with earth, in place at fifty cents (50c) per lineal foot,\$1,585.00 510 lineal feet of ten (10) inch pipe drains laid at an average depth of seven (7) feet below the finished grade of the parkway, five (5) feet westerly from the westerly curb in the westerly parkway of the proposed improvement from Church Road southerly for a distance of two hundred fifty (250) feet and from Cherry Street southerly for a distance of two hundred sixty (260) feet; the trenches therefor shall be backfilled with earth, in place at One Dollar fifty cents (\$1.50) per

lineal foot,\$765.00 2530 lineal feet of twelve (12) inch pipe drains laid at an average depth of five (5) feet six (6) inches below the top of the curb, five (5) feet westerly therefrom and in the westerly parkway of the proposed improvement, from a point eightyfive (85) feet northwesterly from the existing storm sewer in Winnetka Avenue northwesterly for a distance of eighteen hundred seventy-five (1875) feet; also from a point ninety (90) feet northwesterly from the existing storm sewer in Willow Street northwesterly for a distance of four hundred thirtyfive (435) feet; also from the proposed manhole-catchbasin at the northwesterly curb corner of Ash Street northwesterly for a distance of two hundred twenty (220) feet: and the trenches thereof shall be backfilled with earth, laid at One Dollar sixty-five cents (\$1.65) per

lineal foot,\$4,174.50 215 lineal feet of twelve (12) inch pipe drains laid at an average depth of eight (8) feet below the top of the finished grade of the pavement, eighty-five (85) feet connecting said proposed twelve (12) inch drain hereinbefore specified with the existing storm sewer in Winnetka Avenue: ninety (90) feet connecting said proposed twelve (12) inch drain with the existing storm sewer in Willow Street; and forty (40) feet connecting the said proposed twelve (12) inch drain at the southwesterly curb corner at Ash Street to the proposed twelve (12) inch drain and manhole-catchbasin at the northwesterly curb corner of Ash Street, including the removal of all surplus excavated material (and the trenches thereof shall be backfilled with sand which is provided for in the following item of this estimate); said drain pipes shall be laid along a line five (5) feet westerly from the westerly curb line extended of said proposed improvement, laid at Two Dollars (\$2.00) per lineal foot,\$430.00

place at Two Dollars fifty cents (\$2.50) per cubic yard,\$500.00 950 lineal feet of eight (8) inch pipe drains for catchbasin connections. laid at an average depth of four (4) feet below the finished grade of the pavement. The said eight (8) inch drains shall connect the thirtynine (39) concrete catchbasins herein provided for with the said existing drains and with the ten (10) inch and twelve (12) inch drains herein provided for. The locations of said connections are hereinafter given where said catchbasins are provided for, laid at One Dollar

200 cubic yards of sand backfill for

the eight (8) inch drains, the two

hundred fifteen (215) feet of twelve

(12) inch drain and the twenty-four

(24) inch concrete pipe sewer, in

(\$1.00) per lineal foot\$950.00 The size of the drains specified for each of the above items shall be the inside diameter. All of said drain pipes in said above items shall be salt glazed, vitrified tile sewer pipe with bell and spigot ends; the backfill materials for all trenches shall be thoroughly flushed with water. The joints of all drains except the four (4) inch drains which shall be laid with open joints, shall be made with mortar composed by volume of one (1) part Portland cement and two (2) parts sand. The free ends of all drains shall be closed wih brick plugs. The estimate of cost of the above items of drains shall include all materials, trenching, laying, backfilling and removal of all surplus excavated material from the trenches.

39 concrete catchbasins, four (4) feet inside diameter, height of concrete over all six feet six inches (6' 6") with openings left in the wall of each basin for the said eight (8) inch catchbasin drain connection, at Sixty Dollars (\$60.00) each,

39 cast iron catchbasin covers with rim and perforated lid, combined weight of rim and lid five hundred (500) pounds, average thickness of metal one and one-quarter (114) inches, set in place at Twenty Dolars (\$20,00), each

