City of Dayton Parks & Recreation

Elsie Stephens Park Pedestrian Bridge Project

BIDS CLOSE: October 31, 2024 @ 3:00 p.m.

Prepared By:

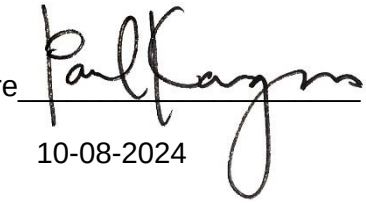
All questions are to be directed to:
Paul Kangas – Landscape Architect
Inside Outside Architecture, Inc.
Cell: 612-237-8355
Email: paul@ioainc.net

City Staff Contact:
Martin Farrell – Director of Public Works
City of Dayton, Minnesota
Cell: 612-751-8847
Email: mfarrell@cityofdaytonmn.com

CERTIFICATION PAGE

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT
City of Dayton, Minnesota

I hereby certify that this Project Manual was prepared by me or under my direct supervision and that I am a duly licensed professional Landscape Architect under the laws of State of Minnesota.

Name: Paul A. Kangas Signature 

Registration: MN #26017 Date: 10-08-2024

ADVERTISEMENT FOR BID

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT
Dayton, Minnesota

BIDDING/CONTRACT REQUIREMENTS PAGE

TECHNICAL SPECIFICATIONS

PLAN SHEETS & TECHNICAL DATA

Elsie Stephens Park Pedestrian Bridge

ADVERTISEMENT FOR BID

Elsie Stephens Park Pedestrian Bridge Project
Dayton, Minnesota

Notice is hereby given that sealed bids will be received until **3:00 PM, Tuesday, October 31st, 2024**, at:

City of Dayton
Attn: Zach Doud – City Administrator
12260 South Diamond Lake Road
Dayton, MN 55327

The bids received will be publicly opened and read aloud, for the furnishing of all labor and material for the construction of the Elsie Stephens Pedestrian Bridge Project. Major components of the work include:

1. Earthwork and final grading
2. Paved trails – limited concrete OR asphalt
3. Prefabricated pedestrian bridge
4. Cast in place concrete abutments
5. Seeding & erosion control

Work shall begin after November 15th, 2024 and be substantially completed by June 30th, 2025.

Each bidder shall submit as a general contractor and **partial bids are not allowed**. You shall retain sub-contractors as needed to provide the full services required of the project. The City will engage in only one contract to complete this work.

Bids must be submitted on the forms provided in the Project Manual and Construction Documents.

Complete digital project bidding documents will be available after October 9th, 2024 at www.questcdn.com. You may download the digital plan documents for a fee by inputting **Quest Project ID#9349768** on the website's project search page. Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with this digital project information.

Questions regarding the project should be directed to:

Paul Kangas, Landscape Architect
Inside Outside Architecture, Inc. (IOA)
Direct Dial: 612-237-8355
Email: paul@IOAinc.net

Bid security in the amount of 5% percent of the Bid must accompany each Bid in accordance with the Instructions to Bidders.

All bidders for this contract, including subcontractors and suppliers that have 40 or more full-time employees, shall submit a certified copy of their current Affirmative Action Certificate with their bid.

Bids shall be directed to the City Administrator, be securely sealed, and be labeled on the outside wrapper, "BID FOR ELSIE STEPHENS PEDESTRIAN BRIDGE PROJECT"

The City of Dayton reserves the right to reject any and all Bids, to waive irregularities and informalities therein and to award the Contract in the best interests of the City of Dayton.

Zach Doud
City Administrator
Dayton, Minnesota

BID FORM

*Contractor:*_____

Bids Due: 3:00 pm – October 31st, 2024

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT

Dayton, Minnesota

City of Dayton - Parks & Recreation
Attn: Zach Doud – City Administrator
12260 South Diamond Lake Road
Dayton, MN 55327

To Whom it may Concern:
The undersigned, being familiar with the local conditions, having made the field inspections and investigations deemed necessary, having studied the plans and specifications for the work including Addenda No(s). _____, and being familiar with all factors and others conditions affecting the work and cost thereof, hereby proposes to furnish all labor, tools, materials, skills, equipment and all else necessary to completely construct the project in accordance with the plans and specifications on file with the County as follows (bidder shall verify quantities to his/her satisfaction):

SEE BID FORM NEXT PAGE

ADD ALTERNATES (see Section 00 4023)

The low bidder shall be determined by the lowest, qualified Grand Total Base Bid entered on this Bid Form. This bid is a combination of both Lump Sum and Installed Quantity payment line items as noted on the bid form. The estimated quantities on the Proposal Form are provided for the convenience of the Bidder. Bidders are responsible for verifying quantities to their satisfaction. Unit prices entered on the Proposal Form will be used to calculate total payments during construction and to aid in determining values for possible changes in the work. If unit prices are judged to be unreasonable by the Owner, the Owner reserves the right to negotiate revisions to the prices.

Accompanying this bid is a bidder's bond, certified check, or cash deposit in the amount of at least five (5%) of the amount of my/our bid made payable to City of Dayton. The same is subject to forfeiture in the event of default on the part of the undersigned, or failure on the part of the undersigned to execute the prescribed contract and bond within fifteen (15) days after it is submittal to me/us.

In submitting this bid, it is understood that the Owner retains the right to reject any and all bids and to waive irregularities and informalities therein and to award the contract to the best interest of the Owner.

It is understood that bids may not be withdrawn for a period of 30 days after the date and time set for the opening of bids. It is understood that the Owner reserves the right to retain the certified check or bond of the three lowest bidders as determined by the Owner for a period not to exceed 30 days after the date set for the opening of the bids.

Respectfully submitted by:

_____ (A Corporation)

_____ (An Individual)

_____ (Title)

_____ (Bidder's E.I. Number)

ELSIE STEPHENS PARK - PEDESTRIAN BRIDGE PROJECT

ITEM	UNIT	EST QTY	UNIT COST	TOTAL COST
GENERAL COSTS & EROSION CONTRL			**Subtotal**	
Mobilization	LS	1		
Construction Surveying & Staking	LS	1		
Rock Construction Entrance Pad	LS	1		
Silt Fence Installation & Removal	LF	230		
EARTHWORK			**Subtotal**	
Abutment & Subcut Excavation	CY	600		
Backfill Type A	CY	155		
Backfill Type B	CY	372		
Riprap, Class 3	CY	55		
Geotextile Fabric under Riprap	SY	150		
Fine Grading	LS	1		
BRIDGE, ABUTMENTS, & PAVING			**Subtotal**	
Structural Concrete & Reinforcement	CY	33		
Bridge with Concrete Deck	LS	1		
Relocate Existing On-Site Granite Boulders	EA	6		
Concrete OR Asphalt Trail Paving with Base Material	SY	65		
LANDSCAPING			**Subtotal**	
Turf Seed Mix	SY	150		
Class 2 Erosion Control Mat	SY	150		
SPECIALTY ITEMS - IF NEEDED			**Subtotal**	
Dewatering	LS	1		
Geotechnical Observation	LS	1		
BASE BID PROJECT TOTAL			**TOTAL**	

AFFIRMATIVE ACTION DECLARATION

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT

Dayton, Minnesota

Please complete the questionnaire shown below and attach this completed and properly executed sheet to the bid proposal. This sheet along with the Affirmative Action Certificate (if applicable) must be submitted with the bid. Failure to do so may, at the City's discretion, cause the bid to be rejected. If, however, the bid is not rejected for your failure to attach these documents, the bid shall absolutely be rejected if you have not provided the said documents within seventy-two (72) hours after the City has deposited in the US Mail written demand therefore.

I hereby certify that I have reviewed the Affirmative Action requirements as set forth in the specifications and declare the following (must check one):

_____ We have fewer than twenty (20) employees and are therefore exempt from the Affirmative Action Requirement.

or

_____ We have attached a certified copy of our Affirmative Action Certification

or

_____ We do not have a Certificate.

Signed: _____

Firm Name: _____

AFFIDAVIT OF NON-COLLUSION

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT

Dayton, Minnesota

(Information Required of Bidder)

I hereby swear (or affirm) under the penalty for perjury:

1. That I am the bidder (if the bidder is an individual), a partner in the bidder (if the bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its' behalf (if the bidder is a corporation);

2. That the attached bid or bids have been arrived at, by the bidder, independently, and have been submitted without collusion with, and without any agreement, understanding, or planned common course of action with any other vendor of materials, supplies, equipment, or services described in the invitation to bid, designed to limit independent bidding or competition;

3. That the contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids, and will not be communicated to any such person prior to the official opening of the bid or bids;

4. That I have full informed myself regarding the accuracy of the statements made in this affidavit.

Signed:_____

Firm Name:_____

Subscribed and sworn to before this _____ day of_____, 20_____

Notary Public:_____

My Commission Expires:_____

Bidder's E.I. Number:_____

(Number used on Employer's Quarterly Federal Tax Return, US Treasury Dept. Form #941)

FORM OF AGREEMENT

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT

Dayton, Minnesota

THIS AGREEMENT, entered into this _____ day of_____, 2024, by and between the

City of Dayton Parks & Recreation Department hereinafter called the "Owner" and

_____hereinafter called the "Contractor".

THIS AGREEMENT WITNESSETH, that the Owner and the Contractor, for the consideration hereinafter stated, agrees as follows:

ARTICLE I. The Contractor hereby covenants and agrees to perform and execute all the provisions of the plans and specifications as prepared by Loucks Associates, Inc, and indicated below under Article IV, as provided by the Owner for: _____ and to do everything required by this agreement and the contract documents.

ARTICLE II. The Contractor agrees that the work contemplated by this contract shall be fully and satisfactorily completed in accordance with the provisions in Article 9 of the Supplemental Conditions of the Contract.

ARTICLE III. The Owner agrees to pay and the Contractor agrees to receive and accept payment in accordance with the prices bid for the unit or lump sum items as set forth in the conformed copy of Proposal Form hereto attached, which prices shall conform to those in the accepted Contractor's Proposal on file in the Office of the **City of Dayton City Administrator** the aggregate of which prices, based on the approximate schedule of quantities is estimated to be $_____. Monthly and final payment shall be made as provided in the City's Standard Specifications for Construction referred to herein.

ARTICLE IV. The contract documents shall consist of the following component parts:

1. Instruction for Bidders
2. Specifications
3. Special Provisions
4. Bid Proposal Form
5. Performance and Payment Bond
6. Plans and drawings which are attached to the specifications
7. Addenda No(s). _____.
8. This Agreement

Each and all of the aforementioned contract documents are hereby incorporated into this agreement by specific reference and the terms and provisions thereof are and constitute a part of this Agreement as though attached hereto or fully set forth herein.

CERTIFICATE OF ACKNOWLEDGMENT

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT
Dayton, Minnesota

CERTIFICATE OF ACKNOWLEDGMENT BY CORPORATION
(For use where Contractor is a corporation)

STATE OF MINNESOTA)
COUNTY OF HENNEPIN) SS
CITY OF DAYTON)

On this day of _____, 2024, before me personally appeared _____

and _____to me known who, being by me duly sworn, did say that they

are respectively the _____ of _____
that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that said instrument was

executed in behalf of the corporation by authority of its Board of Directors, and said _____

_____ and _____
acknowledged the instrument to be the free act and deed of said corporation.

(NOTARIAL SEAL)

_____
Notary Public

_____ _____
Full Name of Surety Company Home Office Address

_____ _____
Name of Attorney-in-fact Name of Local Agency

If this bond is executed outside of the State of Minnesota, it must be countersigned on the Performance Bond by a Minnesota resident of the Surety Company.

_____ _____
Name of Agent affixing countersignature Address

MEMORANDUM: Affix here Power of Attorney and Acknowledgment of Corporate surety.

CERTIFICATE OF ACKNOWLEDGMENT

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT
Dayton, Minnesota

CERTIFICATE OF ACKNOWLEDGMENT BY PRINCIPAL
(For use where Contractor is individual or partnership)

STATE OF MINNESOTA)
COUNTY OF HENNEPIN) SS
CITY OF DAYTON)

On this _____ day of _____, 2024, before me personally appeared

_____, to me known to be the person described in and who executed the

foregoing bond, and acknowledge that he executed the same as _____ free act and deed.

(NOTARIAL SEAL)

_____
Notary Public

MEMORANDUM: Affix here Power of Attorney and Acknowledgment of Corporate surety.

CONTRACTOR'S PERFORMANCE BOND

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT

Dayton, Minnesota

KNOW ALL MEN BY THESE PRESENTS, that _____

as Principal, hereinafter called CONTRACTOR, and _____
as Surety, hereinafter called Surety, are held and firmly bound onto

_____ as
Obligee, hereinafter called OWNER, in the amount of

_____Dollars (written), ($_____),
for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has by written Agreement dated _____, 2024 entered into a Contract with OWNER for

_____in accordance with Contract Documents

prepared by _____which Contract is by reference made a part hereof, and is hereinafter referred to as the Agreement.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly and faithfully perform said Agreement, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

The Surety hereby waives notice of any alteration or extension of time by OWNER.

Whenever CONTRACTOR shall be, and declared by OWNER to be, in default under the Agreement, the OWNER having performed OWNER's obligations thereunder, the Surety may promptly remedy the default, or shall promptly:

1. Complete the Contract in accordance with its terms and conditions, or

2. Obtain a Bid or Bids for completing the Contract in accordance with its terms and conditions, and upon determination by Surety of the lowest responsible Bidder, or if OWNER elects, upon determination by OWNER and the Surety jointly of the lowest responsible Bidder, arrange for a Contract between such Bidder and OWNER, and make available as work progresses (even though there should be a default or a succession of defaults under the Contract or Contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the Contract Price, but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the amount set forth in the first paragraph hereof. The term "balance of the Contract Price", as used in this paragraph, shall mean the total amount payable by OWNER to CONTRACTOR under the Contract and any amendments thereto, less the amount properly paid by the OWNER to CONTRACTOR.

No right of action shall accrue on this bond to or for the use of any person or corporation other than OWNER named herein or the heirs, executors, administrators or successors of OWNER.

CONTRACTOR'S PERFORMANCE BOND

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument in _____ original counterparts, under their several seals this _____ day of _____, 2024, the names and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(Affix Corporate Seal)

_____
(CONTRACTOR)

Attest:

_____
(Business Address)

_____ By _____
(Title) (Title)

(Affix Corporate Seal)

_____
(SURETY)

Attest:

_____
(Business Address)

_____ _____
(Attorney in Fact)

Approved by OWNER:

By: _____ _____ _____
(Name) (Title) (Date)

NOTE: The Bond must be approved and the approval dated in every case. The title of the person signing must be indicated. Certified copy of Power-of-Attorney of signatory agent for corporate Surety must be attached in every case where corporate Surety is procured. Date of Bond must not be prior to date of Contract.

CONTRACTOR'S PAYMENT BOND

ELSIE STEPHENS PARK PEDESTRIAN BRIDGE PROJECT
Dayton, Minnesota

KNOW ALL MEN BY THESE PRESENTS that _____

as Principal, hereinafter called CONTRACTOR, and _____

duly authorized and licensed to do business in the State of Minnesota, as Surety, hereinafter called Surety, are held

and firmly bound onto _____

as Obligee, hereinafter called OWNER, for the use and benefit of claimants as hereinafter provided in the amount of

_____Dollars (written), ($ _____), for the payment whereof CONTRACTOR and Surety bind themselves, their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

WHEREAS,

CONTRACTOR has by written Agreement dated _____, 2024

entered into a Contract with OWNER for _____

in accordance with Contract Documents prepared by _____
which Contract is by reference made a part hereof, and is to contain in substance the following provisions:

CONTRACTOR shall pay all claims for labor performed and materials furnished, used or consumed in making the public improvement or performing the public work, including, without limitation because of specific enumeration, fuel, lumber, building materials, machinery, vehicles, tractors, equipment, fixtures, apparatus, tools, appliances, supplies, electric energy, gasoline, motor oil, lubricating oil, greases, premiums for worker's compensation insurance, and contributions for unemployment compensation.

The said written agreement, drawings, specifications, and amendments are hereinafter referred to as the Contract.

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION, is such that, if CONTRACTOR shall faithfully perform the said Contract and pay every person entitled thereto for all the claims for labor performed and materials furnished under the Contract to be used or consumed in making the public improvement or performing the public work as provided in the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect, subject, however, to the following conditions:

1. No assignment, modification or change of the Agreement, or change in the work covered thereby, or any extension of time for completion of the Contract shall release the Sureties on the bond.

2. Not later than one year after the completion of work under this Contract or such longer period of time as may be prescribed by law, or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any party in interest may maintain an action is his own name against CONTRACTOR and the Surety upon this bond for the recovery of any damages he may have sustained by reason of the failure of CONTRACTOR to comply with the Contract or with the Contract between CONTRACTOR and his Subcontractors. If the amount realized on this bond is insufficient to satisfy all claims of the parties in full, it shall be distributed among the parties pro rata.

3. IN WITNESS WHEREOF, the above-bounded parties have executed this instrument in original counterparts this day of _____, 2024, the names of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

CONTRACTOR'S PAYMENT BOND

IN WITNESS WHEREOF, the above-bounded parties have executed this instrument in original counterparts, under their several seals this_____ day of _____, 2024, the names and corporate seal of each corporate party being hereto affixed and these presents duly signed by its undersigned representative, pursuant to authority of its governing body.

(Affix Corporate Seal)

_____
(CONTRACTOR)

Attest:

_____
(Business Address)

_____ By_____
(Title) (Title)

(Affix Corporate Seal)

_____
(SURETY)

Attest:

_____
(Business Address)

_____ _____
(Attorney in Fact)

Approved by OWNER:

By: _____ _____ _____
(Name) (Title) (Date)

NOTE: The Bond must be approved and the approval dated in every case. The title of the person signing must be indicated. Certified copy of Power-of-Attorney of signatory agent for corporate Surety must be attached in every case where corporate Surety is procured. Date of Bond must not be prior to date of Contract.

CONTRACTOR'S PAYMENT BOND

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00-2200
SPECIAL PROVISIONS

PART 1. GENERAL PROJECT INFORMATION

1.01 PROJECT DESCRIPTION

The work in this contract shall consists of, but not limited to:

A. Earthwork and final grading
B. Paved trails – limited and either asphalt or concrete
C. Prefabricated pedestrian bridge
D. Cast in place concrete abutments
E. Seeding & erosion control

1.02 PROJECT LOCATION

#1. Elsie Stephens Memorial Park
14430 Dayton River Road
Access is via new park entrance directly off River Road.
Approximate GPS Coordinates: 45.223117, -93.467161

PART 2. PROJECT SCHEDULE

2.01 DEADLINE FOR BIDDING

All bids must be received by the date & time indicated on the Notice to Bid. Partial bids are not allowed and one general contractor must take overall responsibility for the work. Subcontracting of services is acceptable, but the Owner intends to award only one comprehensive general contract for the work. Completed bids should be received by the deadline via mail, delivery service, or in person, at the following address:

City of Dayton
Attn: Zach Doud – City Administrator
12260 South Diamond Lake Road
Dayton, MN 55327

2.02 ADDENDA

If necessary, addenda will be issued to all plan holders at least one week prior to the bid deadline. Bidders must acknowledge the receipt of any addenda on their bid form.

2.03 BID FORM

All bids shall be submitted on the bid form included in this set of documents. The contractor shall submit unit pricing and total cost for each line item. If significant discrepancies are found in the estimated quantities, please notify the landscape architect as soon as possible and an addendum will be issued. If not noted on the bid form, or addressed in an addendum, the quantities are assumed correct. Minor variation in quantities will not change your total cost or payment.

2.04 EXPLANATION OF ALTERNATES

The intent of the Owner is to award the contract based on the lowest responsible bid plus or minus any accepted alternates. Numerous alternates are being considered (refer to Section 00 4323), but a final determination will be made following the bid opening. It is unknown which alternates will be accepted.

2.05 CONTRACT AWARD

A single general contract will be awarded as quickly as possible following receipt, and review, of the bids. The General Contractor will be responsible for coordinating all sub-contractors and managing schedule, payments, and ensuring overall performance for trades meets the requirements of the construction documents. The successful contractor will be contacted by phone and contracts will be developed between the successful bidder and the Owner. The Owner reserves the right to reject any and all bids and choose the contractor with the best overall mix of price, experience, and capabilities to complete the work.

PART 3. PROJECT SCHEDULE

3.01 CONSTRUCTION SCHEDULE

A. Work for the project is expected to commence on approximately November 15th, 2024 or as soon as possible following receipt of Notice to Proceed.
B. Work for this project is expected to be substantially complete no later than June 30th, 2025.
C. The Owner and successful Bidder will identify a reasonable, detailed schedule at the Pre-Construction meeting.
D. Liquidated damages in the amount of $500 per day may be assessed if work extends beyond the dates listed above.

3.02 PRE-CONSTRUCTION CONFERENCE

A Pre-Construction Conference will be mandatory once a successful bidder has been determined. The successful bidder will be notified by the Owner as to the date, time, and location of the pre-construction conference. The following items will be reviewed at the pre-construction meeting:

A. Review proposed sources for all materials necessary to complete the project.
B. Review any submittal requirements.
C. Review requirements for protecting the site during the construction period.
D. Review and finalize construction schedule.
E. Review any special delivery and construction procedures.
F. Review forecasted weather conditions and procedures for coping with unfavorable conditions.

PART 4. SITE INFORMATION

4.01 ACCESS

A. Access to the job sites shall be as discussed in the Pre-Construction meeting. Convenient access is available to the site, but the Contractor is responsible for field verifying access points and notifying the landscape architect if any difficulties are present.

B. No disruption shall occur on private property or outside the limits of work as shown on the plans. Any damage outside these limits will be asked to cease and will be repaired and/or replaced by the Contractor at no additional cost to the City.

C. Care must be taken to avoid any damage to neighboring properties. Any damage shall be immediately brought to the attention of the project manager and repaired or replaced at no additional cost to the Owner.

4.02 PROJECT CONDITIONS

A. Work hours for this contract will be from 7 am to 7 pm Monday through Saturday. No work shall be done on Sundays. Work requiring observation or coordination from the Consultant or Owner must be done Monday through Friday.

B. Contractor shall keep construction debris to a minimum during the construction process. Periodically clean job site to facilitate a safe, efficient work environment.

C. All of the Contractor's operations and storage of materials and equipment shall be confined to areas within the construction limits.

4.03 CLEARING, GRUBBING, AND TREE REMOVAL

Work under a previous contract removed much of the vegetation in the trail and bridge corridor. If the Contractor believes additional tree removal is needed, that work shall be considered incidental to the project and must be part of your base pricing.

4.04 PROTECTION OF EXISTING SITE FEATURES

All work for this project is within the limits of property controlled by the City of Dayton and the project areas are relatively free from built improvements that could be damaged. However, any damage to existing features shall be immediately brought to the Owner's attention for recommendations on repairing or replacement. Damage shall be remedied by the Contractor at no additional cost to the Owner.

4.05 TRAFFIC & PARKING CONTROL

Construction activities shall not interfere with access to the site. Entrances and drives used by the public shall be maintained in safe operating condition and shall be kept free and clear of the contractor's equipment, materials and debris.

4.06 STAKING AND LAYOUT

The Contractor is responsible for providing their own construction staking with their preferred survey vendor. Electronic copies of the CADD files will be made available to the winning bidder.

4.07 EARTHWORK BALANCE ON PROJECT SITE

The Contractor shall spread and waste all excess materials on the site as part of the rough grading activity. It is anticipated that work will not require importing or exporting soils to accomplish final grades. The Contractor shall confirm the areas available for wasting of material with the project team PRIOR to placing any material.

4.08 PERMITS & INSPECTIONS

The Contractor is responsible for obtaining and paying for all permits and inspections necessary to complete the work as identified in the Construction Documents.

4.09 TESTING

A. A series of construction tests will be required for this project. Many are considered incidental to the work required and others will be handled as needed or directed by the Owner. Incidental tests are to be performed and supplied by the Contractor, witnessed by the City Staff, and include the following:
   1. Test rolls of pavement bases prior to paving
   2. Others as noted in the specifications

B. The Owner also reserves the right to test products or materials used on the project. These are meant to test the quality or durability of the product and conformance with the specifications. Any optional testing will be paid by the Owner. Failing tests will require complete removal and replacement of affected products and follow up testing to be paid by the Contractor. As needed testing may include:
   1. Test cylinders for concrete
   2. Compaction testing of asphalt surfacing

C. The contractor is responsible for coordinating the need and timing of ALL testing so that appropriate personnel has adequate notice to be on site and available to perform or witness the testing required. The Contractor shall provide at least 48 hours notice for any testing needs.

PART 5. LICENSING, CONTRACT, AND INSURANCE REQUIREMENTS

5.01 LICENSING

The Contractor shall be a licensed contractor in the State of Minnesota and be covered by insurance that meets the following requirements:

5.02 COMPLIANCE TO FEDERAL, STATE, LOCAL LAWS

Submitting respondents agree to comply with all applicable federal, state and local laws, statutes, rules, and regulations. This RFP and any resulting Contract shall be construed and governed by the laws of the State of Minnesota.

5.03 CONTRACTOR'S INSURANCE REQUIREMENTS

A. The limits of liability for the insurance required by Paragraph 5.02 of the General Conditions shall provide coverage for not less than the following amounts or greater where required by Laws and Regulations. Limits may be provided by a combination of primary and excess liability policies or through a single policy. If the limits are provided by a combination of primary and excess liability policies, then the excess or umbrella liability coverages shall include commercial general, comprehensive automobile, and employer's liability and shall provide coverage at least as broad as the underlying policies.

   1. Workers' Compensation:
      (a) State: Statutory
      (b) Applicable Federal Statutory
      (c) Employer's Liability:
         (i) Bodily Injury by Accident $500,000 each accident
         (ii) Bodily Injury by Disease $500,000 policy limit
         (iii) Bodily Injury by Disease $500,000 each employee

2. Comprehensive or Commercial General Liability:
   (a) Combined Single Limit:
      (i) Premises/operations $1,000,000 each occurrence
      (ii) Products/completed $1,000,000 each occurrence
      (iii) Operations $2,000,000 annual aggregate
      (iv) Personal Injury $1,000,000 each occurrence

3. Policies shall include premises/operations, products, completed operations, independent contractors, explosion, collapse, underground hazards, broad form contractual, personal injury with employment contractual exclusions deleted, and broad form property damage.
   (a) If policies are written on a Commercial General Liability form, the General Aggregate shall be at least two times the 'each occurrence' limit or be written on a "per project" basis.
   (b) If policies are written on a 'claims made' form, the certificate should so specify and policies shall continue in force for one year following completion of the project. The retroactive date of the policy must be no later than the date of the Agreement.
   (c) If policies are written for split limits, limits shall be equal for bodily injury and property damage liability.

4. Comprehensive Automobile Liability (including owned, hired, and non-owned vehicles):
   (a) Combined Single Limit:
      (i) Bodily Injury and Property Damage: $1,000,000 each accident

   (b) If policies are written for split limits, limits shall be equal for bodily injury per person, bodily injury per accident and property damage.

B. All policies shall provide that the CONTRACTOR agrees to waive all rights of subrogation against the OWNER, the ENGINEER, and their subconsultants, employees, officers and directors, for WORK performed under the Agreement. Endorsements shall be provided with certificates of insurance.

C. All policies shall also specify that the insurance provided by the CONTRACTOR will be considered primary and not contributory to any other insurance available to the OWNER or ENGINEER.

D. All policies except Workers' Compensation and Builders Risk shall name the OWNER, ENGINEER, their consultants, subconsultants, and their officers, directors, agents and employees as additional insureds. The Builders Risk insurance shall name the CONTRACTOR, OWNER, and ENGINEER as named insureds.

E. All policies shall provide for thirty days notice prior to any cancellation, reduction in coverage or nonrenewal.

F. The deductible or self insured retention on Comprehensive or Commercial General Liability shall not be greater than $2,500. Deductibles on Builders Risk coverage shall not be greater than $25,000 for flood or $100,000 for earthquake coverage. All deductibles are the responsibility of the CONTRACTOR.

5.04 PREVAILING WAGES

A. This project is NOT subject to the Minnesota Prevailing Wage Act as defined in Minnesota Statutes 177.41 through 177.44. Questions regarding the rules and regulations can be submitted to:

Minnesota Department of Labor and Industry
443 Lafayette Road N.
St. Paul, MN 55155
Phone: 651-284-5091
Email: dli.prevwage@state.mn.us

PART 6. JOBSITE PERSONNEL

6.01 TEAM MEMBER CHANGES

A change in a Contractor's individual team members following submission of your response to this RFP requires notification to, and approval from, the Owner prior to implementing the change. This includes the period of time through the entire construction of the project.

6.02 OWNER'S RIGHT TO REQUEST CHANGE TO CONTRACTOR PERSONNEL

The Owner reserves the right to request the Contractor to make changes in their own team, or that of their Subcontractor(s), at any time they feel it is in the best interest of the Owner.

PART 7. PROJECT CLOSEOUT

7.01 MEASUREMENT AND PAYMENT

Payments for construction work will be made upon successful completion of the work. The contractor shall submit load tickets if requested. Payment of materials will be considered only if approved and delivered to the site. The Contractor is responsible for submitting proof of completed work to the landscape architect. Payment for work and materials will be lump sum per the bid form. The Contractor should note any quantity discrepancies found on the bid form if they are different than estimated.

7.02 CLEANING & PROJECT CLOSEOUT

The Contractor shall be responsible for thoroughly cleaning all areas of the job site affected by the work before final acceptance will be granted. Remove and dispose off-site all construction debris.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00-3132
SUBSURFACE CONDITIONS

PART 1. DESCRIPTION

1.01 The Contractor shall familiarize himself with the project sites and examine the sites prior to bidding to understand the nature of the ground to be excavated. No extra compensation will be allowed for conditions that are readily apparent from a careful examination of the site.

1.02 The Contractor shall verify the location of all utilities prior to beginning any excavation. Existing utilities shall be carefully protected from damage during construction.

PART 2. SOIL TESTING DATA

2.01 Soil boring and testing data taken in 2022 is provided as an appendix to these construction documents.

2.02 The Contractor shall examine the subgrade soils as excavation occurs for pavement and footing installations and notify the Landscape Architect of any soft, unstable or moist subsoil conditions. The Landscape Architect shall approve any subsoil correction work that may be necessary prior to implementation of such work.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 00-7200
CONDITIONS OF THE CONTRACT

PART 1. DEFINITIONS

1.01 CONTRACT DOCUMENTS

The contract documents consist of the following, including all addenda issued prior to the opening of bids and modifications issued after execution of the contract:

A. Bid Documents (Advertisement, Information to Bidders, Proposal and Bid Security);
B. Agreement;
C. Performance and Payment Bond;
D. Project Specifications and Special Provisions thereof;
E. Conditions of the Contract (General, Supplementary and other Conditions); and
F. Drawings.

1.02 CONTRACT

The contract documents form the contract. The contract represents the entire and integrated agreement between the parties hereto and supersedes all prior negotiations, representations, or agreements, either written or oral.

1.03 CONSULTANT

The Consultant is the authorized representative of the Owner, as named in the contract documents.

1.04 OWNER

The Owner is the City of Dayton.

1.05 CONTRACTOR

The Contractor is the person, entity or authorized representative thereof named in the contract documents to construct the project pursuant to plans and specifications.

1.06 SUBCONTRACTOR

The subcontractor is any person or other entity acting for, or on behalf of, the Contractor in performing any part of the contract.

1.07 PROPOSAL

The proposal is the offer of a bidder to perform the work described in the bid documents when made out and submitted on the prescribed proposal form, properly signed and secured.

1.08 BID SECURITY

The bid security, where required by the advertisement or information to bidders, is a cashier's or certified check, cash or bid bond accompanying the proposal submitted by the bidder, pledging that the bidder will enter into an agreement with the Owner for the carrying out of the work, should the contract for the work be awarded to him.

1.09 AGREEMENT

The agreement is the written contract between the Owner and Contractor covering the performance of the work described in the contract documents. Other contract documents are attached to the agreement.

1.10 PERFORMANCE AND PAYMENT BOND

The performance and payment bond is the approved form of security furnished by the Contractor and their surety prior to the execution of the agreement as a pledge of good faith on the part of the Contractor, and the surety in the event of the Contractor's default, covering the Contractor's faithful performance under the contract documents and the payment of all obligations arising there under. The terms and conditions of said bond are governed by M.S.A. Section 574.26 et. seq. and amendments thereto.

1.11 BIDDER

A bidder is an individual or other entity submitting a proposal for the advertised work.

1.12 SURETY

A surety is the person or other entity executing the Contractor's performance and payment bond.

1.13 SPECIFICATIONS

The specifications consist of the construction document titled Project Manual.

1.14 DRAWINGS

The drawings are all plans, drawings or reproductions of drawings issued by the Consultant pertaining to the work and provided for in the contract documents.

1.15 WRITTEN NOTICE

Written notice shall be deemed to have been served if delivered in person or sent by registered or certified mail to the individual or other entity or to the last known business address of such individual or entity. It shall be the duty of each party to advise the other parties to the agreement as to any change in the business address until completion and acceptance of the work.

1.16 ACTS OF GOD

An Act of God is an unusual, extraordinary and sudden manifestation of the forces of nature, uncontrolled and uninfluenced by the power of man and without human intervention, which could not under normal circumstances have been anticipated or expected. Ordinary, expectable, and gradual weather conditions of normal intensity for the locality shall not be considered as an Act of God and the Owner or Consultant shall not be liable to the Contractor for damage to the work resulting there from.

PART 2. BIDDING REQUIREMENTS

2.01 PROPOSAL FORMS

The Owner will furnish proposal forms to any qualified bidder upon request.

2.02 INTERPRETATION OF PLANS, SPECIFICATIONS AND WORK SITE

The quantities appearing in the proposal shall be used as the basis of calculation for comparison of proposals. The scheduled quantities are to be considered approximate only and may be increased, decreased or omitted as provided in Section 9.4.

2.03 EXAMINATION OF PLANS, SPECIFICATIONS AND WORK SITE

Each bidder is required to examine carefully the site of the work, the proposal forms, specifications and forms. Submission of a proposal shall be considered evidence that the bidder has made such examination and that he has familiarized himself with the conditions to be encountered, the character, quality and quantity of work to be performed and material to be furnished and the requirements of these contract documents.

2.04 ADDENDA

Any addenda issued by the Owner or Consultant prior to the time of receipt of proposals or prior to the date set for opening of proposals, shall be included in the proposal and shall be made part of the contract documents. Receipt of each addendum shall be acknowledged by the bidder in their proposal.

2.05 PREPARATION OF BID

The bidder shall submit their proposal in duplicate on the proposal forms provided by the Owner. All blank spaces in the proposal must be filled in clearly and correctly in ink or typewritten. Any interlineations, alteration or erasure must be initialed by the signer of the proposal. The proposal shall be signed in ink by the individual or authorized representative making the proposal.

2.06 RESERVATION AND/OR EXCEPTIONS

Reservations or exceptions shall be clearly stated in writing and attached to the proposal. They will be deemed to be a part of and incorporated into the proposal. Bidders are advised that if such reservations or exceptions constitute a substantial deviation from the advertised terms and conditions, their proposals may be rendered non-responsive. The bidder shall make no additional stipulations on the proposal nor qualify it in any other manner.

2.07 BID SECURITY

If so stipulated in the advertisement or invitation to bid, each proposal shall be accompanied by a bid security in the required form and amount pledging that the bidder will enter into a contract with the Owner on the terms stated in their proposal and will, if required, furnish bonds as described hereunder in Section 8.3 covering the faithful performance of the contract and the payment of all obligations arising there under. Should the bidder refuse to enter into such contract or fail to furnish such bond, if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. The Owner will have the right to retain the bid security of bidders until either (a) the contract has been executed and bonds, if required, have been furnished or (b) the specified time has elapsed for proposals to be withdrawn, or (c) all proposals have been rejected.

2.08 DELIVERY OF PROPOSAL

Each proposal shall be placed in an opaque envelope and securely sealed. The envelope shall be so marked as to indicate the name and address of the bidder, the type of work and the project designation. If mailed, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "PROPOSAL ENCLOSED" on the face thereof. All proposals shall be in the office of the designated recipient before the time set for bid opening.

2.09 OPENING OF PROPOSALS

Proposals will be opened publicly and read aloud at the time, date and place designated in the advertisement.

2.10 EVALUATION OF PROPOSALS

The Owner reserves the right to reject any proposal if it shows any omissions, alterations, irregularities, is submitted subsequent to the opening of the first proposal, or is unaccompanied by any required bid security. The bidder further acknowledges the right of the Owner to reject all proposals and re-advertise with the same or different bid documents. In any event, the Owner reserves the right to waive any informalities, irregularities or minor deviations in the proposal. Comparison of proposals will be made on the basis of the stated unit prices and unit prices will control in the event of a discrepancy between the unit price and the extension or summation thereof.

2.11 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION

By submission of a proposal, each bidder certifies that:

A. The prices in the proposal have been arrived at independently, without consultation, communication or agreement as to any matters relating to such prices with any other bidder or with any competitor for the purpose of restricting competition;
B. The prices which have been quoted in the proposal have not been or will not be knowingly disclosed to any other bidder or competitor prior to the opening of the proposals;
C. No attempt has been made or will be made by the bidder to induce any other person or firm to submit or not to submit a proposal for the purpose of restricting competition.

PART 3. AWARD AND EXECUTION OF THE CONTRACT

3.01 AWARD OF THE CONTRACT

When the proposal of the lowest responsible bidder is accepted, and within 30 days after opening, the Owner will send him the necessary contract documents and a notice that the contract has been awarded to him, subject to the furnishing of a performance and payment bond, where required.

3.02 PERFORMANCE AND PAYMENT BOND

Where required and prior to or at the time of the execution of the agreement the bidder determined to be the lowest responsible bidder shall furnish a public Contractor's bond as required by M.S.A. Section 574.26 et. seq. and amendments thereto. The successful bidder is required to use the performance and payment bonds included in the bid documents.

3.03 EXECUTION OF AGREEMENT

The lowest responsible bidder shall, within 15 days after receiving the notice of award, sign the agreement contained in the contract documents and return the signed agreement and other contract documents to the Owner. No proposal will be considered as binding on the Owner until the contract has been approved and executed by all parties.

3.04 FAILURE TO EXECUTE AGREEMENT

Upon the failure of the lowest responsible bidder to furnish an acceptable bond, where required, or to execute the agreement within the time above specified, the Owner may have the option to annul the award and retain the bid security accompanying the bid as liquidated damages and not as a penalty. This shall not be the sole remedy of the Owner but upon default by the bidder the Owner may adopt any legal remedy which it may see fit to adopt.

3.05 RETURN OF BID SECURITY

All bid securities, except that of the lowest responsible bidder, will be returned within 30 days after the date of the opening of proposals. The bid security of the lowest responsible bidder will be returned upon receipt of the properly executed agreement and bond.

PART 4. DRAWINGS, SPECIFICATIONS, & RELATED DATA

4.01 INTENT OF DRAWINGS AND SPECIFICATIONS

The intent of the drawings and specifications is that the Contractor shall furnish all labor and materials, equipment and transportation necessary for the proper execution of the work unless specifically noted otherwise. The Contractor shall do all the work shown on the drawings and described in the specifications and all incidental work considered necessary to complete the project in an acceptable manner, and to fully complete the work or improvement, ready for use, occupancy and operation by the Owner.

4.02 ORDER OF PRECEDENCE

If there be a conflict between or among any of the terms or provisions of the Contract Documents, the following order of precedence shall apply:

A. Agreement
B. Project Specifications and Special Provisions thereof
C. Conditions of the Contract (general, supplementary and other conditions)
D. Drawings
E. Bid Proposal

4.03 DISCREPANCIES

Any ambiguity or discrepancy in the drawings and specifications, no matter how seemingly insignificant to the Contractor shall be brought immediately to the attention of the Consultant for clarification. Any Contractor who fails to bring any ambiguity or discrepancy of which it was or should have been aware, shall assume the risk of loss

because of, and shall be allowed no claim for the misinterpretation of the drawings and specifications contrary to the intended interpretation of the Consultant.

4.04 ADDITIONAL INSTRUCTIONS

Further or additional instructions may be issued by the Consultant during the progress of the work by the use of drawings or other means to clarify the contract documents or to explain or illustrate changes in the work to be done.

4.05 COPIES OF DRAWINGS AND SPECIFICATIONS FURNISHED

Except as provided for otherwise, two (2) full size copies of drawings and specifications shall be furnished to the Contractor without charge. Any additional copies requested by Contractor shall be furnished upon payment of charges made at the prevailing rate charged by the Owner.

4.06 DRAWINGS AND SPECIFICATIONS AT JOB SITE

One complete set of all drawings and specifications, addenda, approved shop drawings, change orders and other modifications shall be maintained by Contractor at the job site and shall be available to the Consultant at all times.

4.07 OWNERSHIP OF DRAWINGS AND SPECIFICATIONS

All drawings and specifications and copies thereof and other data furnished by the Consultant are and shall remain their property. They are to be used only with respect to this project and are not to be used on any other project. Said documents are to be returned or suitably accounted for to the Consultant on request at the completion of the work. Submission or distribution to meet official regulatory requirements or for other purposes in connection with the project is not to be construed as publication in derogation of the Consultant's common law copyright or other reserved rights.

4.08 DIMENSIONS

Figured dimensions on the plans will be used in preference to scaling the drawings. Where the work of the Contractor is affected by dimensions, these shall be determined by the Contractor at the site, and he shall assume the responsibility.

4.09 SAMPLES

All samples called for in the specifications or required by the Consultant shall be furnished by the Contractor and shall be submitted to the Consultant for their approval. Samples shall be furnished so as not to delay the project. The Contractor shall furnish such samples of material as may be required for examination and testing. All materials and workmanship shall be in accordance with approved samples. All samples of materials for tests shall be taken according to methods provided for in the specifications.

4.10 PRODUCT DATA

Product data are illustrations, standard schedules, performance charts, instruction, brochures, diagrams and other information furnished by the Contractor to illustrate a material, product or system for some portion of the work.

4.11 SHOP DRAWINGS

A. The Contractor shall provide shop drawings, settings, schedules and such other drawings as may be necessary for the prosecution of the work in the shop and in the field as required by the drawings, specifications or Consultant's instructions. Deviations from the drawings and specifications shall be called to the attention of the Consultant at the time of the first submission of shop drawings and other drawings for approval. The Consultant's approval of any drawings shall not release the Contractor from responsibility for such deviations.

B. Shop drawings shall be promptly submitted by the Contractor after he has reviewed, checked and approved the data to determine that they are in harmony with the requirements of the project and with the provisions of the contract documents and after he has verified all field measurements and construction criteria, materials, catalog numbers and similar data. In submitting the shop drawings, the Contractor is certifying that the work represented by the shop drawings is recommended by the Contractor.

C. Shop drawings shall be submitted according to the following schedule:

1. Three (3) copies shall be submitted with reasonable promptness and in such sequence as to prevent delay of the work.
2. The Consultant shall, within 14 days of the submittal of any shop drawings, return one copy to the Contractor marked with corrections and changes.
3. The Contractor shall then promptly correct the shop drawings to conform to the corrections and changes requested by the Consultant.
4. Following completion of such corrections and changes, the Contractor shall promptly furnish the Consultant two copies of the shop drawings conforming to the required corrections and changes.

4.12 QUALITY OF EQUIPMENT AND MATERIALS

A. In order to establish standards of quality, the Consultant, in the specifications, has referred to certain products by name and catalog number. This procedure is not to be construed as eliminating from competition other products of equal or better quality by other manufacturers where fully suitable in design unless otherwise specifically stated in the specifications or special provisions.

B. The Contractor shall furnish the complete list of proposed desired substitutions prior to executing the agreement, together with such engineering and product data as the Consultant and Owner may require.

C. The Contractor shall abide by the Owner's recommendation when proposed substitute materials or items of equipment are not recommended for installation and shall furnish the specified material or item of equipment in such case. All proposals for substitutions shall be submitted in writing by the general Contractor and not by individual trades or material suppliers. The Owner will review proposed substitutions and make their recommendations in writing within a reasonable time.

4.13 FURNISHING OF PRODUCT DATA

A. The Contractor shall furnish one copy of complete product data for every manufactured item of equipment and all components to be used to perform the work, including specific performance data, material description, rating, capacity, working pressure, material gauge or thickness, brand name, catalog number and general type.

B. This data shall be compiled by the Contractor and reviewed by the Consultant before any of the equipment is ordered.

C. All data shall be indexed according to specification section and paragraph for easy reference.

D. After review, this data shall become a part of the contract, and may not be deviated from except upon written approval of the Consultant.

E. Product data for equipment reviewed by the Consultant does not in any case supersede the contract documents. The review of the Consultant shall not relieve the Contractor from responsibility for deviations from drawings or specifications unless he has in writing called the Consultant's attention to such deviations at the time of furnishing said data. Nor shall such review relieve the Contractor from responsibility for errors of any sort in the items furnished. The Contractor shall check the work described by the product data with the contract documents for deviations and errors.

F. It shall be the responsibility of the Contractor to ensure that items to be furnished fit the space available. He shall make necessary field measurements to ascertain space requirements, including those for connections, and shall order such sizes and shapes of equipment that the final installation shall suit the true intent and meaning of the drawings and specifications.

G. Where equipment requiring different arrangement of connections from those shown is approved, it shall be the responsibility of the Contractor to install the equipment so as to allow for proper operation and to be in harmony with the intent of the drawings and specifications, and to make all changes in the work required by the different arrangement of connections.

H. Product data shall be promptly submitted by the Contractor after he has reviewed, checked and approved the data to determine if they are in harmony with the requirements of the project and with the provisions of the contract documents and after he has verified all field measurements and construction criteria, materials, catalog numbers and similar data. In submitting the product data, the Contractor is certifying that the work represented by the data is recommended by the Contractor.

PART 5. CONSULTANT-OWNER-CONTRACTOR RELATIONS

5.01 CONSULTANT'S RESPONSIBILITY AND AUTHORITY

A. The Consultant and Owner shall decide any and all questions which may arise as to the quality and acceptability of materials furnished, work performed, rate of progress of work, interpretation of drawings and specifications and all questions as to the acceptable fulfillment of the contract on the part of the Contractor.

B. Claims, disputes, disagreements, or other matters in question between the Contractor and the Owner relating to the execution or progress of the work or the interpretation of the contract documents shall be referred initially to the Consultant for decision which he will render in writing within a reasonable time.

5.02 OBSERVATION OF WORK

All materials and each part or detail of the work shall be subject at all times to observation by the Consultant and the Owner, and the Contractor will be responsible for strict adherence to the true intent of the specifications in regard to quality of materials, workmanship, and the diligent execution of the work. Such observations may include mill, plant, or shop inspection, and any material furnished under these specifications is subject to such observation. The Consultant shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make their observations and construction review.

5.03 CONTRACTOR'S SUPERINTENDENT

A competent superintendent, who is acceptable to the Owner, shall give efficient supervision to the work until its completion and shall be available to the work site when given verbal notice. The superintendent shall have full authority to act on behalf of the Contractor, and all communications given to the superintendent or in their absence the project foreman, shall be as binding as if given to the Contractor. Important communications shall be confirmed by the Consultant in writing. Other communications shall be so confirmed upon written request of the Contractor. It shall be the responsibility of the Contractor's superintendent to coordinate the work of all the subcontractors. When required, the superintendent shall be present on the site to perform adequate supervision and coordination.

5.04 ASSIGNMENT OF CONTRACT

The Contractor shall neither sublet, sell, transfer, assign or otherwise dispose of the contract or any portion thereof, or of their right, title or interest therein, or their obligations hereunder, nor, if the Contractor is a corporate entity, sublet, sell, transfer or assign a majority of the outstanding shares of stock in the corporation, without prior written consent of the Owner. In case written consent is given, the Contractor will be permitted to sublet a portion of the contract or corporate stock thereof, but shall perform, with their own organization, work amounting to not less than 50% of the total original contract cost. No subcontracts or transfer of contract or corporate stock shall release the Contractor of their liability under the contract or bonds.

5.05 SUSPENSION OF WORK

A. The Owner or Consultant shall have the authority to suspend the work, wholly or in part, for such period or periods, as he may deem necessary, due to unsuitable weather or such other conditions as are considered unfavorable for prosecution of the work, or failure on the part of the Contractor to carry out the provisions of the contract or to supply materials meeting the requirements of the specifications.

B. Said suspension shall be effective provided the Owner gives the Contractor three (3) days written notice of suspension. The Contractor shall resume the work within ten (10) days after notice to resume work is given by the Owner to the Contractor.

5.06 OWNER'S RIGHT TO CORRECT DEFICIENCIES

Where it is not an emergency and upon failure of the Contractor to perform the work in accordance with the contract documents, including any requirements with respect to the schedule of completion, and after five (5) days written notice to the Contractor, the Owner may, without prejudice to any other remedies he may have, correct such deficiencies. In the case of an emergency the Owner shall have the right to correct the defective work immediately with payment pursuant to Section 10.13.

5.07 OWNER'S RIGHT TO TERMINATE CONTRACT AND COMPLETE THE WORK

A. If the Contractor defaults or neglects to carry out the work in accordance with the contract documents, the Owner shall have the right to terminate the employment of the Contractor after giving ten (10) days written notice of termination to the Contractor. In the event of such termination, the Owner may take possession of the work and of all materials, tools and equipment thereon and may finish the work by whatever method and means he may select. Tools and equipment are defined as those items included in the proposal form and are not intended to be construed as being the Contractor's equipment used for installation purposes.

B. It may be considered a default at the sole discretion of the Owner if the Contractor shall:
   1. File a petition in bankruptcy, attempt a reorganization under the bankruptcy laws, become insolvent, make a general assignment for the benefit of their creditors, or if a trustee or receiver be appointed;
   2. Disregard or violate the provisions of the contract documents, laws, regulations or orders of any public body having jurisdiction or fail to prosecute the work according to the agreed schedule of completion, including extensions thereof; or
   3. Fail to provide a competent superintendent, workmen or subcontractor, or proper materials, or fail to make prompt payments thereof.

5.08 CONTRACTOR'S RIGHT TO SUSPEND OR TERMINATE CONTRACT

A. The Contractor may suspend the work or terminate the contract after giving ten (10) days written notice to the Owner and the Consultant due to the occurrence of any one of the following:
   1. If an order of any court or other public authority caused the work to be stopped or suspended for a period of 90 days through no act or fault of the Contractor or any of their employees;
   2. If the Consultant should fail to act upon any request for payment within 20 days after it is presented in accordance with the conditions of the contract;
   3. If the Owner should fail to act upon any request for payment within 30 days after its approval by the Consultant; or

5.09 RIGHTS OF VARIOUS INTERESTS

Wherever work being done by the Owner's forces or by other Contractors is contiguous to work covered by this contract, the respective rights of the various interests involved shall be established by agreement to secure the completion of the various portions of the work in general harmony.

5.10 SEPARATE CONTRACTS

The Owner may let other contracts in connection with the work of the Contractor. The Contractor shall cooperate with other Contractors with regard to storage of materials and execution of their work. It shall be the Contractor's responsibility to inspect all work by other Contractors affecting their work and to report to the Consultant any irregularities which will not permit him to complete their work in a satisfactory manner. Their failure to notify the Consultant of such irregularities shall indicate the work of other Contractors has been satisfactorily completed to receive their work. The Contractor shall not be responsible for defects of which he could not have known, which develop in the work of others after the work is completed. It shall be the responsibility of the Contractor to measure the completed work in place and report to the Consultant immediately any difference between completed work by others and the drawings.

5.11 SUBCONTRACTS

A. Unless otherwise specified in the contract documents, the Contractor shall, upon receipt of the executed contract documents, submit in writing to the Owner the names of all subcontractors proposed for the work. Subcontractors may not be changed except at the request or with the consent of the Owner.

B. The Contractor is responsible to the Owner for the acts and omissions of their subcontractors, and of their direct and indirect employees, to the same extent as he is responsible for the acts and omissions of their employees.

C. The contract documents shall not be construed as creating any contractual relation between the Owner, the Consultant and any subcontractor.

D. The Contractor agrees to bind every subcontractor and every subcontractor agrees to be bound by the terms of the contract documents as far as applicable to their work.

E. For convenience of reference and to facilitate the letting of contracts and subcontracts, the specifications are separated into titled sections. Such separations shall not, however, operate to make the Consultant an arbiter to establish limits to the contracts between Contractor and subcontractors.

5.12 WORK DURING AN EMERGENCY

A. In any emergency affecting the safety of persons or property, the Contractor shall act to prevent threatened damage, injury or loss. In all cases, he shall as soon as practicable, notify the Owner of the emergency and he shall not wait for instructions before proceeding to protect both life and property.

B. Any additional compensation or extension of time claimed by the Contractor on account of said emergency work shall be determined under Section 10.10.

5.13 ORAL AGREEMENTS

Verbal orders and suggestions as to the performance of the work may be given from time to time by the Consultant, or by other representatives of the Owner. However, when in the opinion of the Contractor, such verbal orders or suggestions entitle him to a change in contract price or time or both, he must request a change order from the Owner. No verbal order or suggestion of any representative or employee of the Owner, or of any other person, shall be construed as authorizing any claims on the part of the Contractor for extra compensation for labor, material, or other items pertaining to such work, or for damages or any other expenses incurred because of the Contractor's compliance therewith.

5.14 NONDISCRIMINATION IN EMPLOYMENT

A. For work under this contract the Contractor must agree:

1. That in the hiring of common or skilled labor for the performance of any work under this contract or any subcontract hereunder, no Contractor, material supplier or vendor shall, by reason of race, creed, color or national origin, discriminate against the person or persons who are qualified and available to perform the work to which such employment relates.

2. That no Contractor, material supplier or vendor shall, in any manner, discriminate against or intimidate or prevent the employment of any person or persons, or on being hired, prevent or conspire to prevent any person or persons from the performance of the work under this contract on account of race, creed, color or national origin.

3. Violation of this section shall be cause for cancellation or termination of this contract.

PART 6. AVAILABILITY OF LANDS; PHYSICAL CONDITIONS; REFERENCE POINTS

6.01 LANDS BY OWNER

The Owner shall provide, not later than the date specified in the construction schedule as approved by the Consultant, the lands shown on the drawings upon which the work under the contract is to be performed. The Owner shall also provide rights-of-way for access thereto. Any delay in furnishing these lands by the Owner shall be deemed proper cause for consideration of adjustment in the time of completion.

6.02 LANDS BY CONTRACTOR

Any additional land and access thereto not shown on the drawings that may be required for temporary construction facilities or for storage of materials shall be provided by the Contractor with no liability to the Owner. The Contractor shall confine their apparatus and storage of materials and operation of their workmen to those areas described in the drawings and specifications and such additional areas which he may provide at their expense. The Contractor shall notify the Consultant in writing of those lands provided at their expense.

6.03 PRIVATE PROPERTY

The Contractor shall not enter upon private property for any purpose without obtaining permission from the Owner thereof, and he shall be responsible for the preservation of all public property, trees, monuments, etc., along and adjacent to the site, and shall use every precaution necessary to prevent damage or injury thereto. He shall protect carefully from disturbance or damage all monuments and property marks until an authorized agent has witnessed or otherwise referenced their location and shall not remove them until directed.

6.04 SURVEYS AND STAKES

Unless otherwise specified, the Consultant retained by the Owner shall establish all points of reference including staking for proposed work. Based upon the information provided by the Consultant, the Contractor shall develop and make all detail surveys necessary for construction, including laser, and other working points, lines and elevations. The Contractor shall be responsible for carefully preserving bench marks, reference points and stakes, and, in the case of destruction thereof resulting from their negligence or otherwise, the Contractor shall be charged with the expense and damage resulting there from and shall be responsible for any mistakes that may be caused by the unnecessary loss or disturbance of such bench marks, reference points and stakes.

6.05 UTILITIES

The Contractor shall be solely responsible for verifying the exact location of all utilities. Prior to the start of any construction, the Contractor shall notify all utility companies having utilities in the project area. The Contractor shall have sole responsibility for providing temporary support and for protecting and maintaining all existing utilities in the project area during the entire period of construction including, but not limited to, the period of excavation, backfill and compaction. In carrying out this responsibility, the Contractor shall exercise particular care, whenever gas mains or other utility lines are crossed, to provide compacted backfill or other stable support for such lines to prevent any detrimental displacement, rupture or other failure.

PART 7. MATERIALS AND WORKMANSHIP

7.01 MATERIALS FURNISHED BY CONTRACTOR

A. All materials used in the work shall be new unless otherwise provided for in the contract documents, shall meet the requirements of the specifications, and shall not be incorporated into the work until reviewed by the Consultant.

B. Unless otherwise specifically indicated in the contract documents, all materials necessary for the proper execution of the work shall be furnished and paid for by the Contractor, whether temporary or not and whether incorporated into the work or not.

7.02 MATERIALS FURNISHED BY OWNER

A. Materials specifically indicated shall be furnished by the Owner. Before incorporating any of the materials into the work, the Contractor shall inspect the materials so furnished by the Owner. If the Contractor discovers any defects in material furnished by the Owner, he shall notify the Consultant.

B. Unless otherwise noted or specifically stated, materials furnished by the Owner are to be delivered to the site. The Contractor shall unload and properly protect all such materials from damage or loss. The Contractor shall be responsible for material loss or damage after receipt of material at the point of delivery.

7.03 STORAGE OF MATERIALS

Materials shall be so stored by the Contractor as to ensure the preservation of their quality and fitness for the work. Stored materials shall be located so as to facilitate prompt inspection. Private property shall not be used for storage purposes without the written permission of the Owner or lessee thereof.

7.04 CONDUCT OF WORKMEN

The qualifications and conduct of workmen shall be in accordance with Mn/DOT Specification 1802.

7.05 REJECTED WORK AND MATERIALS

A. All materials, whether furnished by the Owner or Contractor, which do not conform to the requirements of the contract documents, or which are not equal to samples or other product data reviewed by the Consultant, or which are in any way unsatisfactory to the Owner or unsuited to the purpose for which they are intended, shall be rejected. Any defective work whether the result of poor workmanship, use of defective materials, damage through carelessness or any other cause shall be removed within ten (10) days after written notice is given by the Owner, and the work shall be re-executed by the Contractor. The fact that the Consultant may have previously overlooked such defective work shall not constitute an acceptance of any part of it.

B. Should the Contractor fail to remove rejected work or materials within (10) days after written notice to do so, the Owner may remove them and may store the materials.

C. Correction of faulty work after final payment shall be in accordance with Section 10.22.

7.06 MANUFACTURER'S DIRECTIONS

Manufactured supplies, materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned as directed by the manufacturer.

7.07 PLANT MATERIAL DAMAGE

The Contractor shall do all wound repair or pruning as necessary to ensure the protection of any damaged tree trunk or branch. The Consultant has the right to reject any plant that has been damaged beyond recovery for reasons of plant health or plant aesthetics.

7.08 WARRANTY

A. A Contractor shall expressly warrant the workmanship, equipment and materials furnished to be in compliance with the terms of the contract documents. The said warranty shall extend for the period defined in the SPECIFICATIONS or as awarded in the case of ADD ALTERNATES. If any of the work is found to be defective or not in accordance with the contract documents, the Contractor shall correct the said condition promptly after receipt of written notice from the Owner. Prior to commencement of the corrective work, the Contractor shall provide insurance certificate policies, in accordance to Section 8 herein. So as to protect the Owner, it’s Consultant or agents during the performance of the warranty work. Acceptance by the Owner for the purpose of beginning the warranty period will be deemed to be when the project is finally accepted by the Consultant.

B. The Contractor's performance and payment bond delivered to the Owner pursuant to the contract shall cover the Contractor's obligations provided for herein.

7.09 INDEMNITY

A. To the fullest extent permitted by law, the Contractor shall indemnify, defend and hold harmless Owner, Owner's elected officials and employees, Consultant and the directors, officers, shareholders, employees and agents of any of the above mentioned parties (the 'Indemnified Parties") from and against any and all loss, cost, expense, damage, injury, liability, claim, demand, penalty or cause of action (including attorneys' fees), directly or indirectly arising out of, resulting from or related to (in whole or in par), (1) the Work performed hereunder, (2) the Contract or (3) the act or omission of Contractor, a Subcontractor or any individual, partnership, joint venture or corporation (a) directly or indirectly employed by Contractor or a Subcontractor or (b) for whose acts or omissions Contractor or a Subcontractor may be liable (excluding property damage to the Work itself, covered by the Owner's all-risk builder's risk insurance, subject to Contractor's liability for any deductible amount thereunder). The obligations of Contractor under this indemnification shall apply to all matters except those arising from the use and occupation by Owner and its invitees of the building being renovated and expanded pursuant to the Contract or except those arising from the gross negligence of Owner. Further, the obligations of Contractor under this indemnification shall not extend to the liability of the Architect, their agents or employees, arising out of (1) the preparation or approval of maps, Drawings, opinions, reports, surveys, Change Orders, design or Specifications or (2) the giving of or the failure to give directions or instructions by the Architect, their agents or employees provided such giving or failure to give is the provided such giving or failure to give is the primary cause of the injury or damage. Contractor shall promptly advise Owner in writing of any action, administrative or legal proceeding or investigation as to which this indemnification may apply, and Contractor, at Contractor's expense, shall assume on behalf of Owner and conduct with due diligence and in good faith the defense thereof with counsel satisfactory to Owner, provided, that Owner shall have the right to be represented therein by advisory counsel of its own selection and at its own expense; and provided further, that if the defendants in any such action include both Contractor and Owner and Owner shall have reasonably concluded that there may be legal defenses available to it which are different from or additional to, or inconsistent with, those available to Contractor, Owner shall have the right to select separate counsel to participate in the defense of such action on its own behalf at accordance with this indemnification paragraph, Owner, at its option, and without relieving Contractor of its obligation hereunder, may so perform, but all costs and expense incurred by Owner in that event shall be reimbursed by Contractor to Owner, together with interest on the same from the date any such expense was paid by Owner until reimbursed by Contractor, at the rate of interest provided to be paid on judgments, by law of the jurisdiction to which the interpretation of the Contract is subject.

