

November 13, 2013

Proposal SP-13-07579

Mr. Ryan Stempski, PE  
Assistant City Engineer  
City of Lake Elmo  
3800 Laverne Avenue North  
Lake Elmo, MN 55042

Re: Proposal for a Geotechnical and Pavement Evaluation  
Various City Streets  
Lake Elmo, Minnesota

Dear Mr. Stempski:

Braun Intertec is pleased to submit this proposal to complete a geotechnical and pavement evaluation on selected streets located in Lake Elmo, Minnesota.

## **Our Understanding of Project**

Per the Request for Proposal (RFP), we understand that the project will include non-destructive and destructive evaluation of the existing pavement and subgrade of various residential streets in Lake Elmo. The testing is being performed as part of the City's 2014-2016 Capital Improvement Plan (CIP). From our review of the map provided, it appears the streets are residential streets with a bituminous surface.

We understand that the requested services include soil borings, Falling Weight Deflectometer (FWD) testing, Ground Penetrating Radar (GPR) testing, and pavement coring. The goals of our testing are to acquire geotechnical and pavement-related information and to evaluate that information relative to the planned improvements.

## **Proposed Scope of Services**

The following tasks are proposed to help us achieve our stated purpose. If unfavorable or unforeseen conditions are encountered at any point during the completion of these tasks that lead us to recommend an expanded scope of services, we will contact you to discuss those conditions before resuming our work.

### **Geotechnical Exploration Services**

#### **Site Access, Staking and Utility Clearance**

Based on the map provided, we assume that all of the desired soil boring areas will be accessible with a truck-mounted drill rig.

We will use GPS to perform and document the staking. Depending on access requirements or potential utility conflicts, our field crew may slightly alter the exploration locations from those proposed to facilitate accessibility.

Prior to drilling, we will contact Gopher State One Call and arrange for notification to the appropriate utility vendors to mark and clear the exploration locations of public underground utilities. You or your authorized representatives are responsible to notify us before we begin our work of the presence and location of any underground objects or private utilities that are not the responsibility of public agencies.

#### **Standard Penetration Test Borings**

As identified in the RFP, the following streets/areas have been identified for reconstruction. The requested number of borings for each area is as follows:

- Manning Trail North (6 borings)
- Eagle Point Boulevard (5 borings)
- Kenridge Addition (5 borings)
- Kelvin Avenue (4 borings)
- 14th Street North (4 borings)
- Linden Trail North (4 borings)

In all, we will perform a total of twenty-eight (28) standard penetration tests (SPT) borings to a minimum depth of 6 feet below the roadway surface. The thickness of the bituminous surfacing layer and the aggregate base layer (where it can be determined) will be measured and recorded. Penetration tests will be performed and samples will be gathered at 2 1/2-foot vertical intervals.

If groundwater is encountered in the boreholes, the depth where it is observed will be recorded on the boring logs.

#### **Borehole Abandonment**

Minnesota Well Code requires sealing of any boring or core that encounters groundwater and is either greater than 25 feet deep or penetrates a confining layer.

Based on the intended exploration depths, we do not anticipate the need to seal the boreholes. The boreholes will be backfilled with the auger cuttings and the pavement will be patched.

#### **Sample Review and Laboratory Testing**

Soil samples will be returned to our laboratory and will be visually classified and logged by a geotechnical engineer. To help classify the materials encountered and estimate their engineering properties, we have budgeted to perform 20 moisture content tests and 10 mechanical analyses (through a #200 sieve only).

### **Pavement Exploration Services**

As requested in the RFP, we propose to use a combination of Falling Weight Deflectometer (FWD) testing, Ground Penetrating Radar (GPR) testing, and pavement coring. The following areas have been identified for pavement reclamation and are to be included as part of the pavement testing:

- Packard Park Neighborhood
- Stonegate Phase I Neighborhood
- Highlands Trail

### **Falling Weight Deflectometer**

To help evaluate pavement layer and subgrade conditions, we propose to perform non-destructive Falling Weight Deflectometer (FWD) testing with a Dynatest 8002E model FWD. The FWD is a non-destructive testing device specifically designed for evaluating pavements and operates by measuring pavement surface deflections from an applied wheel-simulating impulse load. With known pavement thicknesses and traffic data, the deflection data can be analyzed to estimate spring load capacity (tons per axle), effective subgrade R-value, and effective in-situ granular equivalency (GE).

