

CITY OF  
FRONTENAC



**City of Frontenac, Missouri**

*10555 Clayton Road, Frontenac, Missouri 63131*

**Geyer Road Improvements Study**

**May 2016**

Report Prepared By:

515-0086-OHY



# TABLE OF CONTENTS

<b>1. Executive Summary</b>	<b>1-1</b>
1.1 Purpose	1-1
1.2 Objectives	1-1
1.3 Benefits and Recommendations	1-2
<b>2. Purpose</b>	<b>2-1</b>
2.1 Study Area	2-1
2.2 Strategies	2-1
<b>3. Approach</b>	<b>3-1</b>
3.1 Procedure	3-1
3.2 Analysis	3-1
<b>4. Communication</b>	<b>4-1</b>
4.1 Data Collection	4-1
4.2 Optimize Cost-Effectiveness	4-1
<b>5. Recommendations</b>	<b>5-1</b>
5.1 Improvement Plan	5-1
5.2 Pedestrian Connectivity	5-2
5.3 Geographic Information System	5-2
5.4 Budget Implementation Plan	5-3
<b>6. Conclusion</b>	<b>6-1</b>

# FIGURES

**Figure 1-1.** Photo of Current Stormwater Drainage System Near Twin Fawns Subdivision \_\_\_\_\_ 1-2

**Figure 2-1.** Geyer Road Study Area \_\_\_\_\_ 2-2

**Figure 3-1.** Residential Survey Flyer \_\_\_\_\_ 3-2

**Figure 4-1.** Photo of Utilities Within the Geyer Road Right-of-Way Near Hickory Lane Subdivision \_\_\_\_\_ 4-1

**Figure 5-1.** Photo Looking South on Geyer Road near the Old Des Peres Church \_\_\_\_\_ 5-7

**Figure 5-2.** Rendering of Proposed Geyer Road Improvements \_\_\_\_\_ 6-1

# APPENDICES

**Appendix A.** Conceptual Design Plan Package

**Appendix B.** Engineering Design, Right-of-way and Construction Cost Estimates

# 1. EXECUTIVE SUMMARY

---

## 1.1 PURPOSE

The City of Frontenac (City) contracted with Lochmueller Group (Lochgrou) in November of 2015 to develop a design study to evaluate the existing pavement condition, stormwater drainage functionality, as well as safety concerns along Geyer Road between Clayton Road south to the City's limits. This study, in turn, will assist the City to develop a plan for future improvements within the public right-of-way. The report examines specific improvement recommendations and actions for pavement preservation, stormwater drainage, pedestrian accommodations, and coordination of utility infrastructure improvements. Specific objectives of the assessment were to develop a conceptual scope and schedule as well as anticipated costs for improvements to the Geyer Road corridor for future planning and budgeting efforts. In total, items to be evaluated include addressing stormwater drainage concerns, the feasibility, moreover, want of improving pedestrian access, the need of third party utility improvements, better traffic flow improvements as well as improving the condition of the existing roadway pavement.

This study summarizes each recommendation throughout the Geyer Road corridor with estimates of project costs (engineering, right-of-way and construction), and identifies possible supplemental funding sources that are available to the City. Cost estimates are included and forecasted through a proposed schedule.

In general, this report can form the basis of efforts to maintain and improve the Geyer Road corridor.

## 1.2 OBJECTIVES

A toolkit of strategies was identified to promote a smart design for improvements along Geyer Road. The objective of these strategies is to develop a plan consistent with the goals of the community that the City can afford to implement and maintain in the future.

Lochgrou executed the study in close coordination with the City's Public Works staff, including weekly updates on progress and outlined work accomplished. Resident outreach, by means of a survey questionnaire, was developed to provide feedback to the City's administration specifically as it related to proposed pedestrian improvements. In addition to the survey questionnaires, Lochgrou and City representatives met personally with some residents along the study corridor as data was collected. The survey and discussions in the field promoted an open communication effort between property owners and the City.

In order to accomplish the goals set forth by the City, several roadway improvement strategies were evaluated. Among these improvements considered were removal and replacement of only the necessary declined asphalt pavement areas, widening of lanes, bicycle and pedestrian enhancements such as on street widened shared use lanes, or dedicated on street bicycle lanes, separated bicycle and/or pedestrian paths and sidewalks. Those strategies based on improving stormwater drainage are the addition of curb and gutter adjacent to the existing pavement; repair/replacement of existing drainage structures, widening/deepening of ditches, and the additional of new storm sewers where necessary. During the evaluation process, as vetted during the January 13<sup>th</sup> Public Works Commission Meeting, the improvements were screened and prioritized based on cost, impact to adjacent properties, benefit provided, and how they coincided with the results of the residential survey questionnaire.

Strategic improvement plans for Geyer Road were developed based upon transportation needs in conjunction with the discussions held during the Public Works Commission Meeting.

### 1.3 BENEFITS AND RECOMMENDATIONS

The immediate benefits of the study include better information availability for yearly planning and budgeting as well as better coordination of future third party utility improvements. The results of the study can also be utilized in efforts to obtain grant funding through federal reimbursement programs to assist with implementation of the recommended improvements. These improvements will safeguard the City’s existing investment in Geyer Road by preventing further deterioration due to pavement age and drainage deficiencies, including ponding water concerns, while also addressing sight distance issues. This document can serve as a guide for the City during the implementation of the recommended improvements.

Recommendations include:

- » Resurfacing of the existing pavement with a mill and overlay process or full depth repairs as needed
- » Addition of new concrete curb and gutter system on both sides of the roadway or only in priority areas
- » Repair/replace deficient existing drainage infrastructure
- » Addition of new storm sewer and inlet structures to address drainage issues
- » Improve sight distance by removing certain obstructions within the right-of-way
- » Coordinate utility upgrades in conjunction with the roadway improvements
- » Provide enhancements, when feasible, to maintain the “Country Lane” feel of Geyer Road
- » Provide a design that supports future pedestrian improvements (i.e. sidewalks, crosswalks and curb ramps conforming with the current Americans with Disabilities Act standards)



**Figure 1-1. Photo of Current Stormwater Drainage System Near Twin Fawns Subdivision**

## 2. PURPOSE

---

### 2.1 STUDY AREA

Specifically, the study area consists of improvements to be made within the public right-of-way along Geyer Road which will then be maintained by the City of Frontenac. The proposed improvements are between the intersection of Geyer Road and Clayton Road south along Geyer Road to the Frontenac / Kirkwood City limits. A map of the study area is shown in Figure 2-1.

The proposed improvements are anticipated to be in accordance with the City of Frontenac, the Missouri Department of Transportation's (MoDOT's) Local Public Agency (LPA) and MSD's design standards, policies, and procedures. Allowing for the flexibility to seek grant funding, MoDOT's design criteria must be included in order to accommodate those requirements of federally funded projects.

The proposed improvements are located primarily within the City's maintained right-of-way. These proposed improvements are reflected in the conceptual design plans which are provided in Appendix A: Conceptual Design Plan Package.

### 2.2 STRATEGIES

The following are design strategies to be utilized in preparation of the Geyer Road design improvements.

1. Identify existing infrastructure and safety concerns throughout the corridor;
2. Present alternative improvement concepts that alleviate these concerns;
3. Use public engagement to refine the preferred improvement alternatives; and
4. Use findings of this report as a tool for strategizing funding mechanisms for project implementation

Lochgroup's design team's objectives are to investigate innovative and cost savings approaches in order to help the City of Frontenac meet the challenges surrounding the proposed improvements to Geyer Road. This report centers on sustainability, planning and green infrastructure practices in order to assist in merging the overall goals towards a common-sense design approach. Finally, Lochgroup identifies mechanisms for the best utilization of funds while addressing long-term goals and planning appropriately for these future needs. Overall, this document details recommendations for improvements and provides a blueprint for moving the project forward toward implementation.



**Figure 2-1. Geyer Road Study Area**

### 3.1 PROCEDURE

Lochgroup's approach to the study was to ensure completeness and quality of the data collected, safe and efficient field operations, assist with public engagement and regular communication and proper coordination with the City's Department of Public Works staff. Recommended improvements were examined in conjunction with the answers received from the residential survey questionnaires, at the January 13<sup>th</sup> Public Works Commission Meeting. A combination of field and office engineering data collection techniques helped obtain existing infrastructure information, and identification of recommendations which will optimize the reliability of pavement service and the efficiency of future maintenance and repair activities along Geyer Road. Our approach to the study is broken down further into the following evaluation criteria:

### 3.2 ANALYSIS

**Review of Existing Data** – Lochgroup reviewed data provided by the City and developed mapping and other tools for use during the field assessment. This data included creating Geographic Information System (GIS) maps, and utilizing existing survey data as well as reviewing MSD, Missouri American Water Company and Laclede Gas Company records.

**Identification of Roadway and Stormwater Drainage Criteria** – Lochgroup developed a plan to evaluate the existing infrastructure. The plan was reviewed with City Public Works Department staff and adjusted to incorporate applicable projects identified within the City's stormwater master plan.

**Communication Plan** – Lochgroup assisted the City in preparing a survey questionnaire which was delivered to each property owner along the Geyer Road corridor. The survey questionnaire specifically asked the resident's views on new roadway and pedestrian improvements. Approximately 58% of the surveys mailed were returned and of those returned approximately 44% favored introducing pedestrian access. In addition, approximately 71% did not favor lane widening, 68% did not favor the installation of sidewalks and 62% did not favor the installation of a walking path or trail. A copy of the survey is included as **Figure 3-1**.

**Data** – Data obtained during the assessment was compiled and checked. Lochgroup coordinated with the City to correct the location of various stormwater drainage infrastructure and configuration of piping. Likewise, various pavement areas were assessed along the proposed project limits in order to prepare accurate construction estimates.

**Recommendations** – Lochgroup identified improvements to the transportation route as a way to assist the City forecast proper funding, via their budget process, for future years. Lochgroup also identified outside funding sources to possibly supplement the City's budget in order to expedite the implementation process.

**Conceptual Design Plans & Estimates** – Lochgroup developed plans, as referenced in Appendix A, outlining the conceptual improvements to Geyer Road. Professional engineering design, right-of-way and construction cost estimates were also developed as is reflected in Appendix B. Only if necessary, does the City anticipate acquisition of permanent right-of-way in conjunction with the roadway improvements.

CITY OF  
FRONTENAC



10555 Clayton Road • Frontenac, MO 63131  
(314) 994-3200 • (314) 994-3203 Fax

**Geyer Road Property Owner Survey**

Dear Geyer Road Resident:

Our records indicate you may own property fronting or adjacent to Geyer Road. The City of Frontenac Public Works commission in conjunction with the Board of Alderpersons has retained a professional engineering design consultant to study options to improve safety aspects including roadway geometrics, stormwater drainage and pedestrian access along Geyer Road. Funding and physical logistics will be major items to be considered.

We wanted to begin the process by requesting input from property owners along Geyer Road.

Your Name: \_\_\_\_\_

Your Address: \_\_\_\_\_

I believe pedestrian access should be improved along Geyer Road.

Yes       No      Comments: \_\_\_\_\_

In order to consider if any option(s) to improve roadway / pedestrian access is feasible, the consultant will provide the City with recommendations. Prior to any option(s) selected, public forums will be held and finally approval by the Board of Alderpersons.

The type of roadway and/or pedestrian improvement(s), if any, may require varying amounts of right-of-way requested from adjacent property owners.

Would you support **widening of the road surface** to allow for a pedestrian lane along Geyer Road similar to Clayton Road west of Geyer Road?

Yes       No      Comments: \_\_\_\_\_

Would you support installation of **sidewalks** along Geyer Road?

Yes       No      Comments: \_\_\_\_\_

Would you support installation of a **walking path or trail** separated from Geyer Road (similar to the path along Clayton Road in the City of Town and Country)?

Yes       No      Comments: \_\_\_\_\_

Please feel free to drop off the survey at Frontenac City Hall between 8:30 am and 5:00 pm, mail to 10555 Clayton Road, Frontenac, Missouri 63131 or scan and e-mail the completed survey to [scooper@cityoffrontenac.org](mailto:scooper@cityoffrontenac.org). If you have questions please call Bob Shelton or Jeff Wappelhorst at 314-994-3200. Thank you in advance we appreciate you taking the time to provide us with your input.

**Figure 3-1. Residential Survey Flyer**

## 4. COMMUNICATION

### 4.1 DATA COLLECTION

During field visits related to data collection, causal engagement occurred with the survey team. Some property owners were inquisitive about the reasoning behind the field operations. While others, albeit a small number of residents engaged, expressed their displeasure towards sidewalks or any form of pedestrian route along Geyer Road. These opinions were discussed, in conjunction with the improvement strategies, at the January 13<sup>th</sup> Public Works Commission Meeting. One of the main purposes of the Public Works Commission Meeting was to describe the objectives, activities, and schedule related to the proposed improvements for the corridor. Additional separate meetings occurred between Lochgroup and the applicable utility companies. During these meetings additional information was obtained specifically related to the locations of utility main lines and service connections.

### 4.2 OPTIMIZE COST-EFFECTIVENESS

As communicated with the Missouri American Water Company, it is anticipated that some of the water mains segments along Geyer Road will soon reach the end of their reliable service life. Lochgroup acknowledges that roadway improvements should be coordinated with the utility owner in areas where future installation, repair or replacement of mains and valves are recommended. Lochgroup recommends that the age, materials, known condition, and maintenance history of affected main segments be considered when planning roadway improvements to determine if overall costs to the utility could be reduced by combining these efforts simultaneously.



**Figure 4-1. Photo of Existing Utilities Within the Geyer Road Right-of-Way Near Hickory Lane Subdivision**

## 5. RECOMMENDATIONS

---

### 5.1 IMPROVEMENT PLAN

The development of a strategic roadway and stormwater drainage improvement plan for the Geyer Road corridor is based upon the transportation needs and the preferences of the adjacent residential developments. If supplemental federal funding enters the budget equation then conformance with the policy goals and objectives of the East-West Gateway Council of Government's (E-WGCoG), the St. Louis Metropolitan Planning Organization, long-range plan must be adhered. The following is a list of supplemental budget programs which could be utilized as cost sharing mechanisms in order to expedite the future Geyer Road improvements.

