## STATEMENT OF ESTIMATED QUANTITIES

<table>
<thead>
<tr>
<th>NOTES</th>
<th>LINE NUM</th>
<th>SPEC NUM</th>
<th>DESCRIPTION</th>
<th>UNIT</th>
<th>EST. QUANTITY SITE 2</th>
<th>EST. QUANTITY SITE 3</th>
<th>EST. QUANTITY SITE 4</th>
<th>EST. QUANTITY SITE 7</th>
<th>EST. QUANTITY SITE 8</th>
<th>EST. QUANTITY SITE 9</th>
<th>TOTAL EST. QUANTITY</th>
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<td>REMOVE METAL CULVERT</td>
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<td>SQ YD</td>
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</tbody>
</table>

**NOTES:**

1. ASPHALT SHALL BE PLACED IN TWO LIFTS. PLACE TACK COAT BETWEEN LIFTS, APPLIED AT 0.05 GALLONS PER SQ YD.
2. ADJUSTING CURB BOXES SHALL BE INCIDENTAL TO THIS ITEM
3. APPLIED AT A RATE OF 200 POUNDS PER ACRE
4. SPREAD AT A RATE OF 220 POUNDS PER ACRE
5. TEMPORARY TRAFFIC CONTROL LAYOUTS SHALL BE SUBMITTED TO ENGINEER FOR REVIEW 3 DAYS PRIOR TO WORK

---

*I hereby certify that this plan was prepared by us, or under my direct supervision, and that I am a duly licensed professional engineer under the laws of the state of Minnesota.*

**SIGNATURE:** [Signature]

**LIC. NO.:** 22442

**DATE:** 6-3-16

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**CITY OF DULUTH**

**ENGINEERS - DIVISION**

**411 W. 1ST ST. STE. 211**

**DULUTH, MN 55802**

**2016 CITYWIDE DRIVEWAY CULVERT REPLACEMENT AND DITCHING PROJECT**

**DEP'D BY:** JAM

**SEQ.**

**CITY PROJECT NO.:** 1501

**STATE AID PROJECT NO.:**

**SHEET NO. 2 OF 9**
TYPICAL SECTION FOR DITCHING & CULVERTS

12" OMP CULVERT, MIN. SLOPE 0.50%
3" BITUMINOUS DRIVEWAY
OR 3" CLASS 5 SURFACE
SLOPING SHOULDER TO DRAW IS INCIDENTAL
IN AREAS OF DITCH RECONSTRUCTION.

PLACE 3" TOPSOIL, SEED MIX,
FERTILIZER & CATEGORY III
EROSION CONTROL Blanket

Sawcut

12" TYP. PIPE COVER,
FIELD ADJUST AT THE DIRECTION
OF THE ENGINEER IN THE FIELD

BACKFILL ALL EXCAVATION UNDER
DRIVEWAYS WITH CLASS 5
4" CLASS 5 PIPE BEDDING & COVER
UNDER DRIVEWAYS,
NATIVE MATERIAL PIPE BEDDING
BEYOND DRIVEWAY EDGES.

MAX 2.5:1
12" TYP
MAX 2.5:1

WIDTH VARIES
1.5'

4" TYP
MAX 2.5:1

PLACE 3" TOPSOIL, SEED MIX,
FERTILIZER & CATEGORY III
EROSION CONTROL Blanket

MAX 2.5:1
6" MIN

12"-24" TYP
MAX 2.5:1

2016 CITYWIDE DRIVEWAY CULVERT REPLACEMENT AND DITCHING PROJECT

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

DRAWN BY: JMN

DETAILS
CITY PROJECT NO.: 1501
STATE AID PROJECT NO.: 
SHEET NO. 3 OF 9
SITE LOCATION MAP

SITE NOTES
1) PRIVATE WATER ON SITE, ALIGNMENT UNKNOWN.

Legend
- Storm Manhole
- Storm Catch Basin
- Storm Gravity Main
- Sanitary Manhole
- Sanitary Gravity Main
- Gas Valve
- Gas Main
- Hydrant
- Water Valve
- Water Main

SITE 2 - 2633 & 2637 ETHEL AVE

RECONSTRUCT DRAINAGE DITCH, 30 L.F.
REMOVES 23 OF 12" CMP,
INSTALL 26 OF 12" CMP
RESTORE BITUMINOUS DRIVEWAY.

RECONSTRUCT DRAINAGE DITCH, 70 L.F.
REMOVES 23 OF 12" CMP,
INSTALL 24 OF 12" CMP
RESTORE GRAVEL DRIVEWAY.

RECONSTRUCT DRAINAGE DITCH, 20 L.F.

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. 32-4142 DATE: 6-1-16

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

2016 CITYWIDE DRIVEWAY CULVERT REPLACEMENT AND DITCHING PROJECT
CITY PROJECT NO.: 1501

DRAWN BY: JUM
SHEET NO. 5 OF 9
SITE NOTES

1) ADJUST WATER SERVICE VALVES AS NEEDED.

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

SITE 3 - 616 & 622 FARRELL RD

2016 CITYWIDE DRIVEWAY CULVERT REPLACEMENT AND DITCHING PROJECT
CITY PROJECT NO.: 1501
SITE LOCATION MAP

SITE NOTES
1) PRIVATE WATER PRESENT, ALIGNMENT UNKNOWN.

Legend
- Storm Manhole
- Storm Catch Basin
- Storm Gravity Main
- Sanitary Manhole
- Sanitary Gravity Main
- Gas Valve
- Gas Main
- Hydrant
- Water Valve
- Water Main

SITE 4 - 421 COMO AVE & 301 LOCUST ST

2016 CITYWIDE DRAKEWAY CULVERT REPLACEMENT
AND DITCHING PROJECT
CITY PROJECT NO.: 1501

DRAWN BY: JIM
SHEET NO. 7 OF 9
SITE NOTES
1) ADJUST WATER SERVICE VALVES AS NECESSARY.

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

SITE 5 - 2029 & 2123 MACFARLANE AVE

2016 CITYWIDE DRIVEWAY CULVERT REPLACEMENT AND DITCHING PROJECT
CITY PROJECT NO.: 1501

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

DRAWN BY: JIM
SHEET NO. 8 OF 9
SITE LOCATION MAP

SITE NOTES
1) UNDERGROUND CABLE AND FIBER PRESENT
2) ADJUST WATER SERVICE VALVES AS NECESSARY.
3) CONTRACTOR TO PRESERVE AS MUCH OF THE PRIVATE TIMBER SLICICWAY AS POSSIBLE AT 1709 NORTON RD.

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

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. 32412 DATE: 6-1-16

SITE 6 - 1703, 1706 & 1709 NORTON RD

2016 CITYWIDE DRIVEWAY CULVERT REPLACEMENT AND DITCHING PROJECT
CITY PROJECT NO.: 1501

DRAWN BY: JIM
SHEET NO. 9 OF 9