Four impulse loads (two at 6,000 lbs and two at 9,000 lbs) will be applied at each test point using a testing interval of approximately 100 feet in a single direction of travel. The roadways will be tested approximately in the outside wheelpath.

We expect that this density, which is within typical range for residential/city streets, will be sufficient to capture variation along the roadways.

### **Ground Penetrating Radar**

To evaluate pavement thicknesses and supplement the FWD data analysis, we propose to complete Ground Penetrating Radar (GPR) testing on the roads with a 2.0-gigahertz, air-coupled unit from GSSI, Inc. Testing will be performed at posted speed limits in a single direction of travel on each road, with pavement thickness data gathered at an interval of approximately one foot. GPS coordinates will be collected during GPR testing and user-marks will identify pavement core locations.

A GPR unit of this configuration can be expected to penetrate a maximum of 2 to 3 feet under ideal conditions. Unfavorable soils and ambient and electromagnetic interference can limit the useful depth of the data.

### **Pavement Coring**

To better characterize the in-place pavement and validate the GPR data analysis, we propose to conduct twelve (12) pavement cores to measure the pavement surface. The cores will serve to verify GPR thickness measurements and will be used to visually assess the roadway surface materials as part of our evaluation of pavement reclamation. They will also be available for any additional laboratory testing that may be useful for this purpose.

### **Traffic Control**

Based on our review of available MnDOT traffic volume maps, all routes appear to be low volume residential streets. We plan to use traffic signs to protect our field crew and alert motorists of our work during borings, FWD testing and coring. The cost for signs has been included in our estimate.

### **Engineering and Reporting**

Data obtained from the geotechnical evaluation and pavement testing will be used to evaluate the pavement and subsurface conditions, perform engineering analyses and prepare an engineering report, including:

- A CAD sketch showing boring and core locations.
- Boring logs describing the materials encountered, including bituminous and aggregate base thickness estimates. The depth to groundwater will be identified if encountered during drilling.
- A written summary of the subsurface profile and groundwater conditions.
- FWD deflection data and analysis results, including spring load capacity (tons per axle), effective subgrade R-value, and effective in-situ granular equivalency (GE).
- Tabular and graphical depiction of the GPR scan results for each of the streets tested.
- A discussion of the GPR findings.
- Summary of the pavement core results.
- Discussion regarding the overall findings for each of the street segments, including a discussion of the proposed improvements based on measured thicknesses and subsurface soil types.

The final report will be delivered electronically, unless otherwise requested.

### **Additional Services**

If borings need to be extended beyond their termination depths, we will charge an additional \$15 per lineal foot beyond the originally intended termination depth.

Additional site mobilization will be charged at \$310 per day.

Weather-permitting, hand augers can be performed at a rate of \$88 per hour.

Depending on the type of reclamation selected for the CIP, Braun Intertec can provide mix design services. The costs associated with this work will be provided upon request.

## **Cost**

We will furnish the original scope of services described in this proposal for an estimated fee of **\$13,957.50.**

Our work may extend over several invoicing periods. As such, for work that is performed during the course of each invoicing period, we will submit partial progress invoices.

## **Schedule**

We anticipate the geotechnical exploration services can begin within approximately two weeks of written authorization and will be completed over a period of approximately two days. For the pavement testing services, we anticipate the GPR and pavement coring will be conducted within one week of authorization. To conduct FWD testing, the subgrade must be free of frost. Once the project is authorized, we will evaluate subgrade conditions and determine if FWD testing is feasible. If it is determined that it is not feasible, FWD testing will be conducted in the spring.

We understand that preliminary information is needed as soon as possible so that it can be incorporated into the feasibility study report. This report will be provided to the City in December. We will provide our results as soon as they become available. Depending on the FWD testing, we can provide a draft report that includes all findings, with the exception of the FWD testing. The final report will be delivered once FWD testing is complete.

If our proposed scope of services cannot be completed according to this schedule due to circumstances beyond our control, we may need to revise this proposal prior to completing the remaining tasks.

