing steel shall be held at all times against displacement in tamping. Concrete shall be an accurate 1—2—4 mix. Each pipe shall be as made with rate of manufacture.

Joints.

40 133. The pipe shall be of the bell and spigot type, the bell not to project beyond the body of the pipe, but to be flush with it. No pipe having a butt joint will be considered. No variation over one-half ($1\frac{1}{2}$) per cent. from the hereinbefore mentioned dimensions will be permitted.

Jointing.

134. All joints to be made of 1 : 2 Portland cement mortar. The mortar shall be thoroughly trowelled in the recess in the interior of the pipe up to the spring line, making a continuous invert. After this has been done, steel forms especially designated

EXHIBIT C-221 (*continued*) :

for the purpos shall be placed over and around the entire joint, and the mortar for sealing the arch portions grouted or poured through an opening in the crown of the pipe. Joints must be water-tight.

Laying pipe.

- 10 135. No pipe not marked with date of manufacture shall be laid or accepted. No pipe shall be laid in the trench which has not been seasoned for twenty-one (21) days, unless oterwise Construction.

Steel for reinforcement.

- 20 136. Reinforcing steel may be either expanded metal deformed bars, or wire mesh, such as American Steel & Wire Company's, or Clinton Wire Cloth. For all sizes of reinforced concrete pipe, reinforcing shall be at distances not less than one (1) inch from the surface.

Spurs.

137. Reinforced concrete pipe shall have openings to receive spur and branch connection wherever required by the plans. The openings shall be made in a manner satisfactory to the Engineer-in-Charge of Engineering-Construction.

- 30 138. The provisions of paragraph No. 11 of the specifications shall be in full force and effect, even though reinforced concrete pipe shall be furnished on this contract.

Rejection of defective pipe.

139. Pipe damaged from handling or any cause whatsoever, whether in or out of the trench, shall be replaced and removed from site of the work at the expense of the contractors.

- 40 139a. Where depth of cover on precast pipe sewer is sixteen feet (16') or over extra reinforcing steel shall be used in the pipe to take care of the increasd strsses. The cost of such extra steel shall be included in the price bid for precast pipe sewers.

EXHIBIT C-221 (*continued*) :

139b. Precast concrete pipe, Type "B", will be paid for from the inside face of all chambers.

VITRIFIED PIPE SEWERS.

10

Vitrified pipe.

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140. Vitrified pipe sewers shall be built of shale or clay hub and spigot pipes with deep and wide sockets. They shall be thoroughly and perfectly burned, without warps, cracks or other imperfections, and shall be fully and smoothly salt-glazed over the entire inner and outer surfaces, except that the inside of the hub and the outside of the spigot may be unglazed for two-thirds the depth of the hub. On all other portions of the pipe the glazing shall completely cover and form an integral part of the pipe body. If not left unglazed the inside of the hub and the outside of the spigot shall be scored in 3 parallel lines extending completely around the circumference. When it is broken, vitrified pipe shall show dense and solid material, without serious cracks or laminations; it shall be of such toughness that it can be worked with a chisel and hammer, and when struck with a hammer, it shall have a metallic ring.

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Identification marks.

141. Each shall have clearly impressed on its outer surface the name of the manufacturer and of the factory in which it was made.

Shape and dimensions.

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142. The sizes of the pipes are designated by their interior diameters. Each pipe shall be a cylinder with a circular section, and shall have a uniform thickness. The minimum lengths, thicknesses, depths of hubs and annular spaces for the respective sizes of pipe shall be as follows:

EXHIBIT C-221 (continued) :

	Size	Length	Thickness	Depth of Socket	Annular Space
	6.....	2 feet	5/8 inch	2 1/2 inches	5/8 inch
	8.....	3 "	3/4 "	2 3/4 "	5/8 "
	10.....	3 "	7/8 "	2 3/4 "	5/8 "
10	12.....	3 "	1 "	3 "	5/8 "
	15.....	3 "	1 1/4 "	3 "	5/8 "
	18.....	3 "	1 1/2 "	2 1/4 "	5/8 "
	20.....	3 "	1 2/3 "	3 1/2 "	5/8 "
	22.....	3 "	1 5/6 "	3 3/4 "	5/8 "
	24.....	3 "	2 inches	4 "	5/8 "

Curves, bends, etc.

- 20 143. Where curved pipes are required they shall be furnished in either one-eighth or one-quarter bends of their respective sizes. Curved pipe, bends, siphons, and special pipe of the sizes and forms shown on the plan shall be furnished and laid, and unless otherwise provided they will be paid for at the contract prices for the corresponding sizes of vitrified pipe sewers.

Samples for testing.

- 30 144. Any or all of the following tests may be applied to samples selected on the work. For the purposes of making such tests as may be required the Contractor shall furnish and deliver when and where directed one length of pipe for each 200 feet of pipe sewer to be laid.

Crushing tests.

- 40 145. When supported at the bottom upon a knife edge one inch in width in such manner that an even bearing is provided throughout the whole length, exclusive of the bell, and pressure is applied at the crown uniformly through a similar knife edge, the various sizes of pipe shall withstand the following pressures: