

**CITY OF ST. FRANCIS
ST. FRANCIS, MN
COMMUNITY CENTER
23340 CREE STREET NW
Work Session Agenda**

June 11, 2018

- 1) Code Enforcement Discussion - 5:30 pm
- 2) Riverbank Lane/Kings Hwy Street Improvement Discussion – 6:30 pm
- 3) Other Business



**City Council Work Session
AGENDA REPORT
Agenda Item #**

TO: Joe Kohlmann, City Administrator
FROM: Kate Thunstrom, Community Development Director
SUBJECT: Code Enforcement
DATE: 06-11-2018

OVERVIEW

The City operates code enforcement on a complaint based process.

City Code Chapter 2 – Section 11 Administrative Enforcement of Code Regulation outlines the process in which is followed

City Code Chapter 2 – Section 9 Fee Schedule, Administrative Enforcement Penalties

- 1st Offense..... \$100
- 2nd Offense..... \$200
- 3rd Offense..... \$500
- 4th Offense..... \$1,000
- 5th Offense and Beyond..... \$2,000
- Administrative Hearing Fee..... \$750

The process that staff follows:

- Step 1- Receives compliant – creates report
- Step 2 - Inspection Scheduled, completed with photos
- Step 3 - Administrative Notice mailed to property with deadline for compliance
- Step 4 - 2nd inspection completed, photos taken, updated report completed
- Step 5 – Conditions found at inspection:
 - o are corrected, no further action is taken.
 - o are improved but not fully corrected, a progress letter is sent.
 - o have not improved, property moves to Citation
- Step 6- Citation #1 with fines is sent with new deadline. Deadline is requirement of fines paid and corrections to be made.

Conditions of each inspection determines if the City will move to the next citations level. Step 5 will be repeated until compliance is met.



The Problem:

- “Rural” mentality and/or attitude
- People either don’t complain (fear, don’t want to get involved) or don’t care
- Residents not properly reporting to the city with address and/or issue
- Those few time intensive properties. Properties that continue to drain one or more department staff time,
 - Owners who pay fine without issue and continue as is.
 - Fines go to assessments, properties ignore the letters
 - Process to abate is costly and time intensive
 - Excuses that are never ending, weather, extensions and appeals.

Solutions and Course of Action:

1. **Continue “as is” and increase education regarding reporting**
2. **Change course to City driven enforcement**
 - Changing the policy staff follows
 - Staff Time/Compliance Officer
 - Annual Staff \$25,000 to \$50,000, seasonal verses full time. Includes staff person, mileage, phone, etc.
 - One time set up fees \$35,000. Costs include vehicle and computer equipment.

ATTACHMENTS:

Chapter 2 – Section 11 City Code, Administrative Enforcement of Code Regulations

Chapter 2

SECTION 11. - ADMINISTRATIVE ENFORCEMENT OF CODE REGULATIONS

(Ord. 174, SS, 9-24-2012)

2-11-1. - Purpose and intent.

The administrative enforcement procedures established within this Chapter are intended to provide the City of St. Francis with an informal, cost-effective and more efficient supplement or alternative to criminal prosecution or civil litigation for certain violations of the adopted City Code. The City of St. Francis retains the right, at its sole discretion, to enforce provisions of this Code by bringing criminal charges or commencing civil litigation in any case where the City determines it is appropriate or necessary, but finds that an administrative process is beneficial to the residents of the City and further finds that that such a process is a legitimate and necessary alternative method of enforcing Code violations.

2-11-2. - General provisions.

- A. *Administrative Offenses.* Any violation of any section or chapter of the City Code, and any violation of the terms and/or conditions of any license, permit, or other approval issued pursuant to the City Code, is an administrative offense that may be subject to an administrative citation and administrative fines.
- B. *Continuing Violations.* Each day a violation exists constitutes a separate and distinct offense for which a separate penalty can be imposed. The City Administrator can exercise discretion in imposing an administrative fine for more than one day of a continuing offense.
- C. *Schedule of Fines.* The City Council shall adopt by ordinance, as part of the fee schedule, a schedule of administrative fines for offenses for which an administrative citation is issued. A current fee schedule shall be kept on file at City Hall.
- D. *No Limitation on Remedies.* Nothing herein is intended or shall require the City to utilize the administrative citation process or otherwise pursue the remedies outlined in this section. The City retains the right to pursue any and all other remedies authorized by law to enforce the City Code or penalize violations of city ordinances, including, but not limited to, issuance of a stop work order, abatement, criminal prosecution, and/or application for civil penalties or injunctive relief.
- E. *Code Compliance Officer.* The Code Compliance Officer shall be any person so appointed to carry out such duties so assigned by the City Administrator including but not limited to the Building Official, Zoning Administrator, Public Works Director, City Clerk, Fire Chief, and any member of the Police Department.

2-11-3. - Procedure.

- A. *Administrative Notice.* A Code Compliance Officer may issue, either in person or by United States first class mail, an administrative notice to a person suspected, alleged or known to have committed a code offense and/or to be the owner of property upon which a code offense is being committed. The Administrative Notice shall identify the code offense, the location upon which the code offense is alleged to have occurred or is occurring, and the corrective action for the code offense. The administrative notice may also state that the alleged violator has, at the discretion of the Code Compliance Officer, no more than twenty (20) days to correct or abate the code offense. Immediate compliance may be required upon the existence of a public health or safety condition. If the alleged violator and/or owner of property upon which a code offense is being committed is unable to correct or abate the code offense within the prescribed time, that person may request in writing an extension of no more than thirty (30) additional days from the Code Compliance Officer. Any extension granted by the Code Compliance Officer shall be in writing and shall specifically state the date of expiration, which shall be determined at the discretion of the Code Compliance Officer. If the code offense is not corrected or abated, as outlined in the administrative notice, within the prescribed time or any extension thereto, the Code Compliance Officer may issue a citation, as provided in Section 2-11-3-C.
- B. *Exceptions to Administrative Notice.* For violations of any of the following sections, the City shall not be required to issues an administrative notice or compliance letter and may proceed directly to an administrative citation as provided for in Section 2-11-3-C:
1. *Repeat Offenders.* If the same owner or person commits a subsequent violation within twelve (12) months of after an administrative notice or citation has been issued for the same or similar offense, no compliance letter or administrative notice shall be required for the new violation.
 2. *License Violations.* For any license violations, including not having a license, no compliance letter or administrative notice shall be required.
- C. *Citation.* Upon receiving no response or continued noncompliance following issuance of the administrative notice or code compliance letter as stated in Section 2-11-3-A, the Code Compliance Officer may issue a citation. The citation shall be given to the person responsible for the violation and/or to the owner of the property upon which the alleged violation has occurred, either by personal service or by United States first class mail. Said citation shall state the nature of the code offense, the time and date said alleged code offense occurred, the civil penalty applicable to that code offense as set forth in a

schedule of civil penalties which shall be adopted by resolution of the City Council from time to time, and the manner for paying the civil penalty or requesting a hearing before a hearing officer to contest the citation.

- D. *Responding to a Citation.* Once a citation is issued, the alleged violator and/or the owner of the property upon which the alleged violation has occurred shall, within ten (10) days of the time of issuance of the citation, either pay the civil penalty set forth in the citation or request a hearing in writing according to the procedure set forth in Section 2-11-4-A. The civil penalty may be paid either in person at City Hall, or by United States first class mail, postage prepaid and postmarked within said prescribed fourteen (14) days. Payment of the civil penalty shall be deemed to be an admission of the code offense.
- E. *Payment of Penalty.*
1. *Payment of a Penalty and Correction of Violation.* If the owner pays the administrative civil penalty and corrects the City Code violation, no further action will be taken against the owner or the owner's real property for that same violation.
 2. *Payment of Penalty without Correction of Violation.* If the owner pays the administrative civil penalty but fails to correct the City Code violation, the City may issue subsequent administrative citations, initiate criminal proceedings, or initiate any other proceeding or remedies available in order to enforce correction of the City Code violation.
 3. *No Payment of Penalty and No Correction of Violation.* If the owner fails to pay the administrative civil penalty but fails to correct the City Code violation, the City may do any of the following, or any combination thereof:
 - a. Assess the administrative civil penalty against the property pursuant to Minnesota Statutes Chapter 429.
 - b. Issue a subsequent administrative citation, thereby commencing a new administrative penalties process.
 - c. Initiate criminal proceedings.
 - d. Initiate any other enforcement action authorized by law.

2-11-4. - Appeal and hearing.

- A. *Requesting a Hearing.* Any person receiving an administrative citation may contest the alleged violation and the amount of the administrative civil penalty. In order to contest any part of the administrative citation, the owner or individual contesting the citation must notify the City Clerk in writing within ten (10) calendar days after the citation is mailed or otherwise delivered. The written request shall state the name of the individual,

indicate whether they are contesting the alleged violation, the amount of the penalty, or both and must also specify the reason and facts upon which the individual is contesting the citation.

- B. *Hearing Officer.* The hearing officer shall be a neutral third party appointed by the City Council and shall preside over the hearing and make any judgment as authorized by Section 2-11-4-D.
- C. *Conduct at Hearing.* A hearing officer shall conduct an informal hearing to determine if a violation has occurred. The hearing officer shall consider the record and any additional evidence presented at the hearing and accepted into the record by the hearing officer before making a determination. The officer shall receive and give weight to evidence, including hearsay evidence that possesses probative value commonly accepted by reasonable and prudent people in the conduct of their affairs. The City will have the burden of proving the existence of a violation and the reasonableness of any required corrective action by a preponderance of the evidence. The determination of the enforcement officer will be given substantial weight by the hearing officer in determining the reasonableness of any required corrective action.
- D. *Authority of Hearing Officer.* The independent hearing officer has the authority to do any of the following, or a combination thereof:
 - 1. Make a finding that a violation has occurred;
 - 2. Reduce, stay, or waive a scheduled administrative civil penalty either unconditionally or upon compliance with reasonable conditions;
 - 3. Require compliance with the City Code within a specified timeframe;
 - 4. Make a finding that no violation has occurred and dismiss the administrative citation.
- F. *Owner/Individual Found in Violation.* If the violation is sustained by the hearing officer, the violator shall pay the penalty imposed plus an additional administrative hearing fee as prescribed by the City's Fee Schedule to cover the cost of the hearing within fourteen (14) days of the date of the decision.
- G. *Failure to Appear.* Failure to appear at the hearing shall result in a default judgment against the party who fails to appear. If the owner fails to appear, the administrative citation shall be sustained. If the City fails to appear, the administrative citation shall be dismissed.

2-11-5. - Judicial review.

The Hearing Officer's decision is final without any further right of administrative appeal. Further appeal shall be to the Minnesota Court of Appeals under the Minnesota Rules of Civil Procedure.

2-11-6. - Violation a misdemeanor.

The following are misdemeanors, punishable in accordance with state law:

- A. Failure to pay an administrative fine imposed by administrative citation within fourteen (14) days after it has been imposed unless the matter is appealed to the City as provided herein.
- B. Failure to pay an administrative fine within fourteen (14) days after it has been imposed by the hearing officer, or such other time as may be established by the hearing officer, unless the matter is appealed to district court as provided herein. If the final determination in the administrative penalty process is a finding that no violation occurred, then the City may not prosecute a criminal violation in district court based on the same set of facts. This does not preclude the City from pursuing a criminal prosecution for a violation for the same provision based on a different set of facts. A different date of violation will constitute a different set of facts.

**CITY COUNCIL
AGENDA REPORT**

Agenda Item #:

2

TO: Mayor & City Council
FROM: Joe Kohlmann, City Administrator ; Paul Teicher, Public Works Director
SUBJECT: Kings Highway / Riverbank Lane
DATE: June 11th, 2018

The City has been reviewing the possibility of improvements to Kings Highway/Riverbank Lane. The City applied for a local road improvement grant, however due to the competitive nature of the grant applicant pool, was not awarded grant funds.

There are basically three scenarios the City has received from Hakanson Anderson:

- 1) Stormwater only improvements - **\$269,400** – 60/40 City/Residents
- 2) Street and Stormwater improvements - **\$461,079**
 - a. Stormwater 60/40 - **\$220,959**
 - b. Road 100% assessed – **\$240,120**
- 3) Both 1 & 2 and also adding municipal water/sewer – **\$1,055,222**

Assessment Scenarios are summarized below:

Assessment Units	Scenario 1	Scenario 2	Scenario 3
29	\$3,716	\$11,328	\$31,816
31	\$3,476	\$10,597	\$29,763

	Scenario 1	Scenario 2	Scenario 3
City Cost Share	\$161,640	\$132,575	\$132,575
Assessment Totals	\$107,760	\$328,504	\$922,647
Project Totals	\$269,400	\$461,079	\$1,055,222

Discussion:

Discuss the scenarios on the table and determine a future worksession date to invite the residents on these streets to discuss the scenarios.