Dollars (\$55.00) each,\$605.00

11 cast iron manhole covers with rim and solid lid; combined weight of rim and lid five hundred forty (540) pounds; average thickness of metal one and one-quarter (11/4) inches. set in place at Twenty Dollars (\$20.00) each,\$220.00

fore provided for, at One Hundred five Dollars (\$105.00) each,....\$210.00 cast iron manhole covers with rim and solid lid; combined weight of rim and lid five hundred forty (540) pounds; average thickness of metal one and one-quarter (114) inches, set in place at

manholes for drain pipes hereinbe-

(1¼) inches, set in place at Twenty Dollars (\$20.00) each..\$40.00

2 sets of three-quarter (¾) inch wrought iron ladders, rounds set sixteen (16) inches apart in the above two manholes, at Ten Dollars (\$10.00) per set,\$20.00

4 concrete combined manhole-catch-

lars (\$10.00) per set,\$20.00
concrete combined manhole-catchbasins, four (4) feet inside diameter, average height of concrete
over all ten (10) feet, with openings left in the walls of said combined manhole-catchbasins for the
drain pipes hereinbefore provided
for, at Seventy-three Dollars
(\$73.00) each,\$292.00

4 sets of three-quarter (%) inch

wrought iron ladders, rounds set sixteen (16) inches apart in the above four manhole-catchbasins, at Seven Dollars (\$7.00) per set,

.....\$28.00 The catchbasins, manholes and combined manhole-catchbasins herein specified in each of the above items shall be constructed of concrete composed by volume of (1) part Portland cement, two (2) parts sand and four (4) parts gravel or crushed stone. The side walls and bottoms shall be six (6) inches thick. The side walls shall be drawn in to fit and support the cast iron covers. The covers shall consist of a frame or rim and lid. The lid shall be twenty-three (23) inches in diameter. The manholes shall have solid lids and the catchbasins and combined manhole-catchbasins shall have perforated lids. The height of covers shall be nine (9) inches. The ladders hereinabove specified shall consist of threequarter (%) inch wrought iron bars securely set in the walls of manholes and combined manholecatchbasins. Said bars shall be each twenty-four (24) inches in length and said ladder rounds shall be spaced sixteen (16) inches apart from the top to the bottom of said manholes and said combined manhole-catchbasins. The estimated price above given includes all excavating, concrete work, backfilling and removal of surplus excavated material. Said thirteen (13) manholes shall be located as follows:

One (1) manhole at the northerly end of the said twelve (12) inch drain; one (1) manhole at the end of the said twelve (12) inch drain in Willow Street; one (1) manhole three hundred (300) feet northerly of said last mentioned manhole; one (1) manhole at the southerly end of said twelve (12) inch drain in Winnetka Avenue; nine (9) manholes along the said twelve (12) inch drain between Winnetka Avenue and Church Road and approximately three hundred (300) feet apart.

The said four (4) combined manhole-catchbasins shall be located
as follows: One (1) at the northerly end of said ten (10) inch
drain at Church Road; one (1) at
the southwesterly curb corner at
Ash Street and along the line of
said twelve (12) inch drain; one
(1) at the northwesterly curb corner at Ash Street and along the
line of said twelve (12) inch drain;
one (1) at the northerly end of said
ten (10) inch drain at Cherry
Street.