## **General Remarks**

Braun Intertec appreciates the opportunity to present this Proposal to you. We are providing it in duplicate so the original can be retained for your records and the copy can be signed and returned to us. Please return the copy in its entirety.

The proposed fee is based on the scope of services described and the assumptions that our services will be authorized within 30 days and that others will not significantly delay us beyond our proposed schedule.

We include the Braun Intertec General Conditions, which provide additional terms and are a part of our agreement.

To have questions answered, please contact Amy Grothaus at 651.261.7122.

Sincerely,

BRAUN INTERTEC CORPORATION



Amy J. Grothaus  
Senior Project Manager/Engineer



Benjamin P. Dzioba, PE  
Principal

Attachments:  
Estimated Costs  
General Conditions (9/1/13)

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The proposal is accepted, and you are authorized to proceed.

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Authorizer's Firm

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Authorizer's Signature

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Authorizer's Name (please print or type)

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Authorizer's Title

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Date

## COST ESTIMATE

SP-13-07579

### 2014-2016 Street CIP Projects

City of Lake Elmo  
Ryan Stempski  
3800 Laverne Ave N  
Lake Elmo, MN 55042-9699

Service Desc: Geotechnical and Pavement Evaluations

Work Location: Various Streets

Lake Elmo, MN

Estimator : Amy Grothaus

| Description:   | Quantity:           | Units: | Unit Price: | Extension: |
|--|---------------------|--------|-------------|------------|
| Phase:Geotechnical Evaluation                        |                     |        |             |            |
| Start Date: 11/13/2013                               | End Date:2/28/2014  |        |             |            |
| Task: Drilling Services                              |                     |        |             |            |
| Truck-or skid mounted drill rig, per hour            | 18.00               | Hours  | 216.00      | 3,888.00   |
| Mobilization   | 1.00                | Each   | 620.00      | 620.00     |
| Daily Mobilization & Support Vehicles                | 2.00 Days           | 0.00   |             |            |
| Drilling Services Total:                             |                     |        |             | 4,508.00   |
| Task: Soil Observations & Testing                    |                     |        |             |            |
| Moisture content (Astm D 2216)                       | 20.00               | Tests  | 16.75       | 335.00     |
| No. 200 only (ASTM C 117 or D 1140)                  | 10.00               | Tests  | 67.00       | 670.00     |
| Soil Observations & Testing Total:                   |                     |        |             | 1,005.00   |
| Task: Staking and Utility Clearance                  |                     |        |             |            |
| Site layout and utility clearance                    | 8.00                | Hours  | 93.00       | 744.00     |
| Trip charge  | 1.00                | Each   | 53.00       | 53.00      |
| Trimble R8 Rover (horizontal and vertical), per hour | 8.00                | Hours  | 51.00       | 408.00     |
| Staking and Utility Clearance Total:                 |                     |        |             | 1,205.00   |
| Geotechnical Evaluation Total:                       |                     |        |             | 6,718.00   |
| Phase:Pavement Evaluation                            |                     |        |             |            |
| Start Date: 11/13/2013                               | End Date:2/28/2014  |        |             |            |
| Task: Pavement Services                              |                     |        |             |            |
| Bituminous Coring                                    | 8.00                | Hours  | 150.00      | 1,200.00   |
| 1.00 Trip at   | 8.00 Hours per Trip |        |             |            |
| Ground Penetrating Radar                             | 4.00                | Hours  | 150.00      | 600.00     |
| 1.00 Trip at   | 4.00 Hours per Trip |        |             |            |
| Trip charge  | 1.00                | Trips  | 47.00       | 47.00      |
| Traffic Control Signs                                | 1.00                | Each   | 300.00      | 300.00     |
| FWD Mobilization, per mile                           | 70.00               | Each   | 3.50        | 245.00     |
| GPR Mobilization, per mile                           | 70.00               | Each   | 2.75        | 192.50     |
| FWD Testing, per hour                                | 6.00                | Hours  | 200.00      | 1,200.00   |
| Pavement Services Total:                             |                     |        |             | 3,784.50   |
| Pavement Evaluation Total:                           |                     |        |             | 3,784.50   |