#### **Transportation Improvement Program (TIP)**

**Purpose:** To maintain, expand, and enhance transportation facilities. This is the major source of funding for transportation projects in both the region and nation. The TIP is the regionally agreed upon list of priority projects, as required by federal law (TEA-21, SAFETEA-LU). The TIP document must list all projects that intend to use federal funds, along with non-federally funded projects that are regionally significant. The projects are multi modal; that is, they include bicycle, pedestrian, freight-related projects, and innovative air quality projects, as well as the more traditional highway and public transit projects.

#### **Congestion Mitigation and Air Quality (CMAQ)**

**Purpose:** Competitive funding for transportation-related projects that help the region reduce emissions from highway sources and meet National Clean Air Act standards. The SAFETEA-LU CMAQ program provides funds to state DOTs, MPOs, transit agencies and municipalities to invest in projects that reduce criteria air pollutants regulated from transportation-related sources over a period of five years.

#### **Safe Routes to School (SRTS)**

**Purpose:** Grants to establish safe walking routes for children commuting to school. Safe Routes to School is designed to work with both school districts and pedestrian and bicycle safety advocates to make physical improvements that promote safe walking and biking passages to our schools. Collectively, these efforts would save on school busing costs and promote a healthy lifestyle for our children. In addition, some funding may be used for pedestrian education efforts.

#### **Project Scheduling**

Projects are scheduled in terms of short, medium, and long term. If supplemental funding is acquired during the process of implementing the improvements along Geyer Road then this overall project would fall into the category of a medium term project (approximately 3-7 years to implement). The conceptual plan divides the overall project into three phases. These phases, depending on funding, can be minimized or maximized due to additional factors such as geometry limits, environmental assessments and/or concurrent utility improvement projects. The proposed roadway and stormwater drainage improvements (Phases I, II & III) are reflected in the conceptual design plans which are provided in Appendix A: Conceptual Design Plan Package.

## Roles of Agencies

**Metropolitan Planning Organization (MPO):** The East-West Gateway Council of Governments (E-WGCoG), serving as the MPO for this region, is required to coordinate a comprehensive and continuing transportation planning process. This process results in the development of a Transportation Improvement Program (TIP), which identifies all priority projects for which federal funds will be sought. The TIP represents a consensus among state and regional officials as to what regional improvements are to be made.

**Missouri Department of Transportation (MoDOT):** The state ultimately makes the decision on what improvements are done to its facilities, but it often coordinates with the county or local municipalities when the improvements include facilities under their jurisdiction and receiving federal funding.

**St. Louis County:** The County has the ultimate decision concerning improvements on County roads and facilities, but it typically coordinates with the municipality in which the improvements are located.

**The City of Frontenac:** Local governments such as Frontenac not only have jurisdiction over their local road system, they also control local land use decisions. Local officials must understand the traffic impacts that could be generated from a particular development and understand the synergy that exists between land use decisions and transportation improvements. Local officials need to be involved in the planning process for all levels to make sure that the concerns of their residents are addressed and to assist in the problem identification and improvement recommendations.

## 5.2 PEDESTRIAN CONNECTIVITY

Past meetings with the City's administration involved discussions of level of need for pedestrian planning and investment along Geyer Road. The following improvements could increase safety for those pedestrians that utilize Geyer Road:

- » Install wider traffic lanes
- » Install crosswalks and pedestrian countdown timers on all legs of the intersection with Clayton Road
- » Establish, where feasible, a clear zone behind the proposed curb and gutter
- » Install sidewalks and crosswalks where pedestrian usage warrants
- » Integrate bicycle friendly pavement markings and/or signage alerting vehicular traffic to share the road

## 5.3 GEOGRAPHIC INFORMATION SYSTEM

In addition to the recommendations related to improving infrastructure, Lochgroup also has recommendations related to further improving the digital data associated with those physical assets. Without this information, effective management of the City's assets is not possible. Information related to these assets need to be protected through a Geographic Information System (GIS) and maintained to be useful and provide maximum benefit to the City.

Through the course of this project, Lochgroup has identified a number of opportunities for other improvements. These recommendations are summarized below.

- » Lochgroup noticed discrepancies between certain utility infrastructures as shown in either MSD’s, Missouri American Water Company’s or Laclede Gas Company’s recorded documents. This is an issue the City should consider evaluating to further “clean-up” recorded data within the study area to make it more reliable and thus more useful.
- » Enhancements to the GIS data should be made to be able to easily and clearly distinguish between all utility lines and appurtenances. It is important because these different utility functions or applications impact the frequency of certain maintenance activities.

## 5.4 BUDGET IMPLEMENTATION PLAN

This section summarizes each recommended improvement phase by year, estimates possible project costs (engineering, right-of-way acquisition and construction), and identifies possible scenarios and funding sources that may be available to the City. General cost estimates are listed below by fiscal year in which a detailed account of each improvement can be found in Appendix B: Engineering Design and Construction Cost Estimates. These cost estimates are detailed by one of two categories: **City Fully Funded** or **City and Federally Funded**.

### City Fully Funded: FY’ 2016/2017 – ONLY SCENARIO

Phase I Design fee (including survey and geotechnical services):	\$ 97,500.00
Transportation Alternatives Program (TAP) application fee:	\$ 3,750.00
Transportation Improvement Program (TIP) application fee:	<u>\$ 5,000.00</u>
Total:	\$106,250.00

The City will fully fund (no federal reimbursements) the Phase I design fee, the TAP application and the TIP application in year 1.

The timeframe for the FY’ 2016/2017 budget will not allow for a complete review process from East-West Gateway Council of Governments in which applications are due in March each year and awards are announced the following July of that same year.

### City Fully Funded: FY’ 2017/2018 – SCENARIO 1

Phase II Design fee (including survey and geotechnical services):	\$ 95,600.00
Transportation Alternatives Program (TAP) application fee:	\$ 3,750.00
Transportation Improvement Program (TIP) application fee:	\$ 5,000.00
Phase I Construction Services:	\$ 90,000.00
Phase I Construction (Including storm sewer improvements):	<u>\$1,021,475.00</u>
Total:	\$1,215,825.00

The City will fully fund (no federal reimbursements) the Phase II design fee, the TAP application, the TIP application, the right-of-way acquisition and the construction (Phase I) in year 2.

**City and Federally Funded: FY' 2017/2018 – SCENARIO 2**

**\*\*\*Assuming the TIP Application is Approved (80% Federal Funds with 20% City match)\*\*\***

Phase II Design fee (including survey and geotechnical services):	\$ 19,120.00
*Transportation Alternatives Program (TAP) application fee:	\$ 3,750.00
*Transportation Improvement Program (TIP) application fee:	\$ 5,000.00
Phase I Construction Services:	\$ 18,000.00
Phase I Construction (Including storm sewer improvements):	<u>\$ 204,295.00</u>
Total:	\$ 250,165.00

If the TIP application is approved, the City will fund 20% of the right-of-way acquisition and the construction (Phase I) in year 2. The City will fully fund the Phase II design fee, the TAP application and the TIP application in year 2.

\*TIP and TAP applications are not eligible for reimbursement

If the City elects to pursue federal funding dollars the difference could be an approximate savings of **\$965,660.00** for the FY'2017/2018 budget.

**City Fully Funded: FY' 2018/2019 – SCENARIO 1**

Phase III Design fee (including survey and geotechnical services):	\$ 97,500.00
Transportation Alternatives Program (TAP) application fee:	\$ 3,750.00
Transportation Improvement Program (TIP) application fee:	\$ 5,000.00
Phase II Construction Services:	\$ 90,000.00
Phase II Construction (Including storm sewer improvements):	<u>\$ 637,060.00</u>
Total:	\$ 833,310.00

The City will fully fund (no federal reimbursements) the Phase III design fee, the TAP application, the TIP application, the right-of-way acquisition and the construction (Phase II) in year 3.

**City and Federally Funded: FY' 2018/2019 – SCENARIO 2**

**\*\*\*Assuming the TIP Application is Approved (80% Federal Funds with 20% City match)\*\*\***

Phase III Design fee (including survey and geotechnical services):	\$ 19,500.00
*Transportation Alternatives Program (TAP) application fee:	\$ 3,750.00
*Transportation Improvement Program (TIP) application fee:	\$ 5,000.00
Phase II Construction Services:	\$ 18,000.00
Phase II Construction (Including storm sewer improvements):	<u>\$ 127,412.00</u>
Total:	\$ 173,662.00

If the TIP application is approved, the City will fund 20% of the right-of-way acquisition and the construction (Phase II) in year 3. The City will fully fund the Phase II design fee, the TAP application and the TIP application in year 3.

\*TIP and TAP applications are not eligible for reimbursement

If the City elects to pursue federal funding dollars the difference could be an approximate savings of **\$659,648.00** for the FY'2018/2019 budget.

**City Fully Funded: FY' 2019/2020 – SCENARIO 1**

Phase III Construction Services:	\$ 90,000.00
Phase III Construction (Including storm sewer improvements):	<u>\$1,150,625.00</u>
Total:	\$1,240,625.00

The City will fully fund (no federal reimbursements) the Phase III right-of-way acquisition and the construction in year 4.

**City and Federally Funded: FY' 2019/2020 – SCENARIO 2**

**\*\*\*Assuming the TIP Application is Approved (80% Federal Funds with 20% City match)\*\*\***

Phase III Construction Services:	\$ 18,000.00
Phase III Construction (Including storm sewer improvements):	<u>\$ 230,125.00</u>
Total:	\$ 248,125.00

If the TIP application is approved, the City will fund 20% of the right-of-way acquisition and the construction (Phase III) in year 4.

If the City elects to pursue federal funding dollars the difference could be an approximate savings of **\$992,500.00** for the FY'2019/2020 budget.

In total, if the City elects to pursue federal funding dollars for all three proposed phases of the Geyer Road improvements the difference could be an approximate savings of **\$2,690,000.00** compared to fully funding the entire project.

In addition to the above fiscal year scenarios of City fully funded vs. supported federally funded the following list will assist the City with an alternate scenario of installing new concrete curb and gutter only in high priority areas as well as identifying options for internal budgetary considerations. By installing new concrete curb and gutter only in high priority areas, the City is not be eligible for federal funding.

<b><u>City Fully Funded – ONLY NEW CONCRETE CURB &amp; GUTTER IN HIGH PRIORITY AREAS – FY’ 2017/2018</u></b>	
Phase II Design fee (including survey and geotechnical services):	\$ 47,800.00
Phase I Construction (Including storm sewer improvements):	\$ <u>663,959.00</u>
Total:	\$ 711,759.00

<b><u>City Fully Funded – ONLY NEW CONCRETE CURB &amp; GUTTER IN HIGH PRIORITY AREAS – FY’ 2018/2019</u></b>	
Phase III Design fee (including survey and geotechnical services):	\$ 48,750.00
Phase II Construction (Including storm sewer improvements):	\$ <u>414,089.00</u>
Total:	\$ 462,839.00

<b><u>City Fully Funded – ONLY NEW CONCRETE CURB &amp; GUTTER IN HIGH PRIORITY AREAS – FY’ 2019/2020</u></b>	
Phase III Construction (Including storm sewer improvements):	\$ <u>747,906.00</u>
Total:	\$ 747,906.00

**Stormwater Drainage Improvement Costs**

As represented in Appendix B: Engineering Design and Construction Cost Estimates, cost estimates can be derived for only stormwater drainage improvements as detailed by two categories: **Partial Design Costs** and **Specific Line Item Improvements** for the entire project as listed below.

<b>Partial Design Costs Total:</b>	<b>\$116,240.00</b>
<b>Specific Line Item Improvements (Construction) Total:</b>	<b>\$1,123,664.00</b>

**Pavement Replacement Improvement Costs**

As represented in Appendix B: Engineering Design and Construction Cost Estimates, cost estimates can be derived for only pavement replacement improvements as detailed by two categories as well: **Partial Design Costs** and **Specific Line Item Improvements** for the entire project as listed below.

<b>Partial Design Costs Total:</b>	<b>\$174,360.00</b>
<b>Specific Line Item Improvements (Construction) Total:</b>	<b>\$1,685,496.00</b>



**Phase II: Adjacent Cemetery Improvement Costs**

In the event the Phase II project limits needs to be reduced in scope due to unforeseen sight conditions, i.e. environmental assessments and/or historic exclusion purposes specifically as they pertain to the property containing the historic Old Des Peres Church, the cost estimates are detailed by two categories: **Phase II-A (Federally Funded) Limits** and **Phase II-B (City Fully Funded) Reduced Limits** for the entire proposed Phase II project limits as listed below.



**Figure 5-1. Photo Looking South on Geyer Road near the Old Des Peres Church**

<b><u>Phase II-A (Federally Funded) Limits:</u></b>	
Phase II Design fee (including survey and geotechnical services):	\$ 12,428.00
Phase II Construction (Including storm sewer improvements):	\$ <u>82,817.00</u>
Total:	\$ 95,245.00
<b>***Assuming the TIP Application is Approved (80% Federal Funds with 20% City match)***</b>	

<b><u>Phase II-B (City Fully Funded) Reduced Limits:</u></b>	
Phase II Design fee (including survey and geotechnical services):	\$ 33,460.00
Phase II Construction (Including storm sewer improvements):	\$ <u>222,971.00</u>
Total:	\$ 256,431.00
<b>***Assuming the City Does Not Apply for Federal Funds***</b>	

## 6. CONCLUSION

The area along Geyer Road holds great potential for residential sustaining high property values; however, it will require significant proactive work on the part of the City of Frontenac. The City's role will include working with the East-West Gateway Council of Governments and residents to ensure that all parties involved are invested in a consistent roadway pattern. This pattern will be marked slightly different than conventional suburban development and will require more creativity and flexibility, as well as a continued focus on ways to increase the level of walkability and multimodal planning. The City is well on its way with the conceptual designs developed by Lochgroup and its understanding that tackling the potential supplemental funding mechanisms is an important next step. By utilizing the information in this document, the City has an action plan and a timeline for addressing the challenges as it moves ahead in preparing adjacent property owners with modifying the image of the proposed roadway and stormwater drainage improvements. The remaining public right-of-way, not used for the current pavement and drainage recommendations, may be utilized as a shoulder, a bicycle lane, a sidewalk or sidewalk buffer, or for green streets implementation.