ATTACHMENTS:

Summary Excerpts from Hakanson Anderson's Draft Feasibility Report

Feasibility Report for

Street and Drainage Improvements on Kings Highway and Riverbank Lane

City of St. Francis, MN

September 18, 2017



Prepared by:



3601 Thurston Avenue

Anoka, MN

Phone: 763-427-5860

Fax: 763-427-0520

CERTIFICATION

Feasibility Report
For

Street and Drainage Improvements on
Kings highway and Riverbank Lane



I hereby certify that this plan, specification or report 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.

By: _____

Craig J. Jochum, P.E.

License No. 23461

Date: _____

TABLE OF CONTENTS

TITLE SHEET

TABLE OF CONTENTS

1.	INTRODUCTION.....	1
2.	EXISTING CONDITIONS.....	1
3.	PROPOSED IMPROVEMENTS	1
4.	PROPOSED ASSESSMENTS	3
5.	CONCLUSIONS AND RECOMMENDATIONS	3

EXHIBIT A – Project Area

TABLES

- A-1 – Preliminary Engineers Estimate – Riverbank Lane – Stormwater Improvement Only
- A-2 – Preliminary Engineers Estimate – Kings Highway – Stormwater Improvements Only
- A-3 – Preliminary Engineers Estimate – Kings Highway – Street and Stormwater Improvements
- A-4 – Preliminary Engineers Estimate – Riverbank Lane – Street and Stormwater Improvements
- A-5 – Preliminary Engineers Estimate – Municipal Sewer and Water Improvements

APPENDIX

- A STORMWATER CALCULATIONS
- B PRELIMINARY CONSTRUCTION PLANS

INTRODUCTION

The City Council authorized Hakanson Anderson to prepare a feasibility study for the improvement of Kings Highway and Riverbank Lane. The area considered in this report is shown on Exhibit A. Provided herein are recommendations for construction, preliminary cost estimates, estimated assessment costs, and preliminary construction plans.

EXISTING CONDITIONS

Kings Highway is approximately 1,420 feet long from 245th Avenue to Riverbank Lane. The other street, Riverbank Lane, is approximately 2,230 feet long from the westerly cul-de-sac to the City limits. The total length of both streets is approximately 3,650 feet. There has been a number of reviews and discussions regarding this area over the past 20 years. Many of the issues are related to stormwater runoff and erosion. Both of these roads currently have a gravel surface.

PROPOSED IMPROVEMENTS

Three improvement scenarios were reviewed as part of this study. The scenarios include completing drainage improvements without paving the road, completing drainage improvements with paving the roads, and the third scenario reviewed constructing municipal services along with the stormwater and street improvements. A preliminary set of construction plans were prepared as part of this study. The plans are included in Appendix B.

A preliminary review of the project drainage was also completed. The drainage areas and flow directions are shown on Figure 1 in Appendix A. Stormwater calculations for the 10-year storm event are also included in Appendix A. With the exception of the culvert that drains directly to the Rum River, culverts would be sized to accommodate flows from the 10-year event. 15-inch culverts are adequate for all drainage areas.

The Culvert that drains directly to the Rum River is the outlet for subwatershed 13. This culvert should be sized for the 100-year event or as an alternative the overflow berm could be adequately protected from erosion and the pipe sized for the 10-year event. This culvert would be a 15-inch or 21-inch for the 10-year or 100-year storm event, respectively.

Scenario 1

Scenario 1 would include only completing stormwater improvements. In general, these improvements would include:

1. Reconstruct the existing ditches;
2. Remove and replace existing culverts and install flared end sections;
3. Construction ditch backslopes where needed; and
4. Lower road where necessary to accommodate ditching.

It is also proposed to construct a catch basin and storm sewer and stormwater pond on the west end of Riverbank Lane as shown on Sheet 3 of the plans.

The estimated cost of this scenario for Riverbank Lane and Kings highway is \$162,000 and \$66,202 respectively. The construction costs are shown in detail on Tables A-1 and A-2. The total project cost is summarized in Table 1 below:

TABLE 1
Stormwater Improvements Only

	Kings Highway Construction Cost	Riverbank Lane Construction Costs	Total Estimated Construction Costs	18% Construction Contingency & Overhead	Total Estimated Project Cost
Total Project Cost	\$66,202	\$162,103	\$228,305	\$41,095	\$269,400

Scenario 2

Scenario 2 would include the improvements discussed above and would include paving the streets. The proposed typical sections are shown on the construction plans, which are included in Appendix B. The estimated cost of this scenario for Riverbank Lane and Kings highway is \$129,780 and \$260,965 respectively. The construction costs are shown in detail on Tables A-3 and A-4. The total project cost is summarized in Table 2 below:

TABLE 2
Street and Stormwater Improvements

	Kings Highway Construction Cost	Riverbank Lane Construction Costs	Total Estimated Construction Costs	18% Construction Contingency & Overhead	Total Estimated Project Cost
100% Road Const.	\$66,778	\$116,584	\$183,362	\$33,005	\$216,367
100% Stormwater Const.	\$47,152	\$119,972	\$167,124	\$30,082	\$197,206
50% Road & 50% Stormwater	\$15,850	\$24,409	\$40,259	\$7,247	\$47,506
Total Road Cost	\$74,703	\$128,789	\$203,492	\$36,629	\$240,120
Total Stormwater Cost	\$55,077	\$132,177	\$187,254	\$33,706	\$220,959
		Project Totals	\$390,746	\$70,335	\$461,079

Scenario 3

Scenario 3 would include the improvements from Scenario 1 and 2 and would include constructing the municipal water distribution system and wastewater collection system within Kings Highway and Riverbank Lane. The estimated construction cost to complete the municipal utilities is \$594,143, which is shown on Table A-5. This scenario would have a total estimated project cost of \$1,055,222. In order to assess the municipal utilities, the City would need to complete the trunk connections to these properties. The closest utilities currently are at the intersection of Ambassador Boulevard and Trunk Highway 47. The cost of these trunk facilities, are not included in this study.

PROPOSED ASSESSMENTS

Project costs would be assessed to abutting property owners which are shown on Exhibit A. There are 31 benefitting lots within St. Francis and a total of 29 separate owners. There are also 2 parcels in Standford Township that access Kings Highway through existing St. Francis parcels. The City Council should consider working with the Stanford Town Board to assess these two parcels. Table 3 below summarizes the proposed assessments for each scenario based on only the St. Francis parcels. If the two property owners that own two lots combine their parcels, there will be a total of 29 assessments units and if they don't there will be 31 assessment units. The assessments are based on the City's current assessment policy, which is 100% assessment for road improvements and 40% assessment on stormwater improvements. Table 4 summarizes the cost share for each scenario between the City's share and the proposed assessments.

TABLE 3
Summary of Total Assessments

Assessment Units	Scenario 1	Scenario 2	Scenario 3
29	\$3,716	\$11,328	\$31,816
31	\$3,476	\$10,597	\$29,763

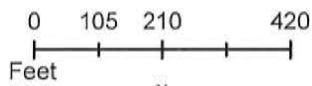
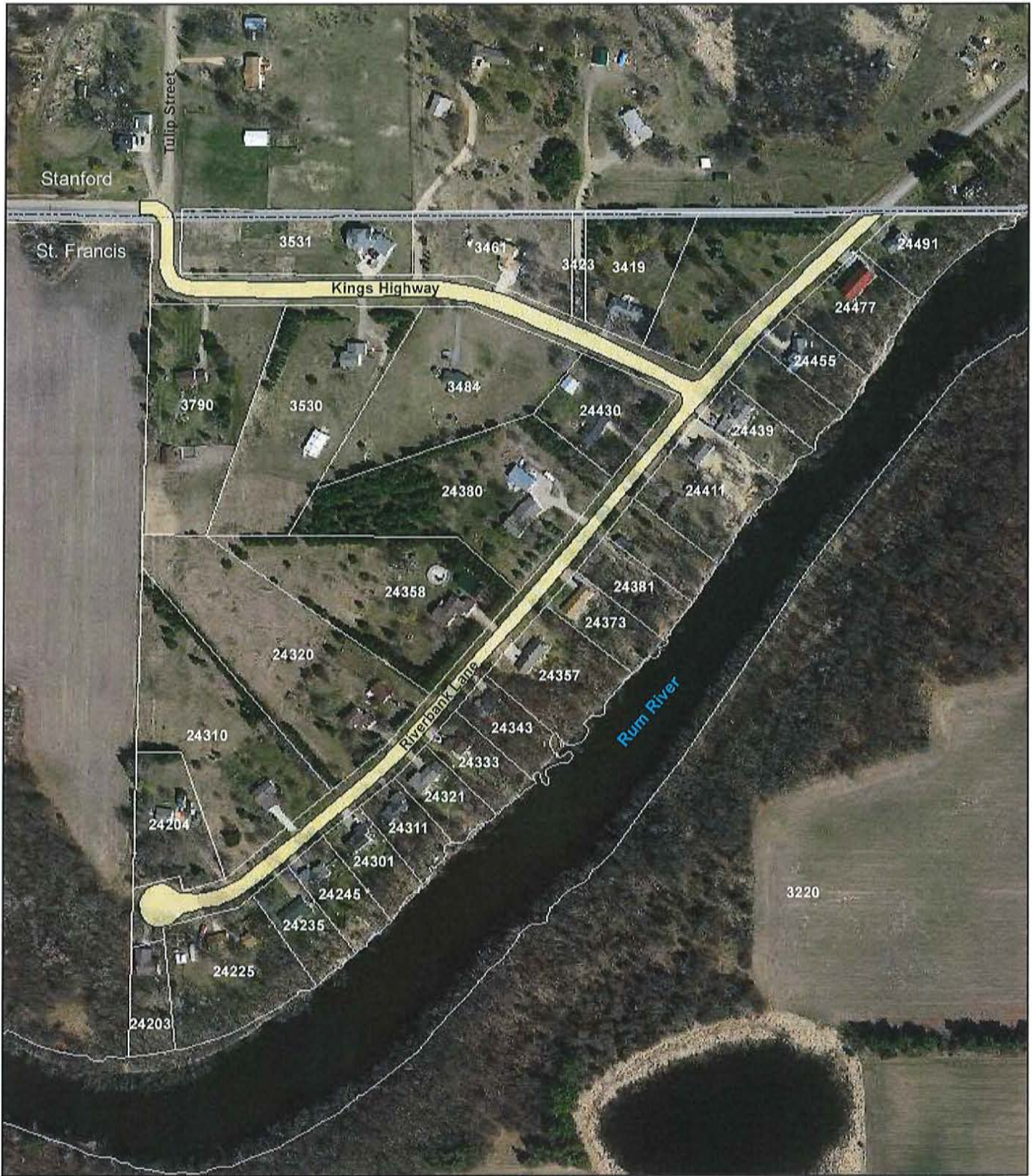
TABLE 4
Summary of Cost Share

	Scenario 1	Scenario 2	Scenario 3
City Cost Share	\$161,640	\$132,575	\$132,575
Assessment Totals	\$107,760	\$328,504	\$922,647
Project Totals	\$269,400	\$461,079	\$1,055,222

CONCLUSIONS AND RECOMMENDATIONS

We find that this project is necessary, cost effective and feasible from a technical and engineering standpoint, and benefits the properties proposed to be assessed. This project should be made as proposed and it is not necessary to combine it with any other project. We would recommend that the City Council accept this report.

EXHIBITS



**Hakanson
Anderson**

Legend

-  Gravel Surface
-  Parcels
-  City Boundary

**Exhibit A
Project Area**

TABLES

(A1 – A5)

Table A-1

**Preliminary Engineers Estimate
City of St. Francis
Riverbank Lane - Stormwater Improvements Only**

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
1	MOBILIZATION	1	LUMP SUM	\$4,500.00	\$4,500
2	CLEARING & GRUBBING	1	LUMP SUM	\$2,500.00	\$2,500
3	REMOVE CULVERTS	250	LIN FT	\$5.00	\$1,250
4	COMMON EXCAVATION (EV)	3100	CU YD	\$12.30	\$38,130
5	HAUL AND DISPOSE EXCESS MATERIAL	4030	CU YD	\$5.80	\$23,374
6	SALVAGE TOPSOIL	1116	CU YD	\$5.00	\$5,580
7	SALVAGED AGGREGATE (CV)	225	CU YD	\$25.75	\$5,794
8	AGGREGATE BASE (CV)	600	TON	\$16.00	\$9,600
8	15" CP PIPE CULVERT (SMOOTH)	510	LIN FT	\$41.05	\$20,936
9	15" CS PIPE APRON	36	EACH	\$225.00	\$8,100
10	15" RC PIPE APRON	5	EACH	\$950.00	\$4,750
11	15" RC PIPE CULVERT DESIGN 3006 CLASS III	236	LIN FT	\$80.00	\$18,880
12	27" DIAMETER CATCH BASIN	1	EACH	\$1,200.00	\$1,200
13	CASTING ASSEMBLY	1	EACH	\$600.00	\$600
14	SILT FENCE, TYPE MACHINE SLICED	1000	LIN FT	\$1.60	\$1,600
15	TRAFFIC CONTROL	1	LUMP SUM	\$500.00	\$500
16	SEDIMENT CONTROL LOG TYPE WOOD CHIP	100	LIN FT	\$3.15	\$315
17	FERTILIZER TYPE 1	630	POUND	\$0.80	\$504
18	HYDROSEEDING	2.1	ACRE	\$3,210.00	\$6,741
19	SEED MIXTURE 25-121	130	POUND	\$4.55	\$592
20	EROSION CONTROL BLANKETS	1000	SQ YD	\$2.80	\$2,800
21	HYDRAULIC NATURAL TACKIFIER	10164	SQ YD	\$0.35	\$3,557
22	CULVERT END CONTROLS	2	EACH	\$150.00	\$300

\$162,103

Total Estimated Construction Cost \$162,103

Table A-2

**Preliminary Engineers Estimate
City of St. Francis
Kings Highway - Stormwater Improvements Only**

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
1	MOBILIZATION	1	LUMP SUM	\$3,500.00	\$3,500
2	CLEARING & GRUBBING	1	LUMP SUM	\$2,500.00	\$2,500
3	REMOVE CULVERTS	180	LIN FT	\$5.00	\$900
4	COMMON EXCAVATION (EV)	1300	CU YD	\$12.30	\$15,990
5	HAUL AND DISPOSE EXCESS MATERIAL	1690	CU YD	\$5.80	\$9,802
6	SALVAGE TOPSOIL	667	CU YD	\$5.00	\$3,335
7	15" CP PIPE CULVERT (SMOOTH)	300	LIN FT	\$41.05	\$12,315
8	15" CS PIPE APRON	18	EACH	\$225.00	\$4,050
9	15" RC PIPE APRON	2	EACH	\$950.00	\$1,900
10	15" RC PIPE CULVERT DESIGN 3006 CLASS III	32	LIN FT	\$80.00	\$2,560
11	SILT FENCE, TYPE MACHINE SLICED	1000	LIN FT	\$1.60	\$1,600
12	TRAFFIC CONTROL	1	LUMP SUM	\$500.00	\$500
13	SEDIMENT CONTROL LOG TYPE WOOD CHIP	100	LIN FT	\$3.15	\$315
14	FERTILIZER TYPE 1	360	POUND	\$0.80	\$288
15	HYDROSEEDING	1.2	ACRE	\$3,210.00	\$3,852
16	SEED MIXTURE 25-121	73	POUND	\$4.55	\$332
17	EROSION CONTROL BLANKETS	100	SQ YD	\$2.80	\$280
18	HYDRAULIC NATURAL TACKIFIER	5808	SQ YD	\$0.35	\$2,033
19	CULVERT END CONTROLS	1	EACH	\$150.00	\$150

\$66,202

Total Estimated Construction Cost

\$66,202

Table A-3

Preliminary Engineers Estimate
City of St. Francis
Kings Highway - Street and Stormwater Improvements

100% Road Costs

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
1	MILL BITUMINOUS SURFACE	5	SQ YD	\$9.50	\$48
2	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	24	LIN FT	\$4.30	\$103
3	SALVAGE MAILBOX	7	EACH	\$41.20	\$288
4	SUBGRADE PREPARATION	14	ROAD STA	\$150.00	\$2,100
5	AGGREGATE BASE CLASS 5	908	TON	\$16.00	\$14,528
6	SHOULDER BASE AGGREGATE CLASS 2	68	TON	\$45.65	\$3,104
7	BITUMINOUS MATERIAL FOR TACK COAT	216	GALLON	\$1.75	\$378
8	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	327	TON	\$54.45	\$17,805
9	TYPE SP 12.5 NON WEARING COURSE MIXTURE (2,B)	436	TON	\$52.31	\$22,807
10	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B) 3" THICK	30	SQ YD	\$19.48	\$584
11	6" CONCRETE DRIVEWAY PAVEMENT	60	SQ YD	\$59.51	\$3,571
12	FURNISH & INSTALL MAILBOX SUPPORT	7	EACH	\$150.00	\$1,050
13	SIGN PANELS TYPE C	10	SQ FT	\$41.20	\$412
					\$66,778

100% Stormwater Costs

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
14	CLEARING & GRUBBING	1	LUMP SUM	\$2,500.00	\$2,500
15	REMOVE CULVERTS	180	LIN FT	\$5.00	\$900
16	COMMON EXCAVATION (EV)	750	CU YD	\$12.30	\$9,225
17	HAUL AND DISPOSE EXCESS MATERIAL	975	CU YD	\$5.80	\$5,655
18	SALVAGE TOPSOIL	667	CU YD	\$5.00	\$3,335
19	SALVAGED AGGREGATE (CV)	50	CU YD	\$25.75	\$1,288
20	15" CP PIPE CULVERT (SMOOTH)	300	LIN FT	\$41.05	\$12,315
21	15" CS PIPE APRON	18	EACH	\$225.00	\$4,050
22	15" RC PIPE APRON	2	EACH	\$950.00	\$1,900
23	15" RC PIPE CULVERT DESIGN 3006 CLASS III	32	LIN FT	\$80.00	\$2,560
24	CONCRETE CURB & GUTTER	320	LIN FT	\$10.70	\$3,424
					\$47,152

50% Road Costs and 50% Stormwater Costs

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
25	MOBILIZATION	1	LUMP SUM	\$6,500.00	\$6,500
26	SILT FENCE, TYPE MACHINE SLICED	1000	LIN FT	\$1.60	\$1,600
27	TRAFFIC CONTROL	1	LUMP SUM	\$500.00	\$500
28	SEDIMENT CONTROL LOG TYPE WOOD CHIP	100	LIN FT	\$3.15	\$315
29	FERTILIZER TYPE 1	360	POUND	\$0.80	\$288
30	HYDROSEEDING	1.2	ACRE	\$3,210.00	\$3,852
31	SEED MIXTURE 25-121	73	POUND	\$4.55	\$332
32	EROSION CONTROL BLANKETS	100	SQ YD	\$2.80	\$280
33	HYDRAULIC NATURAL TACKIFIER	5808	SQ YD	\$0.35	\$2,033
34	CULVERT END CONTROLS	1	EACH	\$150.00	\$150
					\$15,850

Total Estimated Construction Cost \$129,780

Table A-4

**Preliminary Engineers Estimate
City of St. Francis
Riverbank Lane - Street and Stormwater Improvements**

100% Road Costs

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
1	MILL BITUMINOUS SURFACE	5	SQ YD	\$9.50	\$48
2	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	24	LIN FT	\$4.30	\$103
3	SALVAGE MAILBOX	23	EACH	\$41.20	\$948
4	SUBGRADE PREPARATION	23	ROAD STA	\$150.00	\$3,450
5	AGGREGATE BASE CLASS 5	1223	TON	\$16.00	\$19,568
6	SHOULDER BASE AGGREGATE CLASS 2	97	TON	\$45.65	\$4,428
7	BITUMINOUS MATERIAL FOR TACK COAT	362	GALLON	\$1.75	\$634
8	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B)	547	TON	\$54.45	\$29,784
9	TYPE SP 12.5 NON WEARING COURSE MIXTURE (2,B)	729	TON	\$52.31	\$38,134
10	TYPE SP 9.5 WEARING COURSE MIXTURE (2,B) 3" THICK	220	SQ YD	\$19.48	\$4,286
11	6" CONCRETE DRIVEWAY PAVEMENT	185	SQ YD	\$59.51	\$11,009
12	FURNISH & INSTALL MAILBOX SUPPORT	23	EACH	\$150.00	\$3,450
13	SIGN PANELS TYPE C	18	SQ FT	\$41.20	\$742
					\$116,584

100% Stormwater Costs

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
14	CLEARING & GRUBBING	1	LUMP SUM	\$2,500.00	\$2,500
15	REMOVE CULVERTS	250	LIN FT	\$5.00	\$1,250
16	COMMON EXCAVATION (EV)	2100	CU YD	\$12.30	\$25,830
17	HAUL AND DISPOSE EXCESS MATERIAL	2730	CU YD	\$5.80	\$15,834
18	SALVAGE TOPSOIL	1116	CU YD	\$5.00	\$5,580
19	SALVAGED AGGREGATE (CV)	225	CU YD	\$25.75	\$5,794
20	CONCRETE FLUME	2	EACH	\$721.00	\$1,442
21	15" CP PIPE CULVERT (SMOOTH)	510	LIN FT	\$41.05	\$20,936
22	15" CS PIPE APRON	36	EACH	\$225.00	\$8,100
23	15" RC PIPE APRON	5	EACH	\$950.00	\$4,750
24	15" RC PIPE CULVERT DESIGN 3006 CLASS III	236	LIN FT	\$80.00	\$18,880
25	27" DIAMETER CATCH BASIN	1	EACH	\$1,200.00	\$1,200
26	CASTING ASSEMBLY	1	EACH	\$600.00	\$600
27	CONCRETE CURB & GUTTER	680	LIN FT	\$10.70	\$7,276
					\$119,972

50% Road Costs and 50% Stormwater Costs

ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
28	MOBILIZATION	1	LUMP SUM	\$7,500.00	\$7,500
29	SILT FENCE, TYPE MACHINE SLICED	1000	LIN FT	\$1.60	\$1,600
30	TRAFFIC CONTROL	1	LUMP SUM	\$500.00	\$500
31	SEDIMENT CONTROL LOG TYPE WOOD CHIP	100	LIN FT	\$3.15	\$315
32	FERTILIZER TYPE 1	630	POUND	\$0.80	\$504
33	HYDROSEEDING	2.1	ACRE	\$3,210.00	\$6,741
34	SEED MIXTURE 25-121	130	POUND	\$4.55	\$592
35	EROSION CONTROL BLANKETS	1000	SQ YD	\$2.80	\$2,800
36	HYDRAULIC NATURAL TACKIFIER	10164	SQ YD	\$0.35	\$3,557
37	CULVERT END CONTROLS	2	EACH	\$150.00	\$300
					\$24,409

Total Estimated Construction Cost \$260,965

Table A-5

Preliminary Engineers Estimate
 City of St. Francis
 Municipal Sewer and Water Improvements

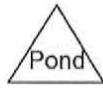
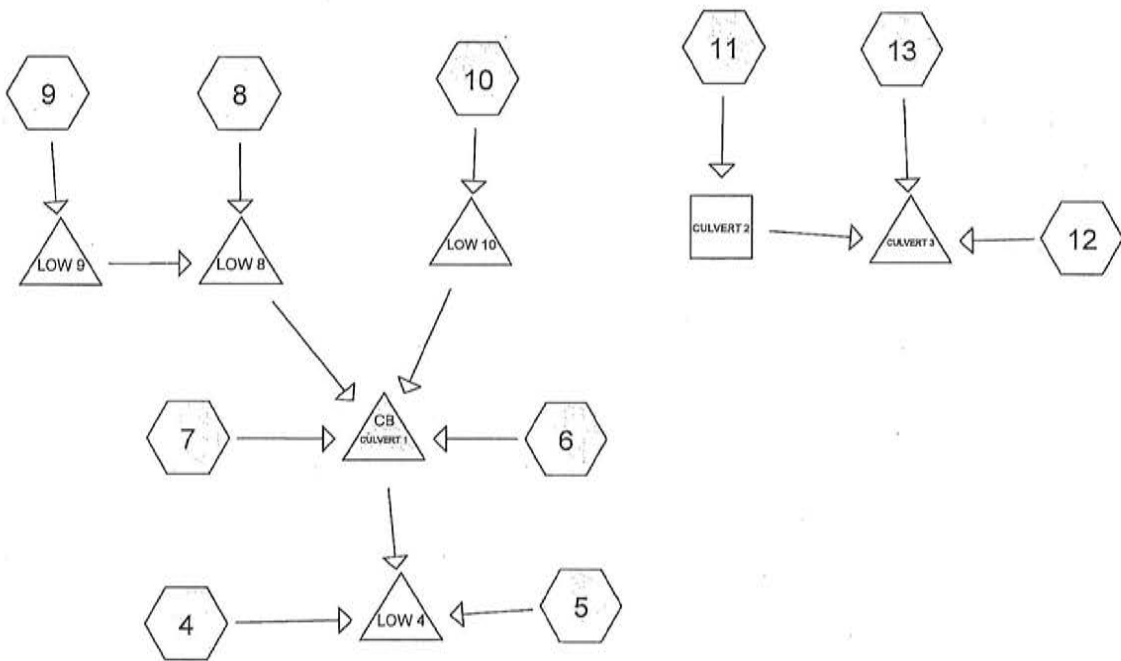
ITEM NO.	ITEM DESCRIPTION	ESTIMATED QUANTITY		UNIT PRICE	EXTENSION
1	MOBILIZATION	1	LUMP SUM	\$125,000.00	\$ 125,000.00
2	8" PVC PIPE SEWER	3,900	LIN FT	\$32.00	\$ 124,800.00
3	8" X 4" PVC WYE	31	EACH	\$250.00	\$ 7,750.00
4	4" PVC PIPE PLUG	31	EACH	\$50.00	\$ 1,550.00
5	4" PVC SANITARY SERVICE PIPE SDR 26	930	LIN FT	\$26.00	\$ 24,180.00
6	CLEAN AND VIDEO TAPE PIPE SEWER	3,900	LIN FT	\$2.00	\$ 7,800.00
7	1" CORPORATION STOP	31	EACH	\$165.00	\$ 5,115.00
8	6" GATE VALVE AND BOX	9	EACH	\$1,200.00	\$ 10,800.00
9	8" GATE VALVE AND BOX	6	EACH	\$1,600.00	\$ 9,600.00
10	1" CURB STOP AND BOX	31	EACH	\$200.00	\$ 6,200.00
11	HYDRANT	9	EACH	\$3,500.00	\$ 31,500.00
12	HYDRANT RISER	10	LIN FT	\$550.00	\$ 5,500.00
13	1" TYPE K COPPER PIPE	930	LIN FT	\$15.00	\$ 13,950.00
14	6" WATERMAIN	200	LIN FT	\$20.00	\$ 4,000.00
15	8" WATERMAIN	3,900	LIN FT	\$25.00	\$ 97,500.00
16	4" POLYSTYRENE INSULATION	20	SQ YD	\$42.00	\$ 840.00
17	DUCTILE IRON FITTINGS	1,200	POUND	\$5.75	\$ 6,900.00
18	CONSTRUCT DRAINAGE STRUCTURE DESIGN 4007	13	EACH	\$4,500.00	\$ 58,500.00
19	CASTING ASSEMBLY	13	EACH	\$666.00	\$ 8,658.00
20	ADDITIONAL GRAVEL	2,750	TON	\$16.00	\$ 44,000.00

\$ 594,143.00

Total Estimated Cost \$ 594,143.00

APPENDIX A

Stormwater Calculations



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
 Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
 Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1:	Runoff Area=0.670 ac 34.33% Impervious Runoff Depth=0.98" Tc=10.0 min CN=62 Runoff=0.91 cfs 0.055 af
Subcatchment 2:	Runoff Area=0.920 ac 25.00% Impervious Runoff Depth=0.67" Tc=10.0 min CN=56 Runoff=0.74 cfs 0.051 af
Subcatchment 3:	Runoff Area=6.080 ac 4.11% Impervious Runoff Depth=0.11" Tc=20.0 min CN=41 Runoff=0.08 cfs 0.058 af
Subcatchment 4:	Runoff Area=11.020 ac 3.63% Impervious Runoff Depth=0.14" Tc=20.0 min CN=42 Runoff=0.20 cfs 0.128 af
Subcatchment 5:	Runoff Area=3.340 ac 11.98% Impervious Runoff Depth=0.33" Tc=15.0 min CN=48 Runoff=0.54 cfs 0.091 af
Subcatchment 6:	Runoff Area=1.410 ac 34.75% Impervious Runoff Depth=0.98" Tc=10.0 min CN=62 Runoff=1.92 cfs 0.115 af
Subcatchment 7:	Runoff Area=2.110 ac 3.32% Impervious Runoff Depth=0.11" Tc=10.0 min CN=41 Runoff=0.03 cfs 0.020 af
Subcatchment 8:	Runoff Area=4.140 ac 1.21% Impervious Runoff Depth=0.14" Tc=15.0 min CN=42 Runoff=0.08 cfs 0.048 af
Subcatchment 9:	Runoff Area=0.640 ac 0.00% Impervious Runoff Depth=0.26" Tc=10.0 min CN=46 Runoff=0.07 cfs 0.014 af
Subcatchment 10:	Runoff Area=3.870 ac 2.58% Impervious Runoff Depth=0.17" Tc=10.0 min CN=43 Runoff=0.11 cfs 0.054 af
Subcatchment 11:	Runoff Area=1.870 ac 22.99% Impervious Runoff Depth=0.57" Tc=10.0 min CN=54 Runoff=1.19 cfs 0.089 af
Subcatchment 12:	Runoff Area=0.820 ac 52.44% Impervious Runoff Depth=1.69" Tc=10.0 min CN=73 Runoff=2.08 cfs 0.115 af
Subcatchment 13:	Runoff Area=0.640 ac 10.94% Impervious Runoff Depth=0.23" Tc=10.0 min CN=45 Runoff=0.04 cfs 0.012 af
Reach CULVERT 2:	Avg. Flow Depth=0.24' Max Vel=7.17 fps Inflow=1.19 cfs 0.089 af 15.0" Round Pipe n=0.012 L=41.0' S=0.0437' Capacity=14.62 cfs Outflow=1.18 cfs 0.089 af
Reach CULVERT 4:	Avg. Flow Depth=0.28' Max Vel=4.51 fps Inflow=0.91 cfs 0.055 af 15.0" Round Pipe n=0.012 L=178.0' S=0.0146' Capacity=8.46 cfs Outflow=0.89 cfs 0.055 af
Pond CULVERT 1:	Peak Elev=919.47' Inflow=1.92 cfs 0.136 af 15.0" Round Culvert n=0.012 L=45.0' S=0.0036' Outflow=1.92 cfs 0.136 af
Pond CULVERT 3:	Peak Elev=905.80' Storage=13 cf Inflow=3.25 cfs 0.217 af Outflow=3.25 cfs 0.217 af
Pond LOW 10:	Peak Elev=918.31' Storage=2,330 cf Inflow=0.11 cfs 0.054 af Outflow=0.00 cfs 0.000 af
Pond LOW 4:	Peak Elev=919.89' Storage=15,427 cf Inflow=2.22 cfs 0.355 af Outflow=0.00 cfs 0.000 af
Pond LOW 8:	Peak Elev=922.23' Storage=2,091 cf Inflow=0.08 cfs 0.048 af Outflow=0.00 cfs 0.000 af
Pond LOW 9:	Peak Elev=928.14' Storage=598 cf Inflow=0.07 cfs 0.014 af Outflow=0.00 cfs 0.000 af

Total Runoff Area = 37.530 ac Runoff Volume = 0.851 af Average Runoff Depth = 0.27"
 91.61% Pervious = 34.380 ac 8.39% Impervious = 3.150 ac

Summary for Subcatchment 1:

Runoff = 0.91 cfs @ 12.03 hrs, Volume= 0.055 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.230	98	Impervious
0.030	96	Gravel surface, HSG A
0.410	39	>75% Grass cover, Good, HSG A
0.670	62	Weighted Average
0.440	43	65.67% Pervious Area
0.230	98	34.33% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Subcatchment 2:

Runoff = 0.74 cfs @ 12.04 hrs, Volume= 0.051 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.230	98	Impervious
0.030	96	Gravel surface, HSG A
0.660	39	>75% Grass cover, Good, HSG A
0.920	56	Weighted Average
0.690	41	75.00% Pervious Area
0.230	98	25.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Subcatchment 3:

Runoff = 0.08 cfs @ 13.50 hrs, Volume= 0.058 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.250	98	Impervious
5.830	39	>75% Grass cover, Good, HSG A
6.080	41	Weighted Average
5.830	39	95.89% Pervious Area
0.250	98	4.11% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					Direct Entry,

Summary for Subcatchment 4:

Runoff = 0.20 cfs @ 13.02 hrs, Volume= 0.128 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.400	98	Impervious
0.100	96	Gravel surface, HSG A
10.520	39	>75% Grass cover, Good, HSG A
11.020	42	Weighted Average
10.620	40	96.37% Pervious Area
0.400	98	3.63% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.0					Direct Entry,

Summary for Subcatchment 5:

Runoff = 0.54 cfs @ 12.15 hrs, Volume= 0.091 af, Depth= 0.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.400	98	Impervious
0.100	96	Gravel surface, HSG A
2.840	39	>75% Grass cover, Good, HSG A
3.340	48	Weighted Average
2.940	41	88.02% Pervious Area
0.400	98	11.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

Summary for Subcatchment 6:

Runoff = 1.92 cfs @ 12.03 hrs, Volume= 0.115 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.490	98	Impervious
0.070	96	Gravel surface, HSG A
0.850	39	>75% Grass cover, Good, HSG A
1.410	62	Weighted Average
0.920	43	65.25% Pervious Area
0.490	98	34.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Subcatchment 7:

Runoff = 0.03 cfs @ 13.37 hrs, Volume= 0.020 af, Depth= 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.070	98	Impervious
2.040	39	>75% Grass cover, Good, HSG A
2.110	41	Weighted Average
2.040	39	96.68% Pervious Area
0.070	98	3.32% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Subcatchment 8:

Runoff = 0.08 cfs @ 12.60 hrs, Volume= 0.048 af, Depth= 0.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.050	98	Impervious
0.180	96	Gravel surface, HSG A
3.910	39	>75% Grass cover, Good, HSG A
4.140	42	Weighted Average
4.090	42	98.79% Pervious Area
0.050	98	1.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.0					Direct Entry,

Summary for Subcatchment 9:

Runoff = 0.07 cfs @ 12.10 hrs, Volume= 0.014 af, Depth= 0.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
0.080	96	Gravel surface, HSG A
0.560	39	>75% Grass cover, Good, HSG A
0.640	46	Weighted Average
0.640	46	100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Subcatchment 10:

Runoff = 0.11 cfs @ 12.43 hrs, Volume= 0.054 af, Depth= 0.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.100	98	Impervious
0.140	96	Gravel surface, HSG A
3.630	39	>75% Grass cover, Good, HSG A
3.870	43	Weighted Average
3.770	41	97.42% Pervious Area
0.100	98	2.58% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Subcatchment 11:

Runoff = 1.19 cfs @ 12.05 hrs, Volume= 0.089 af, Depth= 0.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.430	98	Impervious
0.050	96	Gravel surface, HSG A
1.390	39	>75% Grass cover, Good, HSG A
1.870	54	Weighted Average
1.440	41	77.01% Pervious Area
0.430	98	22.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Subcatchment 12:

Runoff = 2.08 cfs @ 12.02 hrs, Volume= 0.115 af, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.430	98	Impervious
0.050	96	Gravel surface, HSG A
0.340	39	>75% Grass cover, Good, HSG A
0.820	73	Weighted Average
0.390	46	47.56% Pervious Area
0.430	98	52.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Subcatchment 13:

Runoff = 0.04 cfs @ 12.11 hrs, Volume= 0.012 af, Depth= 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Type II 24-hr 10-Year Rainfall=4.22"

Area (ac)	CN	Description
* 0.070	98	Impervious
0.570	39	>75% Grass cover, Good, HSG A
0.640	45	Weighted Average
0.570	39	89.06% Pervious Area
0.070	98	10.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					Direct Entry,

Summary for Reach CULVERT 2:

Inflow Area = 1.870 ac, 22.99% Impervious, Inflow Depth = 0.57" for 10-Year event
Inflow = 1.19 cfs @ 12.05 hrs, Volume= 0.089 af
Outflow = 1.18 cfs @ 12.05 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.17 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.98 fps, Avg. Travel Time= 0.2 min

Peak Storage= 7 cf @ 12.05 hrs
Average Depth at Peak Storage= 0.24'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 14.62 cfs

15.0" Round Pipe
n= 0.012
Length= 41.0' Slope= 0.0437 '
Inlet Invert= 923.42', Outlet Invert= 921.63'



Summary for Reach CULVERT 4:

Inflow Area = 0.670 ac, 34.33% Impervious, Inflow Depth = 0.98" for 10-Year event
Inflow = 0.91 cfs @ 12.03 hrs, Volume= 0.055 af
Outflow = 0.89 cfs @ 12.05 hrs, Volume= 0.055 af, Atten= 2%, Lag= 1.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.51 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.68 fps, Avg. Travel Time= 1.8 min

Peak Storage= 36 cf @ 12.04 hrs
Average Depth at Peak Storage= 0.28'
Bank-Full Depth= 1.25' Flow Area= 1.2 sf, Capacity= 8.46 cfs

15.0" Round Pipe
n= 0.012
Length= 178.0' Slope= 0.0146 '
Inlet Invert= 917.60', Outlet Invert= 915.00'



Summary for Pond CULVERT 1:

Inflow Area = 12.170 ac, 5.83% Impervious, Inflow Depth = 0.13" for 10-Year event
Inflow = 1.92 cfs @ 12.03 hrs, Volume= 0.136 af
Outflow = 1.92 cfs @ 12.03 hrs, Volume= 0.136 af, Atten= 0%, Lag= 0.0 min
Primary = 1.92 cfs @ 12.03 hrs, Volume= 0.136 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

sf315Proposed Conditions (8-22-17)

Type II 24-hr 10-Year Rainfall=4.22"

Prepared by Hakanson Anderson

HydroCAD® 10.00-20 s/n 01341 © 2017 HydroCAD Software Solutions LLC

Page 7

Peak Elev= 919.47' @ 12.03 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	918.64'	15.0" Round Culvert L= 45.0' Square-edged headwall, Ke= 0.500 Inlet / Outlet Invert= 918.64' / 918.48' S= 0.0036 1' Cc= 0.900 n= 0.012, Flow Area= 1.23 sf