B. The obligations of Contract under this Section shall survive the expiration or termination of the Contract.

C. In any and all claims against the Owner or the Consultant or any of their agents or employees by any employee of the Contractor, any subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, the indemnification obligation under this Section 8.2 shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable or for the Contractor or any subcontractor under worker's or workmen's compensation acts, disability benefit acts or other employee benefit acts.

7.10 PERFORMANCE AND PAYMENT BOND

The Contractor shall, at the time of their execution of the agreement furnish a performance and payment bond as security for the faithful performance and payment of all their obligations under the contract. Such bonds shall be in a sum equal to the contract amount. The form of the bond shall be as the Owner may prescribe and with a surety company authorized to do business in the state where the work is located and which is named in the current list of "Surety Companies Acceptable on Federal Bonds" as published in the Federal Register.

7.11 PATENTS, FEES AND ROYALTIES

Contractor shall pay all license fees and royalties and assume all costs incidental to the use in the performance of the work of any invention, design, process, product or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product or device is specified in the contract documents for use in the performance of the work and if to the actual knowledge of Owner or Consultant its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall

be disclosed by Owner in the contract documents. Contractor shall indemnify and hold harmless, the Owner and Consultant, and anyone directly or indirectly employed by either of them from and against all claims, damages, losses and expenses (including attorneys' fees) arising out of any infringement of patent rights or copyrights incident to the use in the performance of the work or resulting from the incorporation in the work of any invention, design, process, product or device not specified in the contract documents, and shall defend all such claims in connection with any alleged infringement of such rights.

7.12 PERMITS AND LICENSES

All permits and licenses necessary for the performance of the work shall be secured by the Contractor prior to the commencement of the work.

7.13 LAWS, REGULATIONS AND SAFETY

A. The Contractor shall give all notices and comply with all laws, ordinances, rules and regulations applicable to the work. If the Contractor observes that the specifications or drawings are at variance therewith, he shall give Consultant prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, rules and regulations, and without such notice to Consultant, he shall bear all costs arising there from; however, it shall not be their primary responsibility to make certain that the specifications and drawings are in accordance with such laws, ordinances, rules and regulations.

B. The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the work. He shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

(1) all employees on the job and other persons who may be affected thereby;
(2) all the work and all materials or equipment to be incorporated therein, whether in storage on or off the site; and
(3) other property at the site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

C. The Contractor shall comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. He shall erect and maintain, as required by the conditions and progress of the work, all necessary safeguards for its safety and protection. He shall notify Owners of adjacent utilities when prosecution of the work may affect them. All damage, injury or loss to any property referred to in Sections 8.6.2 (b) and (c) caused, directly or indirectly, in whole or in part, by Contractor, any subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, shall be remedied by Contractor. The Contractor's duties and responsibilities for the safety and protection of the work shall continue until such time as all the work is completed and Consultant has issued a notice to Owner and Contractor that work is acceptable.

D. The Contractor shall designate a responsible member of their organization at the site whose duty shall be the prevention of accidents.

E. This person shall be Contractor's superintendent unless otherwise designated in writing by Contractor to Owner.

7.14 WARNING SIGNS AND BARRICADES

The Contractor shall provide adequate signs, barricades, colored lights and/or watchmen and take all necessary precautions for the protection of the work and the safety of the public. All barricades and obstructions shall be protected at night by colored signal lights which shall be kept in operation from sunset to sunrise.

7.15 PUBLIC CONVENIENCE

The Contractor shall at all times conduct their work as to ensure the least possible obstruction to traffic and

inconvenience to the general public and the residents in the vicinity of the work, and to ensure the protection of persons and property. No road or street shall be closed to the public except with the permission of the Owner and proper governmental authority. Fire hydrants on or adjacent to the work shall be kept accessible to fire-fighting equipment at all times. Temporary provisions shall be made by the Contractor to ensure the use of sidewalks and the proper functioning of all gutters, sewer inlets, drainage ditches and irrigation ditches, which shall not be obstructed.

7.16 CROSSING UTILITIES, ETC

Intentionally left blank.

7.17 SANITARY PROVISIONS

The Contractor shall provide and maintain such sanitary facilities for the use of their employees and those of their subcontractors as may be necessary to comply with the laws, rules or regulations of the Federal, State and local governments, or agencies or departments thereof.

7.18 PRESERVATION OF HISTORICAL OBJECTS

A. Where historical objects of potential archeological or paleontological nature are discovered within the areas on which the Contractor's operations are in progress, the Contractor shall restrict or suspend their operations in the immediate area of the discovery as may be necessary to preserve the discovered objects until the Owner has made arrangements for their disposition or has recorded the desired data relative thereto.

B. The Contractor shall immediately notify the Owner of any historical objects he may discover or become aware of as the work is being prosecuted, and shall aid in the preservation and salvage program decided upon, as may be requested or ordered by the Owner. No work which the Contractor considers to be extra work shall be performed without the written authorization of the Owner.

C. The Owner shall have the right to restrict or suspend the Contractor's operations in the immediate area where historical objects are discovered for a period not to exceed 72 hours, without claim being made by the Contractor for any damages he might suffer as a result thereof. Any restrictions imposed shall not remain in effect for a period exceeding 72 hours unless mutually agreed to in writing.

PART 8. PROGRESS AND COMPLETION OF WORK

8.01 NOTICE TO PROCEED

The date of commencement of the work is the date set forth in the notice to proceed. If there is no notice to proceed, commencement shall be the date of the contract or such other date as may be established therein. Thereupon, the Contractor shall begin and shall prosecute the work regularly and without interruption, unless otherwise directed in writing by the Owner, with such manpower and equipment as is necessary to complete the work within the time stated in the contract documents.

8.02 CONTRACT TIME

The Contractor shall complete, in an acceptable manner, all of the work contracted for in the time stated in the contract documents.

8.03 SCHEDULE OF COMPLETION

The Contractor shall submit, at such time as may reasonably be requested by the Consultant, schedules which shall show the order in which the Contractor proposes to carry on the work, with dates at which the Contractor will start the several parts of the work and estimated dates of completion of the several parts. The construction schedule shall be submitted for approval by the Consultant and Owner no later than 10 days after pre-construction conference.

8.04 CHANGES IN THE WORK – CHANGE ORDERS

A. A change order is a written order to the Contractor signed by the Owner, issued after execution of the contract, authorizing a change in the work or an adjustment in the contract sum or contract time. A change order signed by the Contractor indicates their agreement therewith, including the adjustment in the contract sum or contract time.

B. Without invalidating the contract, the Owner may, at any time or from time to time order additions, deletions or modifications in the work; these will be authorized by change orders. Upon receipt of a change order, Contractor shall proceed with the work involved. All such work shall be performed under the applicable conditions of the contract documents. If any change order causes an increase or decrease in the contract price or an extension or shortening of the contract time, an equitable adjustment will be made as provided in Section 10 if requested by either party.

C. Additional work performed by the Contractor without authorization of a change order will not entitle him to an increase in the contract price or an extension of the contract time, except in the case of an emergency as provided in Section 5.14 and except as provided in Section 9.4.2.

D. Minor Changes in the Work. Consultant may authorize minor changes or alterations in the work not involving extra cost and not inconsistent with the overall intent of the contract documents. These may be accomplished by a work order. If Contractor believes that any minor change or alteration authorized by Consultant entitled him to an increase in the contract price, he may make a claim therefore as provided in Section 10.

E. Extra Work. New and unforeseen items of work found by Consultant or Owner to be necessary and which cannot be covered by any item or combination of items for which there is a contract price shall upon notice thereof to the Owner and not more than 20 days after discovery thereof be classed as extra work. The Contractor shall do such extra work and furnish such material as may be required for the proper completion or construction of the whole work contemplated upon written order from the Owner as approved by the Consultant. In the absence of such written order, no claim for extra work shall be considered. Extra work shall be performed in accordance with these specifications where applicable and work not covered by the specifications or special provisions shall be done in accordance with the best practice and in a workmanlike manner. Extra work required in any emergency to protect life and property shall be performed by the Contractor as required.

F. Claims for Additional Cost. If the Contractor wishes to make a claim for an increase in the contract sum, he shall give the Owner and Consultant written notice thereof within 20 days after the occurrence of the event giving rise to such claim. This notice shall be given by the Contractor before proceeding to execute the work, except in an emergency endangering life or property in which case the Contractor shall proceed in accordance with Section 5.14. No such claim shall be valid unless so made. If the Owner and the Contractor cannot agree on the amount of the adjustment in the contract sum, it shall be determined by the Consultant. Any change in the contract sum resulting from such claim shall be authorized by change order.

G. Overrun of Unit Price Items. The Owner recognizes that the bid price is based on estimated quantity multiplied by unit price for each of the said quantities. The Owner also recognizes the contract calls for a final contract price, which are the actual quantities used on the project multiplied by the unit price bid for each specific bid item. The Owner limits herein the amount the Owner will pay for increases in the number of units applied to the project over and above the estimated number of units as set forth in the plans and specifications.

H. Unless a change order in writing is approved by the Owner or the Consultant in cases of change orders amounting to less than $5,000.00 in value, the Owner will not pay for an increase in units of any bid item wherein the increase will do either or both of the following: exceeds by 10% or more the estimated number of units as set forth in the plans and specifications, or increases the estimated number of units so as to increase the estimated contract price by more than $1,000.00.

I. Change orders under $5,000.00 authorized by the Owner and Consultant to prevent delay to the project shall be submitted to the Owner at the next succeeding Owner meeting.)

8.05 USE OF COMPLETED PORTIONS

The Owner shall have the right to take possession of and use any completed or partially completed portions of the work, notwithstanding that the time for completing the entire work or such portions may not have expired. The Owner will seek to minimize the delay to the Contractor occasioned by the Owner's occupancy before acceptance.

8.06 EXTENSION OF CONTRACT TIME

A delay beyond the Contractor's control occasioned by an Act of God, or act or omission on the part of the Owner or by strikes, lockouts, fire, etc., may entitle the Contractor to an extension of time in which to complete the work as determined by the Owner provided, however, that the Contractor shall immediately give written notice to the Owner of the cause of such delay.

8.07 LIQUIDATED DAMAGES

A. Time is the essence of the contract. The Contractor therefore agrees that the Owner will be entitled to damages for failure on the part of the Contractor to complete the work within the time limits provided for in the contract documents.

B. Should the Contractor neglect, refuse or otherwise fail to complete the project on or before the specified date, the amount of $500 per day shall be deducted from any monies due or coming due to the Contractor or shall be paid to the Owner not as a penalty but as liquidated damages for each and every calendar day or portion thereof that the contract shall remain uncompleted after the specified date for completion, unless otherwise specified in the special provisions of the project specifications. Liquidated damages are specified herein because of the extreme difficulty of ascertaining and establishing the actual damages which the Owner would sustain.

PART 9. MEASUREMENT AND PAYMENT

9.01 DETAILED BREAKDOWN OF CONTRACT AMOUNT

Except in cases where unit prices form the basis for payment under the contract documents, the Contractor shall, within ten (10) days of receipt of the contract documents, submit an itemized breakdown of the contract amount having the value, including an allowance for profit and overhead, assigned to each part of the work. Unless the breakdown of the contract amount is objected to by the Owner, it shall be used as the basis for all requests for payment.

9.02 REQUEST FOR PAYMENT

A. The Contractor may submit periodically, but not more than once each month, at the end of the calendar month, a request for payment for work done and materials delivered and stored on the site. Payment for materials stored on the site will be conditioned on the following:

(1) The Contractor shall submit evidence to establish the Owner's title to such materials.
(2) Acceptable provisions have been made for storage.
(3) The Contractor is responsible for all loss, theft, vandalism, storage and similar peril for the full value of the stored material.

B. Each request for payment shall be itemized and computed as to work completed on all items listed in the detailed breakdown of contract amount less 5% to be retained until 95% of final completion and acceptance of the work, and less previous payments. Where unit prices are specified, the request for payment shall be based on the quantities completed.

C. After 95% of the work has been completed the Owner, pursuant to Minnesota Statutes, Section 429.041, Subd. 6, shall upon the request of the Contractor consider, after receiving the Consultant's recommendation, such portions of the retained price to be released as the Owner's governing body determines are not required to be retained to protect the Owner's interest in satisfactory completion of the contract.

9.03 CONSULTANT'S ACTION ON A REQUEST FOR PAYMENT

A. Within 10 days of submission of any request for payment by the Contractor, the Consultant shall:

(1) Approve the request for payment as submitted and forward it to the Owner.
(2) Approve such other amount as he shall consider is due the Contractor informing the Contractor in writing of their reasons for approving the modified amount.
(3) Withhold the request for payment, informing the Contractor in writing of their reasons for withholding it.

9.04 OWNER'S ACTION ON AN APPROVED REQUEST FOR PAYMENT

A. Within 20 days from the date of approval of a request for payment by the Consultant, the Owner shall:

(1) Pay the request for payment as approved by the Consultant.
(2) Pay such other amount in accordance with Section 10.5 as he shall decide is due the Contractor, informing the Contractor and the Consultant in writing of its reasons for paying the modified amount.
(3) Withhold payment in accordance with Section 10.5 informing the Contractor and the Consultant in writing of its reasons for withholding payment.

9.05 OWNER'S RIGHT TO WITHHOLD PAYMENT

A. The Owner may withhold payment in whole or in part to the extent necessary to protect itself from loss on account of any of the following causes:

(1) Violation of any of the terms of the contract documents.
(2) Defective work not remedied.
(3) (c) Reasonable evidence indicating potential filing of claims by other parties against the Contractor or Owner.
(4) Failure of the Contractor to make payments to subcontractors, material suppliers.
(5) Damage to the Owner or any other party.

B. When any of the above grounds for which payment is being withheld is removed, payment shall be made for the amount withheld.

9.06 INTEREST ON UNPAID REQUESTS FOR PAYMENT

Should the Owner fail to pay an approved request for payment within 60 days from the date of approval by the Consultant, and should it fail to inform the Consultant and the Contractor in writing of its reasons for withholding payment, the Owner shall pay the Contractor interest on the unpaid amount of the request for payment pursuant to Minnesota Statutes Section 429.041, Subdivision 6.

9.07 PAYMENT FOR REJECTED WORK AND MATERIALS

Should the Owner direct the Contractor to not correct work that has been damaged or that has not been performed in accordance with the contract documents; an equitable deduction from the contract amount shall be made by means of a change order to compensate the Owner for the uncorrected work.

9.08 PAYMENT FOR REJECTED WORK AND MATERIALS

A. The removal of work and materials rejected under Section 7.5 and the re-execution of acceptable work by the Contractor shall be at the expense of the Contractor, and he shall pay the cost of replacing the work of other Contractors destroyed or damaged by the removal of the rejected work or materials and the subsequent replacement of acceptable work.

B. Removal of rejected work or materials and storage of materials by the Owner in accordance with Section 7.5 shall be paid by the Contractor within 30 days after written notice to pay is given by the Owner. If the Contractor does not pay the expenses of such removal the Owner may, after ten (10) days from the giving of written notice to the Contractor of the Owner's intent to sell the materials, sell the materials at auction or at private sale and shall pay to the Contractor the net proceeds there from after deducting all the costs and expenses that should have been borne by the Contractor.

9.09 PAYMENT FOR INCREASED OR DECREASED QUANTITIES

Whenever the quantity of any item of work as given in the proposal shall be increased or decreased payment for such item will be made on the basis of actual quantity completed, at the contract unit price for such item. No payment will be made for quantities placed without the prior written approval of the Owner.

The Owner reserves the right to increase or decrease, by 25% of the original contract quantity, any of the quantities shown. In the event the actual quantities differ more than 25% of the original contract quantity, an equitable revision of the unit price shall be made when requested by either the Owner or the Contractor. This 25% limit does not apply to items specifically excluded or listed as optional by the Owner, nor to minor contract items (items amounting to 10% or less of the total contract).

9.10 PAYMENTS FOR EXTRA WORK

Written notice of claims for payments for extra work shall be given by the Contractor within ten (10) days after receipt of a written order from the Owner to proceed with the extra work and also before any work is commenced by the Contractor, except in emergency situations endangering life or property. No claim shall be valid unless so made. In all cases, the Contractor's itemized estimate sheets showing all labor and material shall be submitted to the Owner. The Owner's written order for extra work shall specify any extension of the contract time and one of the following methods of payments:

A. Unit prices or combinations of unit prices which formed the basis of the original contract.
B. A lump sum based on the Contractor's estimate, approved by the Consultant and accepted by the Owner.
C. Actual cost plus overhead and profit as follows:

(1) The "actual cost" shall include labor, materials, and equipment necessary to complete the work as ordered by the Consultant.
(2) The Contractor shall be paid for all labor, and the foreman in direct charge, for every hour they are actually engaged in the force account work. An amount equal to 45% of the sum of the above labor wage items will be paid the Contractor as full compensation for Workmen's Compensation, Social Security, pension and retirement allowances, and insurance, or other regular payroll deductions.
(3) Equipment used, which has authorization by the Consultant, shall be paid for per the equipment rental rates in the Rental Rate Blue Book. The rates shall be paid for the actual time the equipment is in operation on the extra work items. Travel time to and from the job site will be allowed at rental rates when the equipment is moved under its own power. Where transportation is accomplished by other than its own power, the cost of the transport shall be paid for as approved by the Consultant. Equipment rates will have no percentages added to them for overhead or profit.
(4) Materials accepted by the Consultant and used, including transportation costs for delivery but exclusive of machinery rentals as set forth above, will be reimbursed to the Contractor for actual costs plus 15%.

9.11 RESPONSIBILITY OF THE CONTRACTOR

A. Unless specifically noted otherwise, the Contractor shall furnish all materials and services and perform all the work described by the contract documents or shall have all materials and services furnished and all the work performed at their expense. It shall be the Contractor's responsibility to pay for:

(1) Replacement of survey bench marks, reference and stakes provided by the Owner under Paragraph 6.4.
(2) Lands by Contractor provided in accordance with Paragraph 6.2.
(3) Insurance obtained in accordance with Paragraphs 8.1 and 8.2.
(4) Performance Bond obtained in accordance with 8.3.
(5) Royalties required under Paragraph 8.4.
(6) Permits and Licenses required of the Contractor and all subcontractors.

9.12 PAYMENT FOR WORK SUSPENDED BY THE OWNER

If the work or any part thereof shall be suspended by the Owner as provided in Section 5.7 and abandoned by the Contractor, the Contractor will then be entitled to payment for all work done on the portions so abandoned. No payment will be made for work deleted from the project which has not been started by the Contractor.

9.13 PAYMENT FOR WORK BY THE OWNER

The cost of the work performed by the Owner in taking possession of the work and equipment, tools and supplies in accordance with Section 5.9 and in correcting deficiencies as provided in Section 5.8 shall be paid by the Contractor.

9.14 PAYMENT FOR WORK BY THE OWNER FOLLOWING OWNER'S TERMINATION OF THE CONTRACT

Upon termination of the contract by the Owner pursuant to Section 5.9, no further payments shall be due the contract or until the work is completed by the Owner. If the unpaid balance of the contract amount shall exceed the cost of completing the work including all overhead costs, the excess shall be paid to the Contractor. If the cost of completing the work shall exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The cost incurred by the Owner, as herein provided, and the damage incurred through the Contractor's default, shall be approved in writing by the Consultant and certified in writing by the Owner.

9.15 PAYMENT FOR WORK TERMINATED BY THE CONTRACTOR

Upon suspension of the work or termination of the contract by the Contractor pursuant to Section 5.10 the Contractor shall recover payments from the Owner for the work performed, plus loss on plant and materials, plus a reasonable profit on work performed.

9.16 PAYMENT FOR SAMPLES AND TESTING OF MATERIALS

Samples furnished in accordance with Section 4.9 shall be furnished by the Contractor at their expense. Testing of samples and materials furnished in accordance with Section 4.9 shall be arranged and paid for by the Owner, unless said tests fail, in which case they shall be paid for by the Contractor.

9.17 REMOVAL OF CONSTRUCTION EQUIPMENT, TOOLS AND SUPPLIES

At the termination of this contract, but before acceptance of the work by the Owner, the Contractor shall remove all of their equipment, tools and supplies from the work site. Should the Contractor fail to remove such equipment, tools, and supplies, the Owner shall have the right to remove them with the cost of such removal to be charged to the Contractor.

9.18 CLEANING UP

Contractor shall keep the work site free from accumulations of waste materials, rubbish and other debris resulting from the work, and at the completion of the work he shall remove all waste materials, rubbish and debris from and about the work site as well as all tools, construction equipment and machinery, and surplus materials, and shall leave the site clean and ready for occupancy by Owner. Contractor shall restore to their original condition those portions of the site not designated for alteration by the Contract Documents.

9.19 EXAMINATION OF COMPLETED WORK

If the Owner requests it, the Contractor at any time before acceptance of the work shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering or removing, and the replacing of the covering or making good of the parts removed shall be paid for as extra work, but should the work so exposed or examined prove unacceptable, the uncovering, removing and replacing shall be at the Contractor's expense.

9.20 RELEASE OF LIENS

Before any retained amounts are released or final payment is made, the Contractor shall submit with their application for payment to the Owner (1) an affidavit stating all payables, bills for materials and equipment and other indebtedness connected with the work for which the Owner or their property might in any way be responsible, have been paid or satisfied; and (2) consent of surety, if any, to final payment. If any subcontractor or material supplier refuses to furnish releases or receipts in full, Contractor may furnish a bond satisfactory to the Owner to indemnify him against such lien or claim.

9.21 ACCEPTANCE AND FINAL PAYMENT

A. When the Contractor has completed the work in accordance with the terms of the contract documents, the Contractor shall request in writing final acceptance and the Consultant shall certify in writing their acceptance and their approval of the Contractor's final request for payment to the Owner, which shall be the contract amount plus all approved modifications, less all approved deductions and less previous payments made.

B. The Owner shall accept the project within 60 days after receipt of the Contractor's request in writing or in the alternative notify the Contractor in writing the reasons why the project has not been accepted. The Owner's failure to respond within said 60-day period will be deemed to be acceptance of the project. Acceptance by the Owner for the purpose of beginning the warranty period will be deemed to be when the project is finally accepted by the Rosemount Park and Recreation Board.

C. The Contractor shall furnish evidence that he has fully paid all debts for labor, materials and equipment incurred in connection with the work, following which the Owner shall accept the work and release the Contractor except as to the conditions of the performance bond, any legal rights of the Owner, required guarantees, and correction of faulty work after final payment under Section 10.22 and shall authorize payment of the Contractor's final request for payment.

D. The Contractor must allow sufficient time between the time of completion of the work and approval of the final request for payment to allow the Consultant to assemble and check the necessary data.

E. Before final payment is made, the Contractor shall make a satisfactory showing that he has paid the State and Federal income tax withheld from wages paid to the Contractor's employees for work performed under the contract.

9.22 CORRECTION OF FAULTY WORK AFTER FINAL PAYMENT

The approval of the final request for payment by the Consultant and the making of the final payment by the Owner to the Contractor shall not relieve the Contractor of responsibility for faulty materials or workmanship. The Owner shall promptly give written notice to the Contractor of faulty materials or workmanship and the Contractor shall promptly replace any such defects discovered within such time as may be prescribed by law or by the terms of special warranties required by the contract documents. The Consultant shall decide all questions arising under this paragraph and all such decisions shall be subject to arbitration under Section 5.3.

9.23 WAIVER OF CLAIMS

A. The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:

(1) Unsettled liens or claims;
(2) Faulty or defective work; Or
(3) Failure of the work to comply with the requirements of the contract documents or the terms of any warranties specified therein.
(4) The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final application for payment.

9.24 SEVERABILITY

If any provision of this contract is found to not be valid or enforceable, it shall not affect the validity or enforceability of the remaining provisions of the contract.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 01-7123
FIELD ENGINEERING

PART 1. GENERAL

1.01 The Contractor is responsible for any, and all, surveying and construction staking required for the project. At a minimum, it is expected the Contractor's survey consultant will provide the following:

1. Staking of the center line of bridge and trails centerlines for line and grade
2. Location and elevation of bridge abutments
3. Final grades in project areas

1.02 The Contractor should verify staking prior to commencing any work on the site. If the Contractor finds the staking to be inaccurate, the Contractor shall notify the survey consultant so proper corrections can be made.

1.03 The Contractor shall establish and maintain benchmarks during the Contract Period.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31-1000
SITE PREPARATION AND DEMOLITION

PART 1. GENERAL

1.01 SCOPE OF WORK

A. This Section includes all labor, materials, equipment and tools and related services necessary to make the removals and prepare the site for construction activities as described herein and as indicated on the Drawings.

B. It is understood that the Bidder has visited and examined the project site, fully understands the existing and proposed conditions, and has made due allowances for them. No additional compensation will be allowed for work required because of Contractor's failure to do so.

C. This Section includes all labor, material, equipment and related services necessary to do removals and site preparation indicated on the Drawings and/or specified herein.

1.02 TITLE OF PROPERTY

A. All salvaged materials shall become the property of the Owner.

1.03 RISK OF LOSS

A. Contractor shall accept site as he finds it and shall inform himself of its character. Damage or loss [whether by reason of fire, theft, or other happenings] shall be at the risk of the Contractor from the day he enters the premises for purpose of protecting the property, or from the day following receipt of Notice to Proceed, whichever is earlier, and no such damage or loss shall relieve Contractor from any obligation under the Contract.

B. Before proceeding with any work and in any event within two days, exclusive of Saturdays and Sundays, after receipt of Notice to Proceed, Contractor shall arrange a meeting at the site for the purposes of inspecting the premises. Any claim by Contractor that property has been damaged from date of opening of bids must be made in writing to Owner within [3] days from date of inspection. Any dispute concerning questions of fact shall be resolved as provided in the Contract for settlement of disputes.

1.04 SUMMARY

A. The work of this Section includes, but is not limited to:

1. Protection of existing trees and vegetation
2. Install construction entrance
3. Install erosion control devices
4. Miscellaneous removals
5. Removal of debris

1.05 PROJECT CONDITIONS

A. Conduct site demolition operations to ensure minimum interference with adjacent park facilities. Do not close or obstruct adjacent streets. Provide and erect all temporary planking, fencing, bracing, shoring, lights and warning signs required by jurisdictional authorities, applicable codes and site conditions.

1. Existing Utilities - Contractor to verify the existence of all existing private and public utilities prior to commencing work.

a. PUBLIC UTILITIES: State law requires that the Contractor call 48 hours prior to conducting construction activities to arrange to have public utilities located.
b. Determine that all water, gas, sewers, electric services have been disconnected and capped before starting any demolition work.

1.06 MONUMENTS

A. Maintain carefully all bench marks, monuments and other reference points. If disturbed or destroyed, have replaced or relocated by a Registered Land Surveyor at the Contractor's expense.

1.07 STANDARDS

A. All construction operations to comply with MnDOT Specifications 1717 AIR, LAND AND WATER POLLUTION and Specification 1803.5 EROSION CONTROL.

1.08 QUALITY ASSURANCE

A. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

PART 2. EXECUTION

2.01 SILT FENCE

A. Install silt fences conforming to MnDOT 3886, Preassembled silt fence specification. Install prior to any grading or site disturbance where indicated on the drawings. The silt fence shall be Geofab, Amoco Silt Stop, or approved equal. The spacing of the support posts shall be a maximum of five feet (5'). The fabric shall be anchored in a trench not smaller than six inches (6") wide. The trench shall be backfilled with compacted natural soil. The CONTRACTOR shall replace any unapproved filtration fabric. The CONTRACTOR shall correct any erosion or sedimentation damage created outside the construction limits of the project, if directly caused be the CONTRACTOR'S operation, with no additional compensation. Leave in place until the Owner authorizes removal, then remove within 30 days of authorization.

2.02 CONSTRUCTION ENTRANCE

A. Install and maintain rock construction entrances as detailed and in the locations shown on the drawings. The entrances shall be maintained throughout the construction period.

2.03 EXAMINATION AND PREPARATION

A. Discrepancies, irregularities, in the Construction Documents shall be brought to the attention of the Landscape Architect. When removal operations are started by this Contractor, it is assumed that this Contractor has accepted existing conditions.

2.04 GENERAL REMOVALS

A. Remove existing items as indicated on the drawings.

2.05 MISCELLANEOUS REMOVALS

A. Contact the landscape architect for a decision on the removal of any existing items that interfere with construction activity but are not indicated for removal on the drawings.

2.06 DEBRIS REMOVAL.

A. All debris generated by removals shall be taken from the site on a daily basis as work progresses. No material shall be buried or disposed of on the site. The site shall be as clean and hazard free as is practicable.

2.07 PROTECTION OF EXISTING TREES AND VEGETATION

A. Install 4’ high tree protection fences as described on the drawings to minimize impacts on trees by vehicles and construction equipment.

B. Protect existing trees and other vegetation against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within their drip lines, excess foot or vehicular traffic, or parking of vehicles within their drip lines.

C. If the Landscape Architect believes the Contractor is not adequately exercising such care beneath the driplines of existing trees he/she may direct the Contractor to install snow fencing along the driplines of the trees to protect them. The cost of this fence installation shall be borne by the Contractor.

D. Repair or replace trees indicated to remain which are damaged by construction activities. Employ a licensed arborist to repair damages to vegetation. Replace trees which cannot be repaired and restored to full-growth status, as determined by arborist. The Contractor shall be responsible for any damage done to trees that are not indicated for removal on the Drawings or in the field by the Landscape Architect. A charge will be assessed to the Contractor for all trees permanently damaged due to Contractor negligence in accordance with the following schedule:

Existing Tree Trunk Diameter at 2' above Grade	**Charge Assessed Contractor Per Inch Diameter of Trunk**
4 inches or less	$ 50.00
4 to 12 inches	$100.00
12 inches and larger	$200.00

E. Excavation Near Trees: Cut, do not rip, roots of trees indicated to remain. Leave a minimum of 10' between trunk and excavation. If this distance is not possible, contact Landscape Architect immediately.

F. Provide protection of roots over 1-1/2-inch diameters that are cut during construction operations. Temporarily cover exposed roots with wet burlap to prevent roots from drying out; cover with earth as soon as possible.

G. Water trees and other vegetation to remain within limits of contract work as required to maintain their health during the course of construction operations.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 31-2200
EARTHWORK

PART 1. GENERAL

1.01 SCOPE OF THE WORK

A. Work consists of all excavation, grading and site work, including, but not limited to the following. Extent of Earthwork is indicated on Drawings.

1. Excavation
2. Cutting, placing fill, backfilling
3. Rough grading
4. Compaction of fill
5. Preparation of sub-grades and bases for, footings, pavements and landscaping

1.02 SUBMITTALS

A. Submit samples and lab analysis of topsoil.

1.03 MONUMENTS

A. Maintain carefully all benchmarks, monuments and other reference points. If disturbed or destroyed, have replaced or relocated by a registered land surveyor at the Contractor's expense.

1.04 QUALITY ASSURANCE

A. Codes and Standards: Perform excavation work in compliance with applicable requirements of governing authorities having jurisdiction.

B. All construction operations to comply with MnDOT Specifications 1717 AIR, LAND AND WATER POLLUTION and Specification 1803.5 EROSION CONTROL.

1.05 JOB CONDITIONS

A. Test borings and other exploratory operations may be made by Contractor at no cost to the Owner.

B. Existing Utilities: Locate existing underground utilities in areas of work. If utilities are to remain in place, provide adequate means of support and protection during earthwork operations.

C. Should uncharted, or incorrectly charted, piping or other utilities be encountered during excavation, consult utility owner immediately for directions. Cooperate with Owner and utility companies in keeping respective services and facilities in operation. Repair damaged utilities to satisfaction of utility owner.

D. Do not interrupt existing utilities serving facilities occupied and used by Owner or others, during occupied hours, except when permitted in writing by Landscape Architect and then only after acceptable temporary utility services have been provided.

E. Provide minimum of 48 hours' notice to Landscape Architect, and receive written notice to proceed before interrupting any utility.

F. Protection of Persons and Property: Barricade open excavations occurring as part of this work and post with warning lights. Operate warning lights as recommended by authorities having jurisdiction.

G. Protect structures, utilities, sidewalks pavements and other facilities from damage caused by settlement, lateral movement, undermining, washout and other hazards created by earthwork operations.

PART 2. PRODUCTS

2.01 MATERIALS

A. On-site Fill and Backfill: On site soils may be used which will qualify per the Unified Soil Classification System (USCS) (ASTM C-2487) as silty sand (SM or SP-SM), Sandy Clay (CL), or clayey sand (SC). All fill materials shall be free of debris, boulders, organic soils or other materials that may prevent achieving design densities.

1. Use for:
   (a) Backfill at posts, trenches and similar excavations located in non-paved areas.
   (b) Fill or backfill greater than 3' below paved surfaces.
   (c) General fill at areas not built upon or proposed for paving.

B. Clean Borrow: Clean borrow may be used which will qualify per the Unified Soil Classification System (USCS) (ASTM C-2487) as silty sand (SM or SP-SM), Sandy Clay (CL), clayey sand (SC), well-graded gravels, (GW) or poorly graded gravels (GP). All fill materials shall be free of debris, boulders, organic soils or other materials that may prevent achieving design densities.

C. Aggregate Base Under Concrete Pavement: Select granular borrow conforming to MnDOT 3149

D. Aggregate Base Under Bituminous Surfacing: Class 5 100%, recycled concrete or Class 5, 100% crushed limestone or Class 7 recycled bituminous and concrete conforming to applicable MnDOT Standards.

E. Aggregate Base Under Gravel Surfacing: Class 5 100%, recycled concrete or Class 5, 100% crushed limestone

F. Aggregate for Gravel Surfacing: Class 2 100% virgin materials conforming to MnDOT 3138

G. Topsoil Borrow:
1. On-site soils may be reused on the site if testing shows that they meet this specification or if amendments are added as needed to conform to the specification. Topsoil shall be stripped and salvaged from the site, by the contractor for use as topsoil material. Topsoil shall be friable loam as needed to provide a uniform layer a minimum of six (6) inches deep. Contractor shall not use stripped topsoil as fill material. Topsoil shall be free of subsoil, clay lumps, clods, weeds, brush, tree roots, branches, stones larger than 1-inch in any dimension, and other extraneous or toxic matter containing a minimum of four percent and a maximum of 25 percent organic matter. Select Topsoil borrow shall meet the requirement of MnDot 3877.2B.

PART 3. EXECUTION

3.01 EXCAVATION

A. Common excavation: The Contractor shall spread on-site all excavated soils from the sites as part of the rough grading activity. It is anticipated that work will not require importing or exporting soils to accomplish rough grades.

B. Unauthorized Excavation: consists of removal of materials beyond indicated subgrade elevations or dimensions without specific direction of Landscape Architect. Unauthorized excavation as well as remedial work directed by Landscape Architect, shall be at Contractor's expense. Backfill and compact unauthorized excavations as specified for authorized excavations of same classification, unless otherwise directed by Landscape Architect.

C. Additional Excavation: when excavation has reached required subgrade elevation, notify Landscape Architect who will make an inspection of conditions. If unsuitable bearing materials are encountered at required subgrade elevations, carry excavations deeper and replace excavated material as directed by Landscape Architect. Removal of unsuitable material and its replacement as directed will be paid on basis of contract conditions.

D. Stability of Excavations: slope sides of excavations to meet the grades on the Plans. Shore and brace where sloping is not possible because of space restrictions, local codes, and ordinances, or stability of material excavated. Maintain sides and slopes of excavations in safe condition until work by others begins. Keep side slopes to a maximum of one to one, unless otherwise indicated on the drawings.

E. Shoring and Bracing: provide materials for shoring and bracing, such as sheet piling, uprights, stringers and cross-braces, in good serviceable condition. Establish requirements for trench shoring and bracing to comply with local codes and authorities having jurisdiction. Maintain shoring and bracing in excavations regardless of time period excavation progresses.

F. Dewatering: prevent surface water and subsurface or groundwater from flowing into excavations and from flooding project site and surrounding area. Do not allow water to accumulate in excavations. Remove water to prevent softening of foundation bottoms, undercutting footings, and soil changes detrimental to stability of sub-grades and foundations. Provide and maintain pumps, well points, sump, suction, discharge lines and other dewatering system components necessary to convey water away from excavations.

G. Material Storage: stockpile satisfactory excavated materials where directed, until required for backfill or fill. Place, grade and shape stockpiles for proper drainage. Stockpiles shall be covered, vegetated, enclosed or fenced on the down-gradient side to reduce erosion.

H. Locate and retain soil materials away from edge of excavations. Do not store within drip line of trees indicated to remain or to be relocated.

I. Material Disposal: Dispose of excess soil material and waste materials as herein specified.

J. Excavation for Pavements: Cut surface under pavements to comply with cross-sections, elevations and grades as shown.

3.02 COMPACTION

A. Compaction Density = compact top 6" of subgrade and each layer of backfill or fill material to meet or exceed the following percentages of Standard Proctor Density, ASTM D698-78.

% Std. Proctor Density	
98.00	Below Footings
95.00	Upper 3' under walks, paving
95.00	Below 3' under paving, lawns or landscaped areas
90.00	Upper 3' under lawns and landscaped areas

B. Precautions shall be taken to minimize the compaction of soils, by minimizing the number of trips and weight of vehicles over areas, particularly those adjacent to trees. Soils compacted incidentally from machinery shall be restored and loosened to a depth of at least six inches, and the vegetative cover shall be restored.

3.03 MOISTURE CONTROL

A. Where subgrade or layer of soil material must be moisture conditioned before compaction, uniformly apply water to surface of subgrade, or layer or soil material, to prevent free water appearing on surface during or subsequent to compaction operations.

B. Remove and replace, or scarify and air dry, soil material that is too wet to permit compaction to specified density.

C. Soil material that has been removed because it is too wet to permit compaction may be stockpiled or spread and allowed to dry. Assist drying by discing, harrowing or pulverizing until moisture content is reduced to a satisfactory value.

3.04 FIELD AND LABORATORY TESTS

A. The Contractor shall retain an independent soil testing laboratory to conduct laboratory and field testing of soils prior to and during excavation, filling, backfilling and compaction operations. Soil testing to include the following:
   1. All fill material shall be analyzed for compliance with specifications.
   2. No fill or backfill materials shall be placed until the necessary soil tests have been performed.
   3. Test Frequencies: For paved area fill-in each compacted fill layer (lift) make one field density test for every 3,000 sq. ft. of paved area, but in no case less than two tests.
   4. If soil analysis or compaction tests indicate that the materials specified have not been furnished, placed or compacted in compliance with these specifications, the material shall be removed, replaced, re-compacted and retested.

B. Test Rolling:
   1. The subgrade surfaces of all paths, roads, drives and parking lots shall be test rolled using a fully loaded, tandem axle dump truck. Test rolling shall be done in the presence of a soils engineer.

C. All soil testing shall be done at the expense of the Contractor.

3.05 FILL

A. Do not begin filling or backfilling operations until construction below finish grade has been completed, ground is frost free, underground utility systems have been inspected and tested, forms removed and excavation cleaned of trash and debris. All fill shall be applied in lifts (not over 8" prior to compaction) and compacted before the subsequent layer is applied. When specified, compaction tests shall be conducted as fill operations progress.

3.06 GRADING

A. General: uniformly grade areas within limits of grading under this Section, including adjacent transition areas. Smooth finished surface within specified tolerances, compact with uniform levels or slopes between points where elevations are indicated, or between such points and existing grades.

B. Compaction: after grading compact subgrade surfaces to the depth and indicated percentage of maximum density for each area classification.

C. Areas shall be graded in order to allow positive drainage on the site to drainage structures or as indicated on the drawings.

3.07 ROUGH GRADES: FREE FROM IRREGULAR SURFACE CHANGES ARE TO BE ESTABLISHED AS FOLLOWS:

A. Lawn or Unpaved Areas: finish areas to receive topsoil to within not more than 0.10' above or below required subgrade elevations. Subgrade elevation shall be 6" below finished grade.

B. Pavements: shape surface areas under pavement to line, grade and cross-section, within finish surface not more than 1.2" above or below required subgrade elevation. Subgrade elevation shall be as indicated on the drawings.

3.08 PLACEMENT OF TOPSOIL

A. Topsoil will be spread on the site to a depth of 6”.

B. This Contractor shall fine grade areas to be seeded or sodded to a smooth, even surface with loose, uniformly fine texture. Roll, rake and drag areas, remove ridges and fill depressions, as required to meet finish grades and to ensure a uniform depth of 6” over all landscaped areas. The Contractor shall provide and place additional topsoil as directed by the Owner. Payment for additional topsoil shall be based on Contract Unit Prices for the work.

C. Restore areas to be seeded or sodded to specified condition if eroded or otherwise disturbed after fine grading and prior to planting.

PART 4. MAINTENANCE

4.01 PROTECTION OF GRADED AREAS:

A. Protect newly graded areas from traffic and erosion. Keep free of trash and debris.

4.02 REPAIR AND RE-ESTABLISH

A. Re-establish grades in settled, eroded and rutted areas to specified tolerances.

4.03 RECONDITIONING COMPACTED AREAS:

Where complete compacted areas are disturbed by subsequent construction or adverse weather, scarify surface, re-shape, and compact to required density prior to further construction.

4.04 SETTLING

Where settling is measurable or observable at excavated areas during general project warranty period, remove surface (pavement, lawn or other finish), add backfill material, compact, and replace surface treatment. Restore appearance, quality, and condition of surface to finish to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

PART 5. CLEAN UP

5.01 Comply with work priorities outlined in these specifications and other adjustments in work schedule, as may be required to properly coordinate the clean-up work with other contractors.

5.02 Remove all waste materials, including excavated material classified as unsatisfactory soil material, trash and debris from the Owner's property and legally dispose of it. All areas outside the Contract Limits which have been disturbed shall be restored to the original or better condition. Thoroughly police and rake the area to provide neat clean surfaces.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 32-1216
BITUMINOUS PAVING

PART 1. GENERAL

1.01 SECTION INCLUDES

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Asphalt concrete paving above aggregate base course; as indicated on the drawings, specified herein, and complete with all accessories.

C. Aggregate base course.

D. Bituminous tack coat

E. Asphalt concrete paving; wear course and non-wearing course surfaces.

1.02 RELATED SECTIONS

A. Section 31-1100 – Site Preparation and Demolition.

B. Section 32-2200 – Earthwork.

C. Section 32-1723 – Pavement Markings

1.03 REFERENCES

A. AI MS-2 - Mix Design Methods for Asphalt Concrete and Other Hot-Mix Types; The Asphalt Institute; 1994, Sixth Edition.

B. American Society for Testing and Materials (ASTM):
   1. ASTM C 136 - Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates; 2006.
   2. ASTM D 1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 2007.
   3. ASTM D 2172 - Standard Test Methods for Quantitative Extraction of Bitumen from Bituminous Paving Mixtures; 2005.
   4. ASTM D 2726 - Standard Test Method for Bulk Specific Gravity and Density of Non-Absorptive Compacted Bituminous Mixtures; 2008.
   5. ASTM D6938 - Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth); 2008a.

C. Mn/DOT, Minnesota Department of Transportation Standard Specifications for Construction 2005. Only applicable portions of construction methods and materials apply. References to methods of measurement or payment are not applicable.
   1. MN/DOT 2360 - Plant Mixed Asphalt Pavement
   2. MN/DOT 2357 - Bituminous Tack Coat
   3. MN/DOT 3138 - Aggregate for Surface and Base Courses
   4. MN/DOT 3139 - Graded Aggregate for Bituminous Mixtures
   5. MN/DOT 3151 - Bituminous Material

D. All Materials and Products Used Shall Comply with Minnesota Department of Transportation Standard Specifications for Highway Construction.

1.04 QUALITY ASSURANCE

A. General: In addition to other specified conditions, comply with the following minimum requirements:

   1. Subcontractor's Qualifications: The construction of bituminous paving, including the stabilized

aggregate base, shall be done by a responsible Paving Subcontractor having the necessary equipment, plant and experience to perform the work.

B. Governing Codes: The Work of this section occurring on public property shall be constructed in accordance with the laws, ordinances, rules, regulations and orders of any public authority having jurisdiction. All work required to be constructed by regulatory authorities in a manner differing from the Contract Documents shall be considered part of the Base Bid Contract.

C. Grade Verification:
   1. Refer to Part 1.5 and 3.10 of this Section.

1.05 SUBMITTALS

A. Submit under the provisions of Division One Specifications.
   1. Samples: Submit ten (10) pound (4.5 kg) sample of aggregate base course material to the Independent Testing Laboratory.
   2. Samples: Submit samples of asphalt concrete paving materials and asphalt mix design to the Independent Testing Laboratory.
   3. Testing: Testing will be paid by the Owner, but coordination and submittal to the independent laboratory must be completed by the Contractor. Testing requirements will be confirmed at the Pre-Construction meeting once the selection of alternates is complete.
   4. Certificates: The Contractor and the Asphalt Concrete Producer shall jointly provide certificates certifying that materials comply with the specification requirements.
   5. Job Mix Design: The bituminous mix plant shall have on file a report prepared by an approved testing laboratory that indicates the proportions of materials used in each type of bituminous courses being provided and the temperature of the mix. The job mix design shall be submitted to the Landscape Architect/Engineer for acceptance prior to placing the bituminous mix.

1.06 SITE CONDITIONS

A. Weather Limitations:
   1. Apply bituminous tack coat only when the ambient temperature is at least 50 degrees Fahrenheit (10 degrees C), and when the temperature has not been below 35 degrees Fahrenheit (2 degrees C) for twelve (12) hours immediately prior to application.
   2. Do not apply materials when the base surface is wet or contains an excess of moisture which would prevent uniform distribution and the required penetration.
   3. Construct asphalt concrete surface course only when atmospheric temperature is above 40 degrees Fahrenheit (4 degrees C), when the underlying base is dry and when weather is not rainy.
   4. Refer to “Minimum Placement Temperature Chart” prepared by the National Asphalt Pavement Association for minimum bituminous placement temperatures.
   5. Paving shall not take place when, in the opinion of the Independent Testing Laboratory, the weather or surface conditions are considered unfavorable.

B. Grade Control: Establish and maintain the required lines and grades, including crown and cross-slope, for each course during construction operations.

1.07 MATERIAL REQUIREMENTS

A. Mix Criteria:
   1. Provide mix formulas for each required asphalt-aggregate mixture.
   2. Establish a single percentage of aggregate passing each required sieve size, a single percentage of asphalt cement to be added to aggregate, and a single temperature at which asphalt concrete is to be produced.
   3. Comply with the mix requirements of the Minnesota Department of Transportation (MN/DOT) standards.
   4. Maintain material quantities within allowable tolerances of the governing standards.

B. Prepare and keep on file the mix formula for each course.

C. The subgrade shall be tested and approved by the Independent Testing Laboratory immediately prior to placement of the base course.

D. The Contractor will be responsible for all drainage of the finish surface. Any “bird baths” will be considered unacceptable and shall be remedied by the Contractor at their expense to the satisfaction of the Landscape Architect/Engineer.

1.08 SYSTEM DESCRIPTIONS

A. Design Requirements:
   1. Standard Bituminous Pavement: Design consists of minimum six (6") inch thick aggregate base course, a minimum one and one-half (1-1/2") inch thick asphalt non-wear course, and a minimum one and one-half (1-1/2") inch thick asphalt wear course
   2. Heavy Duty Bituminous Pavement: Design consists of minimum six (6") inch thick aggregate base course, a minimum two (2") inch thick asphalt non-wear course, and a minimum two (2") inch thick asphalt wear course
   3. Trail Bituminous Pavement: Design consists of minimum six (6") inch thick aggregate base course and a minimum two and one-half (2-1/2") inch thick asphalt wear course

1.09 WARRANTY

A. Provide one (1) year written warranty under the provisions of Division One Specifications.

B. Warranty: All materials and workmanship provided are guaranteed against defects after completion and final acceptance of the Work. Defects due to faulty materials or workmanship developed during the guarantee period shall be satisfactorily repaired or replaced by the Contractor at their expense.

PART 2. PRODUCTS

2.01 AGGREGATE BASE MATERIALS

A. Stabilized Aggregate Base: Aggregate shall meet the requirements of MN/DOT Specification 3138, gradation Class 5 or Class 7, 100 percent crushed.

B. Aggregate Base Material is to be placed under the bituminous parking lots, drives, bituminous running track and concrete curb and gutter.

2.02 ASPHALT CONCRETE MATERIALS

A. Bituminous Tack Coat: The bituminous tack coat shall be RC liquid asphalt or emulsified asphalt. The tack coat shall meet the requirements of MN/DOT Specification 2357.

B. Bituminous Material for mix shall meet the requirements of MN/DOT 3151, PG (Performance Grade) 58-28 for all virgin and recycled non-wear or wear courses.

C. Non-wear Course Mix: MN/DOT 2360, Type SPNWB230C; thickness indicated on System Description 1.08.
   1. Mixture shall conform to current MN/DOT requirements.

D. Wear Course Mix: MN/DOT 2360, Type SPWEA240C; thickness indicated on System Description 1.08.
   1. Mixture shall conform to current MN/DOT requirements.

2.03 SOURCE QUALITY CONTROL

A. Provide mix design for asphalt under the provisions of Division One Specifications.

B. Submit proposed aggregate base and mix design of each class of mix for review and approval prior to commencement of the Work.

C. Test samples in accordance with A1 MS-2.

PART 3. EXECUTION

3.01 EXAMINATION

A. Examine the areas and conditions under which the Work of this Section will be performed. Correct conditions detrimental to the timely and proper completion of the Work. Do not proceed until unsatisfactory conditions are corrected.

B. Verify that gradients and elevations of subgrade are correct.

C. Aggregate base is to be placed under the concrete curb and gutter by the Asphaltic Concrete Paving Contractor. Coordinate all work with the Exterior Concrete Pavement Contractor.

3.02 SURFACE PREPARATION

A. Proof roll all prepared sub-grades using a fully loaded 10-yard minimum dump truck. Amount of allowable yielding shall be one (1") inch maximum. The proof rolling must be observed by the Testing Laboratory Inspector.
   1. Check for unstable areas and areas requiring additional compaction.

B. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

C. Remove loose and foreign material from compacted subbase surfaces immediately before paving application. Do not disturb subbase material.

3.03 TACK COAT

A. Apply to contact surfaces of previously constructed portland cement concrete surfaces and similar surfaces.

B. Apply at rate of five-hundredths (0.05) to fifteen-hundredths (0.15) gallons per square yard of surface.

C. Apply tack coat by brush to contact surfaces of concrete curbs, gutters, manholes and other structures projecting into or abutting asphalt concrete pavement.

D. Allow surfaces to dry until material is at condition of tackiness and ready to receive pavement.

3.04 AGGREGATE BASE PLACEMENT

A. Subgrade: The area to be paved shall be graded to the elevation of the underside of the stabilized base. Pre-compact soils beneath the stabilized base to 100 percent of Standard Proctor Density (ASTM D698). Recompact as necessary to provide the specified density for the subgrade.

B. Remove all castings set by others that are within the paving area and replace with metal covers. The castings shall be reset as outlined below.

C. Spread aggregate base over prepared base to a total compacted thickness as indicated on the System Descriptions 1.08.

D. Place aggregate base in maximum three (3") inch layers and roller compact.

E. Level and contour surfaces to elevations and gradients indicated on the Drawings.

F. Compact placed aggregate materials to achieve compaction to 100 percent of its maximum dry density in accordance with ASTM D698.

G. Add small quantities of fine aggregate to coarse aggregate as appropriate to assist compaction.

H. If excess water is apparent, remove aggregate and aerate to reduce moisture content.

I. Use mechanical vibrating tamping in areas inaccessible to compaction equipment.

3.05 PLACING THE MIX - DOUBLE COURSE

A. Place asphalt concrete mixture on prepared surfaces, spread and strike-off using paving machine.

B. Inaccessible and small areas may be placed by hand.

C. Place each course at thickness so that when compacted it will conform to the indicated grade, cross-section, finish thickness and density indicated.

D. Pavement Placing:

1. Unless otherwise directed, begin placing non-wear course at high side of section on one-way slope.
2. After first strip has been placed and rolled, place succeeding strips.
3. Complete non-wear courses for a section before placing wearing courses.
4. Place mixture in continuous operation as practicable.
5. Place tack coat before placing wear course.
6. Non-wear course shall be swept as required before placing wear course.

E. Hand Placed:

1. Spread, tamp and finish mixture using hand tools in areas where machine spreading is not possible, as acceptable to the Geotechnical Engineer.
2. Place mixture at a rate that will ensure handling and compaction before mixture becomes cooler than acceptable working temperature.

F. Joints:

1. Gradually make joints between old and new pavements, or between successive day's work, to ensure a continuous bond between adjoining work.
2. Construct joints to have same texture, density and smoothness as adjacent sections of asphalt concrete course.
3. Clean contact surfaces free of sand, dirt or other objectionable material and apply tack coat.
4. Offset transverse joints in succeeding courses not less than five (5') feet.
5. Cut back edge of previously placed course to expose an even, vertical surface for full course thickness.
6. Offset longitudinal joints in succeeding courses no less than six (6") inches.
7. When the edges of longitudinal joints are irregular, honeycombed, or inadequately compacted, cut back unsatisfactory section to expose as even, vertical surface for the full course thickness.

3.06 COMPACTING THE MIX

A. Provide sufficient number of rollers to obtain the required pavement density of 95 percent of the recorded laboratory specimen density.

B. Begin rolling operations as soon after placing mix when the mixture will bear weight of roller without excessive displacement.

C. Do not permit heavy equipment, including rollers, to stand on finished surface before it has thoroughly cooled or set.

D. Compact mixture with hot hand tampers or vibrating plate compactors in areas inaccessible to rollers.

E. Start rolling longitudinally at extreme lower side of sections and proceed toward center of pavement. Roll to slightly different lengths on alternate roller runs.

F. Do not roll centers of section first under any circumstances.

G. Breakdown Rolling:
   1. Accomplish breakdown or initial rolling immediately following rolling of transverse and longitudinal joints and outside edge.
   2. Operate rollers as close as possible to the paving machine without causing pavement displacement.
   3. Check crown, grade and smoothness after breakdown rolling.
   4. Repair displaced areas by loosening at once with lutes or rakes and filling, if required, with hot loose material before continuing rolling.

H. Second Rolling:
   1. Follow breakdown rolling as soon as possible, while mixture is hot and in condition for compaction.
   2. Continue second rolling until mixture has been thoroughly compacted.

I. Patching:
   1. Remove and replace defective areas.
   2. Cut-out and fill with fresh, hot asphalt concrete.
   3. Compact by rolling to specified surface density and smoothness.
   4. Remove deficient areas for full depth of course.
   5. Cut sides perpendicular and parallel to direction of traffic with edges vertical.
   6. Apply tack coat to exposed surfaces before placing new asphalt concrete mixture.

3.07 MANHOLE AND GATE VALVE PROTECTION

A. Cover manholes, catch basins and gate valves lying within the surface to be sealed to as to prohibit the bituminous material from being placed thereon.

B. Clean the surface of these structures following the application of the cover aggregate.

3.08 TOLERANCES

A. Flatness: Maximum variation of one-fourth (1/4") inch measured with a ten (10') foot straight edge.

B. Scheduled Compacted Thickness: Within one-fourth (1/4") inch.

C. Variation from True Elevation: Within one-fourth (1/4") inch.

3.09 ADJUSTING CASTINGS

A. Castings shall be raised after the bituminous base course is placed and prior to installing the wear course.

B. The bituminous base shall be saw cut around the cover plate. The bituminous aggregate and cover plate shall be removed.

C. The casting shall be set to final grade using adjusting rings and mortar. No blocks will be allowed.

D. The aggregate base shall be placed to the design depth around the casting. The bituminous patch mix shall be placed and tamped around the casting to bring the grade up to the surface of the bituminous base.

E. The final grade of castings in paved areas shall be one-fourth (1/4") inch to one-half (1/2") inch below the top of the completed wear course. The castings shall be set to the contour of the finished surface so that the required tolerance is uniform around the circumference of the casting. The one-fourth (1/4") inch to one-half (1/2") inch tolerance shall be measured at the immediate edge of the casting and no “straightedge” measurements shall be accepted. A plywood template, one-half (1/2") inch thick, shall be fastened to the top of all non-adjustable castings during placing and rolling

of the wear course to ensure that the required tolerances are met.

F. All final adjustments to the adjustable castings shall be made by means of the casting adjustment bolts.

G. All castings, which do not meet the required tolerances, shall be removed and re-adjusted at the Contractor's expense.

3.10 FIELD QUALITY CONTROL

A. Field testing and inspection shall be performed by qualified parties as specified herein and in accordance with the provisions of Division One Specifications.

B. A contractor hired testing laboratory shall perform tests as indicated below.
   1. Perform one sieve analysis on the Class 5 Aggregate Base in accordance with ASTM C136 for every 200 tons of Class 5 aggregate base or a minimum of one test.
   2. Visually field verify by test rolling and take two field density tests in accordance to ASTM D-1556 or D2922 for every 100 tons of Class 5 aggregate base placed or a minimum of four tests.
   3. Perform a minimum of two field density tests on the bituminous paving by taking four (4") inch diameter core samples for every 100 tons of bituminous pavement per course to determine the thickness and field density of cores in accordance with ASTM D2726.
      (a) Density: Minimum acceptable density of in-place material is 95 percent of the recorded laboratory specimen density - Marshall Design.

Asphalt paving densities below 95% will be accepted but will be paid for at a reduced price as follows and will require a negotiated Owner/Contractor extended warranty:

Field Density of Bituminous Pavement	Pay Percentage
94%	98%
93%	95%
92%	85%
91%	80%

(i) Asphalt paving densities more than or equal to five (5) percent below than the minimum specified will require bituminous pavement removal and replacement or a reduced payment percentage of seventy-five (75%) percent for material remaining in place, at the Owner's discretion and an Owner/Contractor negotiated extended warranty. Costs of repaving will be the responsibility borne entirely by the Contractor.

(ii) If field densities for pavements less than the specified minimum, the area of the substandard bituminous pavement shall be delineated on a plan sheet by interpolating the distance between test locations or outside pavement edges.

(b) Thickness: The in-place compacted thickness of the bituminous cores will not be acceptable and will be cause for rejection and replacement of the bituminous pavement if exceeding the following allowable variation from thickness specified herein.
  (i) Non-Wear Course: Plus, or minus one-fourth (±1/4") inch.
  (ii) Wear Course: Plus, or minus one-fourth (±1/4") inch.
  (iii) The overall thickness of all lifts shall not be less than three-eighths (3/8") inch of the total thickness specified.
  (iv) Aggregate Base Course: Plus, or minus one-half (±1/2") inch.
  (v) The bituminous pavement thickness indicated is the minimum thickness. No additional payment will be given for pavement that exceeds the indicated thickness.
  (vi) Where the average thickness of the bituminous cores is more than or equal to one-half (1/2") inch less than the minimum indicated, the Owner may elect not to accept the bituminous pavement. If the pavement is accepted by the Owner, payment will be at a reduced price that is proportional to the core thickness placed verse the minimum plan thickness indicated and will require a negotiated Owner/Contractor extended warranty.

(c) Repair holes from test specimens as specified for patching defective work.

C. Surface Smoothness:
1. The Contractor shall provide final surfaces of uniform texture, conforming to the required grades and cross-sections. Visually observe surface smoothness of finished surface. The finished surface shall be free of segregated, open and torn sections and shall be smooth and true to grade and cross section as shown on the Drawings.
2. Test finished surface of each asphalt concrete course for smoothness, using a ten (10') foot straightedge applied parallel to and at right angles in centerline of paved areas.
3. Check surfaced areas at intervals as directed by the Geotechnical Engineer.
4. Surfaces will not be acceptable if exceeding the following:
  (a) Base Course: One-fourth (1/4") inch in ten (10') feet.
  (b) Surface Course: Three-sixteenth (3/16") inch in ten (10') feet.

D. Flood Test:
1. After completion, flood the entire asphalt concrete paved area with water by use of a tank truck or hoses.
2. If a depression is found where water ponds to a depth of more than one-eighth (1/8") inch in six (6') feet, fill areas or otherwise correct to provide proper drainage.
3. Feather and smooth the edges of fill so that the joint between the fill and the original surface is invisible.

E. Grade Verification of Aggregate Base: A grade verification survey shall be performed after the aggregate base has been installed. This should be on the same grid system as specified in Section 31 2200 - Earthwork. The surveyor shall issue a letter certifying that the grades are within the specified tolerances.

F. Grade Verification of Bituminous Pavement: A grade verification survey shall be performed after the final lift of bituminous pavement has been completed. This will be on the same grid system as the grade verification of aggregate base. The surveyor shall issue a letter certifying that the grades are within the specified tolerances.

G. If tests indicate that the Work does not meet the specified requirements, remove the Work, replace and retest at no additional cost to the Owner.

3.11 CLEANING

A. After completion of paving operations, clean surfaces of excess or spilled asphalt materials to the satisfaction of the Landscape Architect/Engineer.

B. When marking paint is thoroughly dry, visually inspect the entire applications, and:
   1. Touch up paint as required to provide clean, straight lines and surfaces throughout.
   2. Using a permanently opaque paint identical in color to the surface on which the paint was applied, block out and eliminate all traces of splashed, tracked and/or spilled pavement marking paint from the background surfaces.

3.12 PROTECTION

A. The Contractor shall be required to protect all adjacent concrete surfaces from chipping and damage during the asphalt pavement placement.

B. Protect all concrete surfaces from staining or discoloration during placement of asphalt materials or vehicle trucking during construction.

C. Immediately after placement of asphalt paving, provide traffic cones, barricades and other devices needed to protect pavement and marking paint from mechanical injury for a minimum of seven (7) days.

END OF SECTION

THIS PAGE INTENTIONALLY LEFT BLANK

SECTION 32-1313
CONCRETE PAVING

PART 1. CONDITIONS OF THE CONTRACT

1.01 CONDITIONS OF THE CONTRACT

A. The Conditions of the Contract (General and other Conditions) and the General Requirements of these Specifications apply to all work of this Section.

PART 2. SCOPE

2.01 SCOPE OF WORK

A. The work covered by this Section includes furnishing all labor, equipment, materials, and performing all operations in connection with the construction of concrete curbs, surfacing and retaining walls in accordance with this Section of the specifications and the applicable drawings and subject to the terms and conditions of the contract.

PART 3. MATERIALS

3.01 CONCRETE MATERIALS

A. Concrete materials shall conform to ASTM Standard Specifications as follows:
   1. Portland Cement ASTM C150, Type 1
   2. Aggregate ASTM C33, maximum size of coarse aggregate shall be 3/4". Aggregate for handicapped ramp shall be 1/2".
   3. Water Clean, potable and free of deleterious amounts of acids, alkalis or organic materials.
   4. Air Entraining Agent Grace (DAREX AEA) or Protex Industries PROTEX AIR ENTRAINING SOLUTION conforming to ASTM C260.

B. The following mixes shall be used for the work:

ITEM	28-DAY STRENGTH	MAX. SLUMP	MIN. CEMENT CONT. SACKS PER CU. YD.
Curbs/ Surfacing	4,000 psi Air-Entrained	3"	6 1/4
Footings	3,000 psi Non-Air-Entrained	3”	5 1/2

C. Type - Concrete shall be working stress concrete.

D. Workability - Shall be such that the concrete will fill the forms without voids or honeycombs.

E. Only one brand of cement shall be used, unless written permission to use another brand is granted by the Landscape Architect.

F. Air-Entrained Concrete shall be used wherever concrete is exposed to the weather. Proportions of entrained air, as determined by ASTM C233, and C260 shall be as follows:
   1. 3/8" maximum size aggregate 6-8% entrained air
   2. 3/4" maximum size aggregate 5-7% entrained air

3.02 CONCRETE SURFACES

A. Concrete surfaces shall be poured to the dimensions indicated on the drawings.

B. Concrete surfaces shall be finished as indicated on the drawings.

3.03 CONCRETE CURBS

A. Concrete curbs shall be poured to the dimensions indicated on the drawings.

B. Concrete curbs shall be finished as indicated on the drawings.

3.04 EXPANSION JOINT MATERIAL

A. Expansion joint filler (foam type) shall be a non-staining, closed cell, expanded polyethylene foam; Dow Chemical ETHAFOAM or equal. Filler shall be 1/2" thick.

3.05 EXCAVATION

A. Excavation for the concrete curbs shall be made to the required depth below the finished surface as indicated on Drawings. The bottom of all excavations shall be compacted before concrete construction begins.

3.06 FORMS

A. The forms shall be of wood or metal, straight and of sufficient strength to resist springing or deviation during the process of depositing the concrete against them. Wood forms shall consist of two (2) inch surface plank; metal forms shall be of an approved section. They shall be so designed that devices for holding the form in place will not cause weakness in the concrete or subsequent failure. They shall be securely staked and braced, held firmly to the required line and grade and shall not permit leakage of mortar. Where alignment includes curbs, flexible strips or steel shall be used. Forms shall not be removed for at least fifteen (15) hours after the concrete has been placed. Care shall be exercised in removing the forms so that there shall be no chipping of the edges or marring of the surface of the curbs.

3.07 MIX DESIGN

A. The mixes shall be designed in accordance with ACI 301, Method 2. Base the design on the size of the mixer, cement and aggregate to be used. The 28-day laboratory strength shall be 15% greater than that specified for in-place working stress type concrete. Indicate the cement factor, water cement ratio and scale setting for the mixer. Proportion concrete materials in pounds and U. S. gallons.

3.08 CONCRETE MIXING

A. All concrete shall be Ready-Mix concrete, mixed and delivered in accordance with the requirements set forth in ASTM C94.

3.09 EXPANSION AND CONTRACTION JOINTS

A. Provide expansion joints where shown on the drawing. Contraction joints shall be tooled into curbs at a depth equal to 1/4 of the concrete thickness.

3.10 PLACING CONCRETE

A. Sufficient transporting equipment, which is clean and in good working order, shall be on hand before work has begun. Thoroughly clean forms before placing concrete. Dampen masonry and porous earth to be in contact with the concrete.

B. Placing of concrete shall conform to ACI 301 and ACI 641, "recommended practice for measuring, mixing and placing concrete". Place concrete as continuously as possible until pour is complete so that no concrete is placed against concrete that has attained its initial set, except at authorized

joints.

C. Place concrete as near as possible to its final position. Prevent segregation. Use chutes as necessary. The maximum free drop shall be 5 feet. Compact during placing with internal vibrators. Work around reinforcement, embedded fixtures and into form corners.

D. Concrete that has obtained its initial set shall not be placed in the forms and shall be discarded. Re-tempering of concrete will not be permitted.

3.11 CONCRETE CURING

A. Curing: Begin curing after finishing concrete, but not before free water has disappeared from concrete surface. Cure concrete by one or a combination of the following methods:

B. Moisture cure concrete by water, continuous fog spray, continuously wet absorptive cover, or by moisture retaining-cover curing. Keep surfaces continuously moist for not less than seven days.

C. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.12 WEATHER PROTECTION

A. During freezing and near freezing weather, concrete shall be protected from freezing, and minimum temperatures shall be maintained for curing in accordance with ACI 306, "Recommended Practice for Cold Weather Concreting". Do not place on frozen ground or in forms containing ice, snow or frost.

B. No concrete shall be placed without permission of the Landscape Architect when the outside temperature is above 85 degrees F or is expected to rise above 85 degrees F. If permission is granted, the concrete shall be placed and cured according to the requirements of ACI 605, "Recommended Practice for Hot Weather Concreting".

3.13 WORKMANSHIP

A. All work under this Section shall be performed by skilled mechanics and shall conform to a standard of excellence which shall be not less than the manufacturer's recommendations for the best practice and/or not less than the best practice in the trade.

3.14 TESTING

A. The Contractor shall cooperate with the testing laboratory in scheduling testing and securing necessary samples. The City will pay for initial test and the Contractor shall pay for any required retesting.

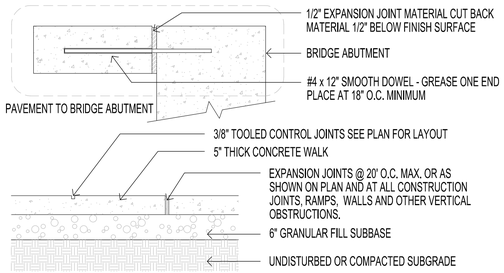
3.15 CLEAN UP

A. Upon completion of the work described herein, the Contractor shall remove all equipment, tools, excess materials and debris from the site.

B. Protect concrete from damage. Exclude traffic from pavement for at least 14 days after placement.

END OF SECTION

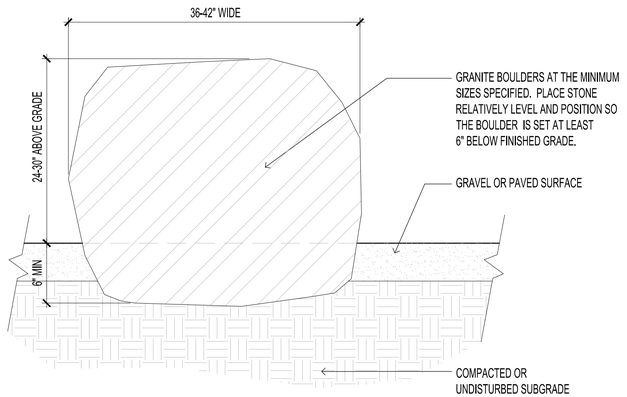
THIS PAGE INTENTIONALLY LEFT BLANK



NOTE: FINISH VARIES - REFER TO PLAN
NATURAL GRAY PAVING IS TO BE MEDIUM BROOM FINISH PERPENDICULAR TO PEDESTRIAN TRAFFIC

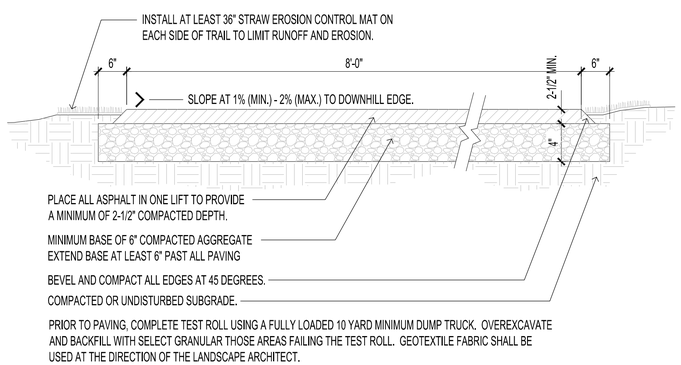
1 ESP1 **CONCRETE PAVING SECTION**

SCALE: 1/2" = 1'-0"



2 ESP1 **GRANITE BOULDER BARRIER**

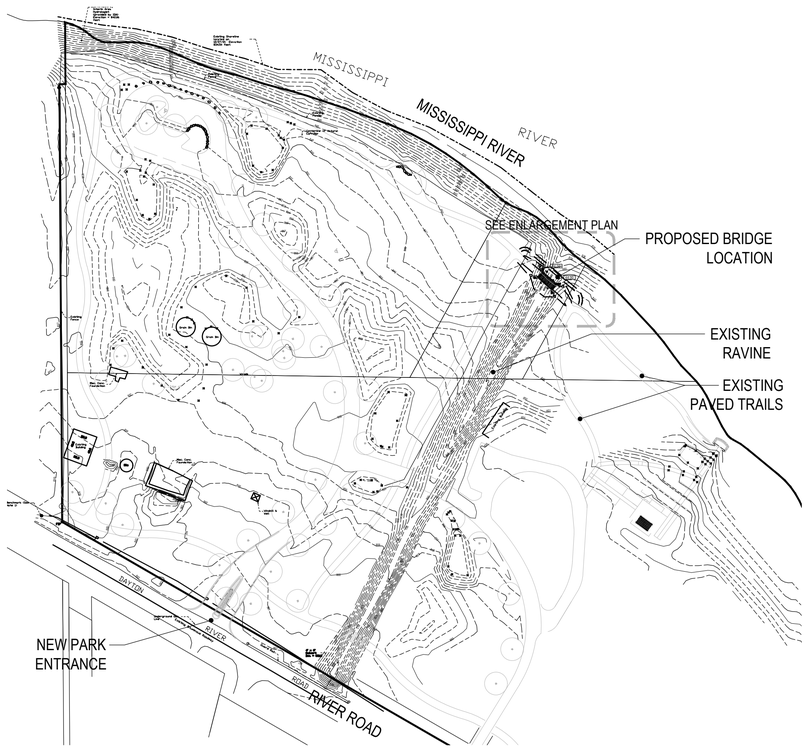
SCALE: 1 1/2" = 1'-0"



PRIOR TO PAVING, COMPLETE TEST ROLL USING A FULLY LOADED 10 YARD MINIMUM DUMP TRUCK. OVEREXCAVATE AND BACKFILL WITH SELECT GRANULAR THOSE AREAS FAILING THE TEST ROLL. GEOTEXTILE FABRIC SHALL BE USED AT THE DIRECTION OF THE LANDSCAPE ARCHITECT.

3 ESP1 **8' WIDE BITUMINOUS TRAIL PROFILE**

SCALE: 3/4" = 1'-0"



PARK PROJECT LOCATION MAP:

GENERAL NOTES:

WINTER CONDITIONS:
Construction for the bridge footings is expected to be completed in winter conditions to take advantage of low flow or frozen conditions in the ravine. The Contractor is responsble for all means and methods required to protect any construction work from adverse freezing conditions especially related to concrete placement. Backfill and compaction cannot be done with frozen material. Limit daily work activities to only material that can be placed in a reasonable timeframe without risk of freezing.

EXISTING CONDITIONS:
The existing topography shown is from a survey provided by an outside consultant. Minor adjustments to the existing topography may be encountered. The Contractor should field verify that grades are within normal tolerances after staking the proposed improvements. Any field adjustments must be brought the City's attention for review and consideration prior to making a field change.

EXISTING FEATURES:
Any existing features not scheduled for demolition shall be protected from damage.

EXISTING TREES:
Trees in the path of the bridge and trail corridors were removed under a prior construction contract. If the Contractor believes additional removals are necessary to complete the work, the Contractor shall mark the trees and coordinate & discuss with the City prior to removal. Any additional tree removal, if necessary, shall be considered incidental to the project. All tree debris, including removal of stumps, shall be removed from the site. On-site chipping is allowed.

LAYOUT AND DIMENSIONS:
The Contractor is responsible for the layout of the proposed improvements. Critical dimensions are indicated on the plans and details.

ADA ACCESSIBILITY:
The project has been designed to meet ADA accessibility guidelines. Ramped surfaces cannot exceed 5% and cross slopes cannot exceed 2%. Pay particular attention to the spot grades elevations shown on the Grading Plan and notify the City immediately if any concerns are encountered.

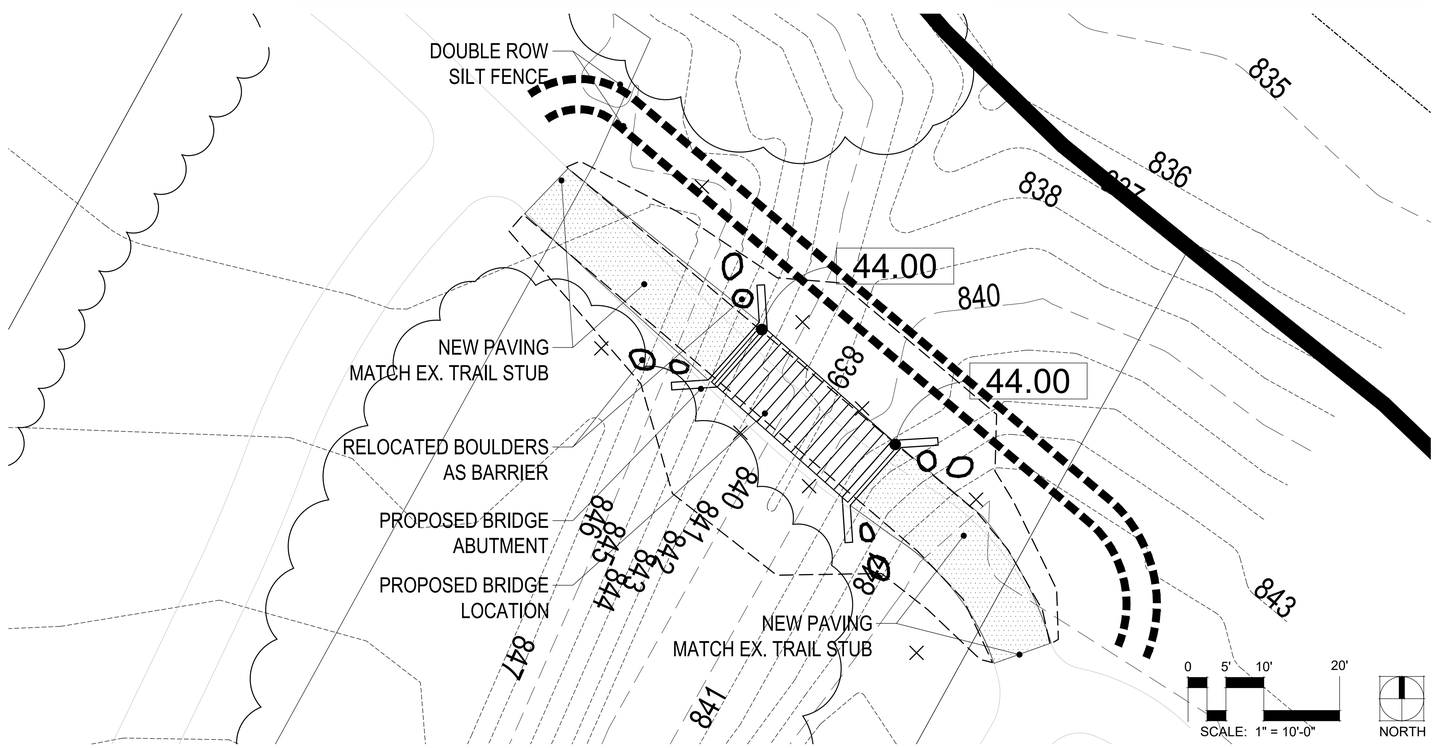
TRAIL PAVING:
The majority of the asphalt trail paving was done under a prior contract. The Contractor shall connect the bridge to existing trails using EITHER concrete or asphalt paving. Paving shall meet the requirements shown on the construction details.

BOULDER BARRIERS:
Large granite boulders are currently acting as pedestrian barriers at the end of the trail stubs. Those boulders shall be relocated to the edges of the bridge abutments to protect against pedestrians leaving the trail near the bridge abutments. The Contractor is responsible for placing the boulders in the new location as approved by the City.

EARTHWORK & GRADING:
Earthwork for this project is expected to be limited to excavation for the footings and subcut for any paved surfaces. Excess material can be spread on site in locations approved by the City. If adequate space is not available, excess materials must be removed from the property. Every effort will be made to find locations very close the project site for any excess material.

TURF ESTABLISHMENT:
Any disturbed areas must be seeded with appropriate vegetation mixture. Turf areas shall be at least 80% established before the project can be closed out. Re-seed as needed until adequate establishment is achieved.

EROSION CONTROL MAT:
ALL seeded areas shall have straw erosion control matting placed and staked over seeded areas. Netting shall be a Class 2 Double Net straw blanket construction type.



BRIDGE LAYOUT PLAN:

Inside Outside Architecture Inc.

14165 James Road - Suite 200A
Rogers, MN 55374

Phone: 612-237-8355
www.insideoutsidearchitecture.com

Project Name:

ELSIE STEPHENS MEMORIAL PARK PEDESTRIAN BRIDGE

Dayton, Minnesota

I hereby certify that this plan was prepared by me or under my direct supervision and that I am Registered Landscape Architect under the laws of the State of Minnesota.

Name: Paul Kangas
Registration #: 26017

Signature:

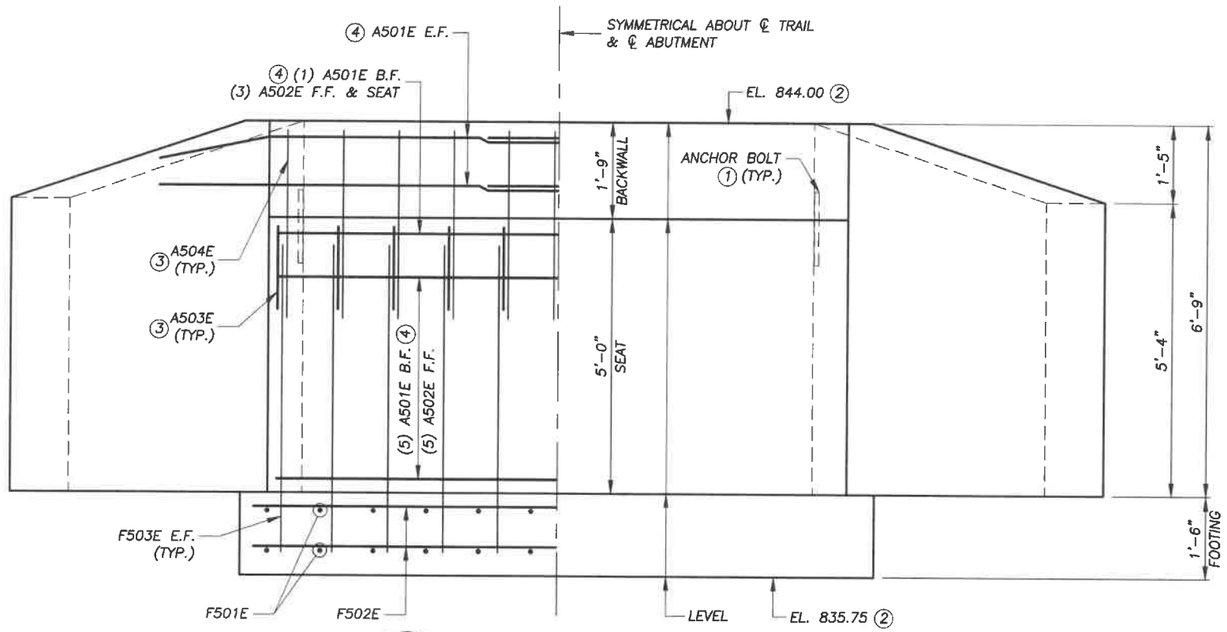
Project #:	24-101
Date:	10-8-2024
Revision:	
	--
Drawn By:	PK
Checked By:	PK

Sheet Title:

PEDESTRIAN BRIDGE PROJECT

Sheet Number:

ESP1



A/1 **ABUTMENT ELEVATION**

CONSTRUCTION NOTES

CONSTRUCTION OF ABUTMENTS IS GOVERNED BY AASHTO, STATE AND PROJECT SPECIFICATIONS AS DIRECTED BY THE PROJECT ENGINEER ON SITE.

DESIGN NOTES

ABUTMENTS ARE DESIGNED FOR THE FACTORED BEARING RESISTANCE SHOWN ON SHEET 5.

ABUTMENTS ARE DESIGNED FOR LATERAL AND VERTICAL PRESSURES DUE TO GRANULAR BACKFILL WITH AN EQUIVALENT FLUID WEIGHT OF 34.1 PCF AND 11.1 PCF RESPECTIVELY (DENSITY OF 120 PCF), A 1.0 FT LIVE LOAD SURCHARGE, AND THE SUPERSTRUCTURE LOADS SHOWN ON THE SUPERSTRUCTURE PLANS.

THE NOMINAL BEARING PRESSURE (q_n) OF 6 KSF IS BASED ON THE NET ALLOWABLE SOIL PRESSURE OF 3 KSF GIVEN IN THE GEOTECHNICAL ENGINEERING REPORT AND AN ASSUMED FACTOR OF SAFETY OF 2.

FOOTING BEARING SOILS SHALL BE INSPECTED BY A REGISTERED ENGINEER QUALIFIED IN SOIL ENGINEERING.

FILL IN FRONT OF AND BEHIND ABUTMENTS SHALL ALSO BE APPROVED BY THE SAME ENGINEER.

SEE GEOTECHNICAL ENGINEERING REPORT BY HAUGO GEOTECHNICAL SERVICES DATED SEPTEMBER 14, 2022 FOR COMPLETE RECOMMENDATIONS.

KEY NOTES

① SEE SUPERSTRUCTURE PLAN FOR ANCHOR BOLT INFORMATION. BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WHEN DRILLING HOLES FOR ANCHOR BOLTS, A MINIMUM CLEARANCE OF 2" IS REQUIRED.

② ABUTMENT ELEVATIONS SHOWN ARE BASED ON BID DOCUMENTS. CONTRACTOR SHALL VERIFY ALL ELEVATIONS AND PLACEMENT WITH ACTUAL SITE CONDITIONS PRIOR TO STARTING CONSTRUCTION. BOTTOM OF FOOTING SHOULD BE AT LEAST 5'-0" BELOW FINAL GRADE FOR FROST PROTECTION.

③ SPACED WITH F503E.

④ 2'-5" MIN. LAP. BETWEEN A501E.

NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

DO NOT SCALE DRAWINGS

ENGINEER'S SIGNATURE AND SEAL ARE TO ASSUME DESIGN RESPONSIBILITY FOR THE CONCRETE ABUTMENT AS SHOWN, INDEPENDENT OF ITS FINAL POSITION. THIS DOES NOT INCLUDE ANY DESIGN RESPONSIBILITY PERTAINING TO, BUT NOT LIMITED TO, PERMITTING PROCEDURES, BRIDGE POSITIONING, SOIL CONDITIONS (INCLUDING SUBSURFACE SOIL BEARING PRESSURE AND SOIL GLOBAL STABILITY), HYDRAULICS, EROSION PROTECTION, FROST PROTECTION, CONSTRUCTION, SUPERSTRUCTURE DIMENSIONS, UTILITY FACILITIES, ETC.

INDEX

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

JOHN SOWADA

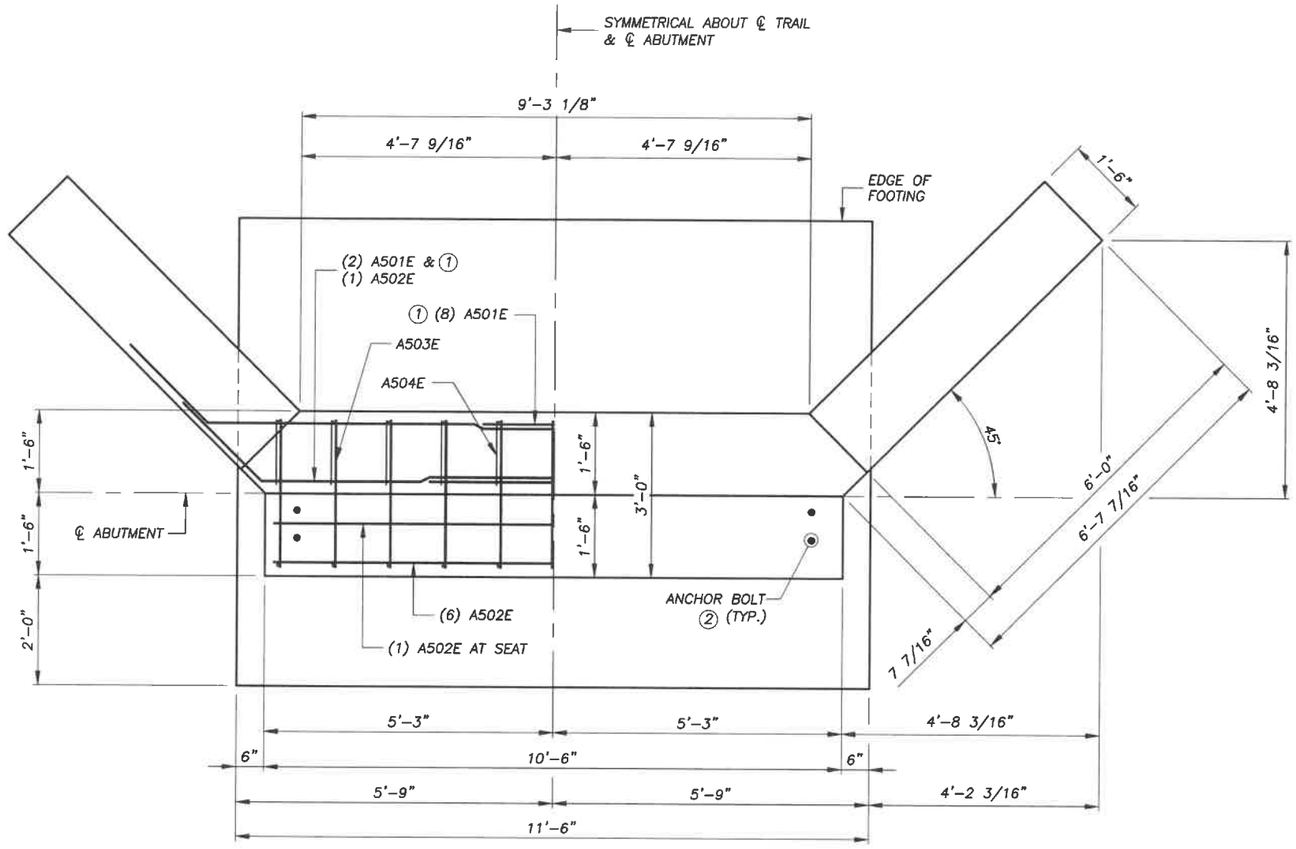
DATE 11-15-2022 LIC. NO. 45936

SHEET TITLE:
ABUTMENT ELEVATION

ABUTMENT PLANS
24'-0" PEDESTRIAN BRIDGE
NORTH BRIDGE – ELSIE STEPHENS PARK
PARK IMPROVEMENT PROJECT
DAYTON, MINNESOTA

Wheeler
9531 West 78th Street – Suite 100
Eden Prairie, MN 55344
952-929-7854
info@wheeler1892.com
wheeler1892.com

DATE: 11/10/22		TRACKING NO. T22946	SHEET NO.
CHK: JAS	DWN: NBB	ORDER NO. W15070N	1 OF 6



A/2 **ABUTMENT PLAN**

KEY NOTES

① 2'-5" MIN. LAP. BETWEEN A501E.

② SEE SUPERSTRUCTURE PLAN FOR ANCHOR BOLT INFORMATION. BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WHEN DRILLING HOLES FOR ANCHOR BOLTS, A MINIMUM CLEARANCE OF 2" IS REQUIRED.

NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

DO NOT SCALE DRAWINGS

CERTIFIED BY: _____
PROFESSIONAL ENGINEER/JOHN SOWADA

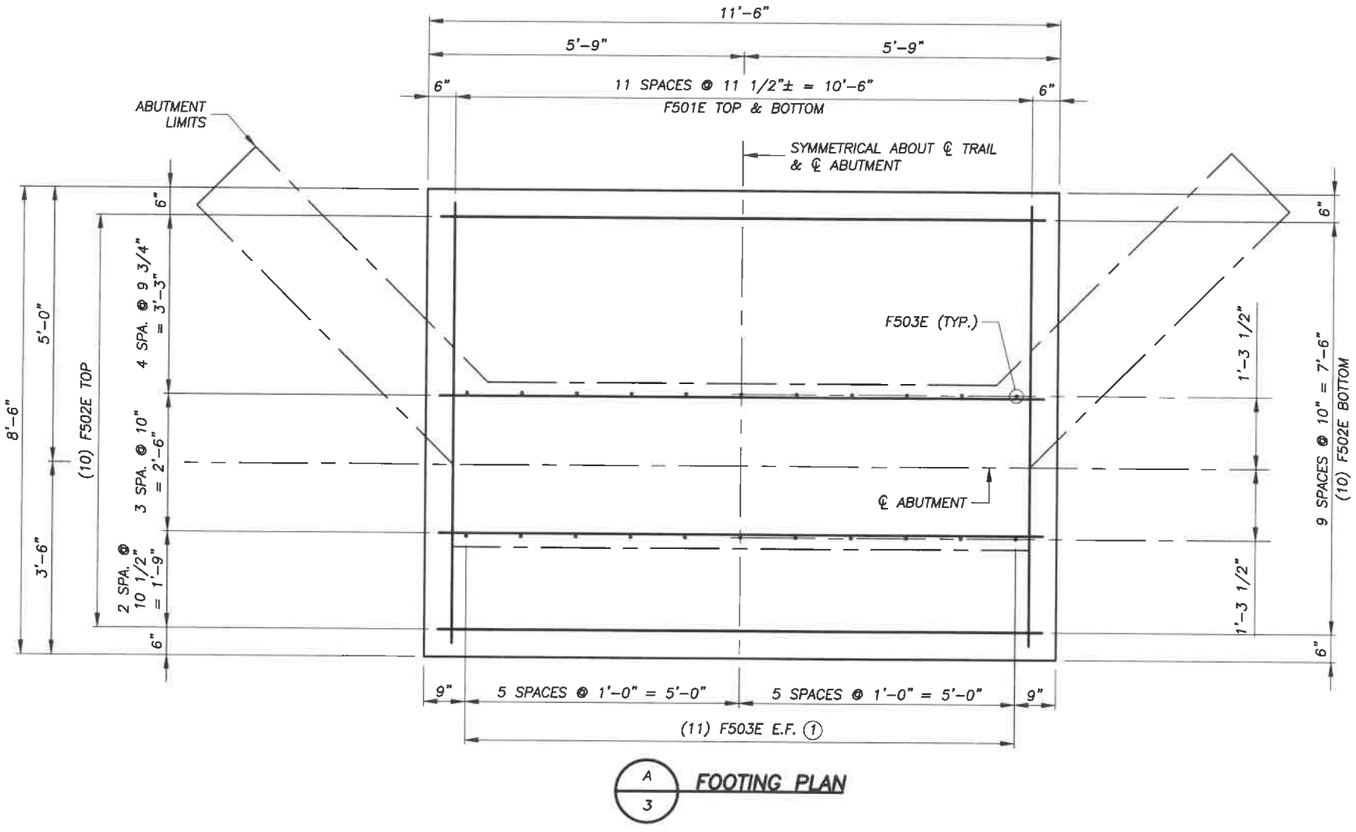
LIC. NO. 45936 11-15-2022
DATE

SHEET TITLE: ABUTMENT PLAN

ABUTMENT PLANS
24'-0" PEDESTRIAN BRIDGE
NORTH BRIDGE – ELSIE STEPHENS PARK
PARK IMPROVEMENT PROJECT
DAYTON, MINNESOTA

Wheeler
9531 West 78th Street – Suite 100
Eden Prairie, MN 55344
952-929-7854
info@wheeler1892.com
wheeler1892.com

DATE: 11/10/22		TRACKING NO. T22946	SHEET NO. 2 OF 6
CHK: JAS	DWN: NBB	ORDER NO. W15070N	



A/3 **FOOTING PLAN**

KEY NOTES

① 4'-6" PROJECTION ABOVE FOOTING

NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

DO NOT SCALE DRAWINGS

CERTIFIED BY: _____ PROFESSIONAL ENGINEER/JOHN SOWADA

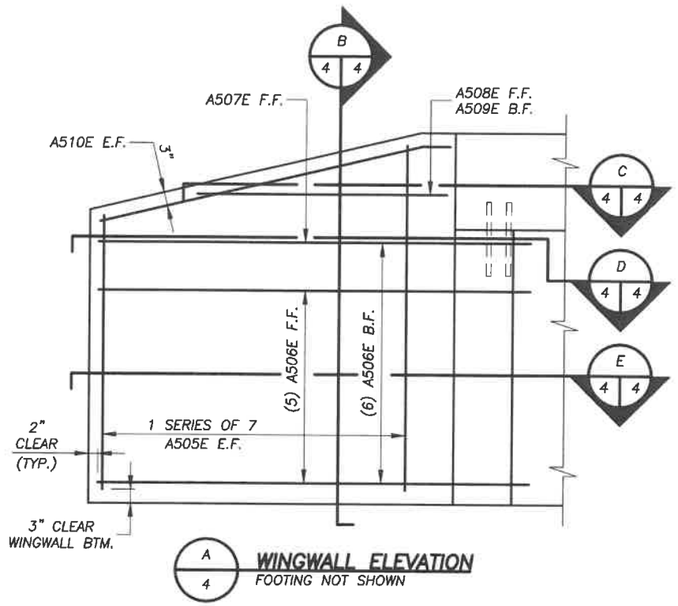
LIC. NO. 45936 11-15-2022 DATE

SHEET TITLE: FOOTING PLAN

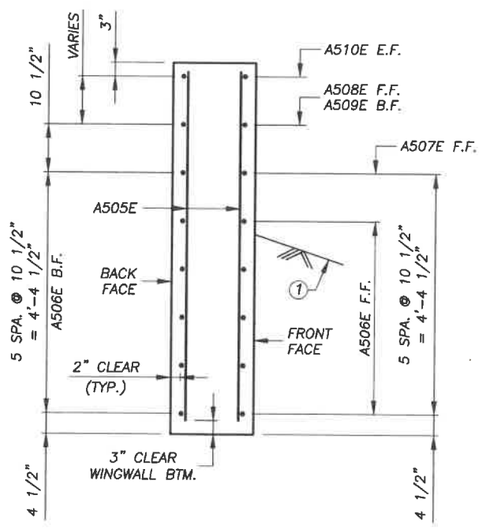
ABUTMENT PLANS
24'-0" PEDESTRIAN BRIDGE
NORTH BRIDGE – ELSIE STEPHENS PARK
PARK IMPROVEMENT PROJECT
DAYTON, MINNESOTA

Wheeler
9531 West 78th Street – Suite 100
Eden Prairie, MN 55344
952-929-7854
info@wheeler1892.com
wheeler1892.com

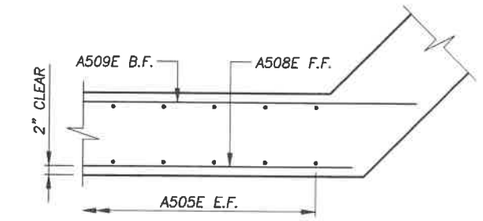
DATE: 11/10/22	TRACKING NO. T22946	SHEET NO.
CHK: JAS / DWN: NBB	ORDER NO. W15070N	3 OF 6



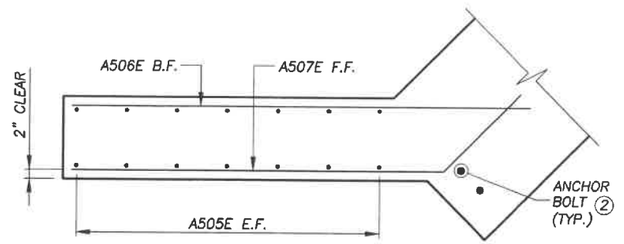
A 4 **WINGWALL ELEVATION**
FOOTING NOT SHOWN



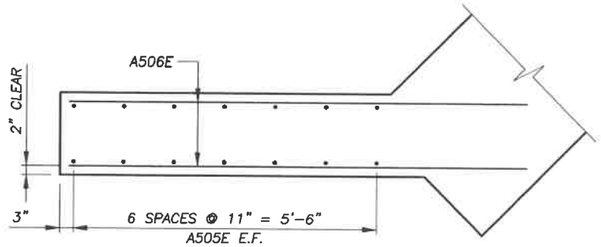
B 4 4 **SECTION THRU WINGWALL**
FOOTING NOT SHOWN



C 4 4 **SECTION THRU WINGWALL AT BACKWALL**



D 4 4 **SECTION THRU WINGWALL AT ANCHOR BOLTS**



E 4 4 **SECTION THRU WINGWALL BELOW SEAT**

KEY NOTES

1. PROPOSED GROUNDLINE. GROUNDLINE SHALL BE PROPERLY PROTECTED FROM EROSION.
2. SEE SUPERSTRUCTURE PLAN FOR ANCHOR BOLT INFORMATION. BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WHEN DRILLING HOLES FOR ANCHOR BOLTS, A MINIMUM CLEARANCE OF 2" IS REQUIRED.

NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

DO NOT SCALE DRAWINGS

CERTIFIED BY: _____
PROFESSIONAL ENGINEER/JOHN SOWADA

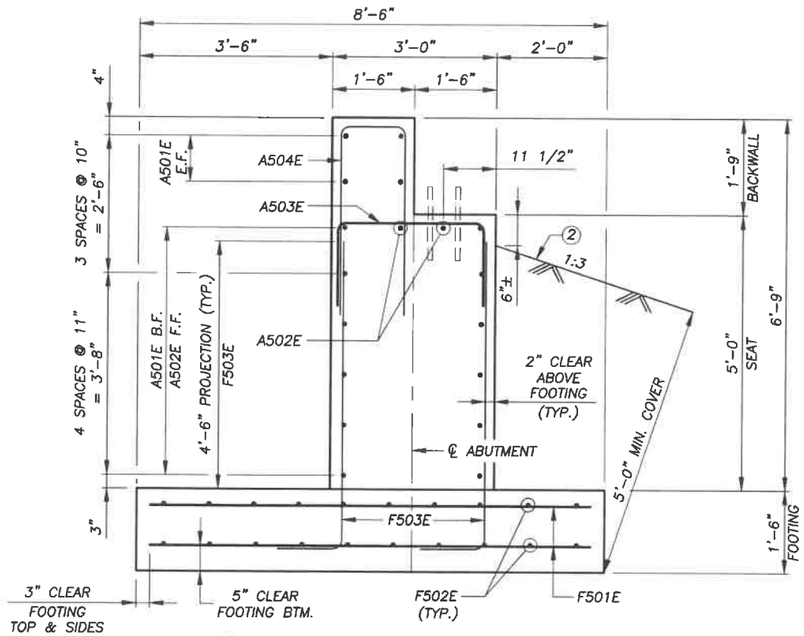
LIC. NO. 45936 11-15-2022
DATE

SHEET TITLE: **WINGWALL DETAILS**

ABUTMENT PLANS
24'-0" PEDESTRIAN BRIDGE
NORTH BRIDGE – ELSIE STEPHENS PARK
PARK IMPROVEMENT PROJECT
DAYTON, MINNESOTA

Wheeler
9531 West 78th Street – Suite 100
Eden Prairie, MN 55344
952-929-7854
info@wheeler1892.com
wheeler1892.com

DATE: 11/10/22	TRACKING NO. T22946	SHEET NO.
CHK: JAS	DWN: NBB	ORDER NO. W15070N	4 OF 6



A/5 **SECTION THRU ABUTMENT**

(1)(4)

BILL OF REINFORCEMENT ~ 2 FOOTINGS				
BAR	NO.	LENGTH	SHAPE	LOCATION
F501E	48	8'-0"	STRT.	FOOTING ~ TRANSVERSE
F502E	40	11'-0"	STRT.	FOOTING ~ LONGITUDINAL
F503E	44	6'-9"	BENT	FOOTING ~ DOWEL

(1)(4)

BILL OF REINFORCEMENT ~ 2 ABUTMENTS				
BAR	NO.	LENGTH	SHAPE	LOCATION
A501E	40	9'-7"	BENT	HORIZONTAL
A502E	16	10'-2"	STRT.	HORIZONTAL F.F. & SEAT
A503E	22	5'-8"	BENT	SEAT TIE
A504E	22	8'-0"	BENT	BACKWALL TIE
A505E	8 SER. OF 7	FROM 4'-11" TO 6'-3"	STRT.	WINGWALL ~ VERTICAL
A506E	44	8'-4"	STRT.	WINGWALL ~ HORIZONTAL
A507E	4	8'-9"	BENT	WINGWALL ~ HORIZONTAL
A508E	4	6'-3"	STRT.	WINGWALL ~ HORIZONTAL
A509E	4	7'-5"	STRT.	WINGWALL ~ HORIZONTAL
A510E	8	6'-6"	BENT	WINGWALL ~ DIAGONAL

(1) (3) (4)	SUMMARY OF QUANTITIES ~ 2 ABUTMENTS	
(3)	CONCRETE	33 CU. YD.
(4)	REINFORCEMENT	2,910 POUND

KEY NOTES

(1) SUMMARY OF QUANTITIES IS FOR THE CONTRACTOR'S CONVENIENCE ONLY. ADDITIONAL QUANTITIES, INCLUDING BUT NOT LIMITED TO, ADDITIONAL REINFORCEMENT, CONCRETE, AND AGGREGATE BACKFILL WILL BE REQUIRED DEPENDING ON FOOTING ELEVATION PLACEMENT.

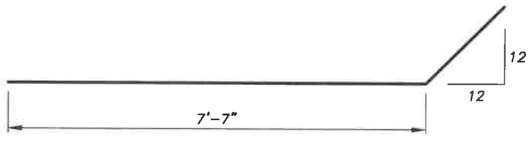
(2) PROPOSED GROUNDLINE. GROUNDLINE SHALL BE PROPERLY PROTECTED FROM EROSION.

(3) 4000 PSI NORMAL WEIGHT, AIR-ENTRAINED CONCRETE. CONCRETE CONSTRUCTION, INCLUDING BY NOT LIMITED TO, CONCRETE & REBAR MATERIAL PROPERTIES, MIX DESIGN, QUALITY CONTROL, CONCRETE PLACEMENT, AND REBAR PLACEMENT SHALL BE IN ACCORDANCE WITH AAASHTO, STATE, AND PROJECT SPECIFICATIONS, AS DIRECTED BY THE PROJECT ENGINEER AT THE SITE.

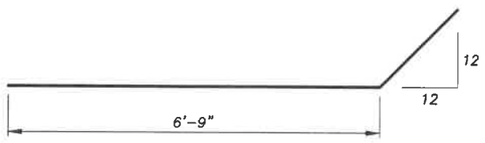
(4) ALL REINFORCEMENT STEEL SHALL BE GRADE 60 AND SHALL BE EPOXY COATED. THE FIRST DIGIT OF EACH BAR MARK INDICATES BAR SIZE IN ENGLISH UNITS.

WEST & EAST ABUTMENTS SPREAD FOOTING LOAD DATA	
* FACTORED DESIGN BEARING PRESSURE	1.99 KIPS/SQ. FT.
EFFECTIVE WIDTH B' (PERPENDICULAR TO ABUTMENT)	7.71 FT.
EFFECTIVE LENGTH L' (PARALLEL TO ABUTMENT)	11.50 FT.
FACTORED BEARING RESISTANCE $\varphi_b * q_n$	2.70 KIPS/SQ. FT.

*BASED ON STRENGTH I LOAD COMBINATION.

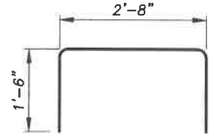


A501E

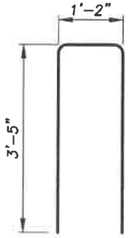


A507E

F503E



A503E



A504E

A510E

NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

DO NOT SCALE DRAWINGS

CERTIFIED BY: _____ PROFESSIONAL ENGINEER/JOHN SOWADA

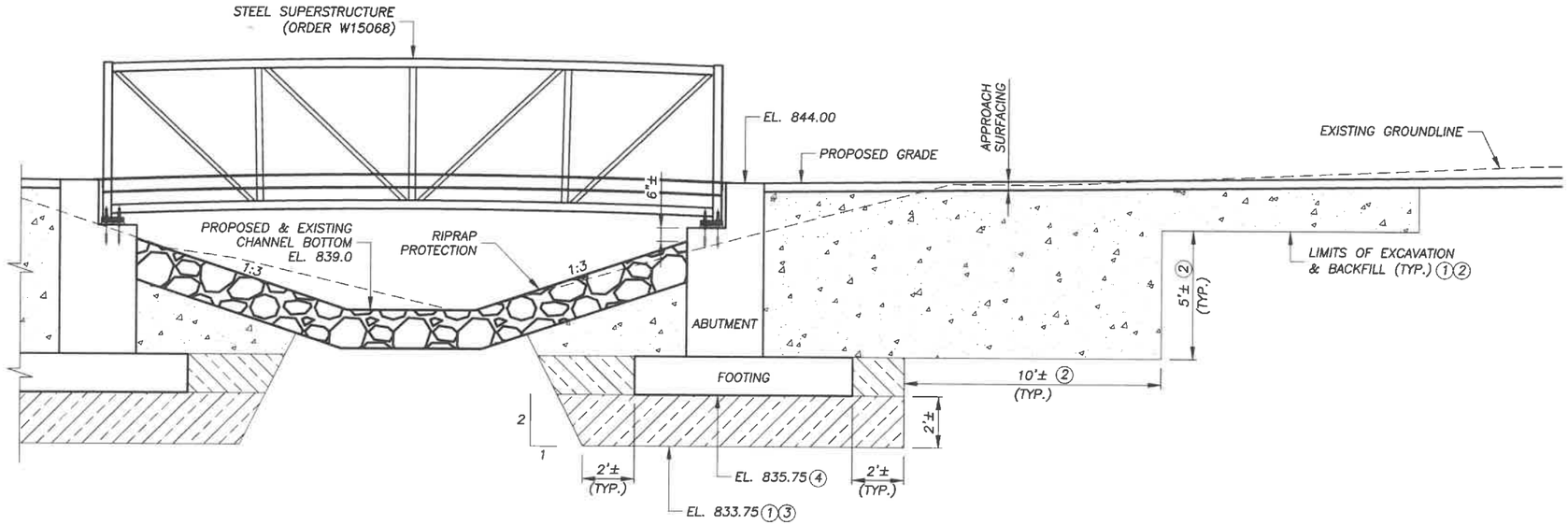
LIC. NO. 45936 11-15-2022 DATE

SHEET TITLE: ABUTMENT DETAILS

ABUTMENT PLANS
24'-0" PEDESTRIAN BRIDGE
NORTH BRIDGE – ELSIE STEPHENS PARK
PARK IMPROVEMENT PROJECT
DAYTON, MINNESOTA

Wheeler
9531 West 78th Street – Suite 100
Eden Prairie, MN 55344
952-929-7854
info@wheeler1892.com
wheeler1892.com

DATE: 11/10/22	TRACKING NO. T22946	SHEET NO.
CHK: JAS / DWN: NBB	ORDER NO. W15070N	5 OF 6



A/6 **EXCAVATION & BACKFILL DETAILS**
TYPICAL AT EACH ABUTMENT

NOTES

TEMPORARY SHORING MAY BE REQUIRED DURING EXCAVATION.

NO FILL SHALL BE PLACED ON FROZEN SOIL AND NO FROZEN SOIL SHOULD BE USED AS BACKFILL.

ENGINEERED BACKFILL SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT.

BACKFILL TYPE "A" SHALL BE FINE FILTER AGGREGATE IN ACCORDANCE WITH MnDOT SPECIFICATIONS. MnDOT SPEC. 3149.2I.2 SHALL BE USED FOR COMPACTED ENGINEERED BACKFILL, UNLESS NOTED OTHERWISE.

BACKFILL TYPE "B" BEHIND ABUTMENTS SHALL BE STRUCTURAL BACKFILL, PER MnDOT SPEC. 3149.2D.2, UNLESS NOTED OTHERWISE.

BACKFILL DENSITY SHALL BE ATTAINED BY THE QUALITY COMPACTION METHOD IN ACCORDANCE WITH MnDOT SPEC. 2106.3G.2.

KEY NOTES

1. REMOVE SANDY SILTS AND REPLACE WITH COMPACTED ENGINEERED BACKFILL 7 FEET BELOW GROUND LINE OR 2 FEET BELOW FOOTING.
2. BACKFILL AND FILL MUST BE "BENCHED" AS SHOWN AND REQUIRED BY THE GEOTECHNICAL ENGINEER. 10 FEET MINIMUM HORIZONTAL & 5 FEET MAXIMUM VERTICAL.
3. TO ACHIEVE REQUIRED BACKFILL DENSITY, DEWATERING MAY BE REQUIRED TO A MINIMUM OF 2 FEET BELOW LOWEST EXCAVATION. GROUNDWATER ELEVATION AT THIS SITE AT TIME OF SOIL BORINGS WAS BETWEEN EL. 835.0 AND EL. 836.5. MISSISSIPPI RIVER TOP OF WATER EL. 834.5± IN DECEMBER 2021.
4. 20 FEET LEFT & RIGHT OF ℄ TRAIL.

APPROXIMATE LIMITS OF BACKFILL TYPE "A" 1 BEFORE POURING FOOTING

APPROXIMATE LIMITS OF BACKFILL TYPE "A" 1 AFTER POURING FOOTING

APPROXIMATE LIMITS OF BACKFILL TYPE "B" 2 AFTER POURING ABUTMENT & WINGWALLS

NOTE:
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

DO NOT SCALE DRAWINGS

CERTIFIED BY: _____ PROFESSIONAL ENGINEER/JOHN SOWADA

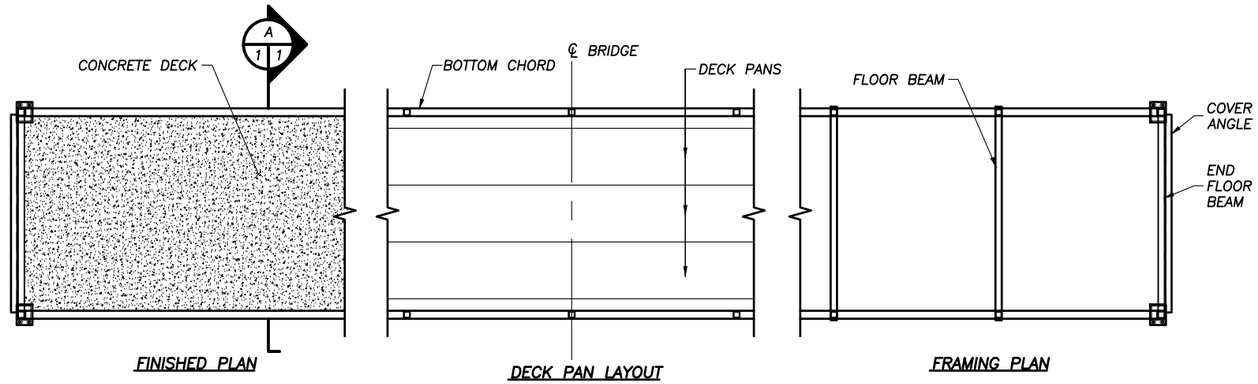
LIC. NO. 45936 DATE 11-15-2022

SHEET TITLE: SITE DETAILS

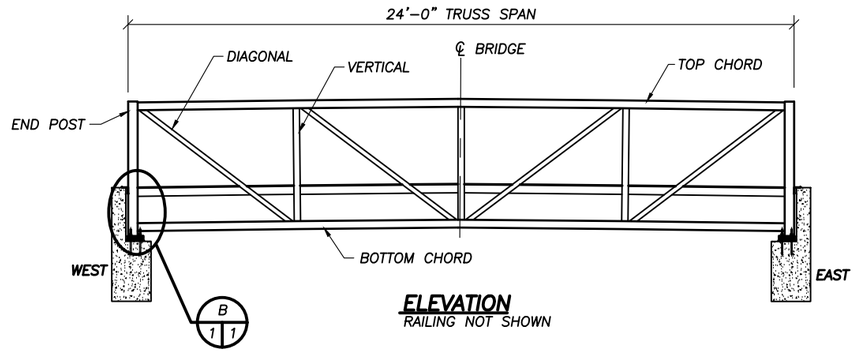
ABUTMENT PLANS
24'-0" PEDESTRIAN BRIDGE
NORTH BRIDGE – ELSIE STEPHENS PARK
PARK IMPROVEMENT PROJECT
DAYTON, MINNESOTA

Wheeler
9531 West 78th Street – Suite 100
Eden Prairie, MN 55344
952-929-7854
info@wheeler1892.com
wheeler1892.com

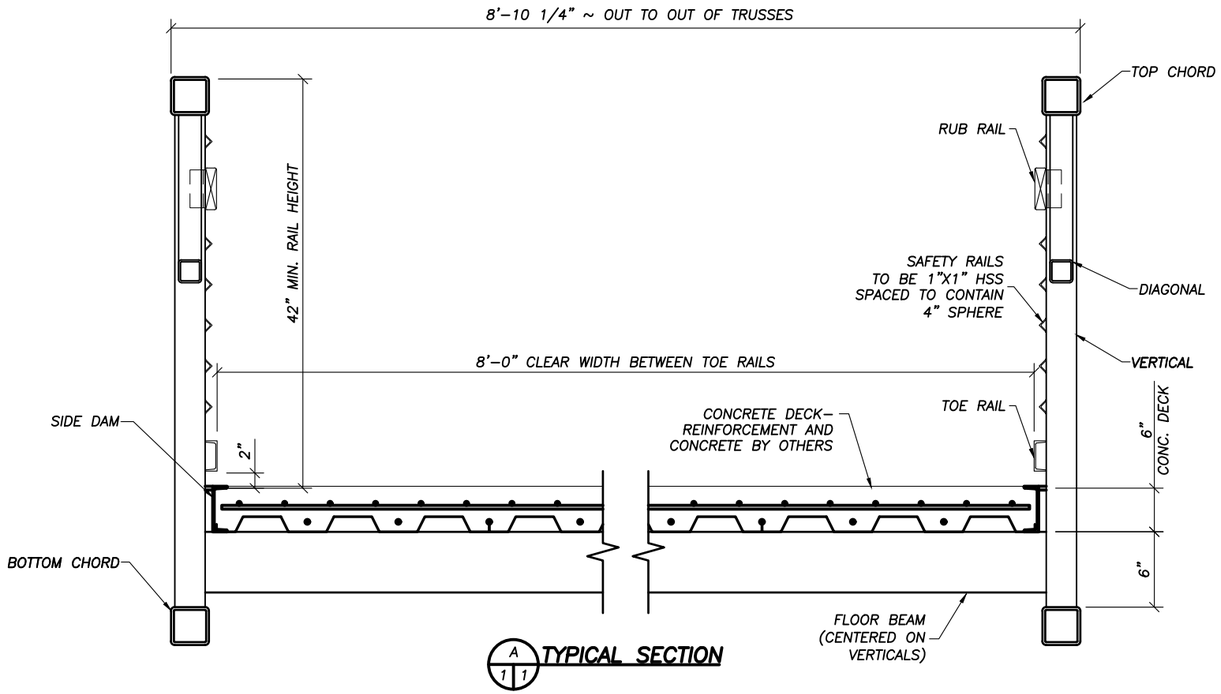
DATE: 11/10/22	TRACKING NO. T22946	SHEET NO.
CHK: JAS / DWN: NBB	ORDER NO. W15070N	6 OF 6



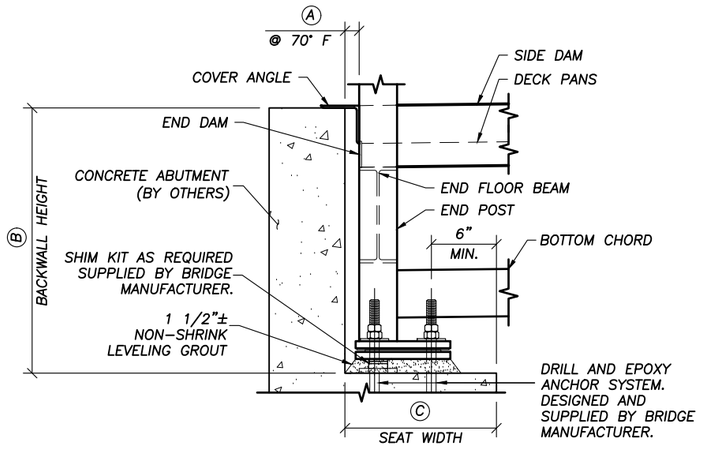
PLAN



ELEVATION
RAILING NOT SHOWN



TYPICAL SECTION



BEARING DETAIL
AT ABUTMENT
BOTH ENDS EXPANSION

DRAWINGS ARE NOT TO SCALE

Wheeler

952–929–7854
info@wheeler1892.com
wheeler1892.com

9531 West 78th Street
Suite 100
Minneapolis, MN 55344

STRUCTURE LAYOUT CHART		
(A) BACKWALL TO END POST GAP	(B) BACKWALL HEIGHT	(C) SEAT WIDTH
2"	21"	18"

DIMENSIONS ARE PRELIMINARY AND SUBJECT TO FINAL DESIGN

PEDESTRIAN BRIDGE DETAILS

NORTH BRIDGE – ELSIE STEPHENS PARK

PARK IMPROVEMENT PROJECT

DAYTON, MINNESOTA

V 1.0 – CAD Details – Pratt Truss – Concrete Deck

HAUGO GEOTECHNICAL SERVICES

September 14, 2022 Project Number: 22-0663

Mr. Brooks Duesterhoeft
Parkstone Contracting, LLC
8270 Foothill Road S
Cottage Grove, MN 55016

RE: Geotechnical Exploration Report, Proposed Pedestrian Bridge, Elsie Stephens Park, 14430 Dayton River Road, Dayton, Minnesota

Dear Mr. Duesterhoeft;

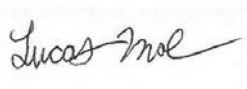
We have completed the geotechnical exploration for the proposed pedestrian bridge at the Elsie Stephens Park in Dayton. Two standard penetration test boring were completed, one at each abutment, that encountered topsoil overlying sandy native alluvial soils that extended to the termination depth of the borings. The soils, in our opinion are generally suitable for foundation support and the slope stability analysis yielded a factor of safety of 1.3 or greater. The attached geotechnical report provides a summary of our procedures results and provides recommendations for supporting the proposed bridge on typical frost depth foundations or helical anchors.

Thank you for the opportunity to assist you on this project. If you have any questions or need additional information, please contact Lucas Mol or Paul Gionfriddo at 612-729-2959.

Sincerely,

Haugo GeoTechnical Services, LLC

Paul Gionfriddo, P.E.
Senior Engineer



Lucas Mol
Project Manager

GEOTECHNICAL EXPLORATION REPORT

PROJECT:

Proposed Pedestrian Bridge
Elsie Stephens Park
14430 Dayton River Road, Dayton, Minnesota

PREPARED FOR:

Parkstone Contracting, LLC
8270 Foothill Road S
Cottage Grove, MN 55016

PREPARED BY:

Haugo GeoTechnical Services, LLC
2825 Cedar Avenue S
Minneapolis, MN 55407

Haugo GeoTechnical Services Project: 22-0663

September 14, 2022

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

Paul Gionfriddo, P.E.
Senior Engineer
License Number: 23093

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Project Description

Parkstone Contracting, LLC (Parkstone) is preparing to construct a pedestrian bridge within Elsie Stephens Park in Dayton, Minnesota. The proposed bridge is part of an overall park improvement project that will include but not be limited to; new trails, park roads, sport court(s), stormwater management system improvements and fencing.

Parkstone retained Haugo Geotechnical Services to perform soil borings and complete a geotechnical exploration report with to evaluate soil and groundwater conditions with respect to foundation design of the pedestrian bridge and associated abutments.

1.2 Purpose

The purpose of this geotechnical exploration was to characterize subsurface soil and groundwater conditions and provide recommendations for pedestrian bridge foundation design and construction.