| Description:                  | Quantity:  | Units:             | Unit Price: | Extension: |
|-------------------------------|------------|--------------------|-------------|------------|
| Phase:Analysis and Reporting  |            |                    |             |            |
| Start Date:                   | 11/13/2013 | End Date:2/28/2014 |             |            |
| Task: Pavement Services       |            |                    |             |            |
| FWD Analysis                  | 3.00       | Hours              | 110.00      | 330.00     |
| GPR Analysis                  | 3.00       | Hours              | 110.00      | 330.00     |
| Project Engineer              | 13.00      | Hours              | 135.00      | 1,755.00   |
| Senior Engineer               | 2.00       | Hours              | 160.00      | 320.00     |
| Project Assistant             | 4.00       | Hours              | 81.00       | 324.00     |
| CADD/Graphics Operator        | 4.00       | Hours              | 99.00       | 396.00     |
| Pavement Services Total:      |            |                    |             | 3,455.00   |
| Analysis and Reporting Total: |            |                    |             | 3,455.00   |
| Project Total:                |            |                    |             | 13,957.50  |



# General Conditions

## Section 1: Our Agreement

**1.1** Our agreement ("Agreement") with you consists of these General Conditions and the accompanying written proposal or authorization. This Agreement is our entire agreement. It supersedes prior agreements. It may be modified only in a writing signed by us, making specific reference to the provision modified.

**1.2** The words "you," "we," "us," and "our" include officers, employees, and subcontractors.

**1.3** In the event you use a purchase order or other form to authorize our services, any conflicting or additional terms are not part of our Agreement. Directing us to start work prior to execution of this Agreement constitutes your acceptance. If, however, mutually acceptable terms cannot be established, we have the right to withdraw our proposal without liability to you or others, and you will compensate us for services already rendered.

## Section 2: Our Responsibilities

**2.1** We will provide the services specifically described in our Agreement with you. You agree that we are not responsible for services that are not fairly included in our specific undertaking. Unless otherwise agreed in writing, our findings, opinions, and recommendations will be provided to you in writing. You agree not to rely on oral findings, opinions, or recommendations without our written approval.

**2.2** In performing our professional services, we will use that degree of care and skill ordinarily exercised under similar circumstances by reputable members of our profession practicing in the same locality. If you direct us to deviate from our recommended procedures, you agree to hold us harmless from claims, damages, and expenses arising out of your direction.

**2.3** We will reference our field observations and sampling to available reference points, but we will not survey, set, or check the accuracy of those points unless we accept that duty in writing. Locations of field observations or sampling described in our report or shown on our sketches are based on information provided by others or estimates made by our personnel. You agree that such dimensions, depths, or elevations are approximations unless specifically stated otherwise in the report. You accept the inherent risk that samples or observations may not be representative of things not sampled or seen and, further, that site conditions may change over time.

**2.4** Our duties do not include supervising your contractors or commenting on, overseeing, or providing the means and methods of their work, unless we accept such duties in writing.

We will not be responsible for the failure of your contractors to perform in accordance with their undertakings, and the providing of our services will not relieve others of their responsibilities to you or to others.

**2.5** We will provide a health and safety program for our employees, but we will not be responsible for contractor, job, or site health or safety unless we accept that duty in writing.

**2.6** You will provide, at no cost to us, appropriate site safety measures as to work areas to be observed or inspected by us. Our employees are authorized by you to refuse to work under conditions that may be unsafe.

**2.7** Estimates of our fees or other project costs will be based on information available to us and on our experience and knowledge. Such estimates are an exercise of our professional judgment and are not guaranteed or warranted. Actual costs may vary. You should allow a contingency in addition to estimated costs.

## Section 3: Your Responsibilities

**3.1** You will provide us with prior geotechnical and other reports, specifications, plans, and information to which you have access about the site. You agree to provide us with all plans, changes in plans, and new information as to site conditions until we have completed our work.

**3.2** You will provide access to the site. In the course of our work some site damage is normal even when due care is exercised. We will use reasonable care to minimize damage to the site. We have not included the cost of restoration of normal damage in the estimated charges.

**3.3** You agree to provide us, in a timely manner, with information that you have regarding buried objects at the site. We will not be responsible for locating buried objects at the site unless we accept that duty in writing. You agree to hold us harmless from claims, damages, losses, and related expenses involving buried objects that were not properly marked or identified or of which you had knowledge but did not timely call to our attention or correctly show on the plans you or others on your behalf furnished to us.