Primary OutFlow Max=1.87 cfs @ 12.03 hrs HW=919.46' (Free Discharge)

1=Culvert (Barrel Controls 1.87 cfs @ 3.12 fps)

Summary for Pond CULVERT 3:

Inflow Area = 3.330 ac, 27.93% Impervious, Inflow Depth = 0.78" for 10-Year event
 Inflow = 3.25 cfs @ 12.04 hrs, Volume= 0.217 af
 Outflow = 3.25 cfs @ 12.04 hrs, Volume= 0.217 af, Atten= 0%, Lag= 0.1 min
 Primary = 3.25 cfs @ 12.04 hrs, Volume= 0.217 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 905.80' @ 12.04 hrs Surf.Area= 34 sf Storage= 13 cf

Plug-Flow detention time= 0.1 min calculated for 0.216 af (100% of inflow)

Center-of-Mass det. time= 0.1 min (886.0 - 885.9)

Volume	Invert	Avail.Storage	Storage Description
#1	905.00'	341 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
905.00	0	0	0
906.00	42	21	21
907.00	149	96	117
908.00	300	225	341

Device	Routing	Invert	Outlet Devices
#1	Primary	905.00'	21.0" Round Culvert L= 43.0' Ke= 0.500 Inlet / Outlet Invert= 905.00' / 895.09' S= 0.2305 1' Cc= 0.900 n= 0.012, Flow Area= 2.41 sf
#2	Primary	907.00'	15.0' long x 0.5' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.17 cfs @ 12.04 hrs HW=905.79' (Free Discharge)

1=Culvert (Inlet Controls 3.17 cfs @ 3.02 fps)

2=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond LOW 10:

Inflow Area = 3.870 ac, 2.58% Impervious, Inflow Depth = 0.17" for 10-Year event
 Inflow = 0.11 cfs @ 12.43 hrs, Volume= 0.054 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 918.31' @ 24.60 hrs Surf.Area= 8,452 sf Storage= 2,330 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	918.00'	188,395 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
918.00	6,465	0	0
920.00	19,184	25,649	25,649
922.00	37,434	56,618	82,267
924.00	68,694	106,128	188,395

Summary for Pond LOW 4:

Inflow Area = 26.530 ac, 5.69% Impervious, Inflow Depth = 0.16" for 10-Year event
 Inflow = 2.22 cfs @ 12.05 hrs, Volume= 0.355 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Peak Elev= 919.89' @ 25.15 hrs Surf.Area= 79,633 sf Storage= 15,427 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)

Center-of-Mass det. time= (not calculated: no outflow)

sf315Proposed Conditions (8-22-17)

Type II 24-hr 10-Year Rainfall=4.22"

Prepared by Hakanson Anderson

HydroCAD® 10.00-20 s/n 01341 © 2017 HydroCAD Software Solutions LLC

Page 8

Volume	Invert	Avail.Storage	Storage Description
#1	919.50'	329,343 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
919.50	0	0	0
920.00	102,761	25,690	25,690
922.00	200,892	303,653	329,343

Device	Routing	Invert	Outlet Devices
#1	Primary	920.10'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=919.50' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond LOW 8:

Inflow Area = 4.780 ac, 1.05% Impervious, Inflow Depth = 0.12" for 10-Year event
 Inflow = 0.08 cfs @ 12.60 hrs, Volume= 0.048 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 922.23' @ 24.90 hrs Surf.Area= 12,431 sf Storage= 2,091 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	922.00'	68,919 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
922.00	5,934	0	0
924.00	62,985	68,919	68,919

Device	Routing	Invert	Outlet Devices
#1	Primary	922.50'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=922.00' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)

Summary for Pond LOW 9:

Inflow Area = 0.640 ac, 0.00% Impervious, Inflow Depth = 0.26" for 10-Year event
 Inflow = 0.07 cfs @ 12.10 hrs, Volume= 0.014 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

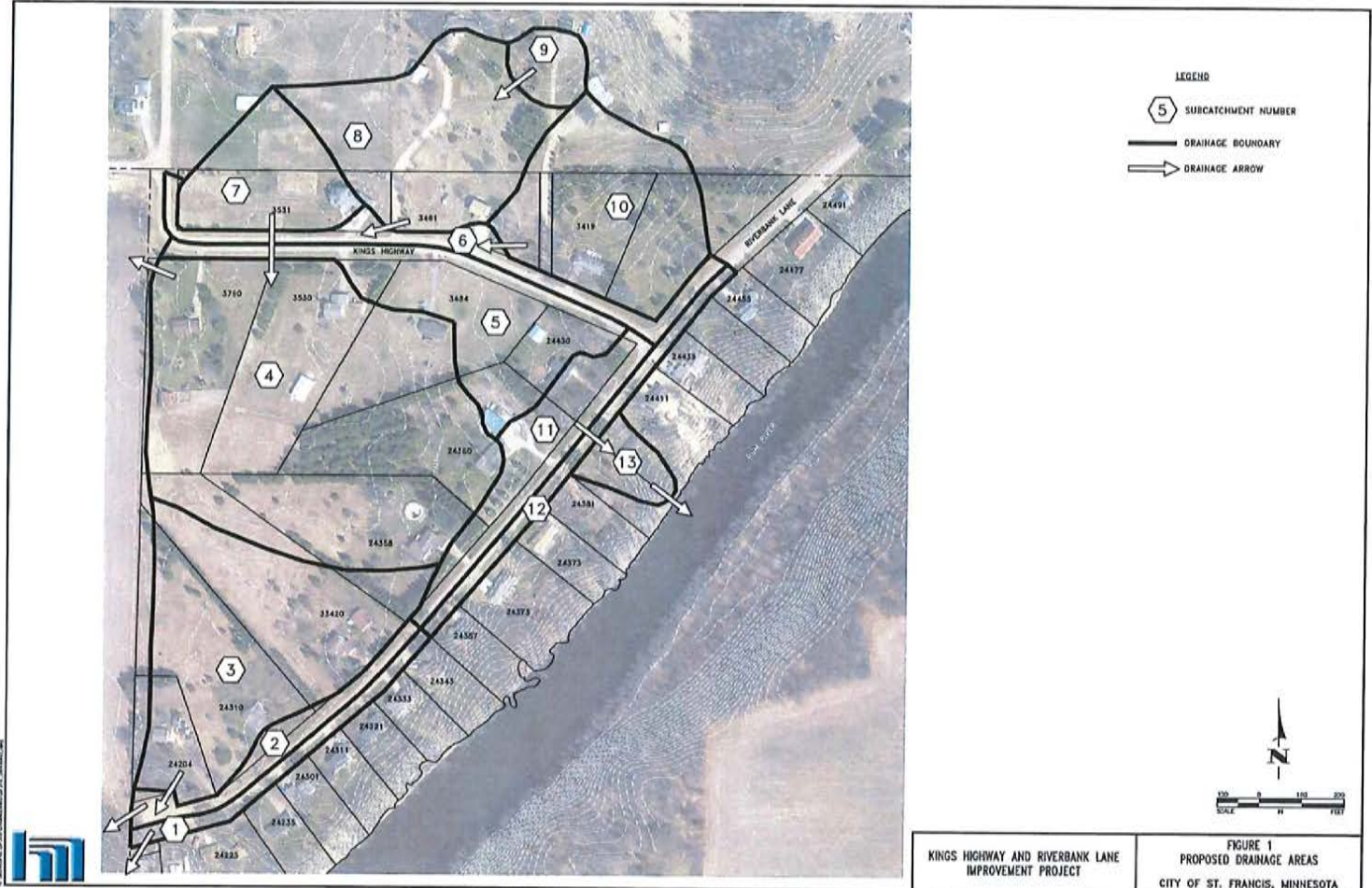
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
 Peak Elev= 928.14' @ 24.60 hrs Surf.Area= 4,660 sf Storage= 598 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
 Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	928.00'	19,121 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
928.00	3,860	0	0
930.00	15,261	19,121	19,121

Device	Routing	Invert	Outlet Devices
#1	Primary	928.50'	10.0' long x 5.0' breadth Broad-Crested Rectangular Weir Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=928.00' (Free Discharge)
 ↑1=Broad-Crested Rectangular Weir (Controls 0.00 cfs)



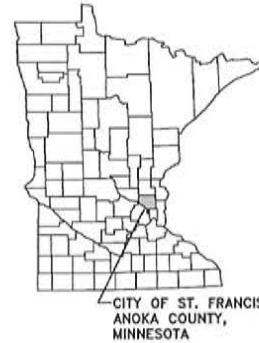
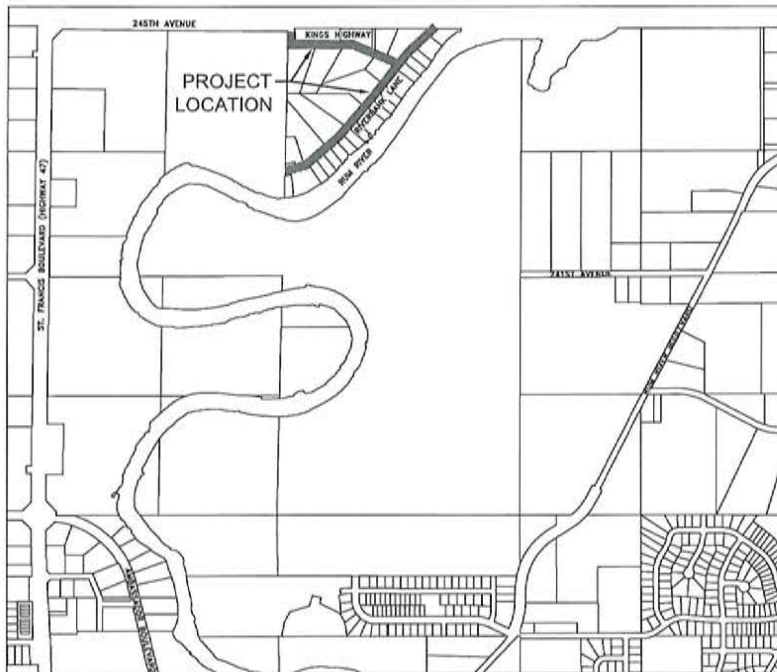
3/23/15
 10:58 AM
 11/15/2015
 10:58 AM



APPENDIX B

Preliminary Construction Plans

KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT
CONSTRUCTION PLANS FOR SUBGRADE PREPARATION, BITUMINOUS SURFACING, AGGREGATE SHOULDERING,
STORM SEWER AND MISCELLANEOUS CONSTRUCTION
CITY OF ST. FRANCIS



GOVERNING SPECIFICATIONS

THE 2018 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.
 ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS, AND ORDINANCES SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.
 ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

SHEET INDEX
 THIS PLAN CONTAINS 10 SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	TYPICAL SECTIONS
3-7	CONSTRUCTION PLANS-RIVERBANK LANE
8-10	CONSTRUCTION PLANS-KINGS HIGHWAY

I hereby certify that this plan, specification, or report 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.

PRELIMINARY 23461 DATE 8/18/17
 CRAG J. JOCHIM, P.E. LIC. NO.
 HAKANSON ANDERSON
 DESIGN ENGINEER

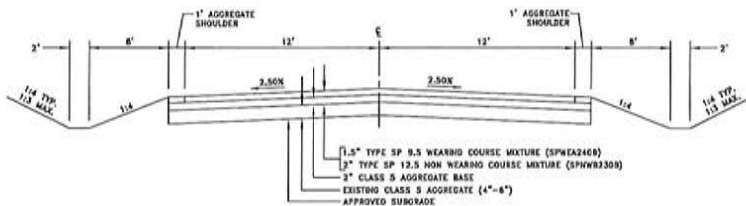
DATE	REVISION

SHEET 1 OF 10 SHEETS
 8/315

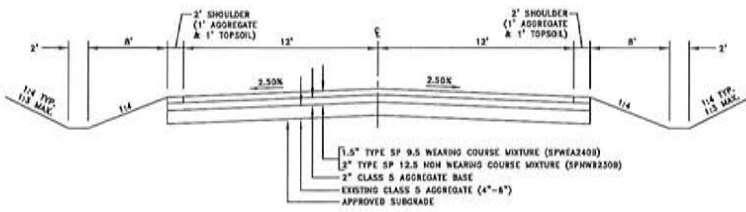
**Hakanson
 Anderson**
 Civil Engineers and Land Surveyors
 3801 Thurston Ave., Anoka, Minnesota 55303
 763-427-5850 FAX 763-427-0520

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF C/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND REPORTING OF EXISTING SUBSURFACE UTILITY DATA."

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED SHALL BE IN FEET AND INCHES.