1.3 Site Description

Elsie Stephens Park is located at 14430 Dayton River Road and is owned by the City of Dayton. The park is comprised of at least 4 parcel that total about 21 acres. Based on a brief review of historical aerial photographs available on Google Earth it appears that a farmstead and the associated residential structures existed on a portion of the park. Some or all of these structures appear to have been removed fairly recently.

The overall par property contains wooded areas as well as open spaces. A ravine bisects a portion of the park that provides drainage for surface water runoff to the Mississippi River.

The proposed pedestrian bridge will be located approximately parallel to the Mississippi River and will span the ravine. The ground surface across the park had a general downward trend toward the Mississippi River with ground surface elevations ranging from about 860 along Dayton River Road to about 834 ½ at the Mississippi River. The soil borings completed for this project were taken at or near the proposed bridge abutments. The ground surface elevations at the boring locations were estimated to be near 845 feet above mean seal level.

1.4 Scope of Services

Our services were completed in accordance with our cost estimate dated July 26, 2022 and as requested by Parkstone. Our scope of services was limited to the following tasks:

- Completing two (2) Standard Penetration Test (SPT) borings each extending to a nominal depth of 40 feet.
- Sealing the borings in accordance with Minnesota Department of Health requirements.
- Visually classifying samples recovered from the soil borings.
- Performing laboratory tests on selected samples.

- Preparing soil boring logs describing the soil types/classifications and results of water level measurements.
- Performing slope stability analysis.
- Preparing an engineering report summarizing soil and groundwater conditions and providing recommendations for bridge foundation design and construction.

1.5 Documents Provided

We were provided a 137-page project manual (Plans and Specifications) titled "City of Dayton Parks & Recreation - 2022 Parks Improvement Package" that was prepared by Inside Outside Architecture, Inc. and dated March 31, 2022. Briefly the project manual included plans and specifications for Donahue Nells Neighborhood Park, Elsie Stephens Park and Hayden hills Neighborhood Park. The location of the proposed bridge was shown on sheet ESP-1 included in the plans and specifications.

1.6 Locations and Elevations

The soil boring locations were selected HGTS based on the anticipated location of the bridge abutments and site access. The approximate locations of the soil borings are shown on Figure 1, "Soil Boring Location Sketch", in the Appendix. The sketch was prepared by HGTS using - plan sheet ESP-1 provided as a base.

We attempted to obtain the ground surface elevations at the boring locations using GPS measuring equipment. Our GPS equipment could not capture a satellite signal which we assumed was due to tree cover and because of that we estimated the elevations at the boring location based on topographic information provided on Exhibit D.

The elevations and locations referenced in this report should be considered approximate and should be verified by a registered land surveyor.

2.0 FIELD PROCEDURES

The 2 SPT borings were advanced on August 19th & 20th, 2022 by HGTS with a rotary drilling rig, using continuous flight augers to advance the boreholes. Representative samples were obtained from the borings, using the split-barrel sampling procedures in general accordance with ASTM Specification D-1586. In the split-barrel sampling procedure, a 2-inch O.D. split-barrel spoon is driven into the ground with a 140-pound hammer falling 30 inches. The number of blows required to drive the sampling spoon the last 12 inches of an 18-inch penetration is recorded as the standard penetration resistance value, or "N" value. The results of the standard penetration tests are indicated on the boring logs. The samples were sealed in containers and provided to HGTS for testing and soil classification.

A field log of each boring was prepared by HGTS. The logs contain visual classifications of the soil materials encountered during drilling, as well as the driller's interpretation of the subsurface conditions between samples and water observation notes. The final boring logs

included with this report represents an interpretation of the field logs and include modifications based on visual/manual method observation of the samples.

The soil boring logs, general terminology for soil description and identification, and classification of soils for engineering purposes are also included in the appendix. The soil boring log identify and describe the materials encountered, the relative density or consistency based on the Standard Penetration resistance (N-value, "blows per foot") and groundwater observations.

The strata changes were inferred from the changes in the samples and auger cuttings. The depths shown as changes between strata are only approximate. The changes are likely transitions, variations can occur beyond the location of the boring.

3.0 RESULTS

3.1 Geologic Overview

According to published information the surficial geology within Elsie Stephens Park consists of Middle Terrace Deposits composed of sand, gravelly sand and loamy sand. The terrace deposits are underlain by Des Moines Lobe glacial till, Superior Lobe glacial till and bedrock. and silt on the floodplains (Minnesota Geological Survey, Geologic Atlas of Hennepin County, 1989, County Atlas Series, Atlas C-47, Plate 3).

Bedrock below the site is reported to consist of the St. Lawrence and Franconia Formation. The St. Lawrence formation consists of dolomitic siltstone and shale while the Franconia formation is reported to consist of fine-grained glauconitic sandstone and shale. The St. Lawrence and Franconia Formation is reported to be about 185 feet thick (Minnesota Geological Survey, Geologic Atlas of Hennepin County, 1989, County Atlas Series, Atlas C-4, Plate 9).

Bedrock is anticipated to lie at elevations ranging from about 650 to 700 feet above mean sea level (msl) corresponding to about 150 to 200 feet below ground surface (bgs) (Minnesota Geological Survey, Geologic Atlas of Hennepin County, 1989, County Atlas Series, Atlas C-47, Plate 4).

3.2 Soil Conditions

Soil conditions encountered in the borings was similar and consisted of about 2 feet of topsoil overlying native alluvial soils (Terrace Deposits) that extended to the termination depths of the borings.

The topsoil was composed of sandy silt that contained some roots and was black in color.

The alluvial soil consisted of; silty sand, sandy silt and poorly graded sand. These soils were generally consistent with those described in the Geologic Atlas of Hennepin County and as presented in Section 3.1, above.

Penetration resistance values (N-Values) shown as blows per foot (bpf) on the boring logs within sandy alluvium ranged from 2 to 27 bpf indicating these soils had a loose to medium dense relative density. Soil boring SB-1 met with refusal at about 41 feet below the ground surface. The cause for refusal is unknown but is likely due to gravel, cobbles or boulders.

3.3 Groundwater

Groundwater was encountered in the borings at depths ranging from about 10 feet below the ground surface corresponding to elevations ranging from about 835 to 836 ½ feet. Water levels are summarized in Table 1.

Table 1. Summary of Groundwater Levels

Boring Number	Estimated Surface Elevation (feet)*	Approximate Depth to Groundwater (feet)**	Estimated Groundwater Elevation (feet)**
SB-1	845	10	835
SB-2	846 ½	10	836 ½

* = Ground surface elevations were estimated. ** = Depths and elevations were rounded to the nearest ½ foot. NE = Not encountered.

Water levels were measured on the dates as noted on the boring logs and the period of water level observations was relatively short. The borings were completed near the Mississippi River and we anticipate that water levels below the site are likely associated with water levels in the river. We further anticipate that water levels will fluctuate with river levels.

Groundwater monitoring wells or piezometers would be required to more accurately determine water levels. Seasonal and annual fluctuations in groundwater levels should be expected.

3.4 Laboratory Testing

Laboratory moisture content and percent passing the #200 sieve (P200) tests were performed on selected samples recovered from the soil borings. Results of the laboratory moisture content and P-200 tests are summarized in Table 2 and are also shown on the boring logs adjacent to the sample tested.

Table 2. Summary of Laboratory Tests

Boring Number	Sample Number	Depth (feet)	Moisture Content (%)*	P-200 (%)*
SB-1	SS-3	5	16	50
SB-2	SS-14	2 ½	8	24 ½

*Moisture content and P-200 contents were rounded to the nearest ½ percent.

3.5 Slope Stability Analysis

We used GSLOPE, a computer-based program, to analyze the global stability of the slope. Global stability refers to the stability of the entire soil mass (or entire slope) to resist downward movement. The soil types, the soils estimated engineering properties and the proposed construction were used to evaluate the stability of the slope.

We then analyzed the slope by modeling it to accommodate the proposed facility. Six (6) potential failure modes were analyzed. The slopes were analyzed in both the east-west direction (i.e., toward the ravine) and in the north-south direct (toward the Mississippi River). A Factor of Safety (FOS) greater than 1 indicates a stable slope configuration and a minimum FOS of 1.25 (often rounded to 1.3) is typically required for non-critical structures built on or near a slope.

The modelling and analyses of the proposed site conditions showed a FOS greater than 1.3 for each of the 6 potential failure modes. Copies of the analyses are included the Appendix.

3.6 OSHA Soil Classification

The soils encountered in the borings consisted of sandy soils composed of; sandy silt, silty sand and poorly graded sand corresponding to the ASTM classifications ML, SM and SP, respectively. These soils will generally be Type C soils under Department of Labor Occupational Safety and Health Administration (OSHA) guidelines.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This document states excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

4.0 DISCUSSION AND RECOMMENDATIONS

4.1 Proposed Construction

Based on correspondence with Parkstone and/or the bridge designers we understand that the new bridge will be 8 feet wide and 24 feet long. We understand that a final bridge deign has not yet been determined but could be constructed of steel trusses supporting steel floor beams, steel stringers and a timber plank deck or could be constructed of structural wood/timber materials

We assume the new bridge will be constructed at or near existing site grades so that cuts or fill for permanent grade changes will be less than 3 feet. Based on those assumptions we anticipate that maximum abutment reactions of 150 kips can be expected. We further anticipate that the bridge could be supported on typical frost depth footings or a deep foundation system such as helical anchors.

We further understand that the final bridge location has also not yet been determined. Soil borings for potential alternate locations were not completed as part of this exploration. Soil conditions could vary over a relatively short distance and if the bridge will be constructed at a different location it may be appropriate to perform additional borings at the desired location(s) to further characterize subsurface soil and groundwater conditions.

We have attempted to describe our understanding of the project based on the information provided. Because the project is in the concept and preliminary design phases, changes to some or all aspects of the project could change. If the locations of the proposed structures change or if grades change by more than 3 feet we should be notified. Additional soil borings, analysis and revised recommendations may be required.

4.2 Discussion

General We understand that the proposed bridge could potentially be supported on a deep foundation system such has helical anchors. Regardless of which foundation system is selected the vegetation and topsoil encountered in the borings are not suitable for foundation support and will need to be removed and replaced, as needed, with suitable compacted engineered fill.

Slope Stability Our slope stability analysis indicated a FOS greater than 1.3 for the 6 potential failure modes. Based on our analysis it is our opinion the slope(s) is stable and suitable for construction of the proposed bridge.

Although our analysis indicates a stable slope configuration, slopes can be susceptible to erosion. There are several means and methods to minimize slope erosion which are discussed in Section 4.6.

Conventional Frost Depth Footings

We understand that the bridge could be supported on typical frost depth footing which will bear at least 5 feet below the ground surface for frost protections. At these depths the foundations will bear on soils identified as sandy silt (ASTM classification ML). These soils had a loose relative density and in our opinion are not suitable for foundation support. Often times loose soils can simply be compacted to provide a suitable platform for foundation support. However, the sandy silt soils are a moisture sensitive material and can be difficult to compact. If the bridge will be supported on conventional frost depth foundations, we recommend removing the sandy silt and replacing it with suitable compacted engineered fill. Based on the soil borings we anticipate sol corrections extending to about 7 feet below the ground surface corresponding to about 2 feet below the bottom of the footings.

The underlying soils identified as poorly graded sand, in our opinion, are suitable for foundation support.

Groundwater encountered at about 10 feet below the ground surface at the time of this report. We generally do not anticipate that groundwater will be encountered during foundation construction. Given the proximity to the Mississippi River, you must be aware that water levels can vary and that groundwater could be encountered during construction and dewatering could be required.

Helical Anchors

As an alternative to soil corrections the pedestrian bridge could potentially be supported on helical anchors. In very general terms, helical anchors are metal rods fitted with "Helical" shaped flanges that are "screwed" into suitable bearing soils at depth. The helical anchors would extend through the sandy silt and any soft or loose soils and bear on the underlying stiffer native alluvial soils to support the foundations. Helical anchors could potentially reduce or eliminate the need for dewatering.

Driven Pile Foundations

A driven pile system can provide a suitable foundation for bridge support. However, a driven pile foundation system will likely involve mobilizing large pieces of equipment to the site. In addition, the number of pile and associated total footage required for the project will likely be relatively small. For these reasons a driven pile foundation system may not be feasible or cost effective. Recommendations for driven pile were beyond the scope of this evaluation and are not included in this report. Recommendations for driven pile can be provided if requested.

Groundwater Groundwater was encountered in the borings at about 10 feet below the ground surfacer corresponding to elevations ranging from about 835 to 836 ½ feet. We generally do not anticipate that groundwater will be encountered during foundation construction. Since the borings were completed near the Mississippi River, we anticipate that water levels below the site are likely associated with water levels in the river and that water levels will fluctuate with river levels. Given the proximity to the Mississippi River, you must be aware that water levels can vary and that groundwater could be encountered during construction and dewatering could be required.

4.3 Foundation Recommendations - Frost Depth Foundations

Excavations We recommend removing all vegetation, topsoil, silts (sandy silt), organic soils and any soft or otherwise unsuitable materials, if any, from within the foundations and oversize areas. Table 3 summarizes the anticipated excavation depths at the boring locations. Excavation depths may vary and could be deeper.

Table 3. Anticipated Excavation Depths

Boring Number	Estimated Surface Elevation (feet)	Anticipated Excavation Depth (feet)*	Estimated Excavation Elevation (feet)*	Estimated Groundwater Elevation (feet)*
SB-1	845	7	838	835
SB-2	846 ½	7	839 ½	836 ½

*Excavation depths and elevation were rounded to the nearest ½ foot.

Oversizing In areas where the excavations extend below the foundation elevation, the excavation requires oversizing. We recommend the perimeter of the excavation be extended a foot outside the proposed footprint for every foot below footing grade (1H:1V oversizing). The purpose of the oversizing is to provide lateral support of the pavements.

Fill Material Since the bridge abutments will be located within or near the Mississippi River, we recommend additional fill or backfill consist of a "clean coarse" sand having less than 50 percent of the particles by weight passing the #40 sieve and less than 5 percent of the particles by weight passing the #200 sieve.

Backfilling Prior to placing additional fill and/or the footings, we recommend any loose or disturbed sand soils be surface compacted to increase their density and uniformity with a large self-propelled vibratory compactor.

We recommend compacting the backfill at moisture contents within a range of 1 percentage point below and 3 percentage points above its optimum moisture content. Granular fill classified as SP or SP-SM should be placed within 65 percent to 105 percent of its optimum moisture content as determined by the standard Proctor. The upper 3 feet of fill and backfill should be compacted to a minimum of 100 percent of its standard Proctor maximum dry density. All fill should be placed in thin lifts and be compacted with a large self-propelled vibratory compactor operating in vibratory mode.

In areas where fill depths will exceed 10 feet, if any, we recommend that compaction levels be increased to a minimum of 100 percent of standard Proctor density. Even with the increased compaction levels a construction delay may be required to allow for post construction settlement of the fill mass.

Fill and backfill placed on slopes must be "benched" into the underlying suitable soil to reduce the potential for slip planes to develop between the fill and underlying soil. We recommend "benching" or excavating into the slope at 5 feet vertical intervals to key the fill into the slope. We recommend each bench be a minimum of 10 feet wide.

Dewatering We generally do not anticipate that groundwater will be encountered during foundation construction. In the event groundwater is encountered and dewatering is required, we recommend the groundwater level be temporarily lowered to a minimum of 2 feet below the lowest anticipated excavation elevation to allow for construction. In sand soils we do not recommend attempting to dewater from within the excavation. Upward seepage will loosen and disturb the excavation, resulting in a "quick condition". Rather, we recommend groundwater be drawn down below the anticipated excavation bottom.

It may be appropriate to consult a dewatering contractor to review the soil boring logs, develop a dewatering plan and evaluate the impact of dewatering on adjacent structures.

Foundations We recommend the foundations bear at least 5 feet below grade for frost protection.

We anticipate the foundations will bear on compacted sandy engineered fill or the native sands. With the foundations prepared as recommended it is our opinion the footings can be designed for a net allowable bearing pressure up to 3,000 pounds per square foot (psf).

We anticipate total and differential settlement of the foundations will be less than 1 inch and ½ inch, respectively across an approximate 30-foot span.

4.4 Foundation Recommendations – Helical Anchors

As an alternative the pedestrian bridge could be supported on helical anchors. HGTS does not design or install helical anchors. If a helical anchor system is chosen to support the proposed bridge, we recommend a specialty contractor be consulted for anchor design and/or installation. Some local helical anchor designers and/or installers include but are not limited to; Mr. Mike Moeller with Atlas Foundation Company at 763-428-2261, Veit Companies at 763-428-2242, The Hanson Group, 612-708-3572 or Brent Krohn with the Deep Foundation Group at 507-380-9313.

Soil borings SB-1 and SB-2 were completed to nominal depths of 40 and 45 feet, respectively, and likely extended to depths sufficient for use in helical anchor design.

We recommend the footings bear a minimum of 5 feet (60 inches) below the exterior grade for frost protection.

4.5 Below Grade Walls/Abutment Walls

Regardless of which foundation system is selected, the bridge abutment walls will have lateral loads from the surrounding soil transmitted to them. The site soils are generally granular in composition. We recommend either placing drainage composite against the backs of the exterior walls or backfilling adjacent to the walls with sand having less than 50 percent of the particles by weight passing the #40 sieve and less than 5 percent of the particles by weight passing the #200 sieve. The sand backfill should be placed within 2 feet horizontally of the wall. We recommend the balance of the backfill for the walls consist of sand however the sand may contain up to 20 percent of the particles by weight passing the #200 sieve.

We recommend installing drain tile behind the below grade walls, adjacent to the wall footing. Preferably the drain tile should consist of perforated pipe embedded in gravel. A geotextile filter fabric should encase the pipe and gravel. The drain tile should be routed to a storm sewer other suitable disposal site.

Active earth pressures can be used to design the abutment walls if the walls are allowed to rotate slightly. If wall rotation cannot be tolerated then wall design should be based on at-rest earth pressures. It is our opinion that the estimated soil parameters presented in Table 4 can be used for below grade wall design. These estimated soil parameters are based on the assumptions that the walls are drained, there are no surcharge loads within a horizontal distance equal to the height of the wall and the backfill is level.

Table 4. Estimated Soil Parameters

Soil Type	Estimated Unit Weight (pcf)	Estimated Friction Angle (degrees)	At-Rest Pressure (pcf)	Active Soil Pressure (pcf)	Passive Soil Pressure (pcf)
Sand (SP, SP-SM)	120	32	55	35	390
Other Soils (SM, ML, CL, SC, SC-SM)	135	28	70	50	375

Resistance to lateral earth pressures will be provided by passive resistance against the wall footings and by sliding resistance along the bottom of the wall footings. We recommend a sliding coefficient of 0.35. This value does not include a factor of safety.

4.6 Erosion Control

We understand that the ravine provides a drainage path for surface water runoff which discharges to the Mississippi River. Although our analysis indicates a stable slope configuration, slopes can be susceptible to erosion. From the Minnesota Stormwater Manual, some typical erosion prevention and stabilization practices include one or more of the following;

- Seeding; Seed mixes are available to establish temporary and permanent vegetative cover on exposed soil. The Minnesota Department of Transportation (Mn/DOT) has researched various seed mixes and has identified mixes for specific site characteristics and uses.
- Natural and synthetic mulches; Mulch is applied to form a temporary and protective cover on exposed soils. Mulch can help retain moisture in the soil to promote vegetative growth, reduce evaporation, insulate the soil, and reduce erosion. Common mulch materials are straw or wood chips. It is important to apply at proper rates to ensure adequate coverage. Straw mulch is typically applied at two tons/acre to achieve at least 90 percent soil coverage.
- Tackifiers & Stabilizers; Hydraulic soil stabilizers are hydraulically applied soil tackifiers or mulch material. The soil tackifiers help "glue" soil particles together to prevent erosion. There are many types, each with its own purpose. They may be applied with or without seed. Hydraulic soil stabilizers are often used as a temporary application on steep slopes or areas with limited access or to aid in seed germination (hydroseeding). They are not appropriate for use in concentrated flow locations, such as in road ditches. It is also important to apply the product at correct rates to be effective in preventing erosion. Hydromulches should provide 100 percent soil coverage.
- Erosion Control Blankets; Erosion control blankets and turf reinforcement mats are single or multiple layer sheets made of natural and/or synthetic materials that provide structural stability to bare surfaces and slopes. Blankets and mats are often used in conjunction with seed mixes to promote vegetation establishment. A wide variety of blankets and mats exist for use under varying circumstances. In addition, compost can be used for erosion control and site stabilization.
- Compost; Compost can be used as an erosion control measure and to establish vegetation as well. The compost should be finished and without odor. It can be applied quickly and uniformly with hydraulic application.
- Sod; Sod is commonly used for permanent stabilization and for immediate visual aesthetics. Sod can provide immediate stabilization around drop inlets and in swales, ditches, and channels.
- Riprap; Riprap is used to stabilize areas with high erosive power by increasing surface roughness and slowing the velocity of runoff. Applicable areas on a site may include inlets and outlets of storm pipes and culverts, bridges, slopes drains, storm drains, and other areas where concentrated runoff may occur. Riprap is also effective for protecting and stabilizing slopes, channels, streambanks, and shorelines

Selecting and installing the appropriate erosion control methods will likely depend on several factors such as the intensity and duration of any precipitation events, run-off volumes and flow velocities. HGTS does not practice in the design or installation of erosion control or slope stabilization systems. We recommend a qualified civil engineer and/or landscape architect be retained for that purpose.

5.0 CONSTRUCTION CONSIDERATIONS

5.1 Excavation

The soils encountered in the borings consisted of sandy soils composed of; sandy silt, silty sand and poorly graded sand corresponding to the ASTM classifications ML, SM and SP, respectively. These soils will generally be Type C soils under Department of Labor Occupational Safety and Health Administration (OSHA) guidelines.

Temporary excavations in Type C soils should be constructed at a minimum of 1 ½ foot horizontal to every 1 foot vertical within excavations. Slopes constructed in this manner may still exhibit surface sloughing. If site constraints do not allow the construction of slopes with these dimensions, then temporary shoring may be required.

5.2 Observations

A geotechnical engineer or qualified engineering technician should observe the excavation subgrade to evaluate if the subgrade soils are similar to those encountered in the borings and adequate to support the proposed construction.

5.3 Backfill and Fills

Site soils that will be excavated and reused as backfill and fill appear to be above and below their assumed optimum moisture content. It may be necessary to moisture condition (wet or dry) these soils to achieve the recommended compaction. We recommend that fill and backfill be placed in lifts not exceeding 4 to 12 inches, depending on the size of the compactor and materials used.

5.4 Testing

We recommend density tests of backfill and fills placed during construction of the bridge and abutments. Samples of the proposed materials should be submitted to our laboratory prior to placement for evaluation of their suitability and to determine their optimum moisture content and maximum dry density (Standard Proctor).

5.5 Winter Construction

If site grading and construction is anticipated to proceed during cold weather, all snow and ice should be removed from cut and fill areas prior to additional grading and placement of fill. No fill should be placed on frozen soil and no frozen soil should be used as fill or backfill.

Concrete delivered to the site should meet the temperature requirements of ASTM and/or ACI. Concrete should not be placed on frozen soil. Concrete should be protected from freezing until the necessary strength is obtained. Frost should not be permitted to penetrate below the footings.

6.0 PROCEDURES

6.1 Soil Classification

The drill crew chief visually and manually classified the soils encountered in the borings in general accordance with ASTM D 2488, "Description and Identification of Soils (Visual-Manual Procedure)". Soil terminology notes are included in the Appendix. The samples were returned to our laboratory for review of the field classification by a geotechnical engineer. Samples will be retained for a period of 30 days.

6.2 Groundwater Observations

Immediately after taking the final samples in the bottom of the borings, the hole was checked for the presence of groundwater. Again, at the end of the drilling day, the borings were re-checked for the presence of groundwater with the levels and time delay being noted on the boring logs.

7.0 GENERAL

7.1 Subsurface Variations

The analyses and recommendations presented in this report are based on data obtained from a limited number of soil borings. Variations can occur away from the borings, the nature of which may not become apparent until additional exploration work is completed or construction is conducted. A reevaluation of the recommendations in this report should be made after performing on-site observations during construction to note the characteristics of any variations. The variations may result in additional foundation costs and it is suggested that a contingency be provided for this purpose.

It is recommended that we be retained to perform the observation and testing program during construction to evaluate whether the design is as expected, if any design changes have affected the validity of our recommendations, and if our recommendations have been correctly interpreted and implemented in the designs, specifications and construction methods. This will allow correlation of the soil conditions encountered during construction to the soil borings and will provide continuity of professional responsibility.

7.2 Review of Design

This report is based on the design of the proposed structures as related to us for preparation of this report. It is recommended that we be retained to review the geotechnical aspects of the design and specifications. With the review we will evaluate whether any changes have affected the validity of the recommendations and whether our recommendations have been correctly interpreted and implemented in the design and specifications.

7.3 Groundwater Fluctuations

We made water level measurements in the borings at the times and under the conditions stated on the boring logs. The data was interpreted in the text of this report. The period of observation was relatively short and fluctuations in the groundwater level may occur due to rainfall, flooding, irrigation, spring thaw, drainage, and other seasonal and annual factors not evident at the time the observations were made. Design drawings and specifications and construction planning should recognize the possibility of fluctuations.

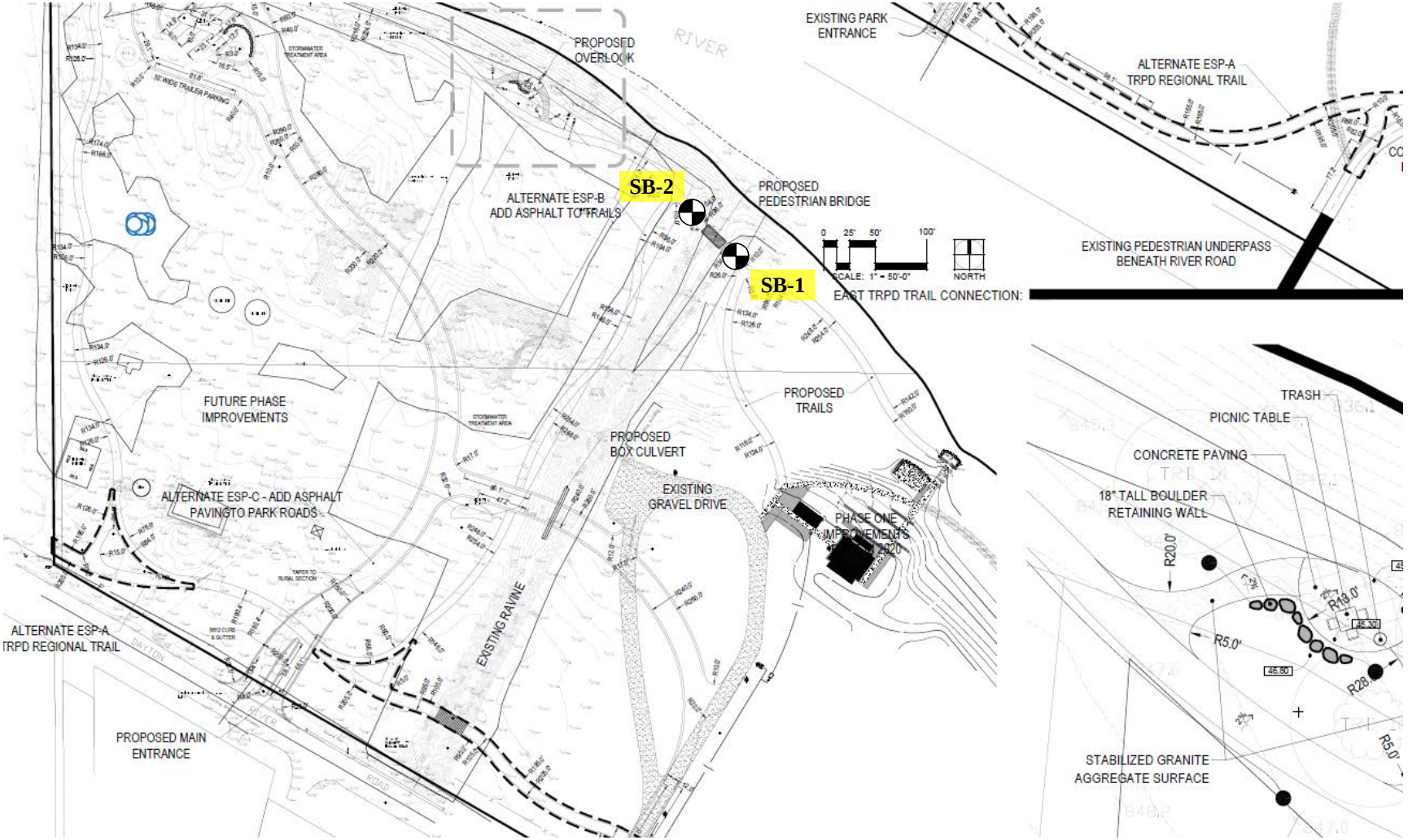
7.4 Use of Report

This report is for the exclusive use of the Parkstone Contracting, LLC and their design team to use to design the proposed structures and prepare construction documents. In the absence of our written approval, we make no representation and assume no responsibility to other parties regarding this report. The data, analysis and recommendations may not be appropriate for other structures or purposes. We recommend that parties contemplating other structures or purposes contact us.

7.5 Level of Care

Haugo GeoTechnical Services, LLC has used the degree of skill and care ordinarily exercised under similar circumstance by members of the profession currently practicing in this locality. No warranty expressed or implied is made.