The said thirty-nine (39) catchbasins shall be located as follows: Eleven (11) pairs shall be located, one catchbasin of each of said pairs in the easterly and one in the westerly curb of said proposed improvement between the south line of Willow Street and the north line of Winnetka Avenue. Said pairs shall be spaced approximately two hundred (200) feet apart. One (1) catchbasin shall be located at the northeasterly curb corner of Winnetka Avenue and said proposed improvement; one (1) catchbasin shall be located in the easterly curb thirteen hundred (1300) feet northerly from the northerly line of Winnetka Avenue; one (1) catchbasin shall be located at the northwesterly curb corner of Winnetka Avenue and said proposed improvement; two (2) pairs of said catchbasins shall be located in said proposed inprovement in Willow Street, one (1) catchbasin of said pair in the north curb and one (1) in the south curb; one (1) pair of said catchbasins shall be located one hundred fifty (150) feet east of the east line extended of Forest Street and one (1) pair of said catchbasins shall be located at the westerly line extended of Church Road; one (1) catchbasin shall be located in the easterly curb of said improvement thirty-one hundred (3100) feet northerly from the northerly line of Winnetka Avenue; two (2) pairs of said catchbasins shall be located in the easterly and westerly curb of said improvement, one (1) pair of said catchbasins shall be located midway between Willow Street and Ash Street and one (1) pair midway between Ash Street and Cherry Street; one (1) catchbasin shall be located at the northeast curb corner of Ash Street: one (1) catchbasin shall be located at the northwest curb corner of Cherry Street; one (1) catchbasin shall be located at the northeast corner of Cherry Street; one (1) pair of said catchbasins shall be located at the east end of the proposed brick pavement in Oak Street, one (1) catchbasin of said pair shall be located in the north curb and one (1) in the south curb of said Oak Street improvement. Said proposed catchbasins in Oak Street shall be connected to the existing storm sewer in Oak Street located twenty-five (25) feet north of the south line of said Oak Street. Said existing storm sewer is six (6) feet in depth at said point of connection: Said proposed catchbasin at the northeast curb corner of Ash Street shall be connected to the existing storm sewer in Ash Street located twenty-five (25) feet north of the south line of Oak Street; the depth of said existing storm sewer at the point of connection is six (6) feet. Said proposed catchbasins in Willow Street located one hundred fifty (150) feet east of the east line extended of Forest Street and said catchbasin at the southwest curb corner of Willow Street and Church Road shall be connected to the existing storm water sewer in Willow Street located twenty-five (25) feet north of the south line of Willow Street. The depth of said existing storm water sewer at the point of connection is seven (7) feet. The said four (4) proposed catchbasins between Willow Street and Church Road shall be connected to the existing storm sewer in Church Road located twenty-five (25) feet westerly from the westerly line of the right-of-way of the Chicago and North Western Railway Company. The average depth of said existing storm sewer at the points of connection is seven (7) feet. The said proposed catchbasin at the point where said proposed improvement joins the existing pavement in Church Road shall be connected to the existing storm sewer in the center line of Church Road. The depth of said existing storm sewer at the point

of connection is eight (8) feet. The

catchbasin at the northeasterly

curb corner at Winnetka Avenue

shall connect with the existing

storm sewer in Winnetka Avenue.

Said storm sewer is located twenty

(20) feet south of the north line of Winnetka Avenue and has a depth of seven (7) feet at the point of said connection.

12 existing manholes shall be adjusted to the finished grade where located. In adjusting said manholes, the old masenry shall be lowered or raised as required, with new brick masonry to bring the top of the cover to the finished grade where located. Mortar used shall be composed by volume of one (1) part Portland cement and two (2) parts sand; including the removal of all rubbish, at Ten Dollars (\$10.00) each,\$120.00

12 new cast iron manhole covers with rim and solid lid; combined weight of rim and lid five hundred forty (540) pounds; average thickness of metal one and one-quarter (1¼) inches; height of cover nine inches (9) inches, diameter of lid twenty-three (23) inches, set in place on the above twelve existing manholes to be adjusted, at Twenty Dollars (\$20.00) each,\$240.00 existing fire hydrants, one at the intersection of Willow Street and Church Road, one at Ash Street

Church Road, one at Ash Street and the proposed improvement, and one at the easterly end of the proposed improvement in Oak Street, shall be disconnected, the old tees plugged with cast iron plugs and each fire hydrant reset in the parkway where located and connected to the existing water mains, and including at the Willow Street and Ash Street hydrants twelve (12) feet each of four (4) inch cast iron water pipe, and at the Oak Street hydrant twenty-six (26) feet of four (4) inch cast iron water pipe. The water pipe for the said connections shall weight 21.7 pounds per lineal foot. Each hydrant shall be furnished with a new tee inserted in the existing main; including all excavation, cutting, calking with lead and oakum, and removal of all surplus excavated material, set complete in place at

in place around the hydrant drips of the above three hydrants, using one-quarter (1/4) cubic yard of crushed stone to each hydrant, \$3.00 200 lineal feet of six (6) inch cast iron water pipe to be used in the adjustment and replacement of the existing water main in Willow Street at Church Road, weighing thirty-three and three-tenths (33.3) pounds per lineal foot, laid at an average depth of five feet six inches (5' 6"), with lead and oakum joints, including two (2) six (6) inch cast iron water pipe bends, the cutting of existing mains where the two conections shall be made, trenching, calking, and removal of all surplus excavated material, laid at Two Dollars twenty-five cents, (\$2.25) per lineal foot,\$450.00