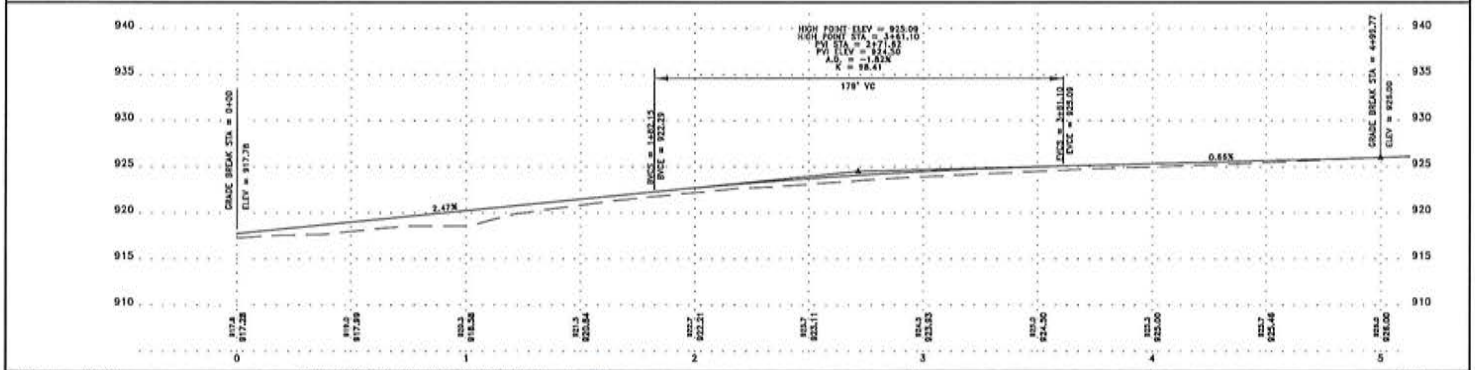
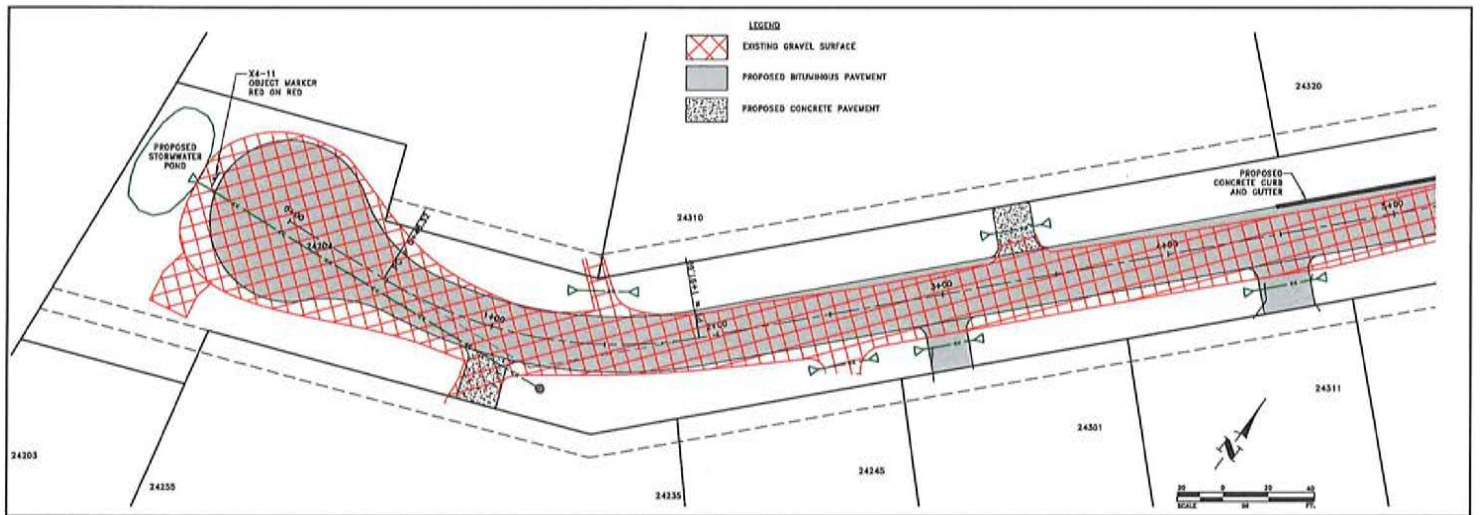


1
9
TYPICAL RIVERBANK LANE SECTION
STATION 0+00 TO 22+20



2
9
TYPICAL KINGS HIGHWAY SECTION
STATION 50+00 TO 63+50

DATE	REVISION	DESIGNED BY	CHECKED BY	DATE	PROJECT	SECTION	SHEET
		AV	AV		KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT	TYPICAL SECTIONS	10
		AV	CJJ				
<small>I hereby certify that the plan, specifications, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota.</small> <small>Date: 9/18/2012</small>		<small>JOCHUM, J.C.</small> <small>No. 23461</small>	 Hokanson Anderson <small>Civil Engineers and Land Surveyors</small> <small>3601 Thurston Ave., Anoka, Minnesota 55303</small> <small>763-427-5850 FAX 763-427-5520</small> <small>www.hokanson-anderson.com</small>				



DATE	REVISION	BY	CHKD BY

1. I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota.

Date 9/18/12

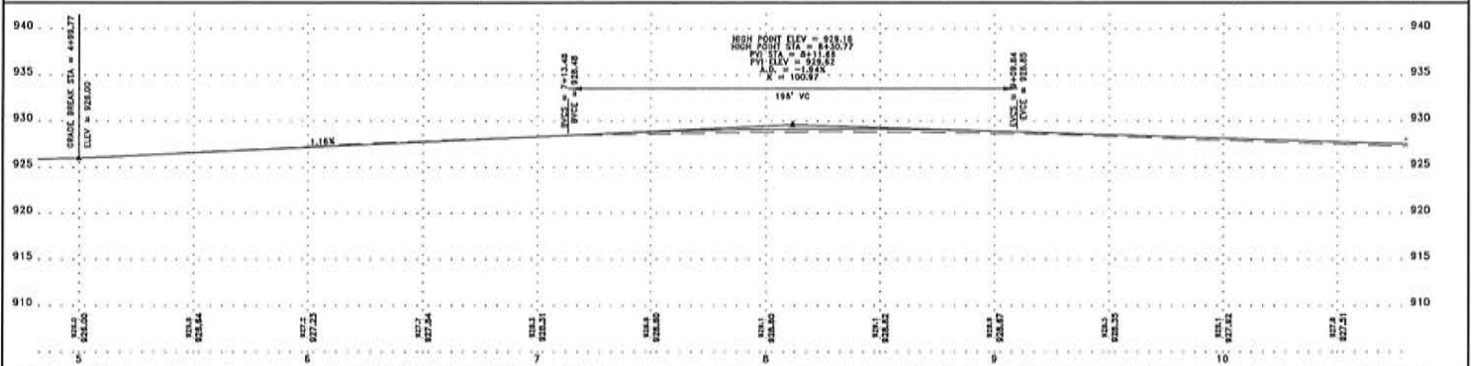
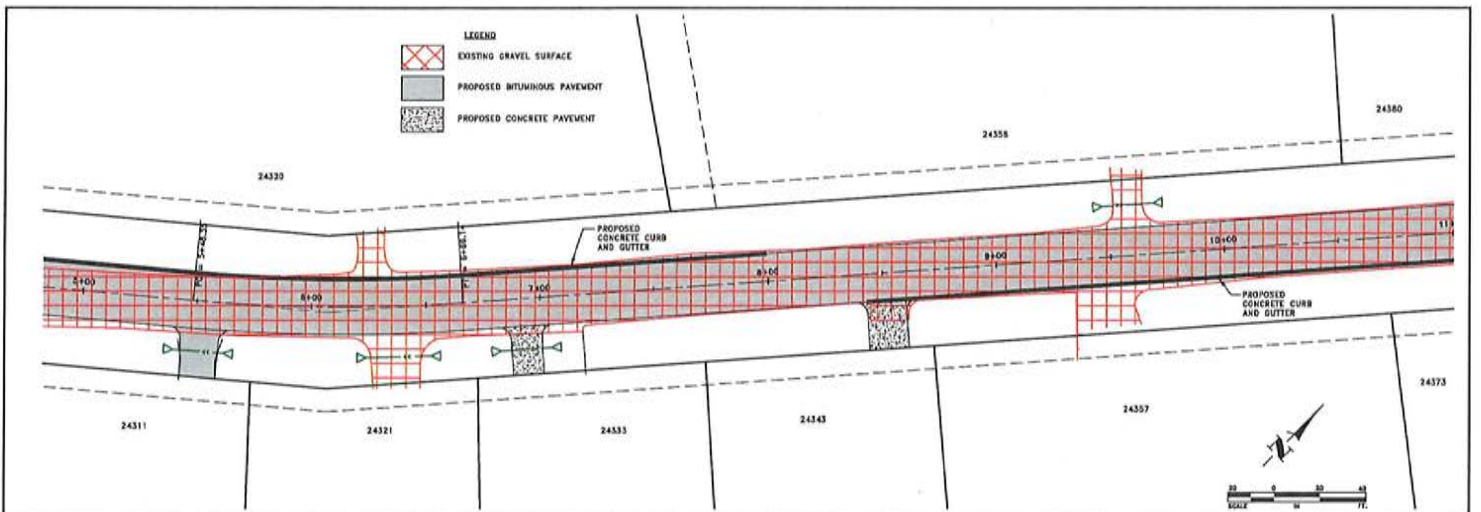
Professional Engineer License No. 22461

Hokanson Anderson
Civil Engineers and Land Surveyors
3501 Thurston Ave., Anok, Minnesota 55303
763-427-5850 FAX 763-427-0530
www.hokanson-anderson.com

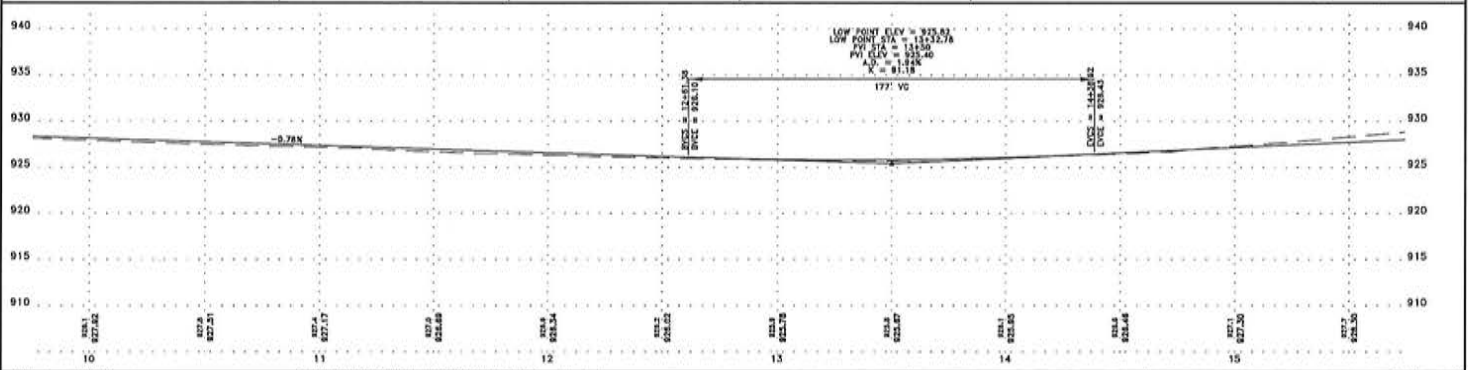
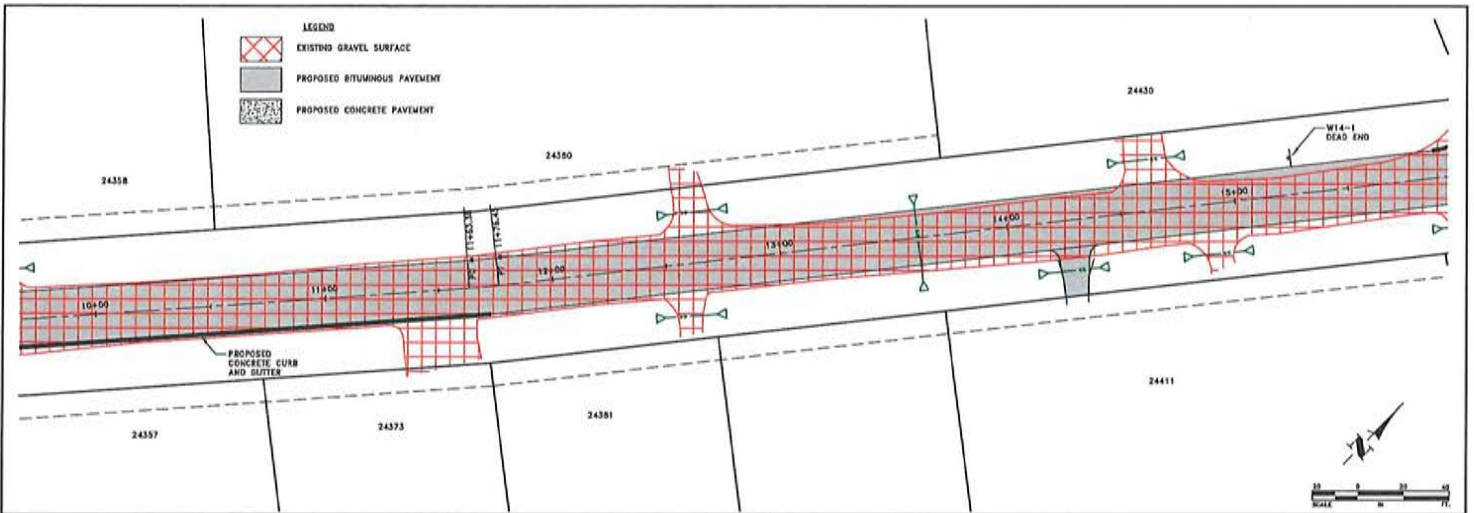
KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT

CONSTRUCTION PLAN
RIVERBANK LANE
CITY OF ST. FRANCIS, MINNESOTA

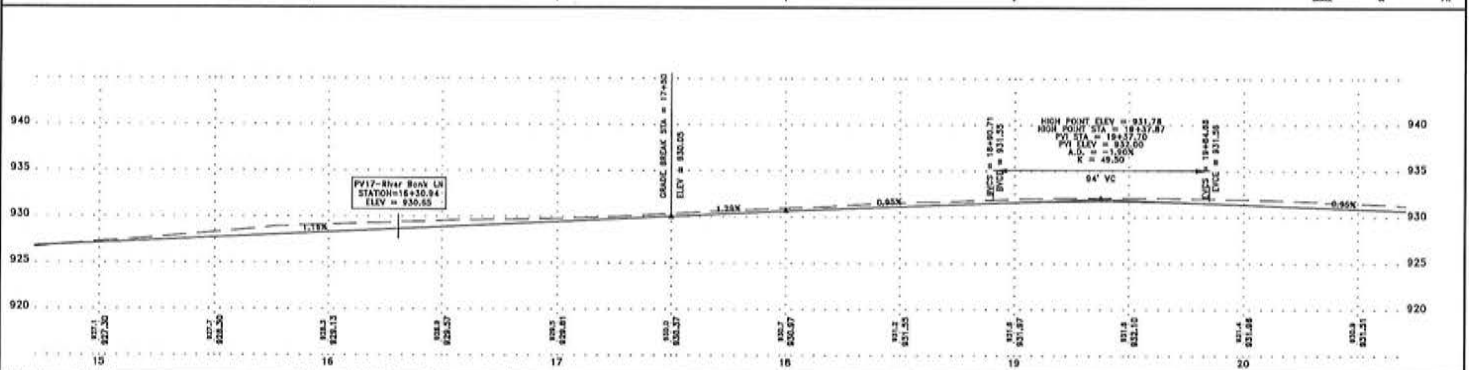
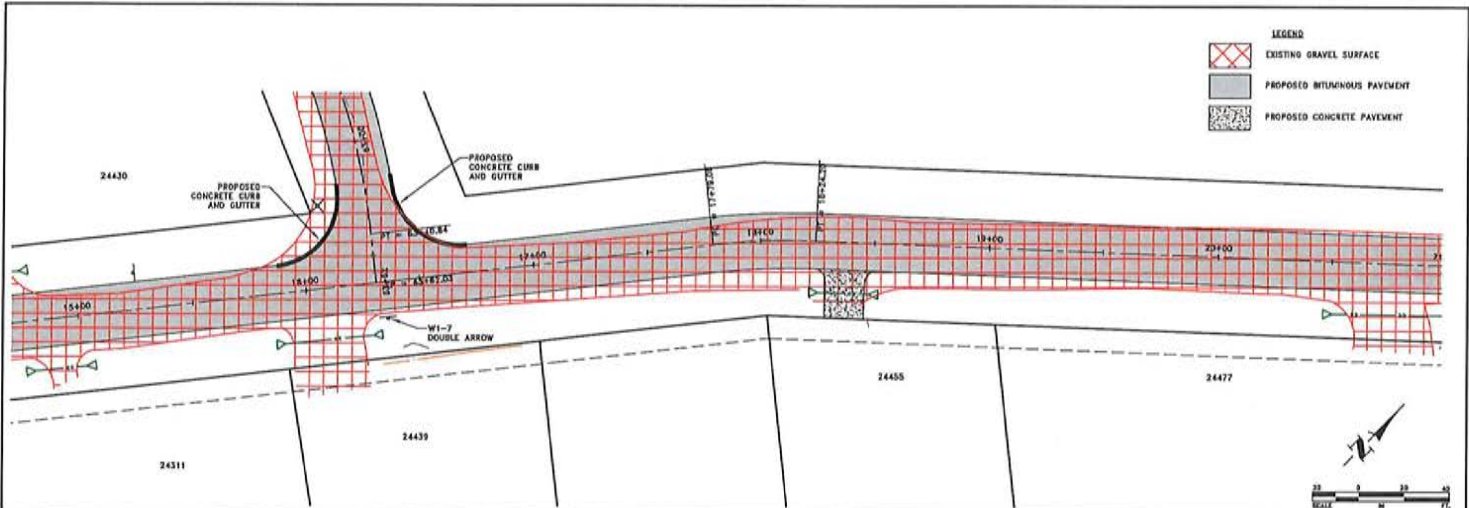
SHEET 5 OF 10 SHEETS



DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota. Date: 9/18/19 License No. 23461	 Hokanson Anderson Civil Engineers and Land Surveyors 3801 Thurston Ave., Shakopee, Minnesota 55303 763-427-0810 FAX 763-427-0510 www.hokanson-anderson.com	KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT	CONSTRUCTION PLAN RIVERBANK LANE CITY OF ST. FRANCIS, MINNESOTA	SHEET 4 OF 10 SHEETS 5/31/15



DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota. Date: 8/18/19 P. J. JOHNSON, P.E. Lic. No. 23461	KING R JY C/J	 Hokanson Anderson Civil Engineers and Land Surveyors 3601 Thurston Ave., Ancker, Minnesota 55303 763-427-5850 FAX 763-427-0520 www.hokanson-anderson.com	KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT	CONSTRUCTION PLAN RIVERBANK LANE CITY OF ST. FRANCIS, MINNESOTA	SHEET 5 OF 10 SHEETS SF315



DATE	REVISION	DESCRIPTION	BY	CHECKED

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota.

Date: 8/18/2009
 No. 23461

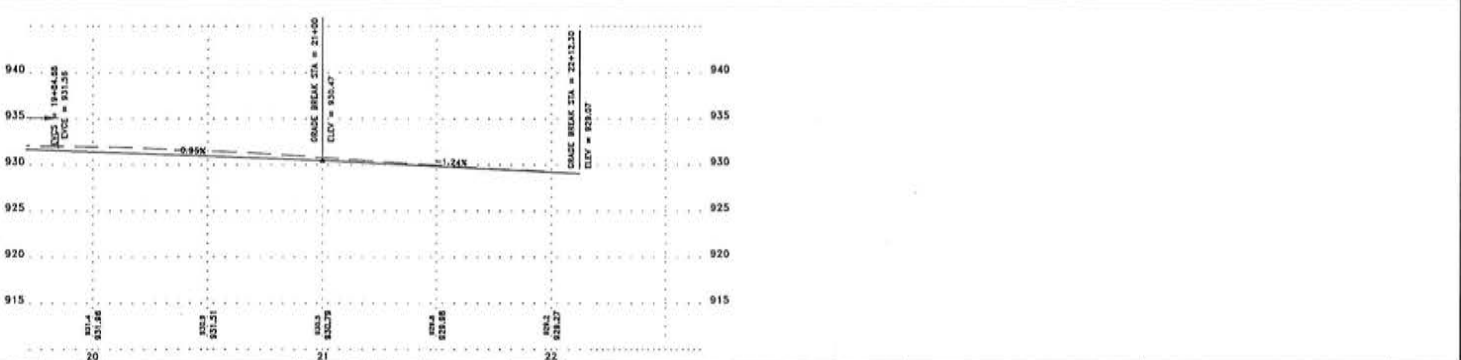
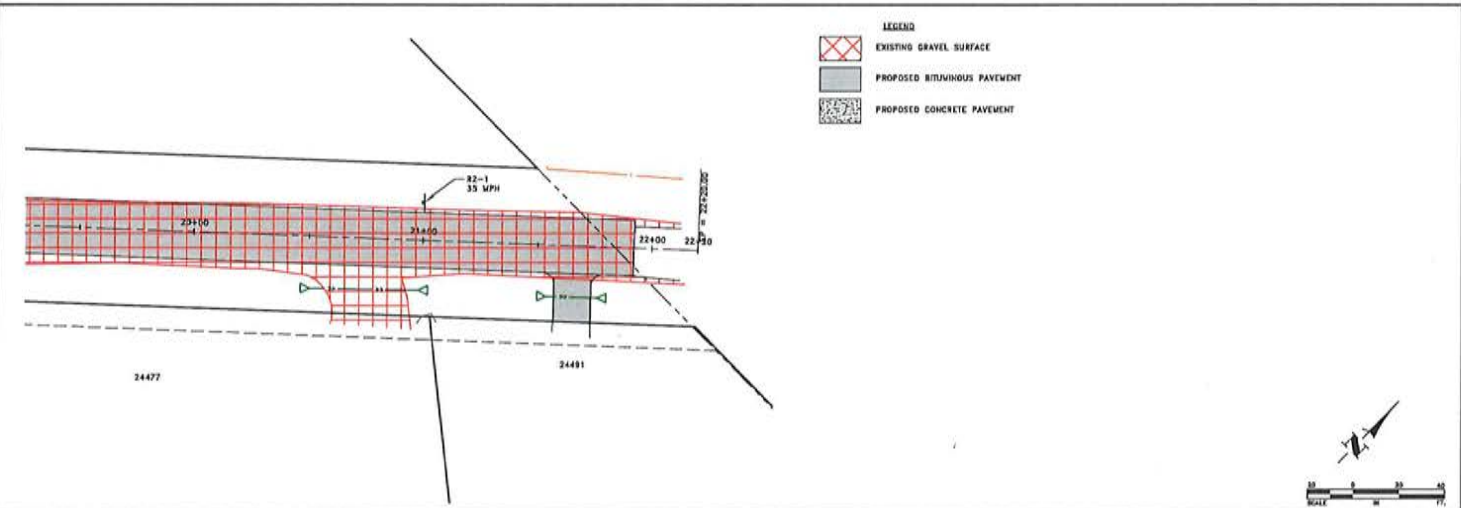


Hokanson Anderson
 Civil Engineers and Land Surveyors
 3601 Thurston Ave., Anoka, Minnesota 55303
 763-427-5860 FAX 763-427-0530
www.hokanson-anderson.com

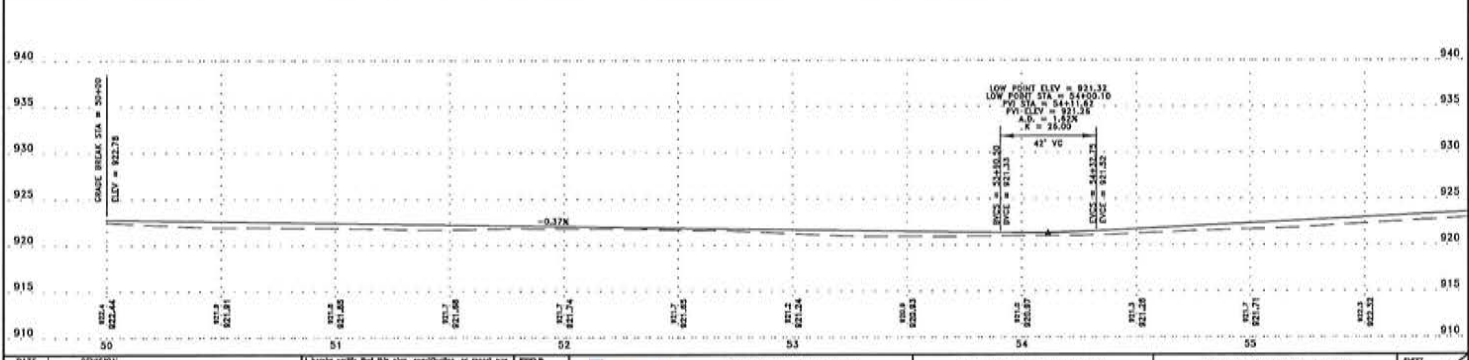
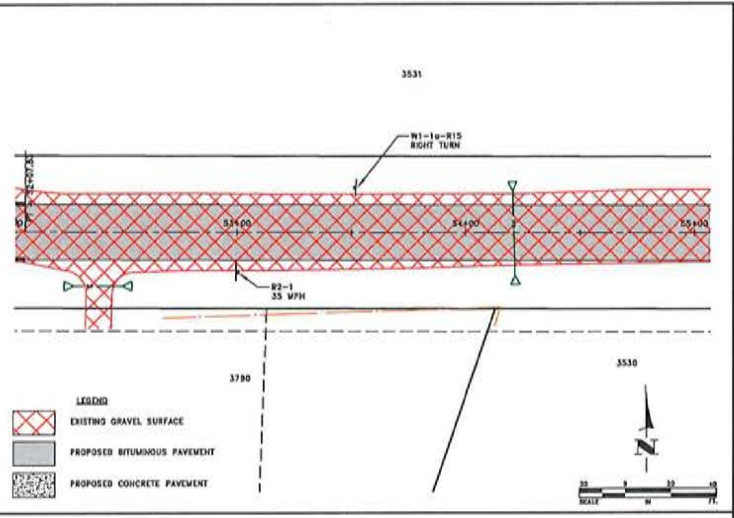
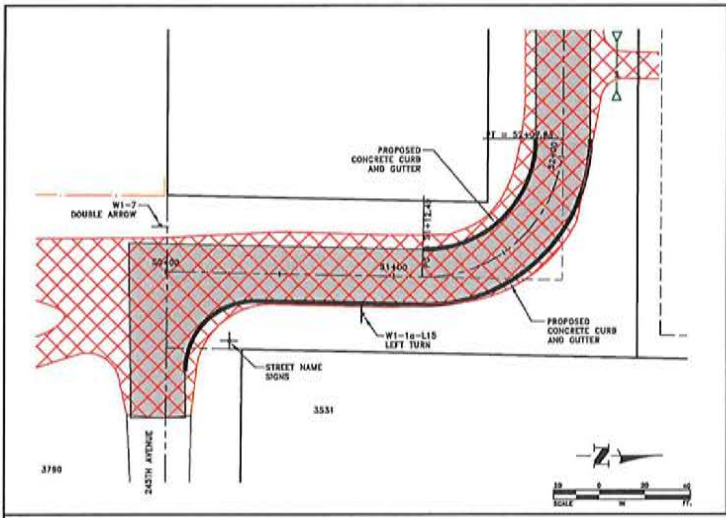
**KINGS HIGHWAY AND
 RIVERBANK LANE
 IMPROVEMENT PROJECT**