The Geyer Road corridor is clearly a critical area for this type of study. Other critical roadways, and eventually the entire network of roadways would benefit from a similar effort. This study may serve as a pilot for gradually expanding this approach to the remainder of the roadway system in which Lochgroup is available to provide additional services to the City upon request.



Geyer Road Before and After Proposed Improvements



**Figure 6-2. Rendering of Proposed Geyer Road Improvements**

# APPENDIX A

## Conceptual Design Plan Package

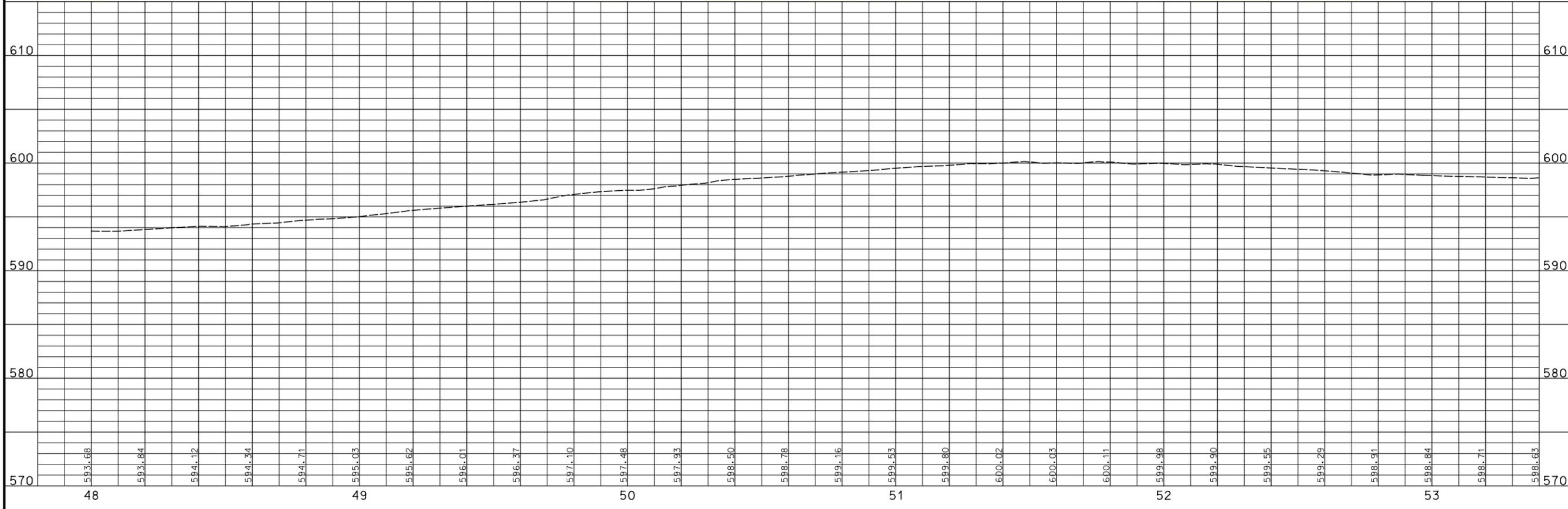
ZEIGLER JOSEPH M  
KATHRYN L HW



**LEGEND**

- EXISTING ROW
- - - - EXISTING CURB
- ==== PROPOSED CURB AND GUTTER
- ⌋ PROPOSED STORM INLET AND PIPE

MATCH LINE STA 53+40.00



**PRELIMINARY PLANS**

NOT FOR CONSTRUCTION

DATE: \_\_\_\_\_

DATE PREPARED: 5/12/2016

ROUTE: GEYER	STATE: MO
DISTRICT: SL	SHEET NO.: 1
COUNTY: ST. LOUIS	
JOB NO.: _____	

CONTRACT ID: \_\_\_\_\_

PROJECT NO.: \_\_\_\_\_

BRIDGE NO.: \_\_\_\_\_

DATE	DESCRIPTION

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

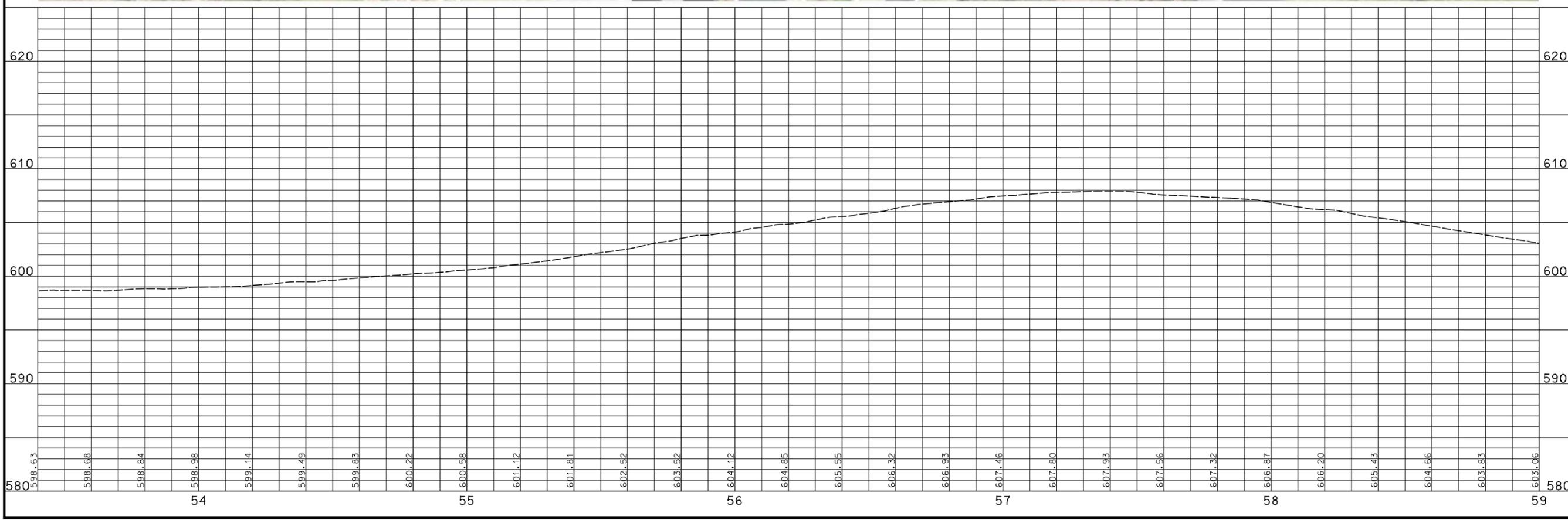
**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

**PLAN & PROFILE**  
GEYER ROAD

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT RESPONSIBLE FOR ANY ERRORS OR OMISSIONS IN ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLANS, SURVEYS, REVISONS, REPORTS, ESTIMATES, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.

REV. \_\_\_\_\_



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE \_\_\_\_\_

DATE PREPARED  
5/3/2016

ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 2
COUNTY ST. LOUIS	
JOB NO.	

CONTRACT ID. \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

BRIDGE NO. \_\_\_\_\_

DATE	DESCRIPTION

**PLAN & PROFILE**  
**GEYER ROAD**

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR ANY OTHER PARTS OF THE PROJECT.

**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE

DATE PREPARED  
5/3/2016

ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 3

COUNTY  
ST. LOUIS

JOB NO.

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

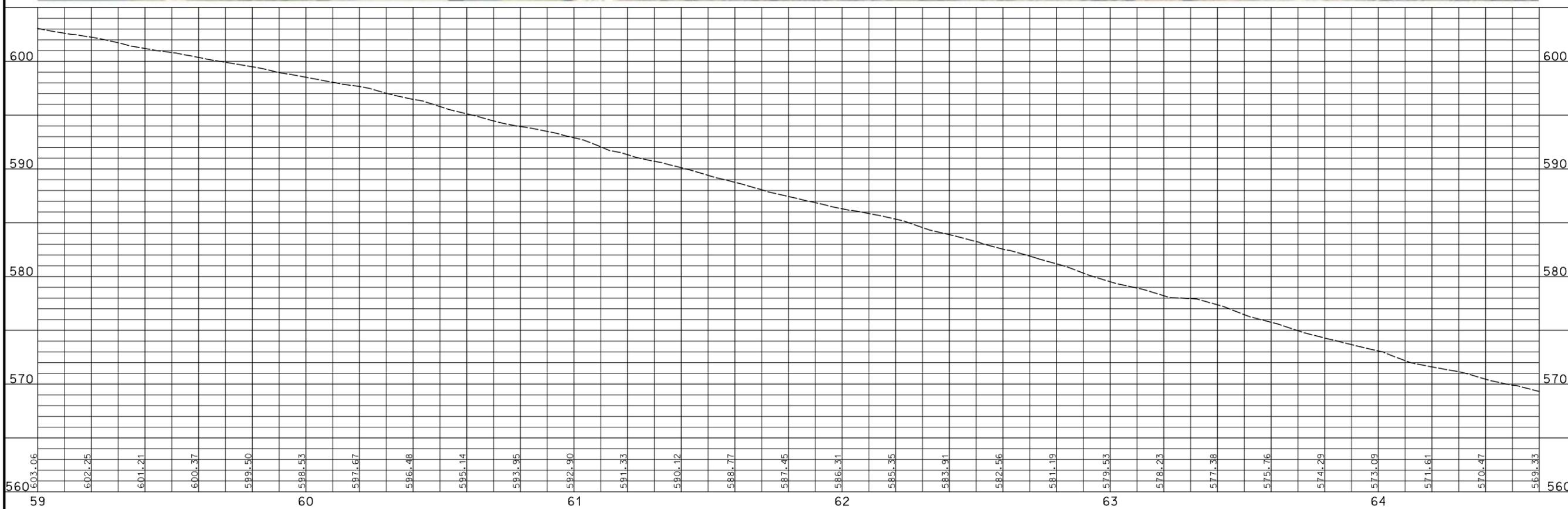
411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

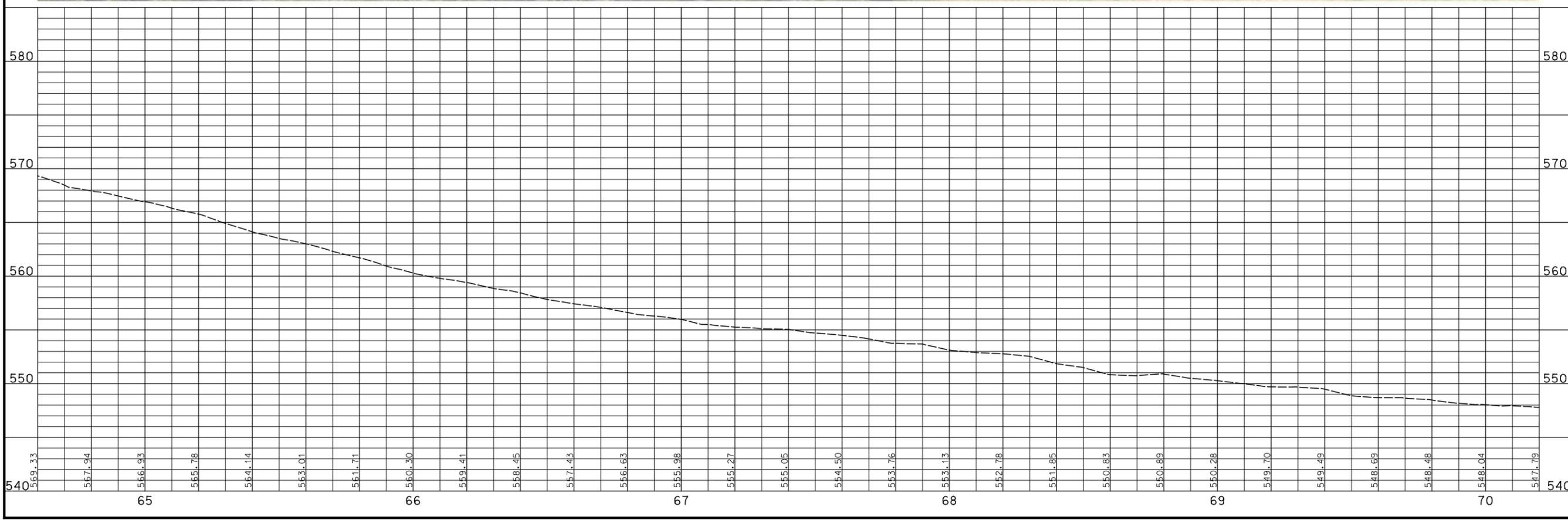


MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE LICENSE NO. 2002011852

**PLAN & PROFILE  
GEYER ROAD**

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT WARRANT OR GUARANTEE ACCURACY OF THIS SHEET. ANY RESPONSIBILITY FOR OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS, IS THE RESPONSIBILITY OF THE USER OF THIS SHEET.





MATCH LINE STA 64+60.00

MATCH LINE STA 70+20.00

**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE  
 DATE PREPARED  
 5/3/2016  
 ROUTE STATE  
 GEYER MO  
 DISTRICT SHEET NO.  
 SL 4  
 COUNTY  
 ST. LOUIS  
 JOB NO.

CONTRACT ID.  
 PROJECT NO.  
 BRIDGE NO.

