



AGENDA

**Baxter City Council Work Session
March 19, 2019
6:30 p.m.**

1. 2019 South Sanitary Sewer Interceptor Project – Bolton & Menk Consulting Project
Engineer Bryan Drown



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& MENK**

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2019 South Interceptor / North Forestview and Forestview Stormwater Outlet Improvements Project

Date: March 19, 2019
To: City of Baxter Honorable Mayor and City Council
From: Bryan Drown, PE
Cc: Brad Chapulis – City Administrator
Trevor Walter, PE – City Engineer/Public Works Director
Subject: Project Update

Design of the South Interceptor Sanitary Sewer line and the North Forestview Stormwater Outfall has continued to be developed. Design of the South Interceptor west of TH 371 is being coordinated with the development of site plans and public infrastructure for the new Baxter Elementary School and potential development along Mapleton Road. As design has continued easement areas have been identified and appraisal process started.

East of TH 371 the Feasibility Report detailed two options for the South Interceptor Sanitary Sewer line (See attached exhibits). Both options include a forcemain from existing lift station 23 on Mapleton Road to a point west of the Fuschia Drive / Land O'Lakes Road intersection. Option 1 continues the forcemain north to Highland Scenic Road (CSAH #48) and then east to the wastewater treatment plant (WWTP). The City policy is to avoid installation of utilities, other than crossings, within Crow Wing County Highway right-of-way as future highway improvements could trigger the need to relocate said utilities. As such, the forcemain is proposed to be located in a twenty-foot utility easement on the south side of Highland Scenic Road. Easement across 15 properties is needed to be acquired.

Option 2 includes gravity sewer installation through a portion of the North Forestview neighborhood. The gravity interceptor line would run from the Fuschia Drive / Land O'Lakes Road intersection east along Land O'Lakes Road to Forestview Drive, north to the intersection with the undeveloped Camwood Trail, east along Camwood Trail to Scenic River Drive, south on Scenic River Drive to Camwood Trail and then east on Camwood Trail to a proposed lift station on the north side of Camwood Trail. Forcemain from the lift station will be installed east along Camwood Trail, crossing now private property to Chestnut Drive, north along Chestnut Drive and then east along the south side of Highland Scenic Road (CSAH 48) to the WWTP in a twenty-foot easement. Easement across 5 properties is needed to be acquired.

Attached please find preliminary cost estimates for each Option. The estimated cost for the Sanitary Interceptor line for Option 1 is approximately \$1,000,000 and Option 2 is approximately \$1,100,000. Option 2 will require the reconstruction of streets along the Interceptor route and provide the opportunity to extend the city water distribution system. In conjunction with the Option 2 I recommend installing sanitary sewer and water services to the right-of-way and property owners pay a future connection charge at the time they connect to the services. Option 2 also provides the opportunity to install gravity sanitary sewer east of the proposed lift station paralleling the forcemain to the WWTP along Camwood Trail and Chestnut Drive.

The estimated cost to reconstruct a 26-foot wide street is approximately \$1,118,000, the estimated cost to extend watermain is approximately \$1,025,000, and the estimated cost to install gravity sanitary sewer east of the proposed lift station is approximately \$262,000. The total cost of Option 2 is estimated to be approximately \$3,500,000.

I recommend Option 2 for the South Interceptor Sanitary Sewer line east of TH 371 based on the following:




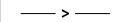

- Option 1 will convey wastewater to the WWTP through a pressurized pipe with limited ability for future connection east of TH 371. Due to the high pressure and volume of wastewater in the proposed forcemain a single-family home should not be connected and Industrial or Commercial connections would require expensive lift stations.
- Option 2 provides sanitary sewer to 63 existing lots.
- Option 2 provides sanitary sewer access to four large undeveloped parcels in the North Forestview neighborhood. The four tracts are 39 acres, 23 acres, 15 acres, and 27 acres. Without access to city utilities these 104 acres are unable to be developed.
- Option 2 provides flexibility for future expansion of city utilities. If constructed as a stand-alone project the South Interceptor Sanitary Sewer line will install the backbone that is able to serve the entire North Forestview Area by gravity sewer.
- Option 2 predominately utilizes existing right-of-way and requires acquiring easement across 5 properties, while Option 1 requires acquiring easement across 15 properties.
- The route for Option 2 coincides with a portion of the proposed route for a 16" diameter trunk watermain that will ultimately connect the area west of TH 371 to the water tower on Hastings Road approximately half mile north of Highland Scenic Road.
- The route for Option 2 coincides with the proposed route for a 12" diameter trunk watermain that would connect the area west of TH 371 to existing watermain at the intersection of Berrywood Drive and Highland Scenic Road. This will provide a watermain