**3.4** You will notify us of any knowledge or suspicion of the presence of hazardous or dangerous materials in a sample provided to us. You agree to provide us with information in your possession or control relating to contamination at the work site. If we observe or suspect the presence of contaminants not anticipated in our Agreement, we may terminate our work without liability to you or to others, and we will be paid for the services we have provided.

**3.5** Neither this Agreement nor the providing of services will operate to make us an owner, operator, generator, transporter, treater, storer, or a disposal facility within the meaning of the Resource Conservation Recovery Act, as amended, or within the meaning of any other law governing the handling, treatment, storage, or disposal of hazardous materials. You agree to hold us harmless and indemnify us from any such claim or loss.

**3.6** Monitoring wells are your property, and you are responsible for their permitting, maintenance, and abandonment unless we accept that duty in writing.

**3.7** You agree to make disclosures required by law. In the event you do not own the site, you acknowledge that it is your duty to inform the owner of the discovery or release of contaminants at the site. You agree to hold us harmless and indemnify us from claims related to disclosures made by us that are required by law and from claims related to the informing or failure to inform the site owner of the discovery of contaminants.

## Section 4: Reports and Records

**4.1** Unless you request otherwise, we will provide our report in an electronic format.

**4.2** Our reports, notes, calculations, and other documents and our computer software and data are instruments of our service to you, and they remain our property but are subject to a license to you for your use in the related project for the purposes disclosed to us. You may not transfer our reports to others or use them for a purpose for which they were not prepared without our written approval. You agree to indemnify and hold us harmless from claims, damages, losses, and expenses, including attorney fees, arising out of such a transfer or use. At your request, we will provide endorsements of our reports or letters of reliance, but only if the recipients agree to be bound by the terms of our agreement with you and only if we are paid the administrative fee stated in our then current Schedule of Charges.

**4.3** Because electronic documents may be modified intentionally or inadvertently, you agree that we will not be liable for damages resulting from change in an electronic document occurring after we transmit it to you.

**4.4** If you do not pay for our services in full as agreed, we may retain work not yet delivered to you and you agree to return to us all of our work that is in your possession or under your control.

**4.5** Samples and field data remaining after tests are conducted and field and laboratory equipment that cannot be adequately cleansed of contaminants are and continue to be your property. They may be discarded or returned to

you, at our discretion, unless within 15 days of the report date you give us written direction to store or transfer the materials at your expense.

**4.6** Electronic data, reports, photographs, samples and other materials provided by you or others may be discarded or returned to you, at our discretion, unless within 15 days of the report date you give us written direction to store or transfer the materials at your expense.

## **Section 5: Compensation**

**5.1** You will pay for services as agreed upon or according to our then current Schedule of Charges if there is no other written agreement as to price. An estimated cost is not a firm figure. You agree to pay all sales taxes and other taxes based on your payment of our compensation. Our performance is subject to credit approval and payment of any specified retainer.

**5.2** You will notify us of billing disputes within 15 days. You will pay undisputed portions of invoices on receipt. You agree to pay interest on unpaid balances beginning 30 days after invoice dates at the rate of 1.5% per month, or at the maximum rate allowed by law.

**5.3** If you direct us to invoice another, we will do so, but you agree to be responsible for our compensation unless you provide us with that person's written acceptance of all terms of our Agreement and we agree to extend credit to that person and to release you.

**5.4** Your obligation to pay for our services under this Agreement is not contingent on your ability to obtain financing, governmental or regulatory agency approval, permits, final adjudication of lawsuit in which we are not involved, your successful completion of a project, receipt of payment from another, or any other event. No retainage will be withheld.

**5.5** If you do not pay us within 60 days of invoice date, you agree to reimburse our expenses, including but not limited to attorney fees, staff time, and other costs of collection.

**5.6** You agree to compensate us in accordance with our fee schedule if we are asked or required to respond to legal process arising out of a proceeding related to the project and as to which we are not a party.