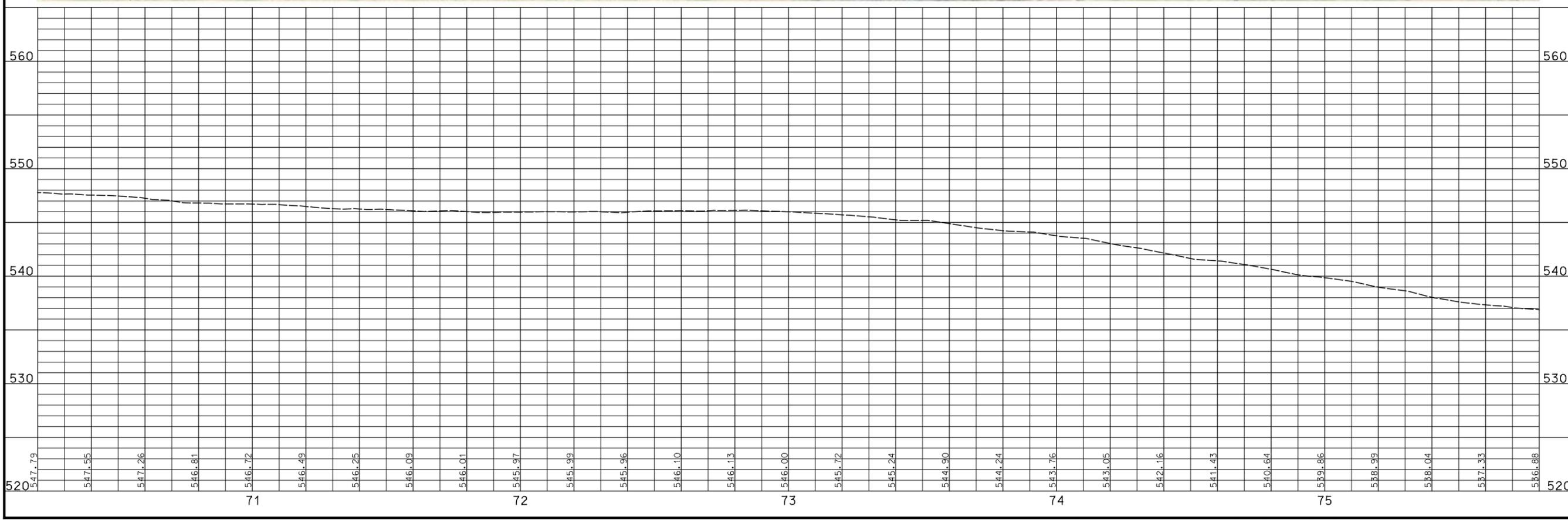
DATE	DESCRIPTION

411 N 10TH STREET, SUITE 200  
 SAINT LOUIS, MISSOURI 63101  
 P (314) 621-3395 F (314) 621-3288  
 WWW.LOCHGROUP.COM  
 MISSOURI STATE ENGINEERING CORPORATION  
 CERTIFICATE LICENSE NO. 2002011852



**PLAN & PROFILE  
 GEYER ROAD**

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BE RESPONSIBLE FOR ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE: \_\_\_\_\_

DATE PREPARED: 5/3/2016

ROUTE <b>GEYER</b>	STATE <b>MO</b>
DISTRICT <b>SL</b>	SHEET NO. <b>5</b>

COUNTY  
**ST. LOUIS**

JOB NO. \_\_\_\_\_

CONTRACT ID. \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

BRIDGE NO. \_\_\_\_\_

DATE	DESCRIPTION

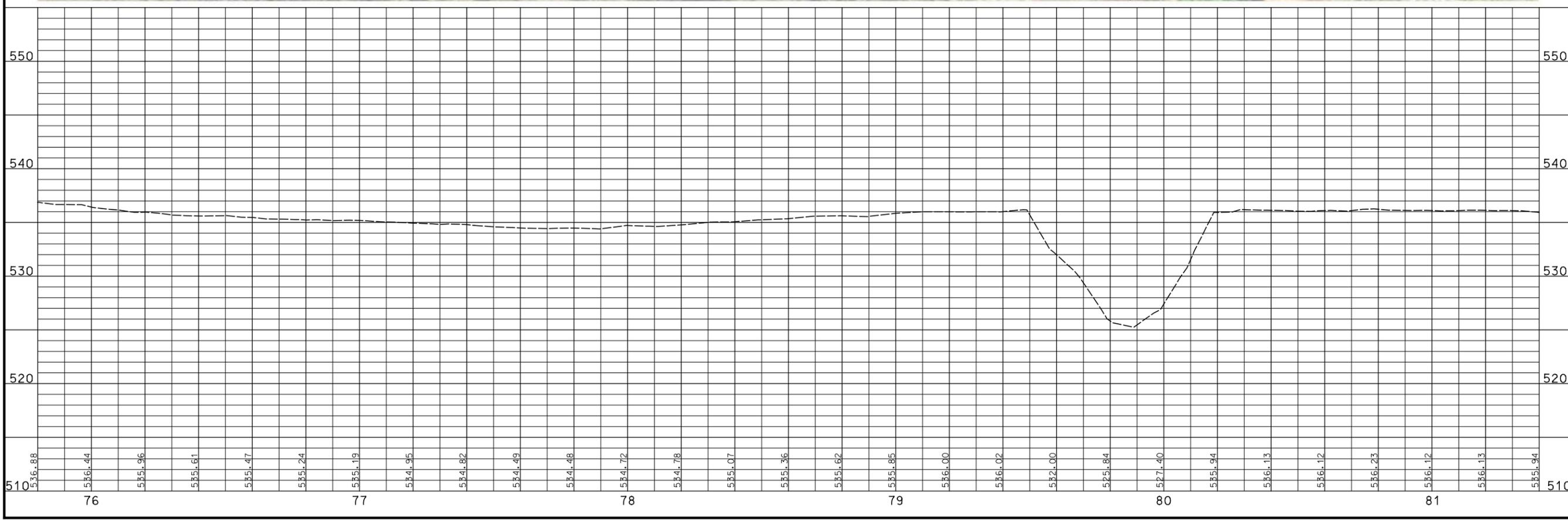
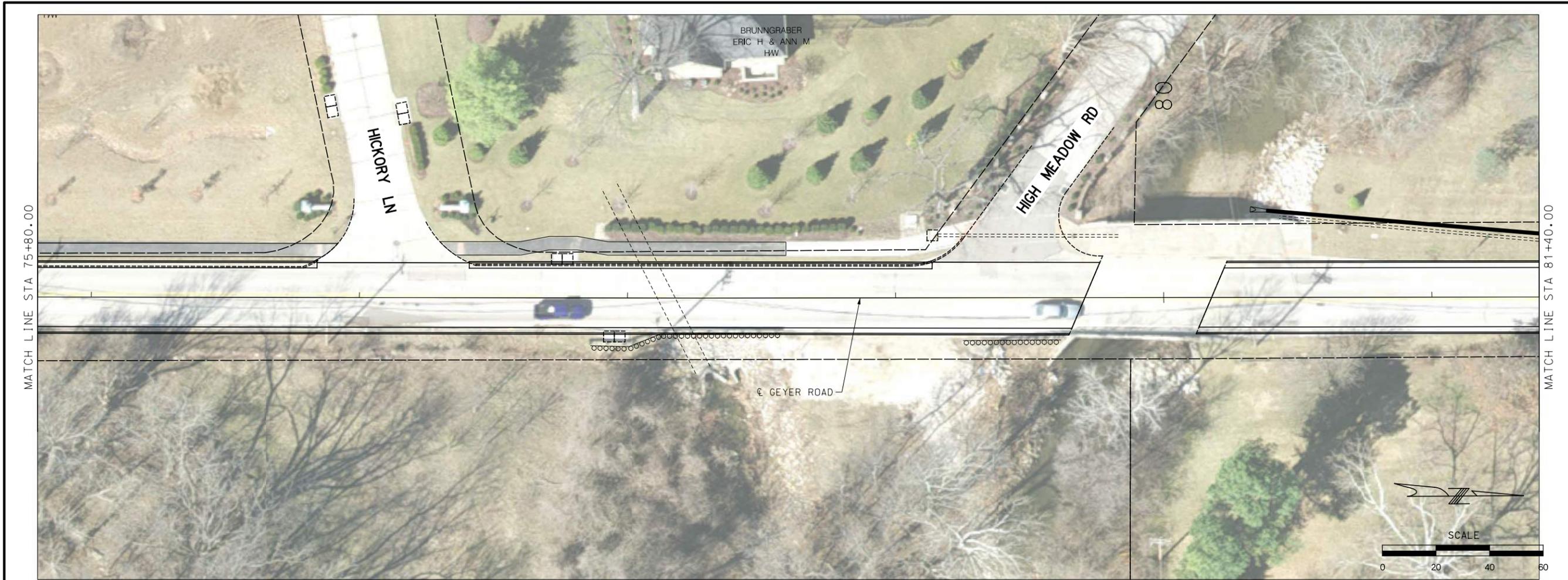
**PLAN & PROFILE**  
**GEYER ROAD**

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE LICENSE NO. 2002011852

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE: \_\_\_\_\_

DATE PREPARED: 5/3/2016

ROUTE <b>GEYER</b>	STATE <b>MO</b>
DISTRICT <b>SL</b>	SHEET NO. <b>6</b>
COUNTY <b>ST. LOUIS</b>	
JOB NO. _____	

CONTRACT ID. \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

BRIDGE NO. \_\_\_\_\_

DATE	DESCRIPTION

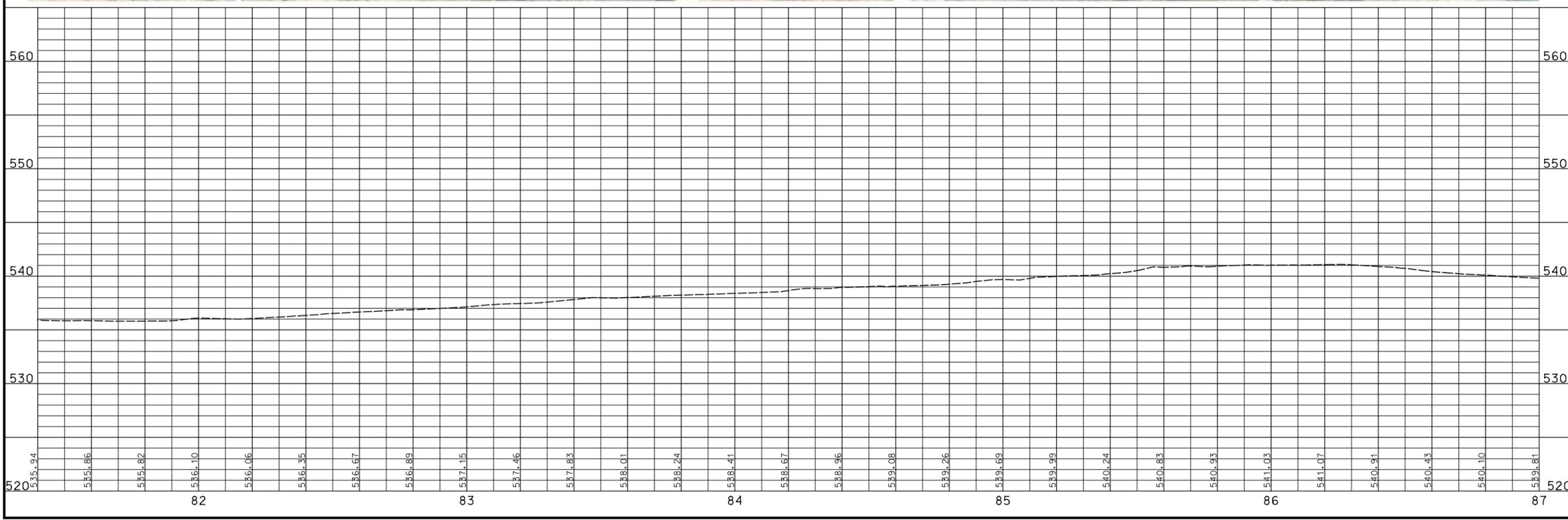
411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT ASSUME RESPONSIBILITY FOR ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.

**PLAN & PROFILE**  
**GEYER ROAD**



**PRELIMINARY PLANS**

NOT FOR CONSTRUCTION

DATE

DATE PREPARED  
5/3/2016

ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 7

COUNTY  
ST. LOUIS

JOB NO.

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

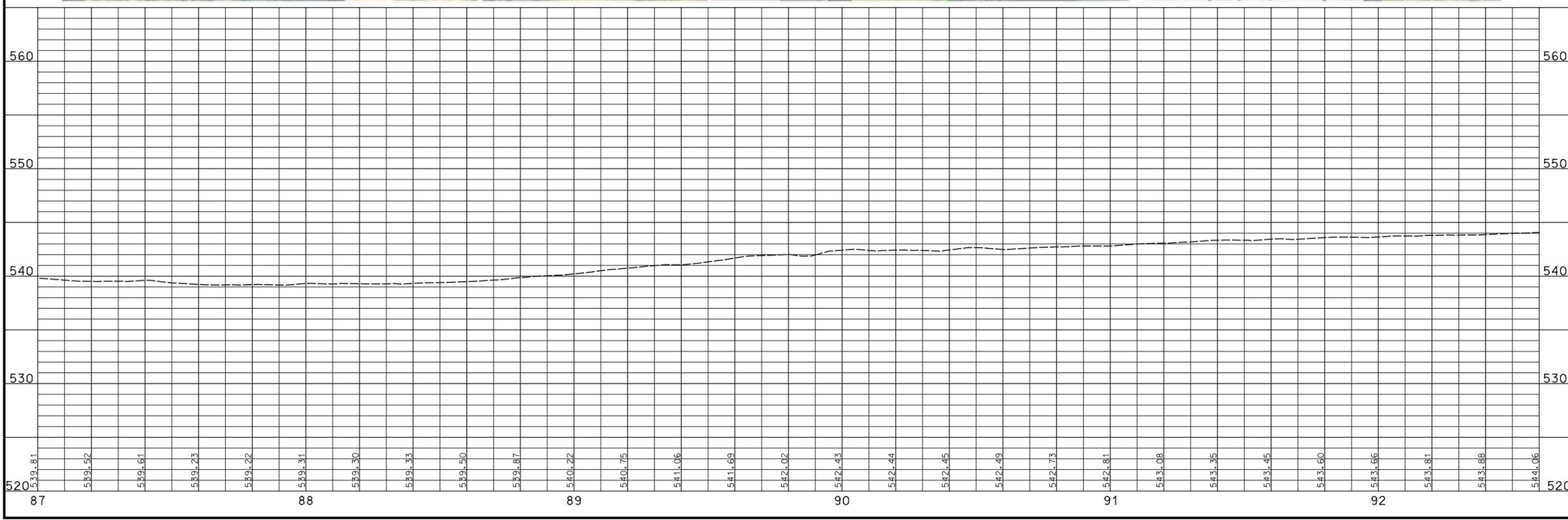
411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE LICENSE NO. 2002011852

**PLAN & PROFILE**  
GEYER ROAD

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL DOES NOT SEAL OR SIGN ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.