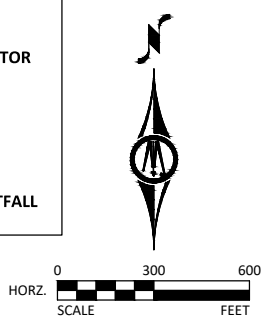
loop for the southeast portion of the city water distribution system. As development expands south between Hasting Road and Highland Scenic Road this watermain loop is needed to maintain overall system pressures more efficiently and avoid dead end water lines that can lead to stagnant water.

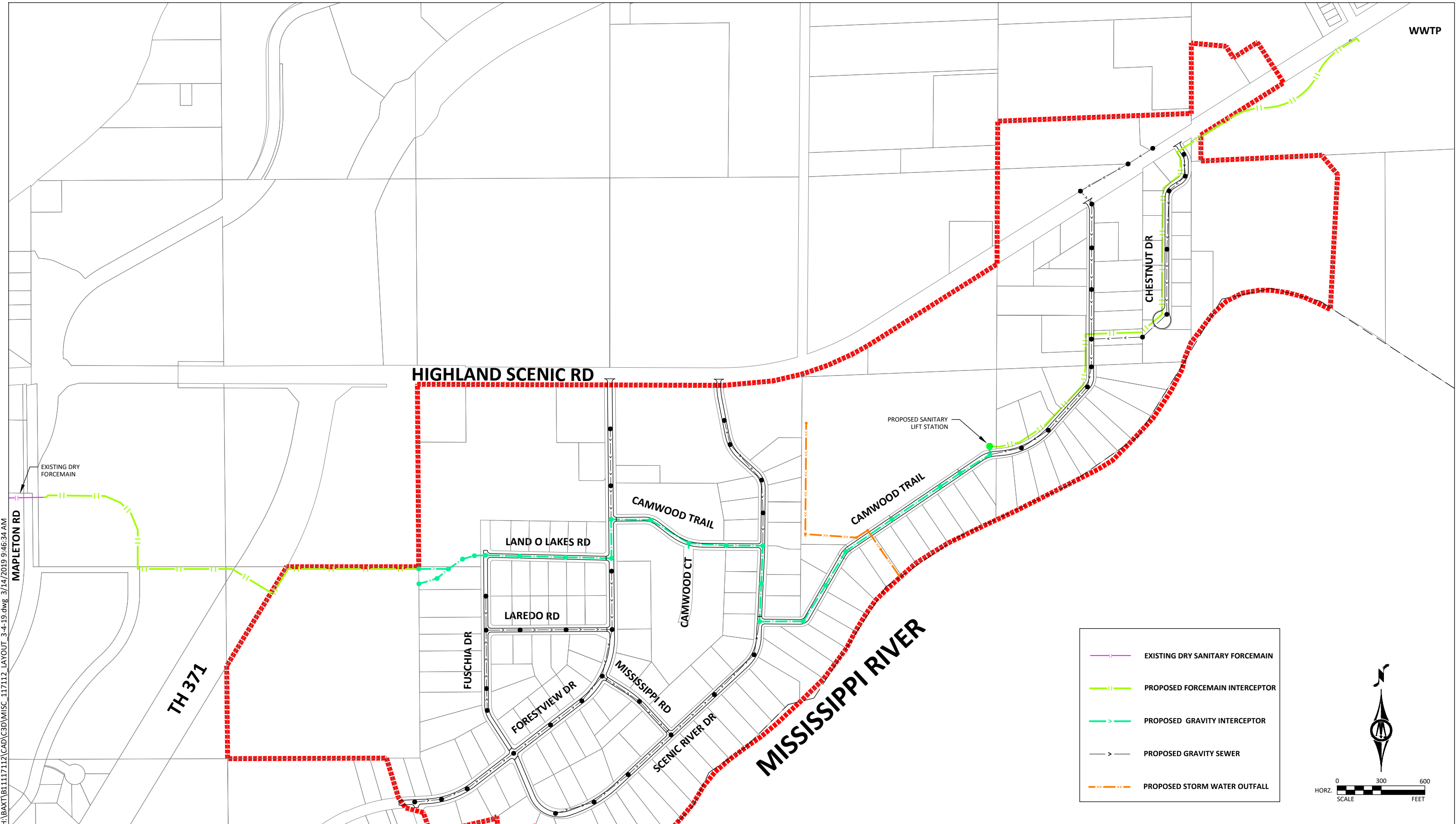
- Extending watermain with the South Interceptor Sanitary Sewer line will provide fire protection to the North Forestview neighborhood.
- The city streets segments along Option 2 are 22 to 31 years old. The average life of a residential street is 25 to 30 years. As part of the City Pavement Management Plan the 2016 PASER street condition ratings were:
 - Land O' Lakes Road – 5 (23 years old)
 - Forestview Drive – 3 (31 years old)
 - Scenic River Drive – 4 (24 years old)
 - Camwood Trail – 3 and 4 (25 years old)
 - Chestnut Drive – 5
- Based on the above PASER ratings, on a scale of 1-10, the recommended street improvement is a full depth reclamation (FDR). FDR involves grinding up the existing pavement and road base to be used as aggregate base material and placing new bituminous. As these streets are nearing the end of their first life cycle now would be the time to install sewer and water utilities and reconstruct the streets.