60 cubic yards of sand for backfill-

Ninety-nine Dollars (\$99.00) each

4 cubic yard of crushed limestone

.....\$297.00

ing the water pipe trenches, in place at Two Dollars fifty cents per cubic yard,\$150.00 six (6) inch iron body bronze mounted water gate valves of the "Eddy" type or its equal, set in the line of the above two hundred (200) feet of six (6) inch water pipe, in place at Thirty-five Dollars (\$35.00) each,\$70.00 2 water gate valve vaults for the above six (6) inch valves, constructed of Portland cement concrete composed by volume of one (1) part Portland cement, two (2) parts sand and four (4) parts gravel or crushed stone, four (4) feet internal diameter, side walls and bottoms six (6) inches thick, height of concrete over all five feet nine inches (5' 9"), including all excavation, and removal of surplus excavated material, complete a Seventy Dollars (\$70.00) each \$140.00 cast iron manhole covers for said valve vaults, with rim and solid lid; combined weight of rim and lid five hundred forty (540) pounds; average thickness of metal one and one-quarter (11/4) inches; height of cover nine (9) inches, diameter of lid twentythree (23) inches, set in place at Twenty Dollars (\$20.00) each .. \$40.00

cleared of rubbish and hand raked, at seven cents (7c) per square yard,\$980.00 550 square yards of existing macadam pavement adjusted, thirty-two (32) square yards at Willow Street and Forest Street; ninety-four (94) square yards at Ash Street; ninetyfour (94) square yards at Cherry Street; two hundred (200) square yards at Ridge Avenue; and one hundred thirty (130) square yards at Oak Street to form connections between the existing pavements and the proposed pavements. Said adjustment shall consist of crushed limestone macadam twelve (12) inches thick bonded with four (4) gallons of Tarvia or its equal to each square yard, laid complete at Three Dollars fifty cents (\$3.50)

14000 square yards of parkways

Three Dollars fifty cents (\$3.50)
per square yard,\$1,925.00
60 trees within the curb lines of the
proposed improvement grubbed
out one (1) foot below the subgrade of the proposed improvement where located, all stumps,
branches and wood removed, at

Ten Dollars (\$10.00) each, ...\$600.00 3500 square feet of concrete sidewalk approaches having a total thickness of four and one-half (4½) inches adjusted and replaced, (one hundred thirty-five (135) square feet at Winnetka Avenue; two thousand sixty (2060) square feet at Willow Street and Church Road; four hundred forty (440) square feet at Ash Street; four hundred forty (440) square feet at Cherry Street and four hundred twentyfive (425) square feet at Ridge Avenue) to the finished lines and grades of the proposed improvement, excluding the two hundred twenty-five (225) square feet of new concrete sidewalk approaches to the westerly entrance of the pedestrian subway hereinafter provided for. The lower four (4) inches of said walk shall be composed of one (1) part Portland cement, two (2) parts sand and four (4) parts gravel or crushed stone; the upper one (1) inch of wearing surface shall be composed by volume of one (1) part Portland cement and two (2) parts sand, including all excavation and preparation of the subgrade and removal of all broken walk and surplus excavated material, laid at twenty-five cents (25c) per square

foot,\$875.00

70 cubic yards of sand for a subbase six (6) inches thick, for the said thirty-five hundred (3500) square feet of sidewalk approaches, in place at Two Dollars fifty cents (\$2.50) per cubic yard, \$175.00 1 cast iron grating and frame, said grating shall be ten (10) inches in diameter and the combined weight of said grating and frame shall be eighty (80) pounds, set in the floor of said pedestrian subway com-