**PRELIMINARY PLANS**  
**NOT FOR CONSTRUCTION**

DATE	
DATE PREPARED 5/3/2016	
ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 8
COUNTY ST. LOUIS	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION

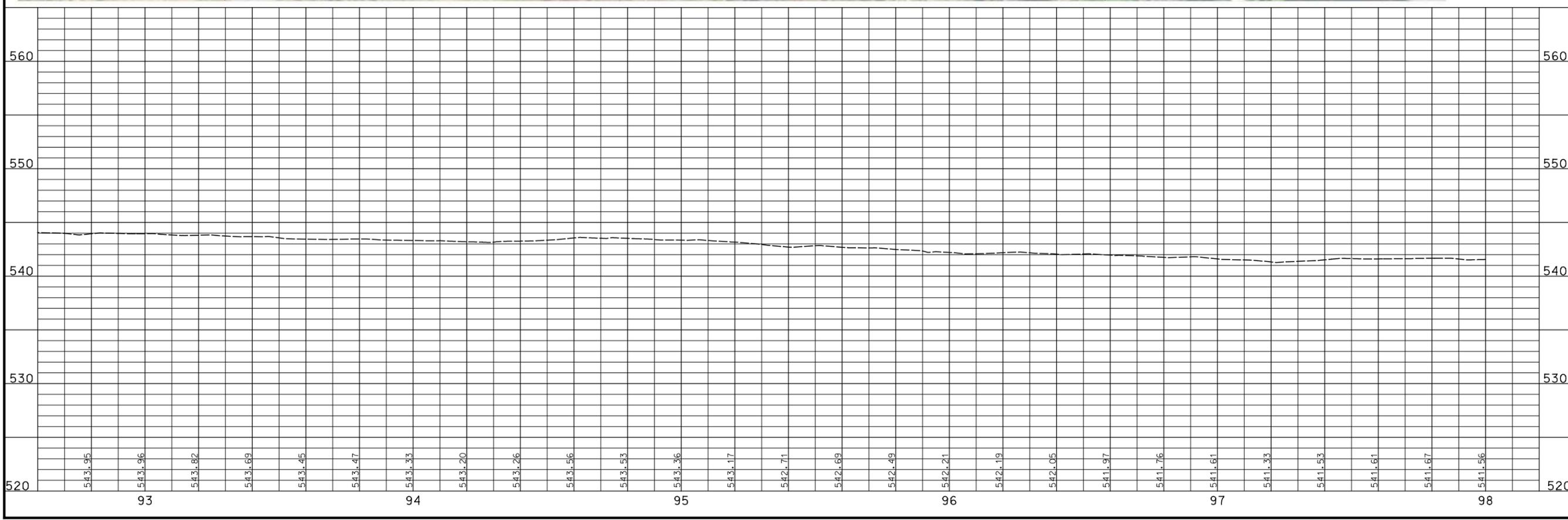
411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

**PLAN & PROFILE**  
**GEYER ROAD**

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE: \_\_\_\_\_

DATE PREPARED: 5/3/2016

ROUTE: GEYER	STATE: MO
DISTRICT: SL	SHEET NO.: 9

COUNTY: ST. LOUIS

JOB NO.: \_\_\_\_\_

CONTRACT ID.: \_\_\_\_\_

PROJECT NO.: \_\_\_\_\_

BRIDGE NO.: \_\_\_\_\_

DATE	DESCRIPTION

411 N 10TH STREET, SUITE 200  
 SAINT LOUIS, MISSOURI 63101  
 P (314) 621-3395 F (314) 621-3288  
 WWW.LOCHGROUP.COM

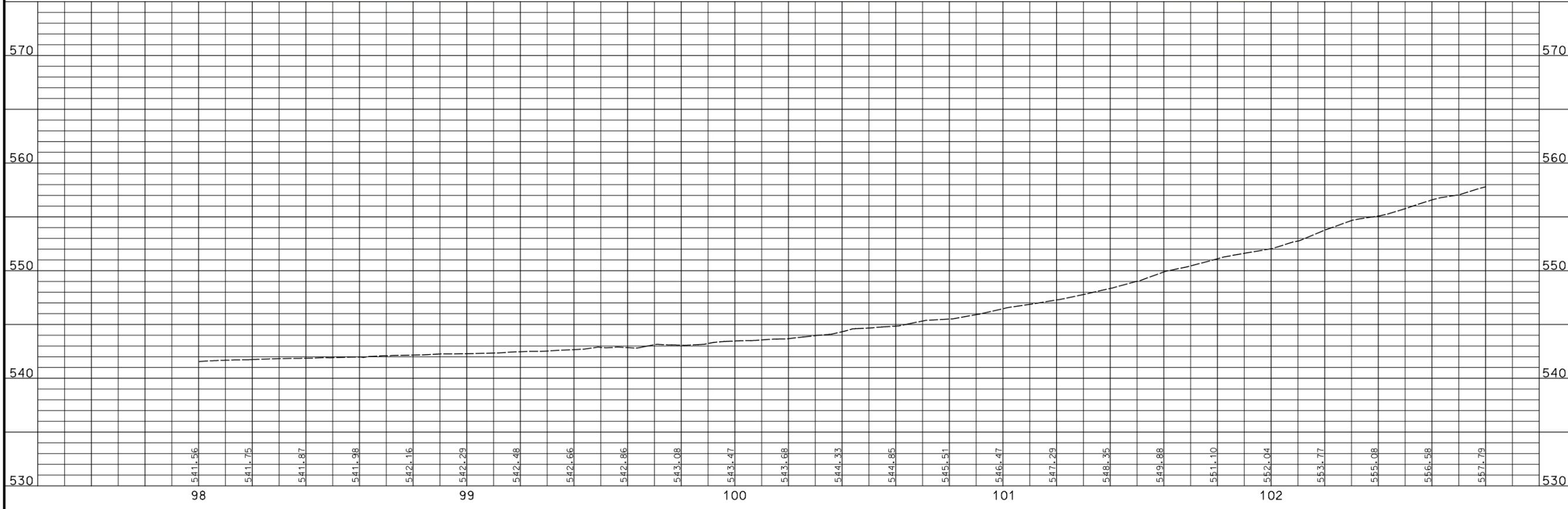
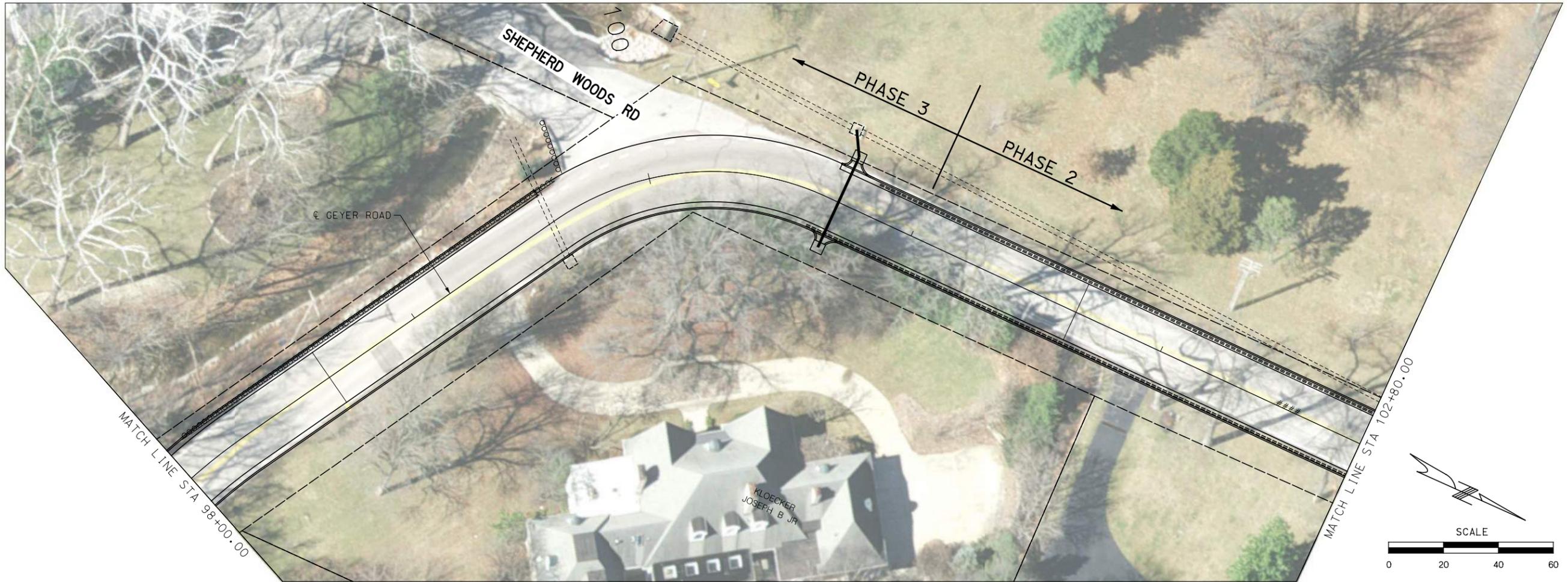
**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
 CERTIFICATE LICENSE NO. 2002011852

**PLAN & PROFILE**  
**GEYER ROAD**

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING RESPONSIBLE FOR ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.

REV. \_\_\_\_\_



**PRELIMINARY PLANS**

NOT FOR CONSTRUCTION

DATE

DATE PREPARED  
5/3/2016

ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 10

COUNTY  
ST. LOUIS

JOB NO.

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

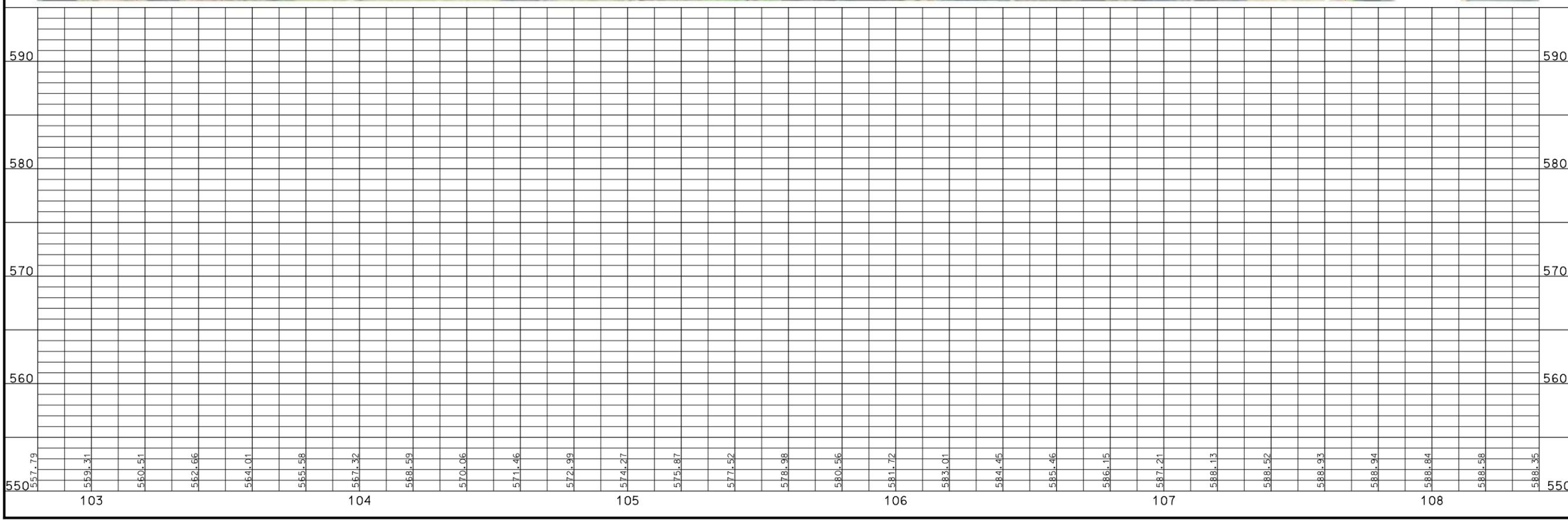
DATE	DESCRIPTION

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM



**PLAN & PROFILE  
GEYER ROAD**

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLANS, SURVEYS, REVISONS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE \_\_\_\_\_

DATE PREPARED  
5/3/2016

ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 11
COUNTY ST. LOUIS	
JOB NO.	