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-  EXISTING DRY SANITARY FORCEMAIN
-  PROPOSED FORCEMAIN INTERCEPTOR
-  PROPOSED GRAVITY INTERCEPTOR
-  PROPOSED GRAVITY SEWER
-  PROPOSED STORM WATER OUTFALL





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**SOUTH SANITARY SEWER INTERCEPTOR IMPROVEMENTS
PRELIMINARY COST ESTIMATE
SOUTH SANITARY SEWER INTERCEPTOR FUSCHIA DRIVE TO WWTP ALONG CSAH #48 - OPTION 1
CITY OF BAXTER, MN
3/14/19**

SANITARY SEWER

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL COST
1	2021.501	MOBILIZATION	LUMP SUM	\$30,000.00	1	\$30,000.00
2	2101.501	CLEARING	ACRE	\$4,000.00	0.5	\$2,000.00
3	2101.506	GRUBBING	ACRE	\$4,000.00	0.5	\$2,000.00
4	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	\$3.00	300	\$900.00
5	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	\$3.00	50	\$150.00
6	2105.601	DEWATERING	LUMP SUM	\$5,000.00	1	\$5,000.00
7	2123.501	COMMON LABORERS	HOUR	\$80.00	20	\$1,600.00
8	2123.503	MOTOR GRADER	HOUR	\$170.00	20	\$3,400.00
9	2123.610	STREET SWEEPER (WITH PICKUP BROOM)	HOUR	\$130.00	10	\$1,300.00
10	2563.601	TRAFFIC CONTROL	LUMP SUM	\$5,000.00	1	\$5,000.00
11	2573.503	SILT FENCE, TYPE MS	LIN FT	\$3.00	1000	\$3,000.00
12	2573.535	STABILIZED CONSTRUCTION EXIT	EACH	\$400.00	2	\$800.00
13	2573.55	EROSION CONTROL SUPERVISOR	LUMP SUM	\$1,000.00	1	\$1,000.00
14	2574.508	FERTILIZER TYPE 1	POUND	\$2.25	350	\$787.50
15	2574.525	COMMON TOPSOIL BORROW	CU YD	\$20.00	500	\$10,000.00
16	2575.501	SEEDING	ACRE	\$600.00	1	\$600.00
17	2575.502	SEED MIXTURE 22-111	POUND	\$2.25	0	\$0.00
18	2575.502	SEED MIXTURE 25-131	POUND	\$4.50	400	\$1,800.00
19	2575.523	EROSION CONTROL BLANKETS CATEGORY 3	SQ YD	\$2.00	1200	\$2,400.00
20	2575.562	HYDRAULIC MATRIX TYPE MULCH	POUND	\$2.00	3500	\$7,000.00
21	2621.4A	8" FORCEMAIN PIPE	LIN FT	\$20.00	0	\$0.00
22	2621.4A	8" PE FORCEMAIN PIPE-DIRECTIONAL DRILL	LIN FT	\$60.00	8400	\$504,000.00
23	2621.4B	SANITARY SEWER FORCEMAIN JUNCTION MANHOLE	EACH	\$11,000.00	8	\$88,000.00