APPENDIX



Legend

Approximate Soil Boring Location

N W E S

Haugo GeoTechnical Services, LLC
2825 Cedar Avenue South
Minneapolis, MN 55407

Soil Boring Location Sketch
Elsie Stephens Park
Dayton, MN

Figure #: 1
Drawn By: LM
Date: 8/22/22
Scale: None
Project #: 22-0663

HAUGO GEOTECHNICAL SERVICES
Haugo GeoTechnical Services
2825 Cedar Ave South
Minneapolis, MN 55407
Telephone: 612-729-2959
Fax: 763-445-2238

BORING NUMBER SB-1

CLIENT Parkstone Construction, LLC
PROJECT NAME Elsie Stephens Park
PROJECT NUMBER 22-0663
PROJECT LOCATION Dayton, Minnesota
DATE STARTED 8/19/22 **COMPLETED** 8/19/22
GROUND ELEVATION 845 ft **HOLE SIZE** 3 1/4 inches
DRILLING CONTRACTOR HGTS - 750
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger/Split Spoon
▽ **AT TIME OF DRILLING** 10.00 ft / Elev 835.00 ft
LOGGED BY MS **CHECKED BY** PG
AT END OF DRILLING ---
NOTES Ground Surface Elevation Estimated
AFTER DRILLING ---

DEPTH (ft)	GRAPHIC LOG	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONT. (%)	NOTES
0		Sandy Silt, trace Roots, black, moist (Topsoil)	AU 1				
		(SM) Silty Sand, fine grained, brown, moist, loose (Alluvium)	SS 2		3-2-3 (5)		
5		(ML) Sandy Silt, greyish brown, moist, loose (Alluvium) P-200= 50%	SS 3		2-3-5 (8)	16	
		(SP) Poorly Graded Sand, fine to coarse grained, with Gravel, brown, moist to about 10 feet then waterbearing, medium dense to loose (Alluvium)	SS 4		4-7-6 (13)		
10	▽		SS 5		3-3-4 (7)		
		(SM) Silty Sand, fine grained, trace Gravel, gray, wet to waterbearing, loose to medium dense (Alluvium) Silt layer noted at about 12 feet.	SS 6		3-4-5 (9)		
15			SS 7		3-3-4 (7)		
20			SS 8		3-4-7 (11)		
25			SS 9		3-4-5 (9)		
30		(SP) Poorly Graded Sand, fine to medium grained, trace Gravel, brown, waterbearing, very loose (Alluvium)	SS 10		1-1-1 (2)		
35		(SM) Silty Sand, fine to medium grained with Gravel, reddish brown, moist to wet, medium dense to very dense (Glacial Till)	SS 11		2-12-15 (27)		
40			SS 12		17-29-25/2"		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

>>

Bottom of borehole at 41.0 feet.

HAUGO GEOTECHNICAL SERVICES
Haugo GeoTechnical Services
2825 Cedar Ave South
Minneapolis, MN 55407
Telephone: 612-729-2959
Fax: 763-445-2238

BORING NUMBER SB-2

CLIENT Parkstone Construction, LLC
PROJECT NAME Elsie Stephens Park
PROJECT NUMBER 22-0663
PROJECT LOCATION Dayton, Minnesota
DATE STARTED 8/19/22 **COMPLETED** 8/20/22
GROUND ELEVATION 846.5 ft **HOLE SIZE** 3 1/4 inches
DRILLING CONTRACTOR HGTS - 750
GROUND WATER LEVELS:
DRILLING METHOD Hollow Stem Auger/Split Spoon
▽ **AT TIME OF DRILLING** 10.00 ft / Elev 836.50 ft
LOGGED BY MS **CHECKED BY** PG
AT END OF DRILLING ---
NOTES Ground Surface Elevation Estimated
AFTER DRILLING ---

DEPTH (ft)	MATERIAL DESCRIPTION	SAMPLE TYPE NUMBER	RECOVERY % (RQD)	BLOW COUNTS (N VALUE)	MOISTURE CONT. (%)	NOTES
0	Sandy Silt, trace Roots, black, moist (Topsoil)	AU 13				
	(SM) Silty Sand, fine grained, brown, moist, very loose (Alluvium) P-200= 24.5%	SS 14		2-2-2 (4)	8	
5	(ML) Sandy Silt, greyish brown, moist, loose (Alluvium)	SS 15		3-2-3 (5)		
	(SP) Poorly Graded Sand, fine to coarse grained, with Gravel, brown, moist to about 10 feet then waterbearing, medium dense to loose (Alluvium)	SS 16		11-10-9 (19)		
10 ▽		SS 17		5-7-8 (15)		
	(SM) Silty Sand, fine grained, trace Gravel, gray, wet to waterbearing, loose to medium dense (Alluvium)	SS 18		5-7-8 (15)		
15	(ML) Sandy Silt, grey, wet to waterbearing, very loose (Alluvium)	SS 19		1-2-2 (4)		
20	(SM) Silty Sand, fine grained, trace Gravel, gray, wet to waterbearing, loose to medium dense (Alluvium)	SS 20		5-6-5 (11)		
25		SS 21		5-7-7 (14)		
30		SS 22		6-8-9 (17)		
35		SS 23		8-8-11 (19)		
40	(SM) Silty Sand, fine to medium grained with Gravel, reddish brown, moist to wet, medium dense to very dense (Glacial Till)	SS 24		1-1-2 (3)		
45		SS 25		8-9-11 (20)		

▲ SPT N VALUE ▲
20 40 60 80
PL MC LL
20 40 60 80
☐ FINES CONTENT (%) ☐
20 40 60 80

Bottom of borehole at 46.0 feet.

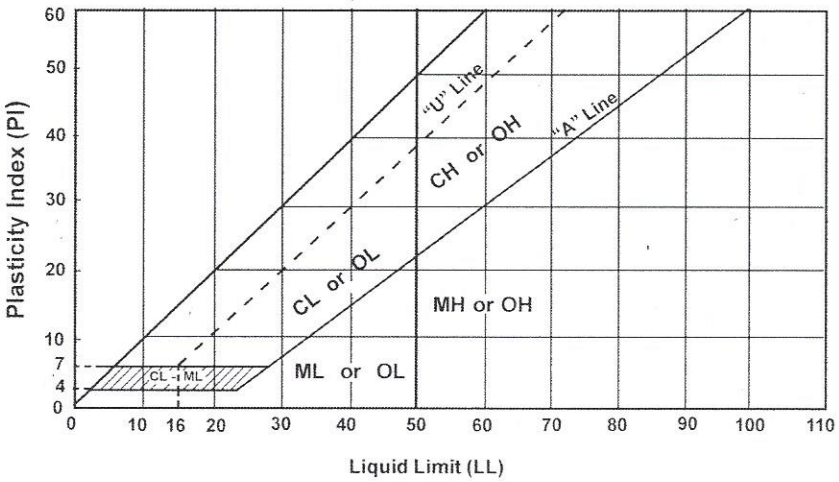
HAUGO GEOTECHNICAL SERVICES

Descriptive Terminology of Soil

Standard D 2487 - 00
Classification of Soils for Engineering Purposes
(Unified Soil Classification System)

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests [a]				Soils Classification	
				Group Symbol	Group Name [b]
Coarse-grained Soils more than 50% retained on No. 200 sieve	Gravels More than 50% of coarse fraction retained on No. 4 sieve	Clean Gravels 5% or less fines [e]	$C_u \geq 4$ and $1 \leq C_c \leq 3$ [c]	GW	Well-graded gravel [d]
			$C_u < 4$ and/or $1 > C_c > 3$ [c]	GP	Poorly graded gravel [d]
		Gravels with Fines More than 12% fines [e]	Fines classify as ML or MH	GM	Silty gravel [d f g]
			Fines classify as CL or CH	GC	Clayey gravel [d f g]
	Sands 50% or more of coarse fraction passes No. 4 sieve	Clean Sands 5% or less fines [i]	$C_u \geq 6$ and $1 \leq C_c \leq 3$ [c]	SW	Well-graded sand [h]
			$C_u < 6$ and/or $1 > C_c > 3$ [c]	SP	Poorly graded sand [h]
		Sands with Fines More than 12% [i]	Fines classify as ML or MH	SM	Silty sand [f g h]
			Fines classify as CL or CH	SC	Clayey sand [f g h]
Fine-grained Soils 50% or more passed the No. 200 sieve	Silts and Clays Liquid limit less than 50	Inorganic	PI > 7 and plots on or above "A" line [j]	CL	Lean clay [k l m]
			PI < 4 or plots below "A" line [j]	ML	Silt [k l m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OL	Organic clay [k l m n]
				OL	Organic silt [k l m o]
	Silts and clays Liquid limit 50 or more	Inorganic	PI plots on or above "A" line	CH	Fat clay [k l m]
			PI plots below "A" line	MH	Elastic silt [k l m]
		Organic	Liquid limit - oven dried / Liquid limit - not dried < 0.75	OH	Organic clay [k l m p]
				OH	Organic silt [k l m q]
Highly Organic Soils		Primarily organic matter, dark in color and organic odor		PT	Peat

a. Based on the material passing the 3-in (75mm) sieve.
b. If field sample contained cobbles or boulders, or both, add "with cobbles or boulders or both" to group name.
c. $C_u = D_{60} / D_{10}$ $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$
d. If soil contains ≥15% sand, add "with sand" to group name.
e. Gravels with 5 to 12% fines require dual symbols:
GW-GM well-graded gravel with silt
GW-GC well-graded gravel with clay
GP-GM poorly graded gravel with silt
GP-GC poorly graded gravel with clay
f. If fines classify as CL-ML, use dual symbol GC-GM or SC-SM.
g. If fines are organic, add "with organic fines" to group name.
h. If soil contains ≥ 15% gravel, add "with gravel" to group name.
i. Sands with 5 to 12% fines require dual symbols:
SW-SM well-graded sand with silt
SW-SC well-graded sand with clay
SP-SM poorly graded sand with silt
SP-SC poorly graded sand with clay
j. If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay.
k. If soil contains 10 to 29% plus No. 200, add "with sand" or "with gravel" whichever is predominant.
l. If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name.
m. If soil contains ≥ 30% plus No. 200 predominantly gravel, add "gravelly" to group name.
n. PI ≥ 4 and plots on or above "A" line.
o. PI < 4 or plots below "A" line.
p. PI plots on or above "A" line.
q. PI plots below "A" line.



Laboratory Tests

DD	Dry density, pcf	OC	Organic content, %
WD	Wet density, pcf	S	Percent of saturation, %
MC	Natural moisture content, %	SG	Specific gravity
LL	Liquid limit, %	C	Cohesion, psf
PL	Plastic limit, %	∅	Angle of internal friction
PI	Plasticity index, %	qu	Unconfined compressive strength, psf
P200	% passing 200 sieve	qp	Pocket penetrometer strength, tsf

Particle Size Identification

Boulders	over 12"
Cobbles	3" to 12"
Gravel	
Coarse	3/4" to 3"
Fine	No. 4 to 3/4"
Sand	
Coarse	No. 4 to No. 10
Medium	No. 10 to No. 40
Fine	No. 40 to No. 200
Silt	< No. 200, PI < 4 or below "A" line
Clay	< No. 200, PI ≥ 4 and on or above "A" line

Relative Density of Cohesionless Soils

Very loose	0 to 4 BPF
Loose	5 to 10 BPF
Medium dense	11 to 30 BPF
Dense	31 to 50 BPF
Very dense	over 50 BPF

Consistency of Cohesive Soils

Very soft	0 to 1 BPF
Soft	2 to 3 BPF
Rather soft	4 to 5 BPF
Medium	6 to 8 BPF
Rather stiff	9 to 12 BPF
Stiff	13 to 16 BPF
Very stiff	17 to 30 BPF
Hard	over 30 BPF

Drilling Notes

Standard penetration test borings were advanced by 3 1/4" or 6 1/4" ID hollow-stem augers unless noted otherwise. Jetting water was used to clean out auger prior to sampling only where indicated on logs. Standard penetration test borings are designated by the prefix "ST" (Split Tube). All samples were taken with the standard 2" OD split-tube sampler, except where noted.

Power auger borings were advanced by 4" or 6" diameter continuous-flight, solid-stem augers. Soil classifications and strata depths were inferred from disturbed samples augered to the surface and are, therefore, somewhat approximate. Power auger borings are designated by the prefix "B."

Hand auger borings were advanced manually with a 1 1/2" or 3 1/4" diameter auger and were limited to the depth from which the auger could be manually withdrawn. Hand auger borings are indicated by the prefix "H."

BPF: Numbers indicate blows per foot recorded in standard penetration test, also known as "N" value. The sampler was set 6" into undisturbed soil below the hollow-stem auger. Driving resistances were then counted for second and third 6" increments and added to get BPF. Where they differed significantly, they are reported in the following form: 2/12 for the second and third 6" increments, respectively.

WH: WH indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

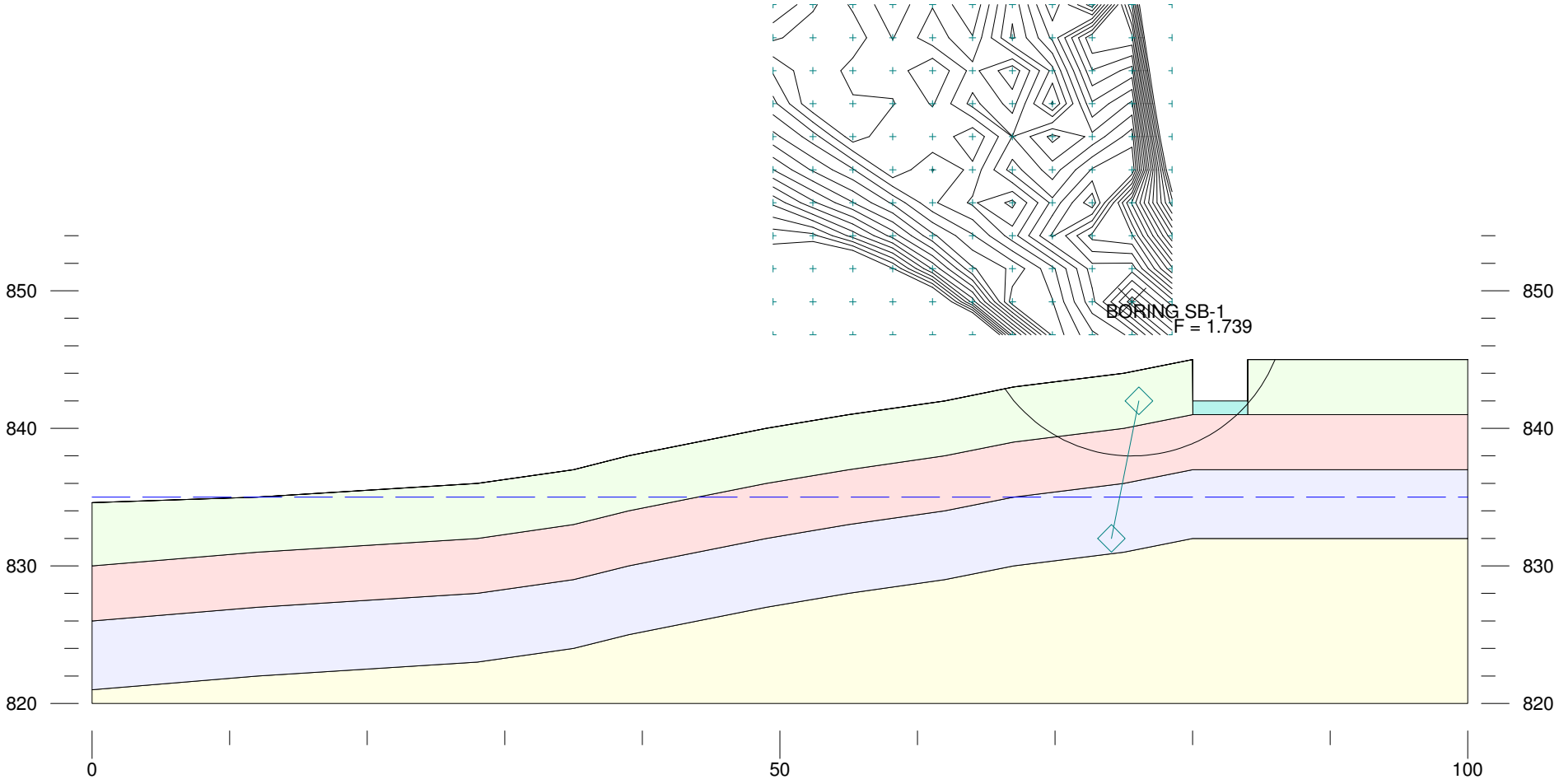
WR: WR indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

TW indicates thin-walled (undisturbed) tube sample.

Note: All tests were run in general accordance with applicable ASTM standards.

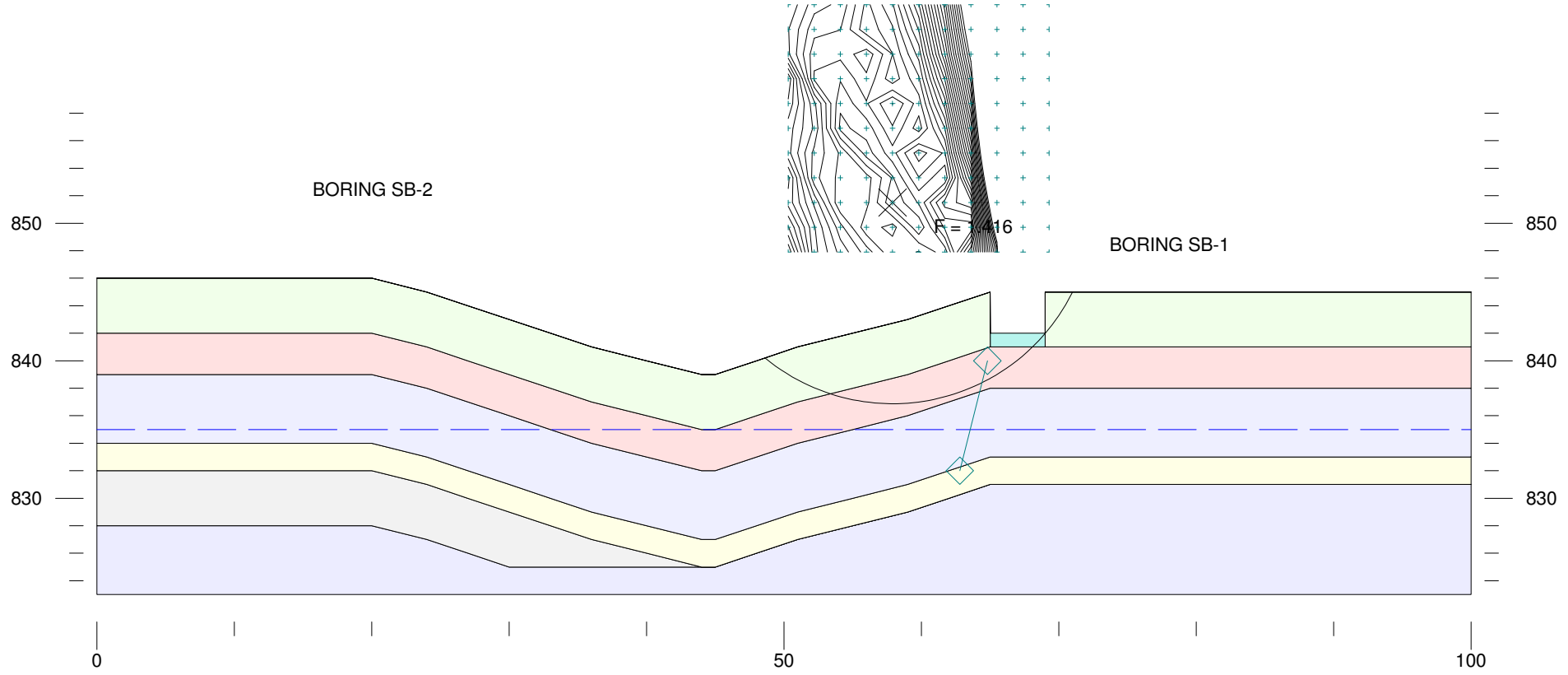
	Gamma pcf	C psf	Phi deg	Piezo Surf.
Bridge Abutment	3000	0	0	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SP Poorly Graded San	115	0	32	1
SM Silty Sand	120	0	30	1

Haugo GeoTechnical Services
22-0663
Elsie Stephens Park
9-12-2022
Slope 1 North-1



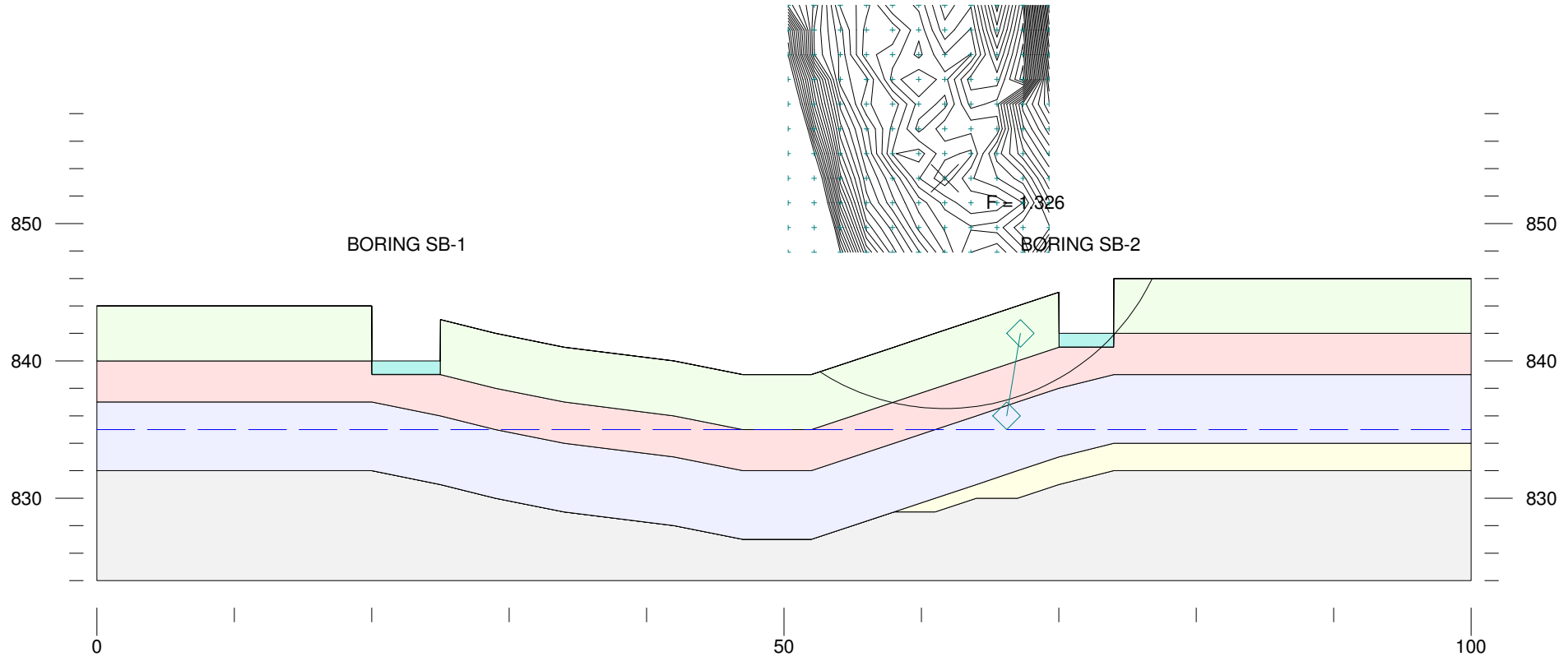
	Gamma pcf	C psf	Phi deg	Piezo Surf.
Bridge Abutment	3000	0	0	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SP Poorly Graded San	115	0	32	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SM Silty Sand	120	0	30	1

Haugo GeoTechnical Services
22-0663
Elsie Stephens Park
9-12-2022
Slope 1 West-1



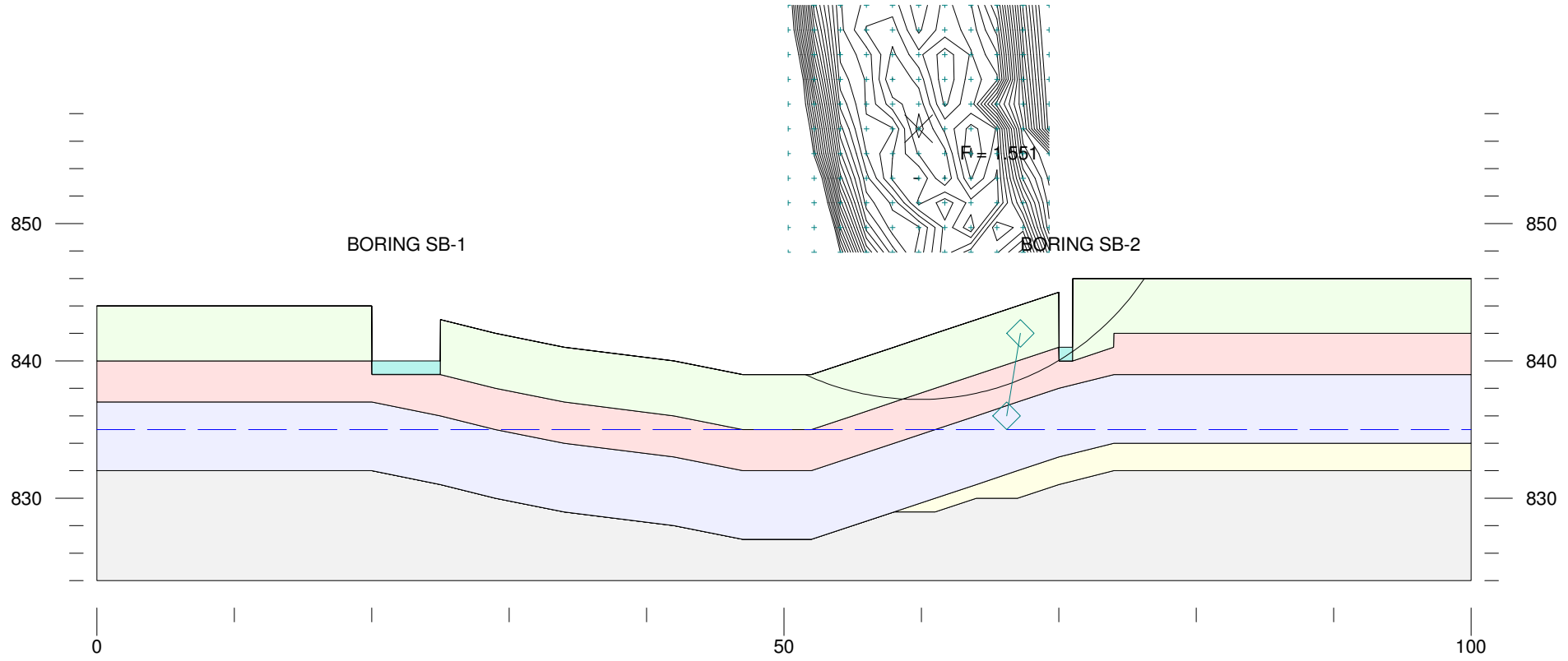
	Gamma pcf	C psf	Phi deg	Piezo Surf.
Bridge Abutment	3000	0	0	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SP Poorly Graded San	115	0	32	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1

Haugo GeoTechnical Services
22-0663
Elsie Stephens Park
9-12-2022
Slope 2 East-1



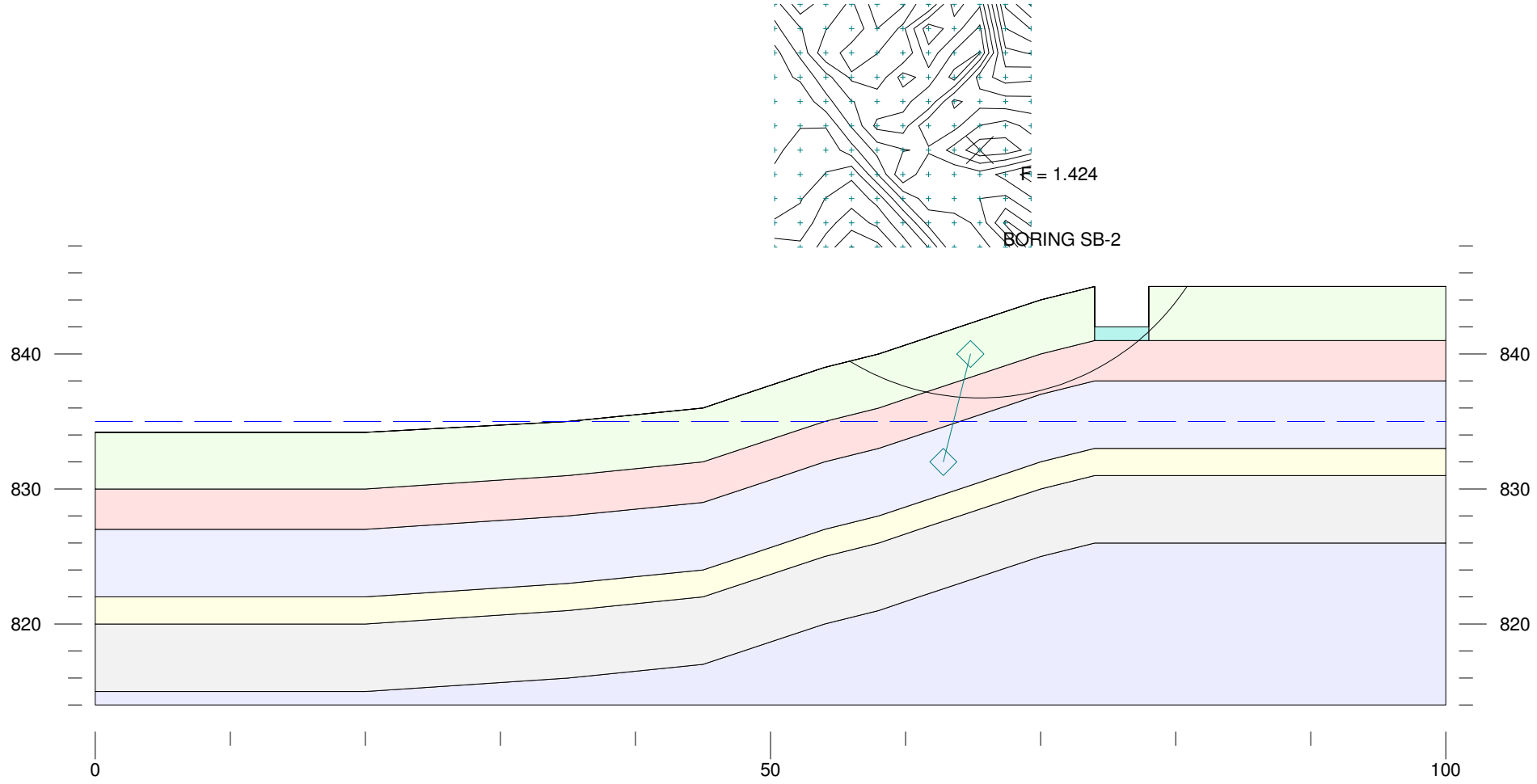
	Gamma pcf	C psf	Phi deg	Piezo Surf.
Bridge Abutment	3000	0	0	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SP Poorly Graded San	115	0	32	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1

Haugo GeoTechnical Services
22-0663
Elsie Stephens Park
9-12-2022
Slope 2 East-2



	Gamma pcf	C psf	Phi deg	Piezo Surf.
Bridge Abutment	3000	0	0	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SP Poorly Graded San	115	0	32	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SM Sandy Silt	120	0	30	1

Haugo GeoTechnical Services
22-0663
Elsie Stephens Park
9-12-2022
Slope 2 North-1



	Gamma pcf	C psf	Phi deg	Piezo Surf.
Bridge Abutment	3000	0	0	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SP Poorly Graded San	115	0	32	1
SM Silty Sand	120	0	30	1
ML Sandy Silt	120	0	28	1
SM Sandy Silt	120	0	30	1

Haugo GeoTechnical Services
22-0663
Elsie Stephens Park
9-12-2022
Slope 2 North-2