CONSTRUCTION PLAN
 RIVERBANK LANE
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 6
 10
 SHEET 10
 SF15



DATE	REVISION	I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota. Date: 8/18/2017, Project: JOCKUM, No. 23481.	DRAWN BY: AV CHECKED BY: AV IN CHARGE: CJJ	Hokanson Anderson Civil Engineers and Land Surveyors 3501 Thurston Ave., Anoka, Minnesota 55305 763-437-5810 FAX 763-437-5920 www.hokanson-anderson.com	KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT	CONSTRUCTION PLAN RIVERBANK LANE CITY OF ST. FRANCIS, MINNESOTA	SHEET 7 10 042719 SF315



DATE	REVISION	DESCRIPTION	BY	CHECKED

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota.

Date: 9/18/2017
Project No.: 23461

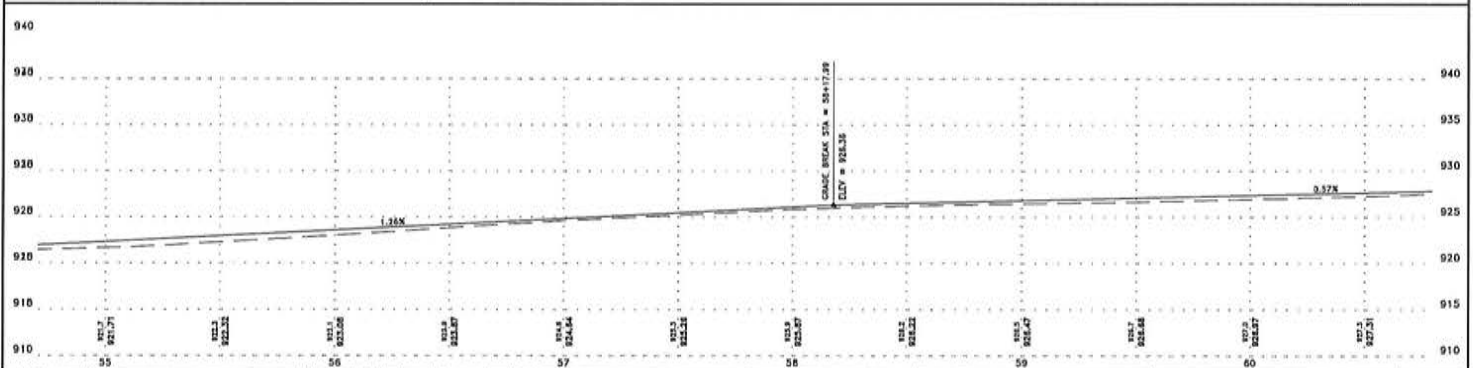
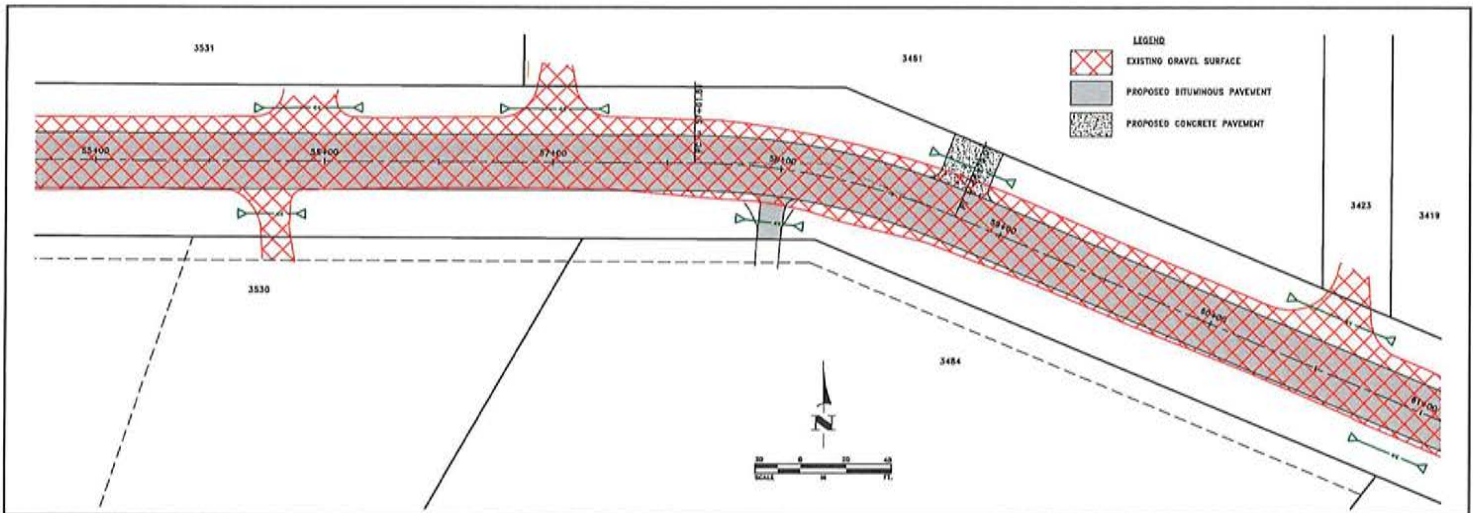


Hokanson Anderson
Civil Engineers and Land Surveyors
3501 Thurston Ave., Anoka, Minnesota 55305
763-437-5810 FAX 763-437-6920
www.hokanson-anderson.com

KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT

CONSTRUCTION PLAN
KINGS HIGHWAY NW
CITY OF ST. FRANCIS, MINNESOTA

SHEET 8
10 OF 10
SF315



DATE	REVISION	BY	CHKD BY

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota.

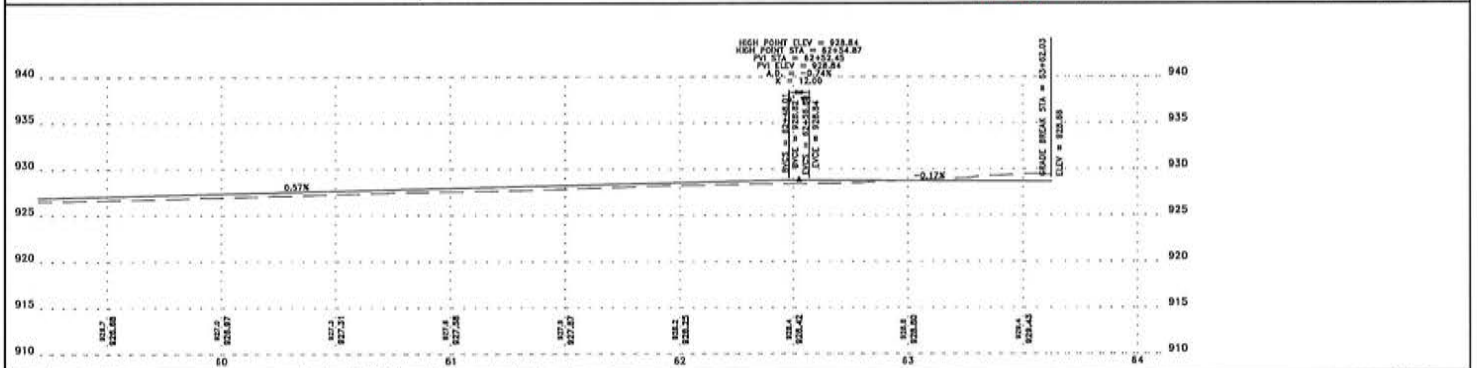
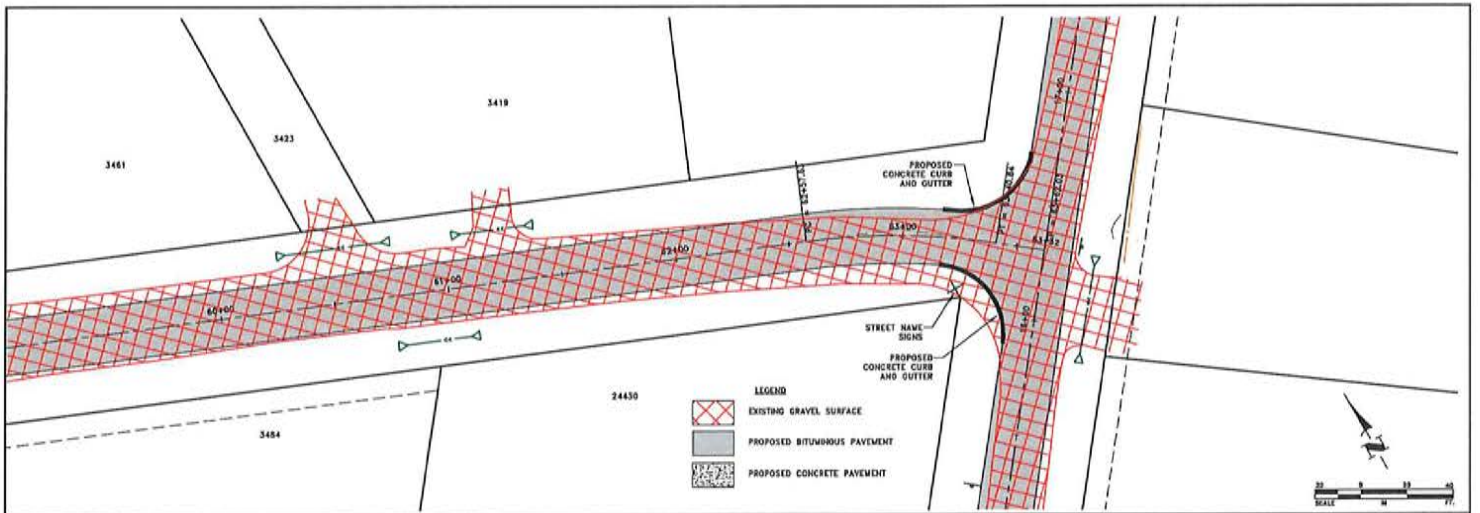
Date: 9/18/2024, Project No. 23461

Hokanson Anderson
Civil Engineers and Land Surveyors
3601 Thurston Ave., Anoka, Minnesota 55303
763-437-5850 FAX 763-437-5510
www.hokanson-anderson.com

KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT

CONSTRUCTION PLAN
KINGS HIGHWAY NW
CITY OF ST. FRANCIS, MINNESOTA

10
SHEET 9
SF315



DATE	REVISION	DESCRIPTION	BY	CHECKED

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer in the State of Minnesota.
 Date 8/18/2010
 J. JOHNSON, P.E.
 License No. 23481



Hakenson Anderson
 Civil Engineers and Land Surveyors
 3501 Thurston Ave., Ancker, Minnesota 55303
 763-437-0810 FAX 763-437-6520
 www.hakenson-anderson.com

KINGS HIGHWAY AND RIVERBANK LANE IMPROVEMENT PROJECT

CONSTRUCTION PLAN
 KINGS HIGHWAY NW
 CITY OF ST. FRANCIS, MINNESOTA

SHEET 10 OF 10
 5/3/15