ESTIMATED CONSTRUCTION COST:	\$670,737.50
CONTINGENCIES (10%):	\$67,073.75
SUBTOTAL:	<u>\$737,811.25</u>
ELFA (21%):	\$154,940.36
PROPERTY ACQUISITION (15 EASEMENTS):	
168,000 SQ. FT. X \$0.75	\$126,000.00
TOTAL:	\$1,018,751.61

SOUTH SANITARY SEWER INTERCEPTOR IMPROVEMENTS

PRELIMINARY COST ESTIMATE

SOUTH SANITARY SEWER INTERCEPTOR FUSCHIA DRIVE TO WWTP THROUGH NORTH FORESTVIEW - OPTION 2

CITY OF BAXTER, MN

3/14/19

SOUTH INTERCEPTOR

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL COST
1	2021.501	MOBILIZATION	LUMP SUM	\$35,000.00	1	\$35,000.00
2	2101.501	CLEARING	ACRE	\$4,000.00	2	\$8,000.00
3	2101.506	GRUBBING	ACRE	\$4,000.00	2	\$8,000.00
4	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	\$3.00	300	\$900.00
5	2105.601	DEWATERING	LUMP SUM	\$50,000.00	1	\$50,000.00
6	2503.602	8"x4" PVC WYE, SDR 26	EACH	\$900.00	51	\$45,900.00
7	2503.603	4" PVC SANITARY SERVICE PIPE, SDR 26	LIN FT	\$11.00	1690	\$18,590.00
8	2503.603	CLEAN AND VIDEO TAPE PIPE SEWER - MAINLINE	LIN FT	\$2.00	5320	\$10,640.00
9	2621.4A	10" PVC SEWER PIPE (SDR 26)	LIN FT	\$32.00	5320	\$170,240.00
10	2621.4A	8" FORCEMAIN PIPE	LIN FT	\$20.00	2950	\$59,000.00
11	2621.4A	8" PE FORCEMAIN PIPE-DIRECTIONAL DRILL	LIN FT	\$60.00	1550	\$93,000.00
12	2621.4B	SANITARY SEWER LIFT STATION	LUMP SUM	\$150,000.00	1	\$150,000.00
13	2621.4B	SANITARY SEWER FORCEMAIN JUNCTION MANHOLE	EACH	\$11,000.00	3	\$33,000.00
14	2621.4B	SANITARY SEWER MANHOLE, MNDOT DESIGN 4007C	EACH	\$2,600.00	22	\$57,200.00
15	2621.4B1	MANHOLE EXCESS DEPTH	LIN FT	\$140.00	254	\$35,560.00

ESTIMATED CONSTRUCTION COST:	\$775,030.00
CONTINGENCIES (10%):	\$77,503.00
SUBTOTAL:	<u>\$852,533.00</u>
ELFA (21%):	\$179,031.93
PROPERTY ACQUISITION (5 EASEMENTS):	
84,575 SQ. FT. X \$0.75	\$63,431.25
TOTAL:	\$1,094,996.18

STREET

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL COST
1	2021.501	MOBILIZATION	LUMP SUM	\$32,000.00	1	\$32,000.00
2	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	\$3.00	20223	\$60,669.00
3	2104.505	REMOVE CONCRETE PAVEMENT	SQ YD	\$6.00	67	\$402.00
4	2105.507	COMMON EXCAVATION	CU YD	\$9.00	6364	\$57,276.00
5	2118.507	AGGREGATE SURFACING	CU YD	\$23.00	45	\$1,035.00
6	2211.507	AGGREGATE BASE, CLASS 5	CU YD	\$23.00	3779	\$86,917.00
7	2231.604	BITUMINOUS PATCH	SQ YD	\$30.00	1397	\$41,910.00
8	2360.509	TYPE SP 9.5 WEARING COURSE MIX (2,B)	TON	\$65.00	2168	\$140,920.00
9	2360.509	TYPE SP 9.5 NON WEAR COURSE MIX (2,B)	TON	\$65.00	2890	\$187,850.00
10	2531.504	7" CONCRETE DRIVEWAY PAVEMENT	SQ YD	\$63.00	67	\$4,221.00
11	2574.507	COMMON TOPSOIL BORROW	CU YD	\$30.00	4000	\$120,000.00
12	2575.604	SEED, FERTILIZE & BONDED FIBER MATRIX	SQ YD	\$1.50	24517	\$36,775.50