CONTRACT ID. \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

BRIDGE NO. \_\_\_\_\_

DATE	DESCRIPTION

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

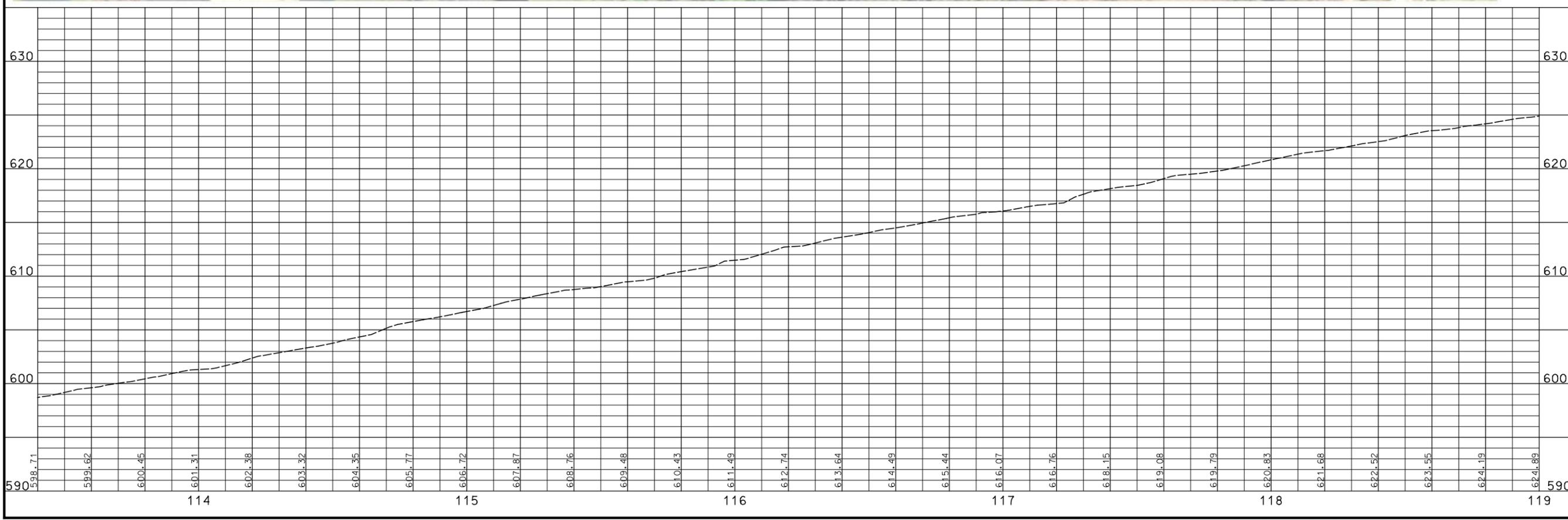
**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT.

**PLAN & PROFILE**  
**GEYER ROAD**





**PRELIMINARY PLANS**  
**NOT FOR CONSTRUCTION**

DATE	
DATE PREPARED 5/3/2016	
ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 13
COUNTY ST. LOUIS	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION

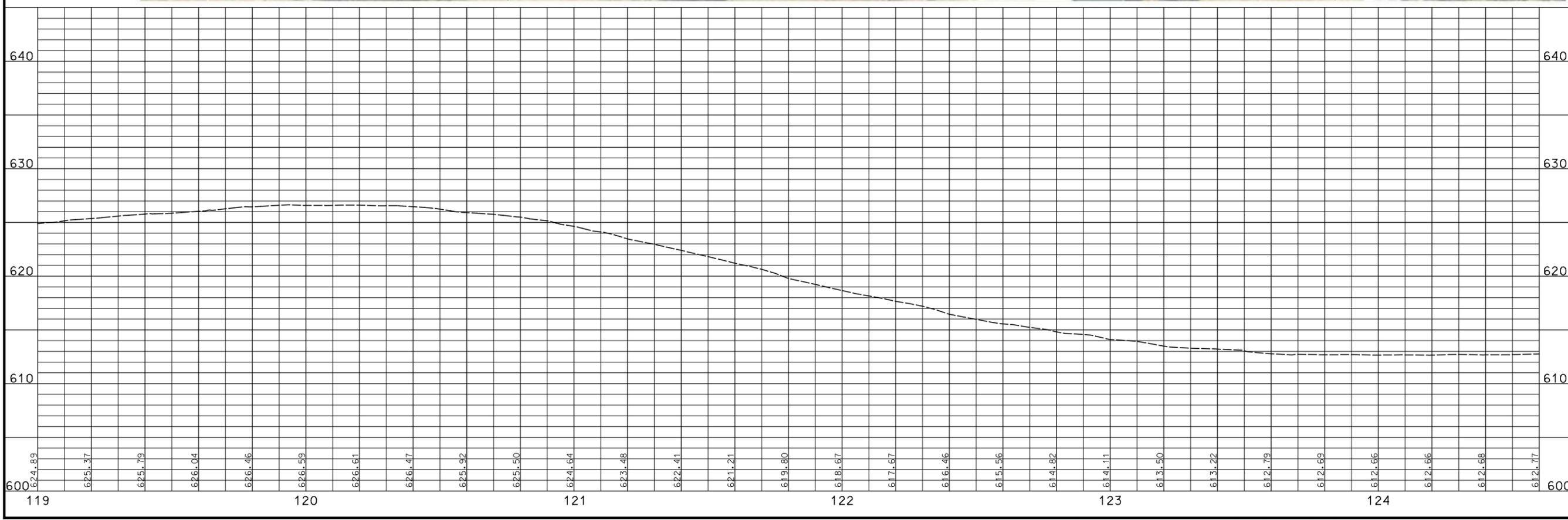
411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

**PLAN & PROFILE**  
**GEYER ROAD**

THE PROFESSIONAL WHOSE PERSONAL SEAL AND OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE: \_\_\_\_\_

DATE PREPARED: 5/3/2016

ROUTE <b>GEYER</b>	STATE <b>MO</b>
DISTRICT <b>SL</b>	SHEET NO. <b>14</b>
COUNTY <b>ST. LOUIS</b>	
JOB NO. _____	
CONTRACT ID. _____	
PROJECT NO. _____	
BRIDGE NO. _____	

DATE	DESCRIPTION

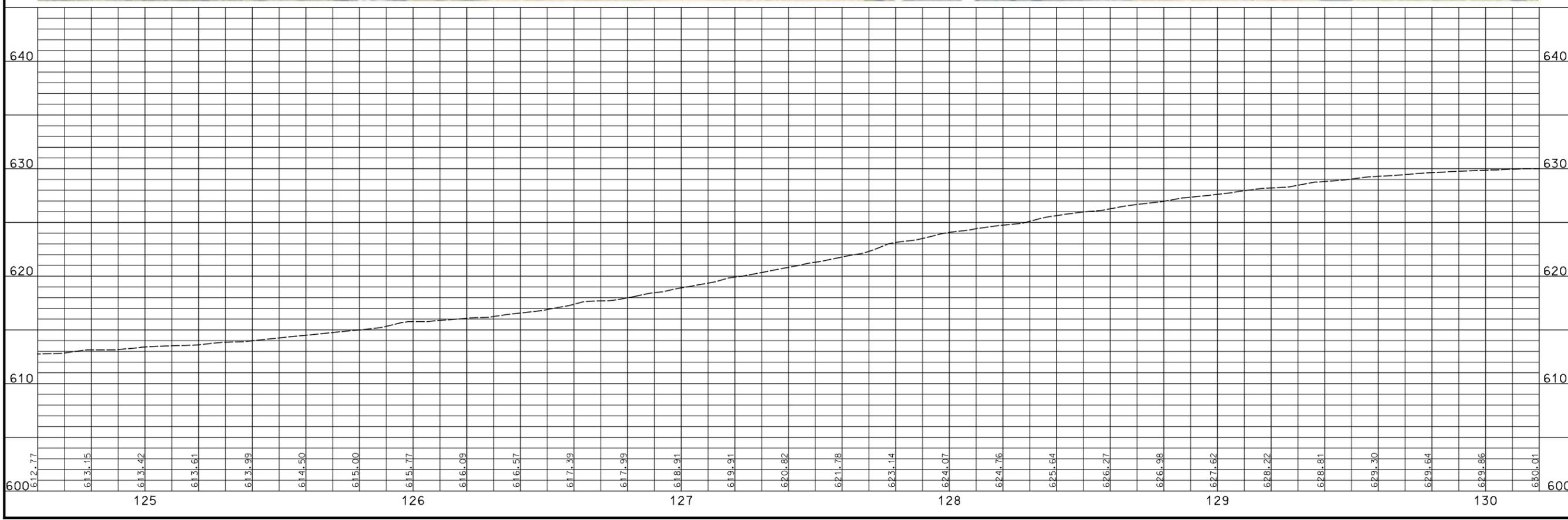
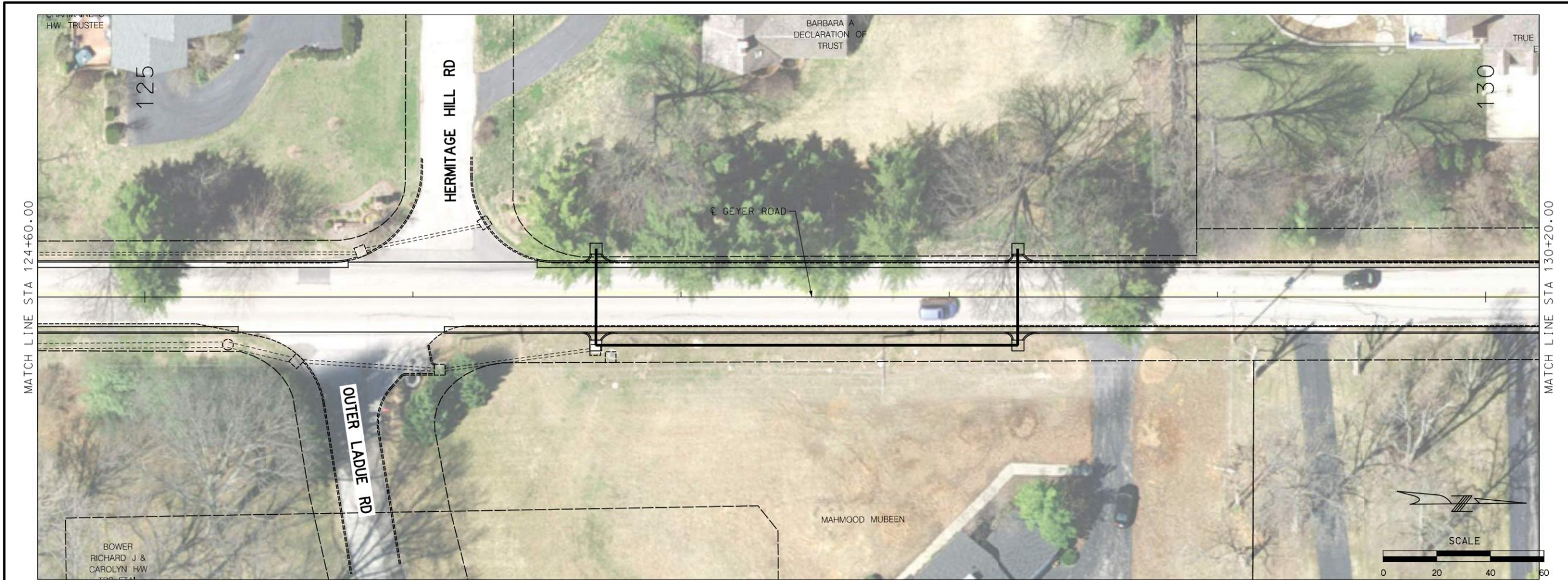
**PLAN & PROFILE**  
**GEYER ROAD**

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT. ANY REVISIONS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVIEWS, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE: \_\_\_\_\_

DATE PREPARED: 5/3/2016

ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 15

COUNTY: ST. LOUIS

JOB NO.: \_\_\_\_\_

CONTRACT ID.: \_\_\_\_\_

PROJECT NO.: \_\_\_\_\_

BRIDGE NO.: \_\_\_\_\_

DATE	DESCRIPTION

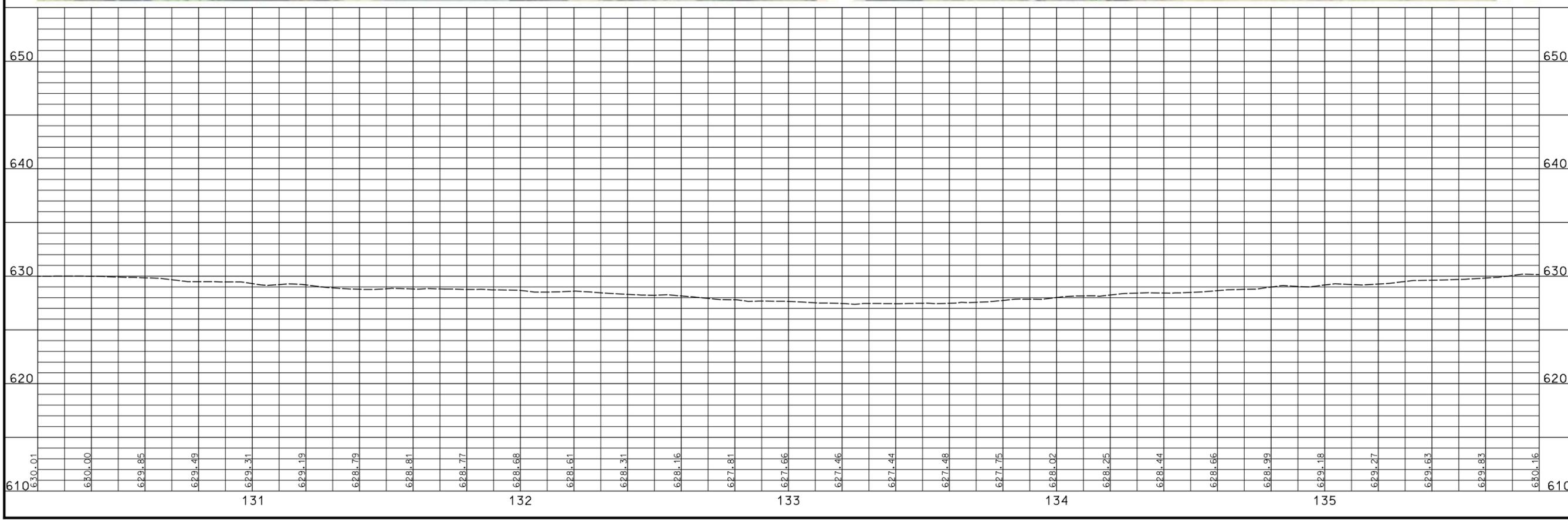
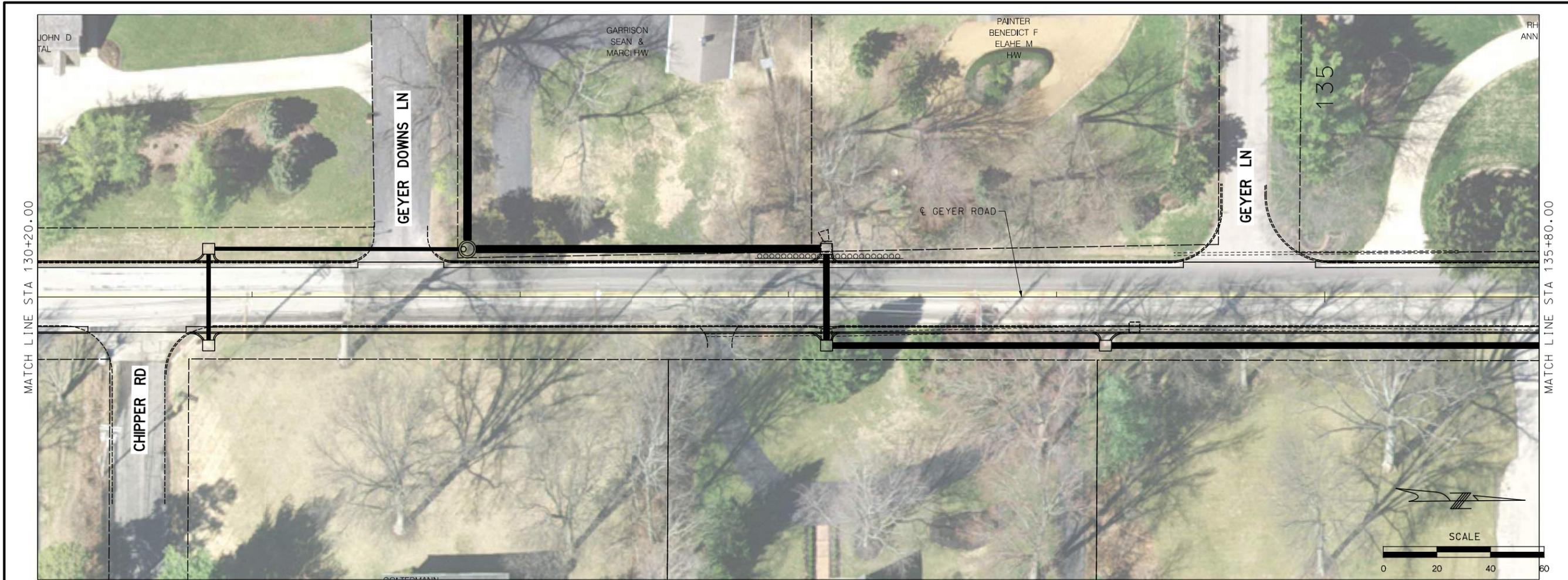
411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE LICENSE NO. 2002011852