plete at\$12.00 20 lineal feet of eight (8) inch inside diameter vitrified, salt-glazed hub and spigot tile pipe to connect said grating with the said twentyfour (24) inch sewer in Willow Street, laid at an average depth of six feet six inches (6' 6"), with mortar joints composed by volume of one (1) part Portland cement and two (2) parts sand, at Two Dollars (\$2.00) per lineal foot, \$40.00 CABLE GUARD FENCE; consisting of thirteen (13) square reinforced concrete guard posts seven (7) feet nine (9) inches over all extending four (4) feet into the ground; the portion under ground shall be ten (10) inches square. The portion above ground shall taper from ten (10) inches square at the surface of the ground to eight (8) inches square at a height of three (3) feet six (6) inches above the ground. All ex-

posed edges shall be bevelled. The top three (3) inches shall be finished off in a pyramid shape. Each post shall have two (2) three-quarter (%) inch galvanized malleable iron nut eye bolts with a cast iron washer, the shank of each eye bolt being imbedded in the concrete, spaced at eighteen (18) inches centers from a point nine (9) inches from the top of the post. Said eye bolts shall have a three-quarter (%) inch shank. The inside diameter of eye shall be one and one-half (11/2) inches, and the length under said eye shall be four and one-half (41/2) inches. The posts shall be composed by volume of one (1) part Portland cement, two (2) parts sand and four (4) parts gravel or crushed stone, and each post shall be reinforced with twenty-four and four tenths (24.4) pounds of onehalf (1/2) inch square steel deformed reinforcing bars, complete in place at Eight Dollars (\$8.00) per post,\$104.00 square reinforced concrete guard post ten feet three (10' 3") inches over all, extending four (4) feet into the ground, the portion under the ground shall be ten (10) inches square. The portion above ground shall taper from ten (10) inches square at the surface of the ground to eight (8) inches square at the height of six (6) feet above the ground. All exposed edges shall be bevelled. The top three (3) inches shall be finished off in a pyramid shape. Said post shall have two (2) eye bolts as described above, spaced eighteen (18) inch centers from a point three (3) feet three (3) inches from the top of the post. Said post shall have a one-half (1/2) inch wrought iron conduit pipe running through the center from the top to the bottom for electric wiring. Said post shall be composed by volume of one (1) part Portland cement, two (2) parts sand and four (4) parts gravel or crushed stone and shall be reinforced with thirty-four (34) pounds of one-half (1/2) inch square steel deformed reinforcing bars, complete in place at Ten Dollars (\$10.00),\$10.00

225 lineal feet of three-quarter (%)

inch diameter plow steel wire rope,

composed of six (6) strands of

nineteen (19) wires each, and a

hemp core, and twelve (12) drop-

forged steel wire rope clips for

wire rope, at fifty cents (50c) per

lineal foot,\$112.50 pedestrian subway, located as hereinbefore described. Said subway shall consist of reinforced concrete side walls, roof, floor, struts, stairways, combined ventilating shaft and safety island and vault lights and ornamental trim at entrances, and plain concrete footings. Said subway shall be provided with wrought iron pipe hand rails, white enamel brick wall lining, storm water inlet grating with connections, a complete lighting system for the subway and safety island, and concrete sidewalk approach, including the adjustment of the existing twenty-four (24) inch storm water sewer in Willow Street, water-proofing and painting, all excavation and the removal of all surplus excavated material. Said subway shall be eight (8) feet six (6) inches in height in the clear at the westerly entrance, ten (10) feet in height in the clear from the floor to the ceiling at the bottom of the stairway at the westerly end of said subway, thence decreasing uniformly to nine (9) feet in width in the clear at the bottom of the stairway at the easterly end of said subway; the height in the clear at the easterly end of said subway shall be eight (8) feet six (6) inches; said subway shall be ten (10) feet in width between the concrete walls and shall have a reinforced concrete roof twelve (12) inches thick directly under the proposed pavement and a roof uniformly varying from twelve (12) inches to eight (8) inches in thickness beyond the pavement. The roof over the stairway shall be of reinforced concrete five (5) inches thick; the side walls of said stairway above the ground shall have an average thickness of ten (10) inches and an average height of four (4) feet. The walls below the ground level shall be constructed of reinforced concrete and shall have a thickness of sixteen (16) inches and an average height of nine (9) feet. Said walls shall set upon plain concrete footings two (2) feet six (6) inches wide, with reinforced concrete struts (11) feet centers, said struts shall be two (2) feet six (6) inches deep by three (3) feet in width. The floor between said struts shall be five (5) inches thick and shall be constructed of concrete with wire mesh reinforcement. The stairways shall be con-

The stairways shall be constructed of reinforced concrete with eleven (11) inch treads and seven and one-half (7½) inch risers.