ESTIMATED CONSTRUCTION COST:	\$769,975.50
CONTINGENCIES (20%):	\$153,995.10
SUBTOTAL:	<u>\$923,970.60</u>
ELFA (21%):	\$194,033.83
TOTAL:	\$1,118,004.43

SOUTH SANITARY SEWER INTERCEPTOR IMPROVEMENTS

PRELIMINARY COST ESTIMATE

SOUTH SANITARY SEWER INTERCEPTOR FUSCHIA DRIVE TO WWTP THROUGH NORTH FORESTVIEW - OPTION 2

CITY OF BAXTER, MN

3/14/19

WATER

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL COST
1	2021.501	MOBILIZATION	LUMP SUM	\$32,000.00	1	\$32,000.00
2	2504.602	1" CORPORATION STOP	EACH	\$450.00	91	\$40,950.00
3	2504.602	1" CURB STOP	EACH	\$615.00	91	\$55,965.00
4	2504.602	HYDRANT	EACH	\$4,600.00	15	\$69,000.00
5	2504.602	CONNECT TO EXISTING WATERMAIN	EACH	\$2,000.00	1	\$2,000.00
6	2504.602	6" GATE VALVE & BOX	EACH	\$1,600.00	15	\$24,000.00
7	2504.602	8" GATE VALVE & BOX	EACH	\$2,000.00	7	\$14,000.00
8	2504.602	12" BUTTERFLY VALVE & BOX	EACH	\$2,750.00	10	\$27,500.00
9	2504.602	16" BUTTERFLY VALVE & BOX	EACH	\$3,500.00	6	\$21,000.00
10	2504.603	6" PVC WATERMAIN	LIN FT	\$24.00	362	\$8,688.00
11	2504.603	8" PVC WATERMAIN	LIN FT	\$28.00	280	\$7,840.00
12	2504.603	12" PVC WATERMAIN	LIN FT	\$36.00	8114	\$292,104.00
13	2504.603	16" PVC WATERMAIN	LIN FT	\$46.00	1619	\$74,474.00
14	2504.603	1" PE WATER SERVICE	LIN FT	\$18.00	3000	\$54,000.00
15	2504.608	WATERMAIN FITTINGS	POUNDS	\$7.50	6200	\$46,500.00

ESTIMATED CONSTRUCTION COST:	\$770,021.00
CONTINGENCIES (10%):	\$77,002.10
SUBTOTAL:	\$847,023.10
ELFA (21%):	\$177,874.85
TOTAL:	\$1,024,897.95

GRAVITY SEWER EAST OF LIFT STATION

ITEM NO.	SPEC. NO.	ITEM DESCRIPTION	UNIT	UNIT PRICE	ESTIMATED QUANTITY	TOTAL COST
1	2021.501	MOBILIZATION	LUMP SUM	\$10,000.00	1	\$10,000.00
2	2105.601	DEWATERING	LUMP SUM	\$20,000.00	1	\$20,000.00
3	2503.602	8"x4" PVC WYE, SDR 26	EACH	\$900.00	32	\$28,800.00
4	2503.603	4" PVC SANITARY SERVICE PIPE, SDR 26	LIN FT	\$11.00	1056	\$11,616.00
5	2503.603	CLEAN AND VIDEO TAPE PIPE SEWER - MAINLINE	LIN FT	\$2.00	2908	\$5,816.00
6	2621.4A	8" PVC SEWER PIPE (SDR 26)	LIN FT	\$28.00	2908	\$81,424.00
7	2621.4B	SANITARY SEWER MANHOLE, MNDOT DESIGN 4007C	EACH	\$2,600.00	12	\$31,200.00
8	2621.4B1	MANHOLE EXCESS DEPTH	LIN FT	\$140.00	58	\$8,120.00

ESTIMATED CONSTRUCTION COST:	\$196,976.00
CONTINGENCIES (10%):	\$19,697.60
SUBTOTAL:	\$216,673.60
ELFA (21%):	\$45,501.46
TOTAL:	\$262,175.06

GRAND TOTAL \$3,500,073.61