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.

**PLAN & PROFILE**  
**GEYER ROAD**



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE \_\_\_\_\_

DATE PREPARED  
5/3/2016

ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 16

COUNTY  
**ST. LOUIS**

JOB NO. \_\_\_\_\_

CONTRACT ID. \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

BRIDGE NO. \_\_\_\_\_

DATE	DESCRIPTION

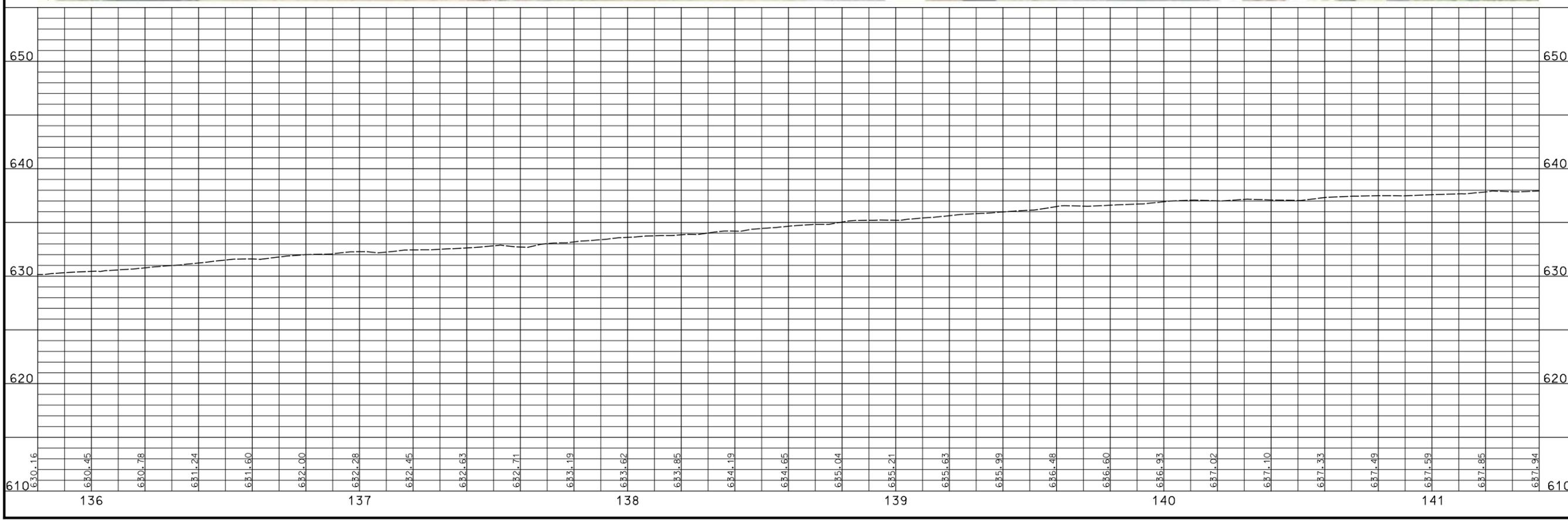
**PLAN & PROFILE**  
**GEYER ROAD**

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT. THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING HELD RESPONSIBLE FOR ANY OTHER PARTS OF THE PROJECT.



**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE \_\_\_\_\_

DATE PREPARED  
5/3/2016

ROUTE <b>GEYER</b>	STATE <b>MO</b>
DISTRICT <b>SL</b>	SHEET NO. <b>17</b>

COUNTY  
**ST. LOUIS**

JOB NO. \_\_\_\_\_

CONTRACT ID. \_\_\_\_\_

PROJECT NO. \_\_\_\_\_

BRIDGE NO. \_\_\_\_\_

DATE	DESCRIPTION

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.

**PLAN & PROFILE**  
**GEYER ROAD**

**PRELIMINARY PLANS**

NOT FOR CONSTRUCTION

DATE

DATE PREPARED  
5/3/2016

ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 18

COUNTY  
ST. LOUIS

JOB NO.

CONTRACT ID.

PROJECT NO.

BRIDGE NO.

DATE	DESCRIPTION

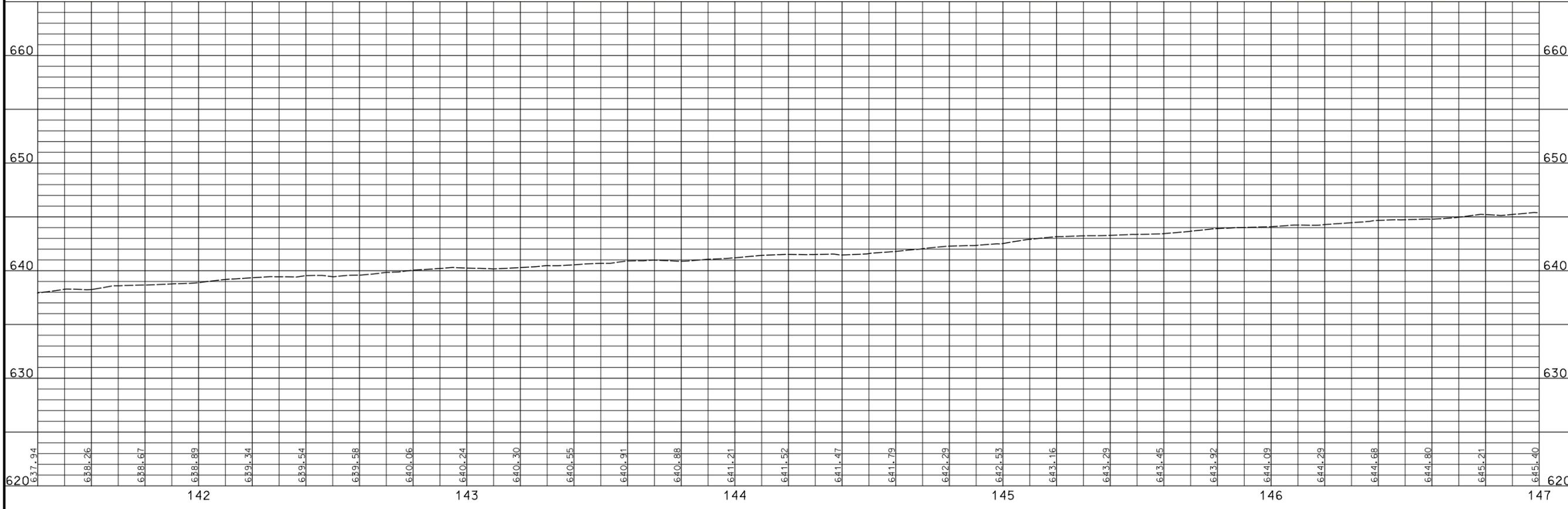
411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

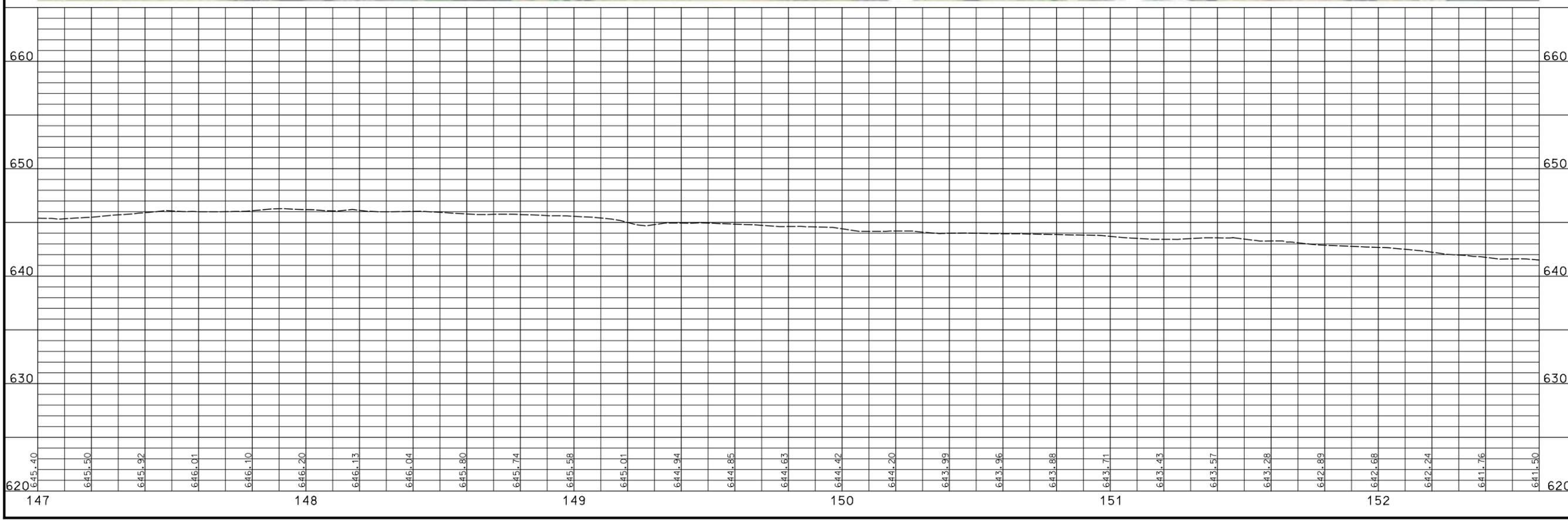


**PLAN & PROFILE  
GEYER ROAD**

THE PROFESSIONAL WHOSE PERSONAL SEAL AND OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR ANY OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.

REV.





MATCH LINE STA 147+00.00

MATCH LINE STA 152+60.00

**PRELIMINARY PLANS**  
**NOT FOR CONSTRUCTION**

DATE	
DATE PREPARED 5/3/2016	
ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 19
COUNTY ST. LOUIS	
JOB NO.	
CONTRACT ID.	
PROJECT NO.	
BRIDGE NO.	

DATE	DESCRIPTION

**PLAN & PROFILE**  
**GEYER ROAD**

**LOCHMUELLER GROUP**  
MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND IS NOT BEING PRESENT TO SECTION 327.411. NO OTHER RESPONSIBILITY FOR OTHER DRAWINGS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVISONS, SPECIFICATIONS, ESTIMATES, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OR PARTS OF THE PROJECT TO WHICH THIS SHEET REFERS.

**PRELIMINARY PLANS**

**NOT FOR CONSTRUCTION**

DATE	
DATE PREPARED 5/3/2016	
ROUTE GEYER	STATE MO
DISTRICT SL	SHEET NO. 20
COUNTY ST. LOUIS	
JOB NO.	

CONTRACT ID.  
PROJECT NO.  
BRIDGE NO.