**5.7** If we are delayed by factors beyond our control, or if project conditions or the scope or amount of work change, or if changed labor union conditions result in increased costs, decreased efficiency, or delays, or if the standards or methods change, we will give you timely notice and we will receive an equitable adjustment of our compensation. If you and we do not reach agreement on such compensation within 30 days of our written application, we may terminate without liability to you or others.

**5.8** If you fail to pay us within 60 days following invoice date, we may consider the default a total breach of our Agreement and, at our option, terminate our duties without liability to you or to others.

**5.9** In consideration of our providing insurance to cover claims made by you, you hereby waive any right of offset as to fees otherwise due us.

## **Section 6: Disputes, Damage, and Risk Allocation**

**6.1** Each of us will exercise good faith efforts to resolve disputes without litigation. Such efforts will include, but not be limited to, a meeting(s) attended by each party's representative(s) empowered to resolve the dispute. Before either of us commences an action against the other, disputes (except collections) will be submitted to mediation.

**6.2** Neither of us will be liable for special, incidental, consequential, or punitive damages, including but not limited to those arising from delay, loss of use, loss of profits or revenue, loss of financing commitments or fees, or the cost of capital.

**6.3** We will not be liable for damages unless suit is commenced within two years of the date of injury or loss or within two years of the date of substantial completion of our services, whichever is earlier. We will not be liable unless you have notified us of the discovery of the claimed breach of contract, negligent act, or omission within 30 days of the date of discovery and unless you have given us an opportunity to investigate and to recommend ways of mitigating damages. You agree not to make a claim against us unless you have provided us at least 30 days prior to the institution of any legal proceeding against us with a written certificate executed by an appropriately licensed professional specifying and certifying each and every act or omission that you contend constitutes a violation of the standard of care governing our professional services.

**6.4** For you to obtain the benefit of a fee which includes a reasonable allowance for risks, you agree that our aggregate liability for all claims will not exceed the fee paid for our services or \$50,000, whichever is greater. If you are unwilling to accept this allocation of risk, we will increase our aggregate liability to \$100,000 provided that, within 10 days of the date of our Agreement, you provide payment in an amount that will increase our fees by 10%, but not less than \$500, to compensate us for the greater risk undertaken. This increased fee is not the purchase of insurance.

**6.5** You agree to indemnify us from all liability to others in excess of the risk allocation stated above and to insure this obligation.

**6.6** The prevailing party in any action relating to this Agreement shall be entitled to recover

its costs and expenses, including reasonable attorney fees, staff time, and expert witness fees.

**6.7** The law of the state in which our servicing office is located will govern all disputes. Each of us waives trial by jury. No officer or employee acting within the scope of employment shall have individual liability for his or her acts or omissions, and you agree not to make a claim against individual employees.

## **Section 7: General Indemnification**

**7.1** We will indemnify and hold you harmless from and against demands, damages, and expenses of others to the comparative extent they are caused by our negligent acts or omissions or those negligent acts or omissions of persons for whom we are legally responsible. You will indemnify and hold us harmless from and against demands, damages, and expenses of others to the comparative extent they are caused by your negligent acts or omissions or those negligent acts or omissions of persons for whom you are legally responsible.

**7.2** To the extent it may be necessary to indemnify either of us under Section 7.1, you and we expressly waive, in favor of the other only, any immunity or exemption from liability that exists under any worker compensation law.

**7.3** You agree to indemnify us against losses and costs arising out of claims of patent or copyright infringement as to any process or system that is specified or selected by you or by others on your behalf.

## **Section 8: Miscellaneous Provisions**

**8.1** We will provide a certificate of insurance to you upon request. Any claim as an Additional Insured shall be limited to losses caused by our sole negligence.

**8.2** You and we, for ourselves and our insurers, waive all claims and rights of subrogation for losses arising out of causes of loss covered by our respective insurance policies.

**8.3** Neither of us will assign nor transfer any interest, any claim, any cause of action, or any right against the other. Neither of us will assign or otherwise transfer or encumber any proceeds or expected proceeds or compensation from the project or project claims to any third person, whether directly or as collateral or otherwise.

**8.4** Our Agreement may be terminated early only in writing. We will receive an equitable adjustment of our compensation in the event of early termination.

**8.5** If a provision of this Agreement is invalid or illegal, all other provisions shall remain in full force and effect.