The walls of said subway shall be lined with white enamel brick to a height of seven (7) feet measured from the floor of said subway. That portion of the inside walls of said subway above the enamel brick and the ceiling of said subway shall receive two coats of Shuron Cement Coating No. 60 Natural Gray or its equal. The outside surface of all walls and roof of the said subway shall receive three (3) coats of Garden City Sand Company's (of Chicago)

brand of waterproofing paint known as "Marine Cement" or its equal.

one (1) part Portland cement, two
(2) parts sand and three (3) parts
gravel or crushed stone, reinforced with twenty-five hundred
(2500) pounds of deformed steel
bars, in place at Thirty-five Dollars (\$35.00) per cubic yard, \$1,400.00
590 square yards of surface of concrete walls and roof to be given
three (3) coats of the Garden
City Sand Company's (of Chicago)
brand of water-proofing paint
known as "Marine Cement" or its
equal, in place at One Dollar three
cents (\$1.03) per square yard, \$607.70

cents (\$1.03) per square yard, \$607.70

1936 square feet of white enamel
brick wall lining set in cement
mortar composed by volume of one
(1) part of white Portland cement
and two (2) parts clean sharp sand
all joints full, struck and neatly
pointed, laid complete at One Dollar thirty cents (\$1.30) per square
yard,\$2,516.80

100 lineal feet of twenty-four (24) inch internal diameter pre-cast reinforced concrete sewer pipe relaid at an average depth of seven (7) feet, (due allowance being made for the salvage value for the existing twenty-four (24) inch internal diameter sewer) the joints of said sewer pipe shall be of Portland cement mortar composed by volume of one (1) part Portland cement and two (2) parts sand, including all trenching and backfilling and the removal of surplus excavated material, laid complete at Two Dollars fifty cents (\$12.50) per lineal foot\$250.00

225 square feet of concrete sidewalk approach to the westerly entrance of said subway. Said sidewalk shall have an average width of ten (10) feet, an average thickness of four and one-half (41/2) inches, shall be composed by volume of one (1) part Portland cement, two (2) parts sand and four (4) parts gravel or crushed stone. The exposed surface to a depth of one-(1) inch shall be composed by volume of one (1) part Portland cement and two (2) parts sand, including all excavation and removal of surplus material at twenty-five cents (25c) per square foot,

for said two hundred twenty-five (225) square feet of sidewalk, in place at Two Dollars fifty cents (\$2.50) per cubic yard,\$12.50 to lineal feet of two (2) inch inside diameter black wrought iron pipe hand railing with malleable iron fittings complete in place, including two coats of paint at Two Dollars (\$2.00) per lineal foot,...\$140.00 to pounds of steel wire mesh for reinforcing floor of subway, in

place at six cents (6c) per pound,
....\$24.00

270 lineal feet of one (1) inch steel
duct Conduit pipe (Galvanized or
Sheridized)\$68.55

17 one inch (1") standard steel Conduit Bends (Galvanized or Sheridized),\$14.96

160 lineal feet of Number Six rubber

The above described electrical equipment shall be connected through the said Number Six and Number Ten Rubber Covered Double Braid Single Conductor copper wire, Brown and Sharpe gauge, National Electrical Code, to an electric light distribution pole located two hundred forty-two (242) feet east of the east line extended of Forest Street and thirteen (13) feet south of the north line extended of Willow Street where said Number Six Electrical Conductor shall connect with the existing electric light distribution system of the Village of Winnetka. Removal of foundations under build-

ings located upon the tracts of land to be acquired for such improvement for a distance of three (3) feet below the surface of the ground where located,\$200.00 all concrete and mortar herein provided for shall be mixed with

All concrete and mortar herein provided for shall be mixed with sufficient clean water to make a plastic mass.

Cost of engineering services 13,020.00

to be taken or damaged therefor),