DATE	DESCRIPTION

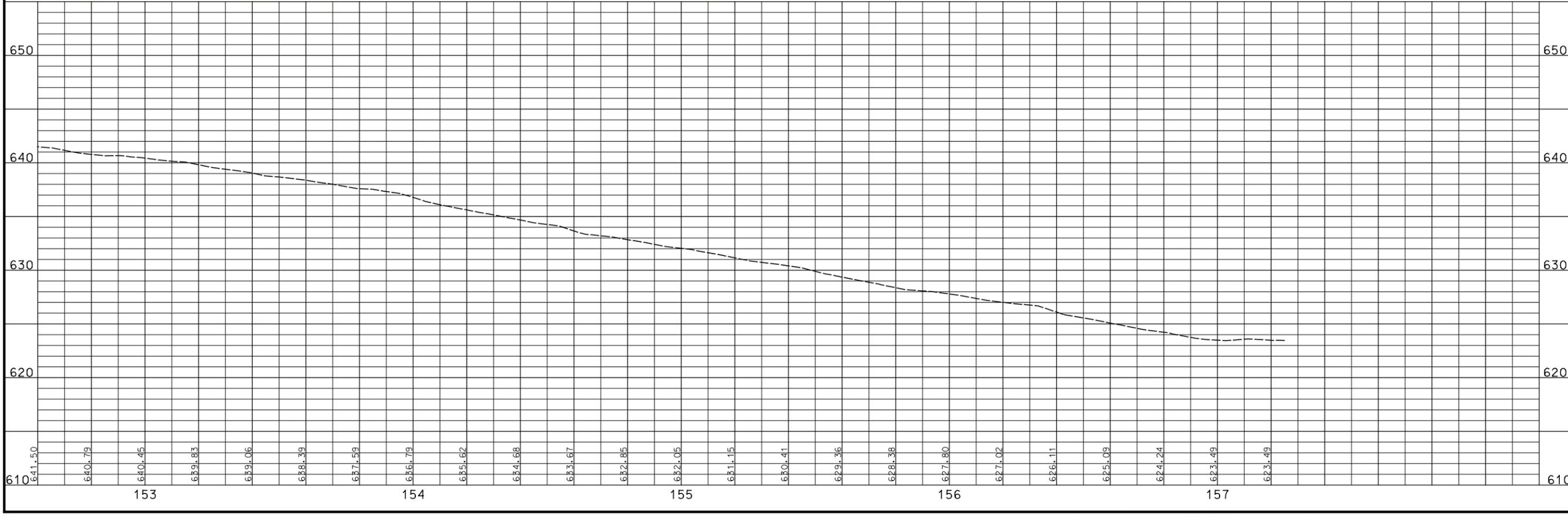
411 N 10TH STREET, SUITE 200  
SAINT LOUIS, MISSOURI 63101  
P (314) 621-3395 F (314) 621-3288  
WWW.LOCHGROUP.COM

**LOCHMUELLER GROUP**

MISSOURI STATE ENGINEERING CORPORATION  
CERTIFICATE/LICENSE NO. 2002011852

**PLAN & PROFILE  
GEYER ROAD**

THE PROFESSIONAL WHOSE PERSONAL SEAL AND/OR SIGNATURE APPEARS ON THIS SHEET ASSUMES RESPONSIBILITY ONLY FOR WHAT APPEARS ON THIS SHEET AND DOES NOT CLAIM RESPONSIBILITY FOR ANY OTHER PARTS OF THE PROJECT. ANY REVISIONS, SUPPLEMENTAL DRAWINGS, PLATS, SURVEYS, REVIEWS, REPORTS, OR OTHER DOCUMENTS OR INSTRUMENTS NOT SEALED BY THE UNDERSIGNED PROFESSIONAL RELATING TO OR INTENDED TO BE USED FOR ANY PART OF THE PROJECT TO WHICH THIS SHEET REFERS.



## **APPENDIX B**

### Engineering Design and Construction Cost Estimates

**ENGINEER'S ESTIMATE - OPINION OF PROBABLE COST**

Geyer Road Improvements  
Frontenac, Missouri

Route: Geyer Road  
County: St. Louis  
Agency: City of Frontenac  
Project No.: 515-0086-0HY

Date: 6/7/2016  
Prepared By: JRB  
Checked By: LWJ

ITEM NUMBER	DESCRIPTION	UNIT	UNIT PRICE	PHASE 1 (CLAYTON RD TO STEEPLECHASE LN)		PHASE 2 (STEEPLECHASE LN TO SHEPARD WOODS RD)		PHASE 3 (SHEPARD WOODS RD TO CITY LIMITS)	
				124+00 to 157+00 (3,300 ft)		101+00 to 124+00 (2,300 ft)		50+00 to 101+00 (5,100 ft)	
				QUANTITY	EXTENDED PRICE	QUANTITY	EXTENDED PRICE	QUANTITY	EXTENDED PRICE
<b>ROADWAY</b>									
201-20.10	CLEARING AND GRUBBING	L.S.		1	\$5,000.00	1	\$1,000.00	1	\$5,000.00
202-20.10	REMOVAL OF IMPROVEMENTS	L.S.		1	\$15,000.00	1	\$10,000.00	1	\$15,000.00
203-10.30	CLASS A EXCAVATION	C.Y.	\$25.00	896	\$22,402.59	619	\$15,487.41	1406	\$35,157.04
304-05.04	TYPE 5 AGGREGATE BASE (4" THICK)	S.Y.	\$10.00	2688	\$26,883.11	1858	\$18,584.89	4219	\$42,188.44
404-12.71	SUPERPAVE ASPHALTIC CONCRETE MIXTURE SP125 (PG70-22)CLP	TON	\$95.00					175	\$16,625.00
404-30.10	TYPE "C" BITUMINOUS PAVEMENT	TON	\$80.00	949	\$75,949.44	877	\$70,171.93	1150	\$92,007.65
405-30.25	ASPHALT PAVEMENT REPAIR (FULL DEPTH ASPHALT) - ESTIMATED AT 2% OF PAVEMENT	S.Y.	\$150.00	170	\$25,429.50	157	\$23,495.07	205	\$30,806.13
407-10.10	TACK-LIQUID ASPHALT	GAL.	\$5.00	254	\$1,271.48	235	\$1,174.75	308	\$1,540.31
412-10.02	PAVEMENT SURFACING AND TEXTURING (0" TO 2", CONCRETE OR ASPHALT)	S.Y.	\$3.00	8477	\$25,429.50	7832	\$23,495.07	10269	\$30,806.13
609-10.52	TYPE B CURB & GUTTER 2'-6"	L.F.	\$35.00	6048.7	\$211,704.50	4181.6	\$146,356.00	9492.4	\$332,234.00
621-20.10	PERMANENT YELLOW PAVEMENT STRIPING, PAINT	L.F.	\$1.00	6600	\$6,600.00	4600	\$4,600.00	10200	\$10,200.00
621-20.11	PERMANENT WHITE PAVEMENT STRIPING, PAINT	L.F.	\$1.00	6600	\$6,600.00	4600	\$4,600.00	10200	\$10,200.00
	24" HIGH BUILD WATERBORNE SOLID WHITE PAVEMENT MARKING PAINT	L.F.	\$6.00	24	\$144.00	11	\$66.00	22	\$132.00
<b>PEDESTRIAN</b>									
608-60.04	CONCRETE SIDEWALK (4" THICK)	S.Y.	\$40.00					366	\$14,624.00
<b>DRAINAGE</b>									
604.12.01	CURB INLET	EA	\$2,500.00	26	\$65,000.00	10	\$25,000.00	17	\$42,500.00
604-19.28	REINFORCED CONCRETE MANHOLE	EA	\$3,000.00	1		2		2	
604-20.20	ADJUSTING BASIN OR INLET	EA	\$1,000.00	9	\$9,000.00	7	\$7,000.00	10	\$10,000.00
604-23.06	HYDRODYNAMIC SEPARATOR (6')	EA	\$20,000.00	2	\$40,000.00	2	\$40,000.00	2	\$40,000.00
604-52.99	CONNECTION TO EXISTING STORMSEWER SYSTEM	EA	\$500.00	6	\$3,000.00	2	\$1,000.00	3	\$1,500.00
726-23.12	12" REINFORCED CONCRETE STORMSEWER (CLASS III)	L.F.	\$70.00	783	\$54,810.00	396	\$27,720.00	1208	\$84,560.00
726-23.18	18" REINFORCED CONCRETE STORMSEWER (CLASS III)	L.F.	\$85.00	674	\$57,290.00	294	\$24,990.00	191	\$16,235.00
726-23.24	24" REINFORCED CONCRETE STORMSEWER (CLASS III)	L.F.	\$100.00	152	\$15,200.00		\$0.00		\$0.00
726-23.30	30" REINFORCED CONCRETE STORMSEWER (CLASS III)	L.F.	\$115.00	703	\$80,845.00		\$0.00		\$0.00
732-00.12	12" CONCRETE FES	EA	\$1,500.00		\$0.00		\$0.00	1	\$1,500.00
732-00.18	18" CONCRETE FES	EA	\$1,500.00		\$0.00		\$0.00	2	\$3,000.00
<b>UTILITIES</b>									
603-10.40	ADJUST WATER METER BOX TO GRADE	EA	\$1,000.00		\$0.00		\$0.00		\$0.00
604-20.30	ADJUST MANHOLE TO GRADE	EA	\$500.00		\$0.00		\$0.00		\$0.00
<b>SODDING &amp; EROSION CONTROL</b>									
803-10.00	SODDING - SITE RESTORATION	S.Y.	\$8.00	3360	\$26,883.11	2323	\$18,584.89	5274	\$42,188.44
806-45.08	INLET PROTECTION DEVICE, SINGLE UNIT - FILTER SOCK/ROLL	EA	\$100.00	35	\$3,500.00	17	\$1,700.00	27	\$2,700.00
806-70.00	SILT FENCE	L.F.	\$3.00	6049	\$18,146.10	4182	\$12,544.80	9492	\$28,477.20
612-30.15	<b>TRAFFIC CONTROL</b>	L.S.		1	\$50,000.00	1	\$30,000.00	1	\$50,000.00
619-00.00	<b>MOBILIZATION</b>	L.S.		1	\$50,000.00	1	\$50,000.00	1	\$50,000.00
	<b>CONSTRUCTION TESTING</b>	L.S.		1	\$15,000.00	1	\$10,000.00	1	\$17,000.00
	<b>CONSTRUCTION SURVEYING &amp; STAKING</b>	L.S.		1	\$15,000.00	1	\$10,000.00	1	\$17,000.00
<b>SUBTOTAL OF ALL CONSTRUCTION IMPROVEMENTS:</b>					<b>\$926,088.33</b>		<b>\$577,570.80</b>		<b>\$1,043,181.35</b>
<b>CONTINGENCY (10%)</b>					<b>\$92,608.83</b>		<b>\$57,757.08</b>		<b>\$104,318.14</b>
<b>INFLATION (3%/YEAR)</b>					<b>\$2,778.26</b>		<b>\$1,732.71</b>		<b>\$3,129.54</b>
<b>TOTAL OF ALL CONSTRUCTION IMPROVEMENTS:</b>					<b>\$1,021,475.43</b>		<b>\$637,060.60</b>		<b>\$1,150,629.03</b>
<b>PROFESSIONAL SERVICES:</b>									
	SURVEY SERVICES (TOPO SURVEY AND BOUNDARY SURVEY TO DETERMINE ROW LIMITS)	LS		1	\$33,000.00	1	\$23,000.00	1	\$51,000.00
	DESIGN & BID PHASE SERVICES (PICK UP SURVEY, GEOTECHNICAL & ROW PLANS INCLUDED)	LS		1	\$97,500.00	1	\$95,600.00	1	\$97,500.00
	CONSTRUCTION SERVICES	LS		1	\$90,000.00	1	\$90,000.00	1	\$90,000.00
<b>TOTAL ENGINEER'S ESTIMATE AMOUNT:</b>					<b>\$1,241,975.43</b>		<b>\$845,660.60</b>		<b>\$1,389,129.03</b>

- Does not include cost of any utility relocations (if necessary)
- Does not include cost of right-of-way or easement acquisition (if necessary)
- Right-of-way plans anticipated for Phase 2

**YEARLY COST BREAKDOWN ASSUMING TIP FUNDING IS UTILIZED**

		First Year Funding is Available (Design Only)				Funding Available for Design and Construction								Totals
City Fiscal Year:	July to June	Oct 2016 to Sept 2017		Oct 2017 to Sept 2018		Oct 2018 to Sept 2019		Oct 2019 to Sept 2020		Oct 2020 to Sept 2021		Oct 2021 to Sept 2022		
TIP Program Fiscal Year:	Oct. to Sept.	FY 2017		FY 2018		FY 2019		FY 2020		FY 2021		FY 2022		
		City	Federal	City	Federal	City	Federal	City	Federal	City	Federal	City	Federal	
<b>TIP Application Cost</b>	Phase I	\$9,900												\$9,900
	Phase II			\$8,400										\$8,400
	Phase III					\$10,500								\$10,500
<b>Survey Professional Services</b>	Phase I					\$6,600	\$26,400							\$33,000
	Phase II							\$4,600	\$18,400					\$23,000
	Phase III									\$10,200	\$40,800			\$51,000
<b>Design Professional Services</b>	Phase I					\$19,500	\$78,000							\$97,500
	Phase II							\$19,120	\$76,480					\$95,600
	Phase III									\$19,500	\$78,000			\$97,500
<b>Construction</b>	Phase I							\$204,295	\$817,180					\$1,021,475
	Phase II									\$127,412	\$509,648			\$637,060
	Phase III											\$230,125	\$920,500	\$1,150,625
<b>Construction Professional Services</b>	Phase I							\$18,000	\$72,000					\$90,000
	Phase II									\$18,000	\$72,000			\$90,000
	Phase III											\$18,000	\$72,000	\$90,000
<b>Sub-totals</b>		\$9,900	\$0	\$8,400	\$0	\$36,600	\$104,400	\$246,015	\$984,060	\$175,112	\$700,448	\$248,125	\$992,500	\$3,505,560
<b>City Cost</b>		\$9,900		\$8,400		\$36,600		\$246,015		\$175,112		\$248,125		\$724,152
<b>Federal Cost</b>		\$0		\$0		\$104,400		\$984,060		\$700,448		\$992,500		\$2,781,408
<b>Total Cost</b>		\$9,900		\$8,400		\$141,000		\$1,230,075		\$875,560		\$1,240,625		\$3,505,560

- 1) Next cycle of TIP applications will be January/March 2017 for funding in FY 2019\* (Engineering only), FY 2020, and FY 2021.  
\* FY 2019 runs October 2018 to September 2019
- 2) TIP application cost includes engineering cost of \$5,000 to complete application and application fee of 0.5% of funding request. If application is unsuccessful, application fee is refunded.
- 3) Does not include cost of right-of-way or easement acquisition (if necessary).
- 4) Does not include cost of utility relocations (if necessary).
- 5) Cost estimates include new curb and gutter, storm sewer improvements, and mill and overlay of the pavement. Constructing new sidewalk is not included.