### SCHEDULE OF ESTIMATED QUANTITIES

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<th>DESCRIPTION</th>
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### SCHEDULE OF PIPES

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**TOTAL:** 5226 | 464 | 467 | 408
AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: ______________________   LIC. NO: _____________   DATE: ___________

Legend

- Sanitary Gravity Mains To Be Lined
- Sanitary Gravity Mains
- Sanitary Manhole
- Storm Gravity Main
- Storm Manhole
- Storm Catch Basin
- Gas Main
- Gas Valve
- Water Main
- Hydrant
- Water Valve

SL0460161: CIPP LINE 467' OF 10 INCH VCP
U.S.MH: 9'
D.S.MH: 8.9'
EST. ACT. WYES: 1

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

2017 CITYWIDE SANITARY SEWER CIPP LINING
CITY PROJECT NO.: 1633

DRAWN BY: JIM
SHEET NO. 7 OF 18
AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: Thomas M. Pfeffer    LIC. NO.: 22442    DATE: 3/17/17

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

2017 CITYWIDE SANITARY SEWER CIPP LINING
CITY PROJECT NO.: 1633

DRAWN BY: JMM
SHEET NO. 9 OF 18
AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: ________________ LIC. NO: ________________ DATE: ________________

CITY OF DULUTH
ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

2017 CITYWIDE SANITARY SEWER CIPP LINING
CITY PROJECT NO.: 1633

DRAWN BY: JIM
SHEET NO. 13 OF 18
OVERVIEW MAP

Legend
- Sanitary Gravity Mains To Be Lined
- Sanitary Gravity Mains
- Sanitary Manhole
- Storm Gravity Main
- Storm Manhole
- Storm Catch Basin
- Gas Main
- Gas Valve
- Water Main
- Hydrant
- Water Valve

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNATURE: ____________________________________    LIC. NO: ___________    DATE: ___________

THOMAS M. PFIFER
22442                          3/17/17

CITY OF DULUTH ENGINEERING DIVISION
411 W. 1ST ST. STE. 211
DULUTH, MN 55802

2017 CITYWIDE SANITARY SEWER CIPP LINING
CITY PROJECT NO.: 1633

DRAWN BY: JIM
SHEET NO. 14 OF 18

0 1020 40 60 80 100 120 Feet

SL0480098: CIPP LINE 413' OF 8 INCH VCP
U.S.MH: 6.8'
D.S.MH: 6'
EST. ACT. WYES: 5

I-35 I-35 Ramp
Summit St
Branch St
Congdon Park Dr
Bruce St
Garden St
N 34th Ave E
E 1st St
E 9th St
E 5th St
E 4th St
South St
Lakeview Ave
E 2nd St
E 3rd St
E 6th St
E 7th St
E 8th St
London Road
Woodland Ave
E 1st St
E 3rd St
E 3rd St
Branch St
E 5th St
E 3rd St
E 3rd St
I-35
Feet

Legend
Sanitary Gravity Mains To Be Lined
Sanitary Gravity Mains
Sanitary Manhole
Storm Gravity Main
Storm Manhole
Storm Catch Basin
Gas Main
Gas Valve
Water Main
Hydrant
Water Valve

OVERVIEW MAP

LINING PLAN

SL0480099
SL0480083
SL0480098
SL0480103

0 1020 40 60 80 100 120 Feet

Legend
Sanitary Gravity Mains To Be Lined
Sanitary Gravity Mains
Sanitary Manhole
Storm Gravity Main
Storm Manhole
Storm Catch Basin
Gas Main
Gas Valve
Water Main
Hydrant
Water Valve

OVERVIEW MAP

LINING PLAN

SL0480099
SL0480083
SL0480103

0 1020 40 60 80 100 120 Feet

Legend
Sanitary Gravity Mains To Be Lined
Sanitary Gravity Mains
Sanitary Manhole
Storm Gravity Main
Storm Manhole
Storm Catch Basin
Gas Main
Gas Valve
Water Main
Hydrant
Water Valve

OVERVIEW MAP

LINING PLAN

SL0480099
SL0480083
SL0480103

0 1020 40 60 80 100 120 Feet

Legend
Sanitary Gravity Mains To Be Lined
Sanitary Gravity Mains
Sanitary Manhole
Storm Gravity Main
Storm Manhole
Storm Catch Basin
Gas Main
Gas Valve
Water Main
Hydrant
Water Valve

OVERVIEW MAP

LINING PLAN

SL0480099
SL0480083
SL0480103

0 1020 40 60 80 100 120 Feet

Legend
Sanitary Gravity Mains To Be Lined
Sanitary Gravity Mains
Sanitary Manhole
Storm Gravity Main
Storm Manhole
Storm Catch Basin
Gas Main
Gas Valve
Water Main
Hydrant
Water Valve

OVERVIEW MAP

LINING PLAN

SL0480099
SL0480083
SL0480103

0 1020 40 60 80 100 120 Feet

Legend
Sanitary Gravity Mains To Be Lined
Sanitary Gravity Mains
Sanitary Manhole
Storm Gravity Main
Storm Manhole
Storm Catch Basin
Gas Main
Gas Valve
Water Main
Hydrant
Water Valve

OVERVIEW MAP

LINING PLAN

SL0480099
SL0480083
SL0480103

0 1020 40 60 80 100 120 Feet

Legend
Sanitary Gravity Mains To Be Lined
Sanitary Gravity Mains
Sanitary Manhole
Storm Gravity Main
Storm Manhole
Storm Catch Basin
Gas Main
Gas Valve
Water Main
Hydrant
Water Valve